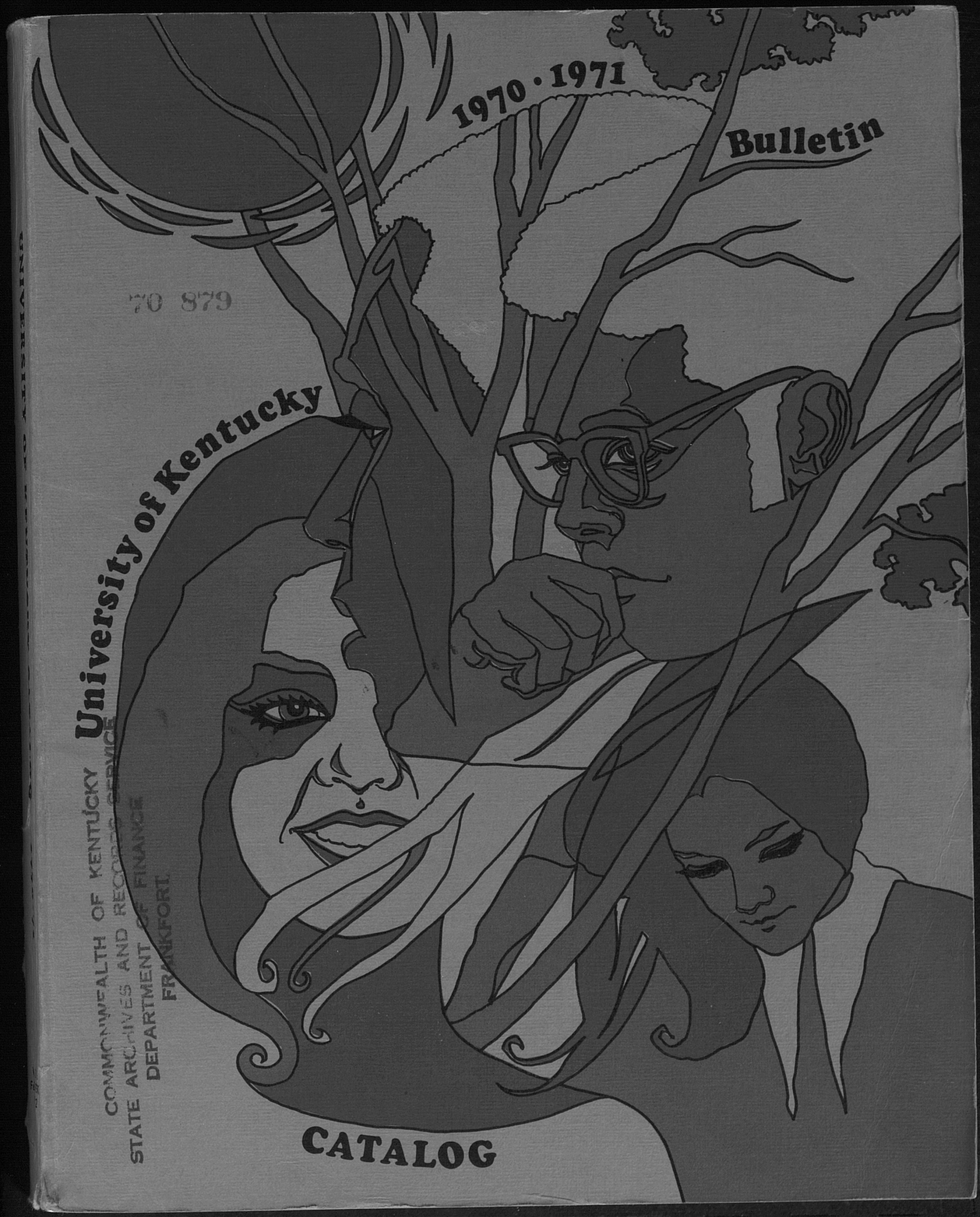
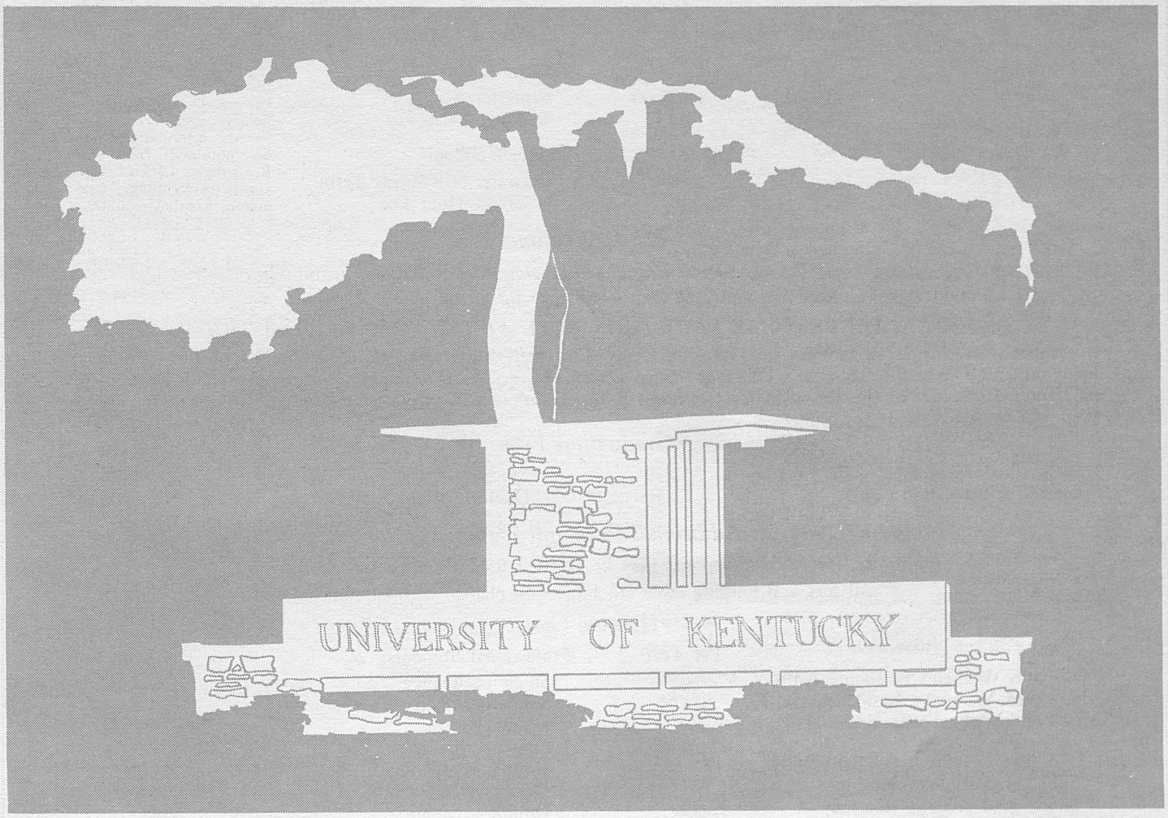


70 879
COMMONWEALTH OF KENTUCKY
STATE ARCHIVES AND RECORDS SERVICE
DEPARTMENT OF FINANCE
FRANKFORT





University of Kentucky Catalog

1970-71

One of a series of 12 bulletins published January to December inclusive by the University of Kentucky 40506. Second class postage paid at the Post Office, Lexington, Ky. A cooperative publication of the Office of the Registrar and the Department of Public Relations.

VOLUME 62 FEBRUARY, 1970 NUMBER 2

Registration Fees

School Year 1970-71

Full-time Student:	*Resident*	*Non-resident*
All Colleges except Medicine and Dentistry—		
Semester Fee	$165.00	$515.00
Summer Term Fee	96.00	275.00
Colleges of Medicine and Dentistry—		
Annual Fee	710.00	1,575.00

Part-time Student:	*Resident*	*Non-resident*
All Undergraduate Colleges except Law		
Semester Credit Hour Fee*		
Summer Term Credit Hour Fee		
College of Law		
Semester Fee		
Summer Term Fee		
Graduate School		
Semester or Summer Term Credit Hour Fee		

*Note: New credit hour fees for part-time students had not been established at the time the 1970-71 catalog went to press. When these hourly fees are established, information may be obtained from the Registrar's Office, University of Kentucky, Lexington, Kentucky 40506.

Fee Regulations

Students enrolling after the regular registration period will be charged an additional fee of $20.

Auditors: All auditors are charged the same fee they would pay for credit.

REGISTRATION FEES ARE PAYABLE IN FULL AT THE TIME OF REGISTRATION

A student who officially withdraws from the University after registration but before the middle of the term may, upon presentation to the Registrar's Office of official withdrawal evidence—student records and identification card, be refunded one-half of the fees paid for the term. If the withdrawal occurs after the middle of the term, no refund will be given.

Graduation Fees

Undergraduate degree	$11.50	Master's degree	$25.00
Specialist in Education degree	12.50	Doctor's degree	75.00

Additional Fees and Deposits

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

All fees and housing costs are subject to change without notice.

Housing Costs

	Per Year
Men's and Women's Residence Halls	$ 980*
Men's and Women's Residence Halls	874**
Men's and Women's Residence Halls	930***

Cooperstown Single Student Housing:	Per Year
Single grad student efficiency	$ 524****
Single grad student efficiency	1,014*
Single grad student efficiency	908**
Single grad student efficiency	964***
Single grad student one-bedroom apt.	614****
Single grad student one-bedroom apt.	1,104*
Single grad student one-bedroom apt.	998**
Single grad student one-bedroom apt.	1,054***

Married Student Housing	Per Month
Efficiency apt.	$ 85****
One-bedroom apt.	100****
Two-bedroom apt.	110****

Professional Students:	Per Year
Single occupancy	$1,028****
Single occupancy	1,518*
Single occupancy	1,412**
Single occupancy	1,468***
Double occupancy	514****
Double occupancy	1,004*
Double occupancy	898**
Double occupancy	954***

Men's and Women's Residence Halls:	Summer Term
For double room occupancy	$ 115****
For single room occupancy	145****

* Includes three meals daily except Sunday evening meal.
** Includes breakfast and the evening meal daily. (Sunday noon meal replaces Sunday evening meal.)
*** Includes lunch and dinner.
**** Includes adequate basic furnishings and utilities. Does not include board or telephone.

Personal Expenses

(Not payable to the University)

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

Identification Cards. All students, full and parttime, are issued I.D. cards. Only full-time students are allowed to attend athletic events and the concert-lecture series. Full-time students will be given a student activity card at time of fee payment. Students should report lost or stolen I.D. cards to the Dean of Student's Office. It may be replaced, but a fee of $5.00 will be charged.

Laundry. For students living in the residence halls, laundry facilities for personal items are provided. Other students must make their own arrangements. Local cost for this service is comparable to that in any city.

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

Linen and Towel Service. This voluntary service is provided on a contractual basis for occupants of the residence halls. Information concerning bed linen and towel service can be obtained from the University Housing Office.

CALENDAR

1970 Four-Week Intersession

May 18—Monday—Registration.

May 19—Tuesday—Classwork begins.

June 12—Friday—End of four-week intersession.

1970 Summer Session

June 15—Monday—Registration.

June 16—Tuesday—Classwork begins.

June 19—Friday—Last day to enter an organized class for the 1970 Summer Session.

June 26—Friday—Last day to drop a course without a grade.

June 29—Monday—Last day for filing application for an August degree in the College Dean's Office.

July 4—Saturday—Independence Day Holiday—academic holiday.

July 15—Wednesday—Last day to pay graduation fees for August degree in Billings and Collections Office.

July 28—Tuesday—Last day to withdraw from a class before end of Summer Session.

July 29—Wednesday—Last day to submit final documents to Registrar's Office for admission to the 1970 Fall Semester.

August 11—Tuesday—End of 1970 Summer Session.

August 13—Thursday—All grades due in Registrar's Office by 4:00 p.m.

1970 Fall Semester

July 29—Wednesday—Last day to submit final documents to Registrar's Office for admission to the 1970 Fall Semester.

August 31-Sept. 1—Monday & Tuesday—Classification, registration, and orientation for students not pre-registered.

September 2—Wednesday—Classwork begins.

September 7—Monday—Labor Day—academic holiday.

September 8—Tuesday—Last day to enter an organized class for the Fall Semester.

September 14—Monday—Last day to drop a course without a grade.

September 15, 16—Tuesday & Wednesday—Last days for filing application for a December degree in College Dean's Office.

October 27—Tuesday—Last day to submit application for admission, official transcripts of all completed college work and a roster of courses currently enrolled in for admission to the Spring Semester with advanced standing; and application for admission and official ACT report for freshman admission to the Spring Semester.

November 2—Monday—Last day to pay graduation fee for December degree in Billings and Collections Office.

November 10—Tuesday—Last day to withdraw from a class before finals.

November 11-25—Wednesday through Wednesday—Advance registration for 1971 Spring Semester.

November 26, 27, 28—Thursday, Friday, Saturday—Thanksgiving holidays—academic holidays.

December 11—Friday—Last day to submit all required documents to Registrar's Office for readmission or admission as a non-degree student to the 1971 Spring Semester.

December 15—Tuesday—Classwork ends.

December 17-23—Thursday through Wednesday—Final examinations.

December 23—Wednesday—End of Fall Semester.

December 28—Monday—All grades due in Registrar's Office by 4:00 p.m.

1971 Spring Semester

January 11, 12—Monday & Tuesday—Classification, registration and orientation for students not pre-registered.

January 13—Wednesday—Classwork begins.

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

January 25—Monday—Last day to drop a course without a grade.

January 25, 26—Monday & Tuesday—Last days for filing application for a May degree in College Dean's Office.

March 13-21—Saturday through Sunday—Spring vacation.

March 15—Monday—Last day to pay graduation fees for May degree in Billings and Collections Office.

March 29—Monday—Last day to withdraw from a class before finals.

April 1—Thursday—Last day for out-of-state freshmen to submit all required documents to Registrar's Office for admission to the 1971 Fall Semester.

April 12-23—Monday through Friday—Advance registration for 1971 Fall Semester.

May 1—Saturday—End of classwork.

May 3-8—Monday through Saturday—Final examinations.

May 8—Saturday—End of Spring Semester.

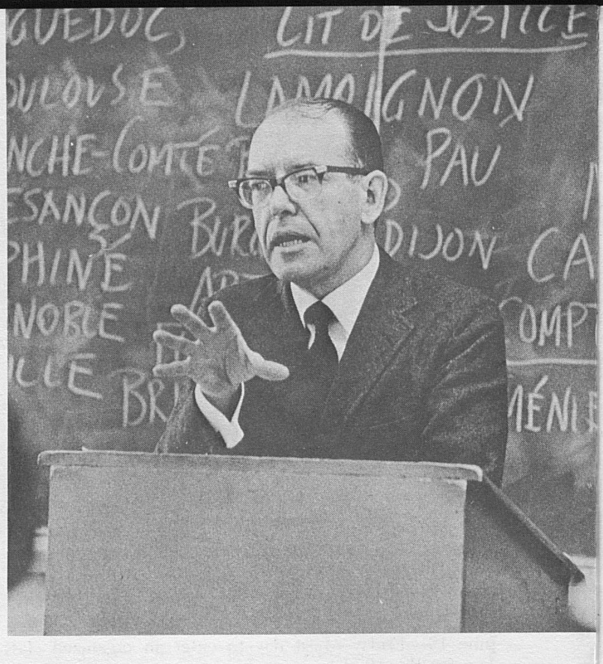
May 9—Sunday—Baccalaureate-Vesper Services.

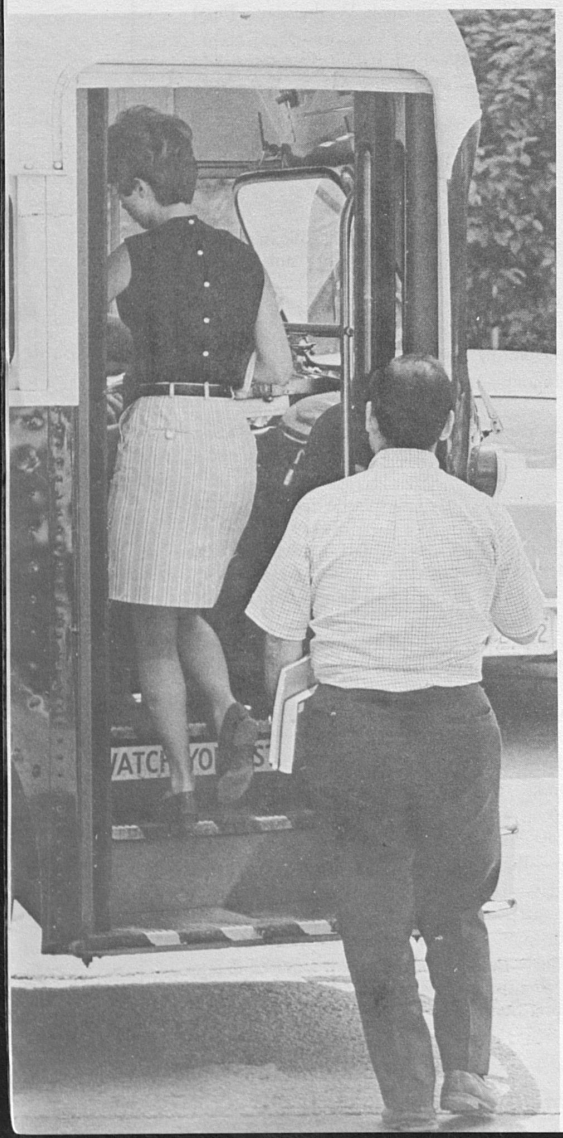
May 10—Monday—104th Annual Commencement.

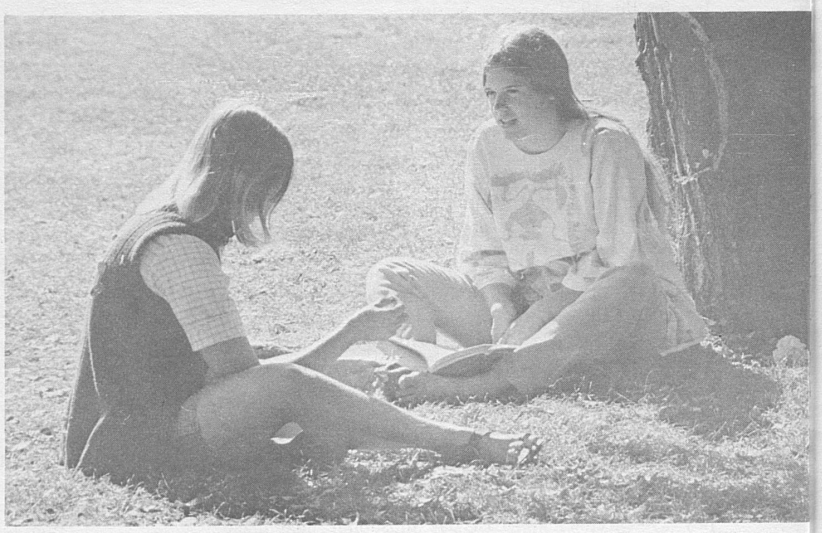
May 12—Wednesday—All grades due in Registrar's Office by 4:00 p.m.

May 17—Monday—Last day to submit all required documents to Registrar's Office for admission to the 1971 Summer Session.




LIT DE JUSTICE
LAMAIGNON
PAU
DIJON



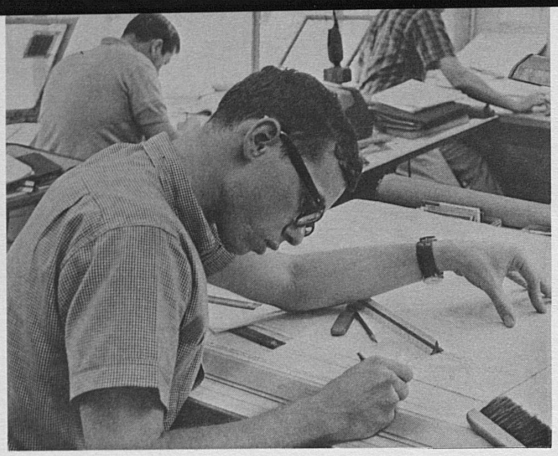






Contents

Calendar	3
The Academic Program	6
The University	8
Fields of Study	14
Entering the University	18
Living Accommodations	28
Student Affairs	34
Working Toward a Degree	44
Libraries	52
Special Assistance & Benefits	54
Cultural Opportunities	56
Honors Program	58
Course Numbering System	61
Abbreviations	62
Arts & Sciences	65
Agriculture	160
Home Economics	177
Engineering	185
Law	208
Education	214
Business & Economics	247
Pharmacy	255
Medicine	267
Nursing	286
Dentistry	290
Architecture	300
Graduate School	305
Allied Health Professions	311
Library Science	321
Social Professions	327
University Extension	330
Community Colleges	338
Administration	346
Index	348
Sources of Information	350



The Academic Program

A university brings together students with greatly varying geographic, economic, social, political and educational backgrounds. Although any entering class is a rather select group in intellectual ability and educational achievement, there is still a considerable range of ability, achievement, and incentive among the individuals in the class.

A state university is characterized by a wide variety of course offerings and degree programs ranging from the most traditional of majors in the liberal arts to professional and applied programs with rather specific vocational goals.

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

Students who satisfy the basic admission requirements may register in any undergraduate college at the University, except as additional entrance requirements may be stipulated.

To help the student acquire a breadth of understanding, the University requires demonstrated competency in English Composition by completion of six hours of English Composition or the passing of English 105 with a grade of B or better. Full-time students must enroll in English Composition each semester they are in attendance until this requirement is satisfied.

In addition to the English requirement the University also requires each student to complete a sequence of two courses in at least five of the following areas of general study:

I Mathematics-Philosophy
II Physical Sciences
III Biological Sciences
IV Foreign Languages
V Humanities: Literature, Art, and Music
VI History
VII Social Sciences
VIII Behavioral Sciences

Within each of these areas, several optional sequences are available, giving the student a wide variety of learning opportunity in the basic disciplines.

The courses in each area are:

Area I. *MATHEMATICS-PHILOSOPHY*

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

A. MA 113 Calculus	(4)
B. MA 122 Fundamental Concepts of Mathematics I	(3)
MA 123 Fundamental Concepts of Mathematics II	(3)
C. PHI 220 Elementary Logic	(3)
plus one of the following:	
PHI 200 Introduction to Philosophy	(3)
PHI 230 Ethics	(3)

Area II. *PHYSICAL SCIENCES*

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

A. AST 191 Descriptive Astronomy	(3)
AST 192 Descriptive Astronomy	(3)
B. CHE 102 Elem. Gen. Chemistry	(5)
CHE 104 Elem. Gen. Chemistry	(5)
C. CHE 110 Gen. Coll. Chemistry I	(3)
CHE 111 Gen. Coll. Chemistry Lab I	(2)
CHE 112 Gen. Coll. Chemistry II	(3)
CHE 113 Gen. Coll. Chemistry Lab II	(2)
D. GLY 140 General Physical Geology	(4)
GLY 142 General Historical Geology	(4)
E. PHY 151 Introduction to Physics	(3)
PHY 152 Introduction to Physics	(3)
F. PHY 211 Gen. Elem. Physics	(5)
PHY 213 Gen. Elem. Physics	(5)
G. PHY 231 Gen. Univ. Physics.	(3)
PHY 232 Gen. Univ. Physics	(3)
PHY 241 Gen. Univ. Physics (Lab)	(2)
PHY 242 Gen. Univ. Physics (Lab)	(2)

Area III. *BIOLOGICAL SCIENCES*

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

A. BIO 100 Biology (3)
BIO 101 Biology (3)

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

Area IV. *FOREIGN LANGUAGE*

A student may satisfy the general studies requirement in foreign language by passing the fourth semester course in one language or by demonstrating equivalent competence by examination.

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

The general studies requirement in the humanities may be satisfied by choosing one of the following options:

A. ENG 261 Survey of Western World Literature: from the Greeks through the Renaissance (3)

OR

ENG 262 Survey of Western World Literature: from 1660 to the Present (3)

plus one of the following:

A-H 200 Art-History Survey: Primitive to Medieval Art (3)
A-H 201 Art-History Survey: Renaissance to Modern Art (3)
MUS 200 Introduction to Music (3)
MUS 201 Music in Western Civilization (3)

B. Open only to students who have completed Options A or B in Area I.

PHI 200 Introduction to Philosophy (3)
PHI 230 Ethics (3)

Area VI. *HISTORY*

A student may satisfy the general studies requirement in history by any one of the following options:

A. HIS 104 A History of Europe to 1713 (3)
HIS 105 A History of Europe, 1713 to Present (3)

B. HIS 108 History of the U.S. Through 1865 (3)
HIS 109 History of the U.S. Since 1865 (3)

C. HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great (3)
HIS 230 The Hellenistic World and Rome to the Death of Constantine (3)

D. HIS 295 The Far East to 1850 (3)
HIS 296 The Far East Since 1850 (3)

Area VII. *SOCIAL SCIENCES*

A student may satisfy the general studies requirement by completing one option:

A. ECO 260 Principles of Economics (3)
ECO 261 Principles of Economics (3)

B. SOC 101 Introductory Sociology (3)

plus one of the following:

SOC 152 Modern Social Problems (3)
SOC 220 The Community (3)

C. ANT 120 Human Ancestry (3)
ANT 121 Introduction to Cultural Anthropology (3)

D. Any two of the following:
ECO 260 Principles of Economics (3)
GEO 152 Regional Geography of the World (3)
PS 151 American Government (3)

Area VIII. *BEHAVIORAL SCIENCES*

A student may satisfy the general studies requirement in the Behavioral Sciences by completing one of the following sequences:

A. PSY 104 Basic Psychology I (3)
PSY 106 Basic Psychology II (3)

B. PSY 210 General Psychology (3)
PS 201 Introduction to Political Behavior (3)

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

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

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







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 the student the chance to learn the best that has been discovered 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 the student can mature—mentally, physically, and emotionally.

The search for new knowledge is an unending adventure in which both the faculty and students take part. This seeking results in a continual expansion of information in every field of concern known to 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 decide 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.

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 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 its teaching and research functions properly. But over and above these requirements, the preservation of books and other materials is a vital function of society.

Divisions And Bureaus

In contributing to the welfare of the state through research, experimentation, and public service, 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 Cooperative Extension Service of the College of Agriculture, the Office of Development Service and Business Research, the Bureau of Government Research, the Bureau of School Services, the University and Educational Archives, the University Placement Service, The University Press of Kentucky, Telecommunications Studios, the Independent Study Program, the Extension Class Program, the Evening Class Program, the Community College System, the Audio-Visual Services, the Department of Public Relations, the Engineering Experiment Station, the Kentucky Geological Survey, the University of Kentucky Research Foundation, the Child Guidance Service, the Social Research Consultation Service, the University Hospital and related services, the Bureau of Community Service (Sociology), the Computing Center, Conferences and Institutes, the Council on Aging, the Donovan Senior Citizens Fellowship Program, the Kentucky High School Speech League, the Civil Defense Program, the Continuing Education Program, the University Center for the Handicapped, the Office of School Relations, the Center for Developmental Change, and the Institute for Planning and Administration.

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 the year the University of Kentucky was established. Today the institution is among the 93 state universities and land-grant institutions in America which are the fulfillment of this dream.

The school was started as part of Kentucky University under a cooperative plan authorized by the legisla-

ture. In 1878, when the people of Kentucky decided to establish a state institution of higher learning, the Agricultural and Mechanical College was separated from Kentucky University and re-established on land given by Lexington and Fayette County. To provide a separate campus for the new institution, the city of Lexington had donated its 50-acre fairground and park which, during the Civil War, had been utilized as a bivouac area for Union troops. Lexington and Fayette County contributed $60,000 for the construction of buildings, and President James K. Patterson, whose service to the institution began in 1869, used his personal savings to supplement the building fund. Thirty years later the legislature changed the name of the institution to State University, Lexington, Kentucky, and gave it additional financial support. In 1916 the name was changed to the University of Kentucky.

In the more than fourscore years that have passed since its establishment as a separate state institution, the University of Kentucky has had only eight presidents. 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, 1963-1968
ALBERT D. KIRWAN, 1968-1969
OTIS A. SINGLETARY, 1969-

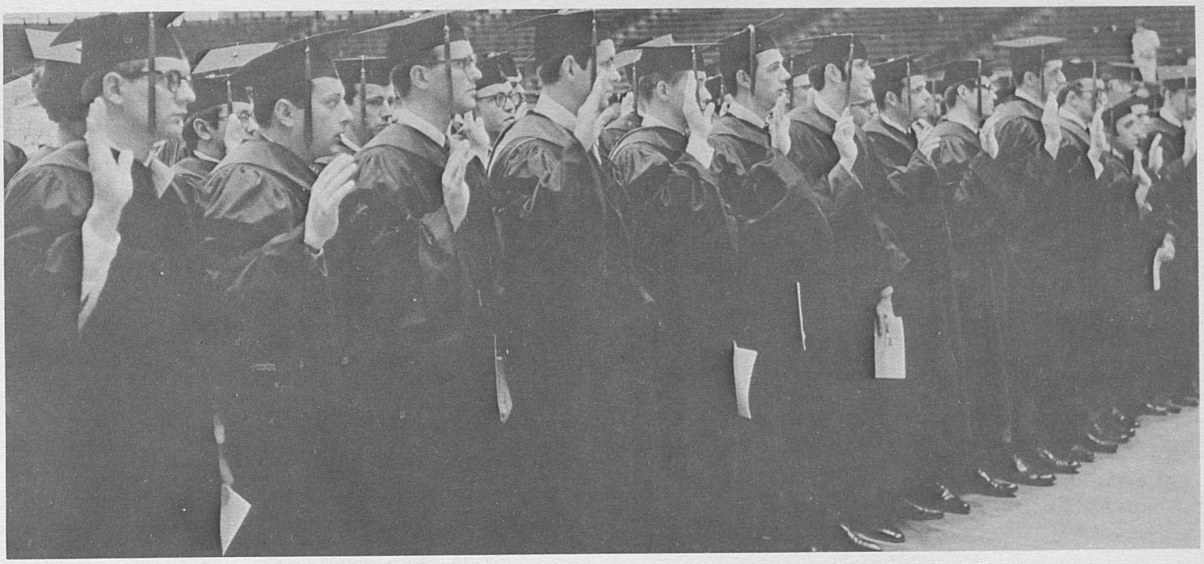
Before 1878, while it was a division of Kentucky University, the institution was presided over by John A. Williams, Joseph Desha Pickett, and James K. Patterson. During this time Bowman was regent of the parent institution.

Nature and Purposes

A statement on the nature and purposes of a University was presented to the Board of Trustees on May 7, 1968, by the president and vice presidents of the University of Kentucky:

> *"Throughout the Western World, universities and colleges are becoming sources of grave public concern. Certain campus occurrences are commanding much attention, and the campus of the University of Kentucky is no exception.*
>
> *"Expressions of anxiety about these events are heard daily by your administrative officers. Representing the opinions of the educated and the uneducated, persons in positions of leadership and those with less influence, friends of higher education and those who are hostile to the University, these expressions have been delivered to us in various ways. They have come in letters and personal comments, from discussions in the chambers of our State government, and a recent report of the Fayette County Grand Jury. While your administration shares many of these concerns, we are increasingly confronted with expressions that reflect an erroneous concept of the nature and purposes of a university. Exemplifying the critical character of such expressions is a recommendation of the Grand Jury 'that the Board of Trustees of the University take a closer look at the persons in authority at the University and try to encourage and develop in the Institu-*





tion an attitude more compatible with the desires of the Alumni and general public.'

"This situation is of such gravity that your president and vice presidents feel required to present a statement to you, the governing body of the University. It is our hope that our statement will clarify some misconceptions held by various individuals and will help broaden public understanding about the purposes and procedures of the University.

"At the outset, we wish to state that while we will vigorously defend the concept of academic freedom, we seek no special immunity from the law for our students, our faculty, or ourselves. The University does not, however, impose punishment for violation of state and local laws. We recognize that this is the sole prerogative and duty of law enforcement agencies and courts. If anyone at the University violates the law, let him be subject to the penalties of the law as are all other citizens.

"Having said this, however, we feel that the current climate calls for a re-examination of the functions of the University. We view this institution as the central agency in Kentucky for furtherance of the development of our people and State. Its functions are fourfold. First, to transmit knowledge imaginatively from each generation to the next and develop in our students inquisitive minds, understandings, attitudes, and skills that will equip them for living a creative and meaningful life. Second, to provide our State and nation with educated graduates for the professions, for business, for the arts, and for government services. Third, to discover new truths about as many things as our resources will permit, and expand the boundaries of knowledge through research. Fourth, to aid the citizens of our State in applying the results of research through extension activities and in so doing bring the vast intellectual resources of the University to bear on the social, economic and political problems of our State. Measured by any standard, these are noble and vital goals, and the progress the University has made in attaining them has been impressive.

"As administrators of the University, we are dedicated to maintaining on this campus an environment in which these purposes can be served. Above all, we believe this necessitates a spirit of free intellectual inquiry and an open exchange of ideas. If Kentucky citizens expect the University to contribute to progress, our teachers and students must be permitted and encouraged to investigate any theory, challenge any premise, engage in political and social debate, and express their dissent—without jeopardy to their academic careers—provided their behavior is not in violation of the law and does not interfere with the normal operation of the educational programs of the University.

"Moreover, if society is to assure itself of a new generation trained to understand the world in which it will live, it must not impose restrictions on exploration of ideas. Ideas, popular and odious, are a part of the world in which our students live, and cannot be understood without discussion and critical evaluation. Historically, universities have been a primary instrument for providing society with independent criticism and advice. It is out of this need that society has provided freedom for scholars and for the university as an institution, even when the criticism, the advice, and the results of research were unpalatable to many. The special rights and privileges the public has bestowed on the aca-

demic institutions were not conferred for the benefit of the institutions but for the benefit of the society which they serve. Regretfully, history abounds with instances of hostility to universities, purging and silencing of faculty and students who exercised their right, and duty, to express religious, intellectual, and political ideas that were unpopular or seemed dangerous to some groups. Such practices always threaten the very essence of a university.

"Another popular misconception is found in the expressions of many that the University should play the parental role for its students. Perhaps it is not widely understood that most students at the University are beyond the age at which Kentucky legislation declares a person an adult. Ranging in age from sixteen to seventy-eight, with most in their early twenties, many of our students are married and have families, many are veterans, and many are enrolled in professional schools and graduate programs. With this composition of students, we do not think it reasonable to ask University authorities to play the role of parents.

"Even though the University does not play a parental role, our students, along with our faculty, must sustain rigorous self-discipline. The task of obtaining a college education is indeed a difficult one, and our students have clearly defined duties and responsibilities. Despite inferences to the contrary, they do not have freedom from moral imperatives. They are subject to institutional disciplinary procedures when offenses against the University or its community of scholars are committed. The Student Code of the University establishes procedures for determining whether a student has committed an offense against the University, and punishment for offenses ranges from reprimand to expulsion or, in the case of organizations, revocation of registration. Beyond this, persons who fear freedom and the democratic processes should not expect the University officials to do what parents and civil authorities cannot do.

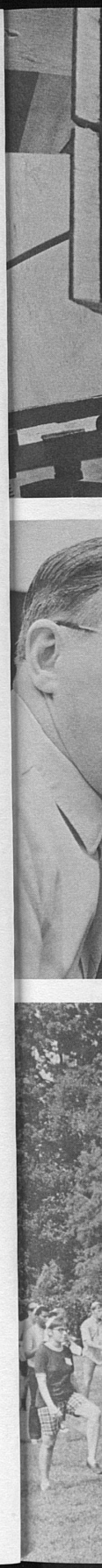
"While we believe that a university is a place where the search for truth is to be carried on through free inquiry, we do not believe the University should be a sanctuary for those who seek freedom from moral and social obligations. Neither do we condone tactics such as disruptive demonstrations, destruction of property, and violence. We believe, however, only misconduct, not opinions, should make faculty and students liable to persecution or prosecution. When dissent, peaceful protest, free inquiry, and discussions are destroyed, there is no remedy left for errors but that of violence.

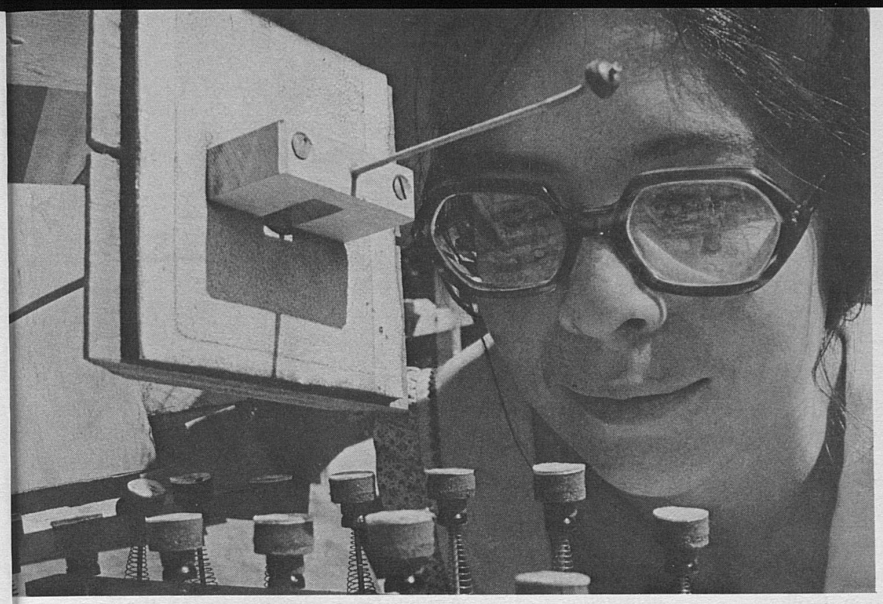
"We further believe that the University, to the extent possible, should be responsive to the will of its alumni and other publics who support the institution. We like to think, though, that this will is best reflected in an atmosphere which enables our students and faculty to engage in a search for the truth wherever it may lead. It is unrealistic to think that the wishes of the institution's many publics can be observed in all University matters. Because of the conflicting attitudes and interests of various groups, it is impossible for the University to respond in harmony with the will of all publics. In selection of faculty, professional qualifications must be given primary consideration. In establishing curriculums, research, and extension programs, academic considerations are at least as relevant as the interests of special groups. Is it possible, then, to respond to the wishes of all publics when, as an illustration, a major public of the University encourages expanded tobacco research because of the significance of tobacco to the economy of the State, and certain other publics wish to halt the investment of public funds in such research because they believe the use of tobacco is harmful to health? If the University were responsive to the interests of all groups, few courses could be taught, professional curriculums would not be accredited, and our graduates would not be competitive with graduates from other State universities.

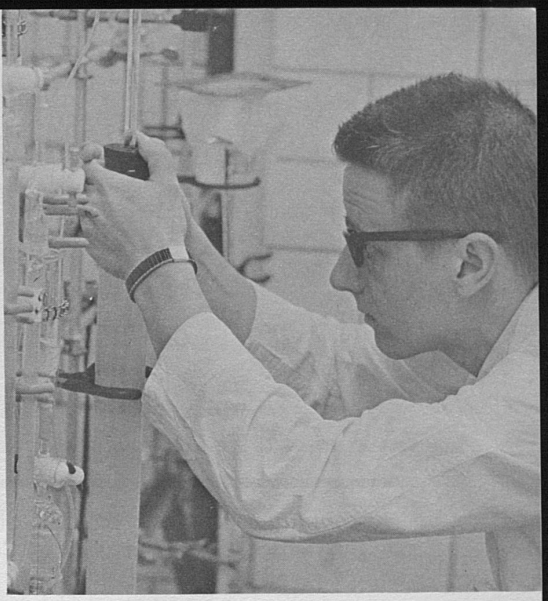
"Let us point out, too, that the University as an institution takes no position on public issues. The University has no corporate judgment on disputed public questions. Our faculty and students are not institutional spokesmen. But they are citizens. As such, they may speak or write without threat of institutional censorship or discipline. The institution should not be judged by their utterances, as on public issues they speak only for themselves.

"Within the context of a free intellectual atmosphere, the University of Kentucky has made striking progress. We have attracted a competent, dedicated faculty and staff and a student body which exhibits a high degree of maturity and responsibility. The success of our alumni attests to the quality of our academic programs. If the citizens of our State will continue to mobilize behind the institution informed understanding, active support, tolerance, and protection from unwarranted attacks, the University will continue to fulfill its vital purposes. We must warn our citizens, however, that in the absence of this support, this University will not be an institution in which our descendants can take pride.

"As the principal administrative officers of this institution, we request that this statement be recorded in the minutes of the May 7, 1968, meeting of the Board of Trustees of the University of Kentucky."



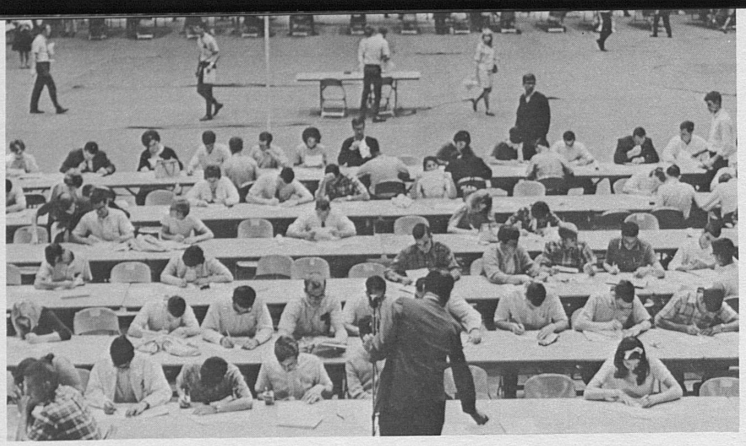












Fields of Study

For instructional purposes, the University is organized into the College of Arts and Sciences, College of Agriculture, School of Home Economics, College of Engineering, College of Law, College of Education, College of Business and Economics, College of Pharmacy, College of Medicine, College of Nursing, College of Dentistry, School of Architecture, School of Allied Health Professions, School of Library Science, School of Social Professions, Graduate School, University Extension, 13 community colleges and the Lexington Technical Institute. Instruction is given in each college or school through two semesters of approximately 16 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.

Arts & Sciences

The College of Arts and Sciences embraces 30 departments:

Aerospace Science, Anthropology, Art, Botany, Chemistry, Communications, Computer Science , English, French Language and Literature, Geography, Geology, Germanic and Classical Languages and Literatures, History, Journalism, Mathematics, Microbiology, Military Science, Music, Philosophy, Physics and Astronomy, Political Science, Psychology, Slavic and Oriental Languages and Literatures, Sociology, Spanish and Italian Languages and Literatures, Speech, Statistics, Telecommunications, Theatre Arts, and Zoology.

Agriculture

Students in the College of Agriculture may elect an area of specialization and a departmental major. Areas of specialization include Agricultural Technology, Agricultural Science, and Agricultural Business. In addition, students may follow a pre-professional program in Theology or Veterinary Science.

Departmental majors may include Agricultural Economics, Agricultural Education, Entomology, Agronomy, Animal Sciences, Cooperative Extension Education, Forestry, Horticulture, Plant Pathology, and Sociology.

School of Home Economics

The School of Home Economics grants the degree of Bachelor of Science in Home Economics to those students enrolled in the School who have completed major requirements in the following with a specialization in Science, Business or the Professions: Nutrition and Food Science; Textiles, Clothing and Merchandising; Management and Family Economics; Human Development and Family Relations; and Housing and Interior Design.

Options available to students include professional training in dietetics, home economics education and extension.

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, and a curriculum in metallurgical engineering and materials science. Mining engineering courses are offered as electives in civil engineering.

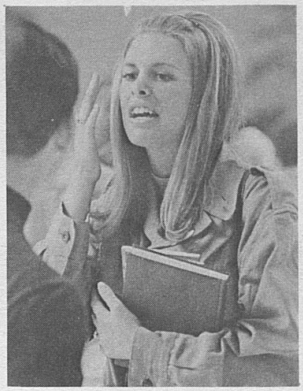
Law

The student may complete a three-year program in the College of Law leading to the degree of Juris Doctor. Admission to this program and to the College of Law requires an undergraduate degree with a designated undergraduate grade record in relation to the Law School Admission Test score.

Applicants who complete a combined degree program of prelaw and law study leading to the A.B. degree and J.D. degree in six years satisfy the requirement of an undergraduate degree. A combined program of prelaw and law work leading to the A.B. degree and the J.D. degree may be completed in six years in the College of Arts and Sciences and the College of Law.

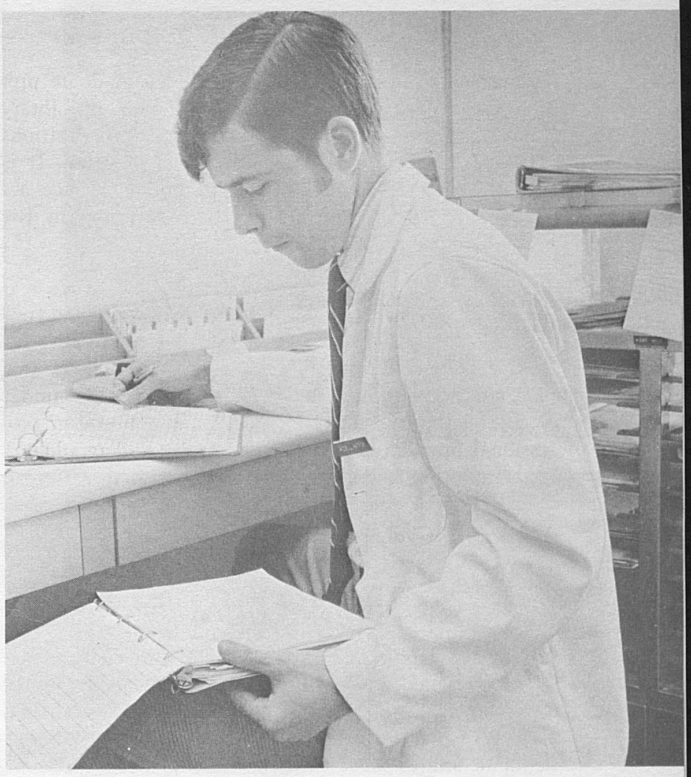
Education

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



Business and Economics

The College of Business and Economics offers three degree programs: Bachelor of Business Administration, Bachelor of Science in Accounting, and Bachelor of Science in Business and Economics. Students may also obtain a Bachelor of Arts in Economics through a major in the College of Arts and Sciences.



Pharmacy

The College of Pharmacy offers two degree programs: a five-year curriculum leading to the professional degree, Bachelor of Science in Pharmacy, which meets the requirements for licensure and an optional six-year curriculum leading to the degree, Doctor of Pharmacy (Pharm. D.).

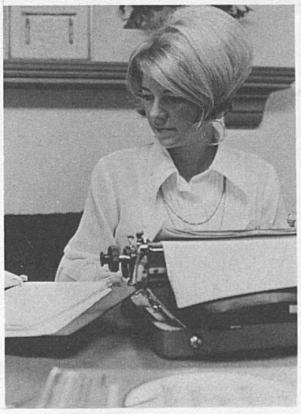
Graduates from accredited colleges of pharmacy may qualify for entrance into the optional program upon satisfactory completion of the necessary requirements.

Medicine

The College of Medicine offers a four-year program of study leading to the professional degree of Doctor of Medicine.

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 nurses who are graduates of approved schools of nursing may qualify for this degree by successfully completing the requirements of the College.



Dentistry

The College of Dentistry offers a four-year curriculum leading to the degree of Doctor of Dental Medicine (D.M.D.). Post-doctoral programs, which prepare students for clinical specialties within dentistry and provide opportunities for basic research, have also been developed.

School of Architecture

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

School of Allied Health Professions

The School of Allied Health Professions offers a Master's program in Clinical Nutrition, Bachelor of Science in Dental Hygiene, Medical Technology, Physical Therapy, Master of Science in Medical Radiation, and Master of Science in Radiological Health.

School of Library Science

The School of Library Science offers a graduate program of study leading to the M.A. or M.S. in Library Science and prepares students for professional positions in public, academic, school and special libraries. It is one of the 45 graduate schools in library science accredited by the American Library Association in the United States and Canada.

School of Social Professions

The School of Social Professions administers two programs (the graduate program is presently under development) designed to prepare students for professional practice in social work. One (undergraduate) leads to a Bachelor of Arts degree with a major in Social Work, and the other (graduate) leads to a Master of Social Work degree.

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, evening classes, independent study courses by correspondence, and conferences and institutes for business and professional groups. Graduate classes taught by University faculty members are offered at the Community Colleges by extension. University Extension also provides an annual program of high school drama and speech festivals.

Graduate School

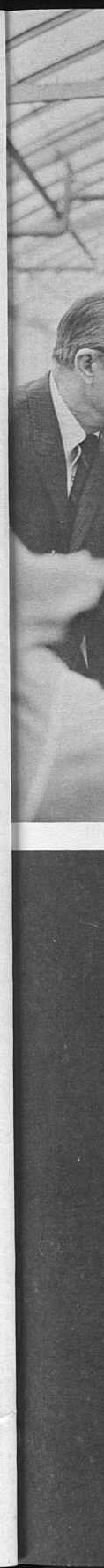
Graduate courses are available in all colleges and departments. The degree, Doctor of Philosophy, is offered with major work in the following departments: agricultural economics, agricultural engineering, anatomy, animal sciences, anthropology, bio-chemistry, biology, chemistry, chemical engineering, chemical physics, civil engineering, diplomacy and international commerce, economics, education, electrical engineering, engineering mechanics, English, entomology, French, geography, Germanic languages, history, mathematics, mechanical engineering, metallurgical engineering, microbiology, pharmacology, pharmaceutical sciences, physics, physiology and biophysics, plant pathology, plant physiology, political science, psychology, sociology, soil sciences, Spanish, statistics, and toxicology.

Minor work may be carried in most departments offering graduate courses. The Doctor of Education, Doctor of Musical Arts in Music Teaching and the Doctor of Business Administration are also offered.

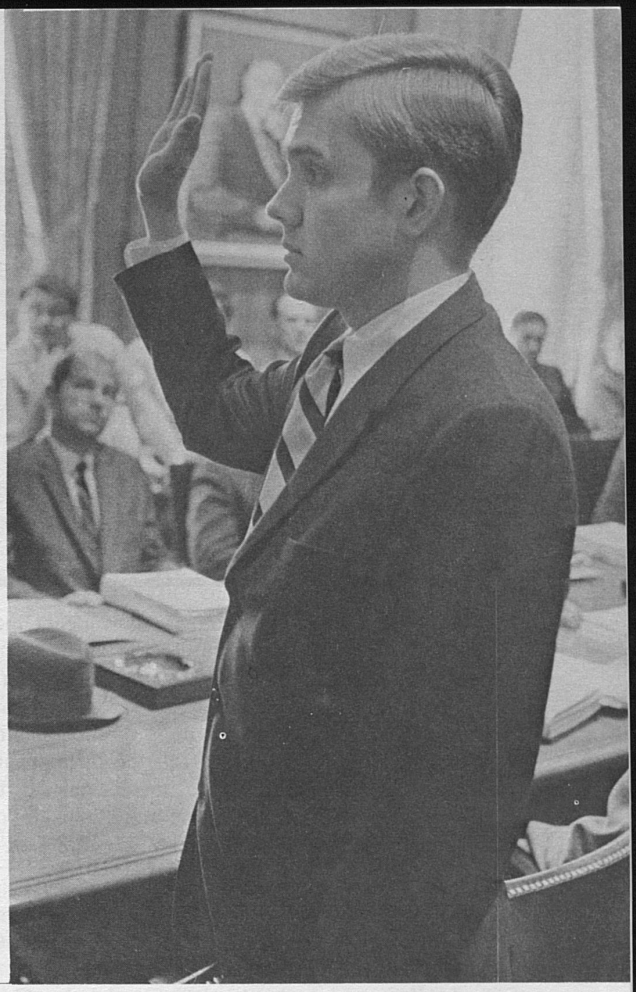
Degrees

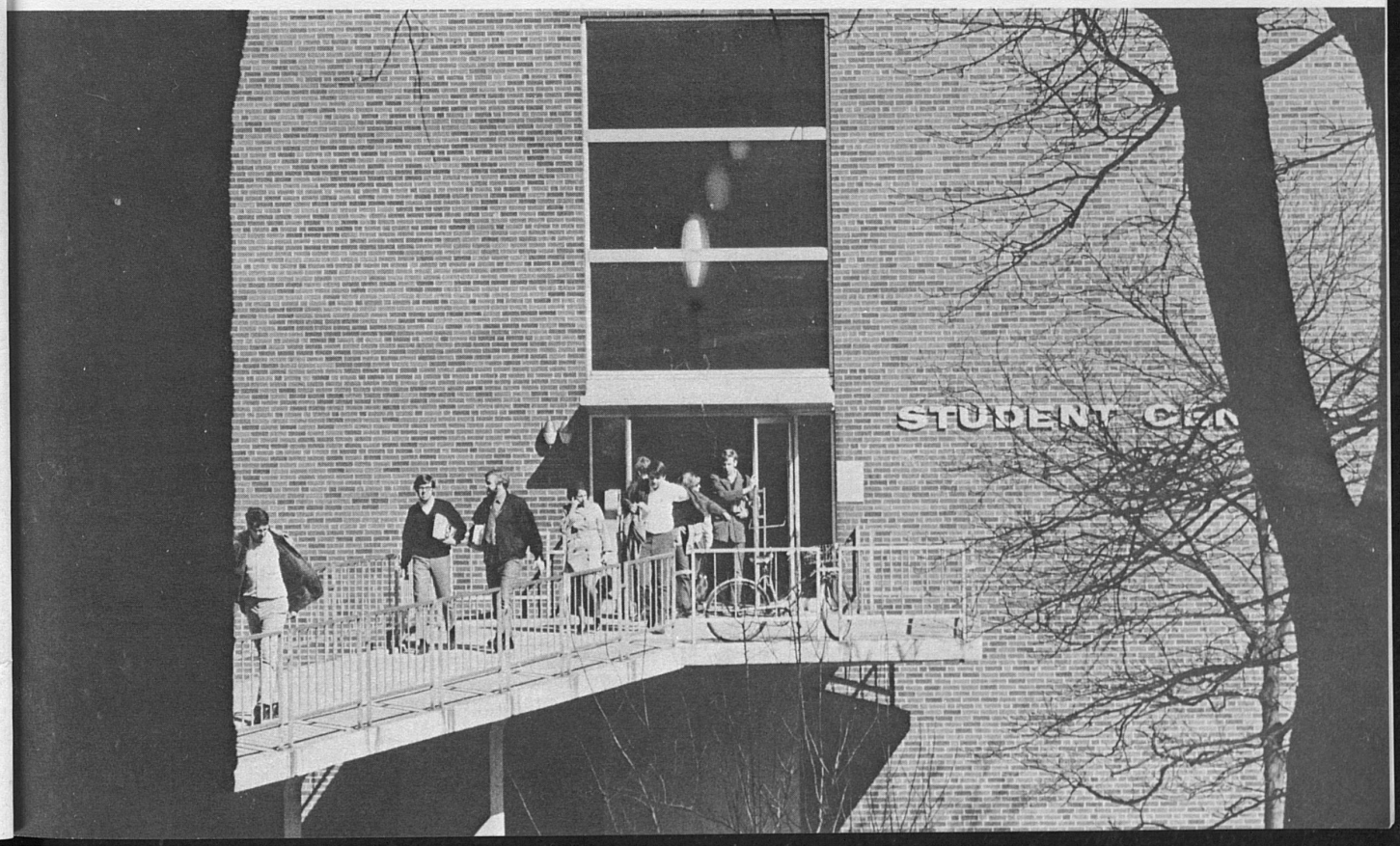
The University offers the following degrees:

BACHELOR OF ARCHITECTURE
BACHELOR OF ARTS
BACHELOR OF ARTS IN EDUCATION
BACHELOR OF ARTS IN JOURNALISM
BACHELOR OF BUSINESS ADMINISTRATION
BACHELOR OF MUSIC
BACHELOR OF SCIENCE
BACHELOR OF SCIENCE IN ACCOUNTING
BACHELOR OF SCIENCE IN AGRICULTURE
BACHELOR OF SCIENCE IN AGRICULTURAL ENGINEERING
BACHELOR OF SCIENCE IN BUSINESS AND ECONOMICS
BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING
BACHELOR OF SCIENCE IN CIVIL ENGINEERING
BACHELOR OF SCIENCE IN DENTAL HYGIENE
BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING
BACHELOR OF SCIENCE IN FORESTRY
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 NURSING
BACHELOR OF SCIENCE IN PHARMACY
BACHELOR OF SCIENCE IN PHYSICAL THERAPY
MASTER OF ARTS
MASTER OF ARTS IN EDUCATION
MASTER OF BUSINESS ADMINISTRATION
MASTER OF MUSIC
MASTER OF SCIENCE
MASTER OF SCIENCE IN ACCOUNTING
MASTER OF SCIENCE IN AGRICULTURE
MASTER OF SCIENCE IN AGRICULTURAL ENGINEERING
MASTER OF SCIENCE IN CHEMICAL ENGINEERING
MASTER OF SCIENCE IN CIVIL ENGINEERING
MASTER OF SCIENCE IN CLINICAL NUTRITION
MASTER OF SCIENCE IN DENTISTRY WITH SPECIALTY IN ORTHODONTICS
MASTER OF SCIENCE IN EDUCATION
MASTER OF SCIENCE IN ELECTRICAL ENGINEERING
MASTER OF SCIENCE IN ENGINEERING MECHANICS
MASTER OF SCIENCE IN HOME ECONOMICS
MASTER OF SCIENCE IN LIBRARY SCIENCE
MASTER OF SCIENCE IN MECHANICAL ENGINEERING
MASTER OF SCIENCE IN MEDICAL RADIATION
MASTER OF SCIENCE IN METALLURGICAL ENGINEERING
MASTER OF SCIENCE IN NUCLEAR ENGINEERING
MASTER OF SCIENCE IN NURSING
MASTER OF SCIENCE IN RADIOLOGICAL HEALTH
MASTER OF SOCIAL WORK
MASTER OF SCIENCE IN STATISTICS
SPECIALIST IN EDUCATION (Ed.S.)
DOCTOR OF BUSINESS ADMINISTRATION (D.B.A.)
DOCTOR OF EDUCATION (Ed.D.)
DOCTOR OF DENTAL MEDICINE (D.M.D.)
DOCTOR OF MEDICINE (M.D.)
DOCTOR OF MUSICAL ARTS IN MUSIC TEACHING (D.M.A.)
DOCTOR OF PHARMACY (Pharm. D.)
DOCTOR OF PHILOSOPHY (Ph.D.)
JURIS DOCTOR (J.D.)








STUDENT



Entering the University

Approval of the admission of all students into the University of Kentucky is under the authority of the Dean of Admissions and Registrar. However, due to the multiplicity of University programs and the special conditions contingent upon the admission of some categories of students, the day-by-day handling of applications and other documents related to admission is carried on by some units outside of the main office of the Registrar. The exceptions are listed below:

The Graduate School. Admission to the Graduate School is conducted by the Graduate School Office, located in Room 333 of the new Office Tower Building. All inquiries about admission to the Graduate School, and all applications and documents pertaining to admission to the Graduate School should be directed to that office. Further information about the conditions for admission to the Graduate School will be found on page 305.

The College of Medicine and the College of Dentistry. Inquiries about admission to these two colleges, and applications and supporting documents should be directed either to the Committee on Medical College Admissions or the Committee on Dental College Admissions, Albert B. Chandler Medical Center, Room MN 118, University of Kentucky, Lexington, Kentucky 40506. Further information can be found on pages 267 and 290.

The Community Colleges. Admission to a University of Kentucky Community College is conducted individually by each of the University's 13 Community Colleges. Inquiries about admission, and applications, American College Test reports, and other admission documents should be directed to the Community College in which the applicant intends to enroll. A list of the Community Colleges and their mailing addresses will be found on page 338.

The Lexington Technical Institute. While it is located on the main campus in Lexington, it is an operating unit within the Community College System which makes available to residents of Central Kentucky various two-year associate degree technical programs. Inquiries, applications for admission, and other documents relating to enrollment in these programs should be directed to the Lexington Technical Institute, Breckinridge Hall, University of Kentucky, Lexington, Kentucky. Further information will be found on page 341.

Evening Class Program—Lexington Campus. The University's Evening Class Program on the Lexington campus is conducted by the University Extension Office and enrolls eligible non-degree and non-credit students directly into evening classes. Information on this program will be found on page 335. Inquiries should be addressed to the Evening Class Office, Frazee Hall.

The main office of the Dean of Admissions and Registrar is located in the new Office Tower Building on the Lexington campus. Admission to all units of the University, except for those listed above, is handled by this office, and inquiries concerning admission and requests for applications for admission should be addressed to this office. Applications for admission, test results, and other required admissions documents should similarly be addressed to this office.

All students attending the University are enrolled in one of the various colleges or schools, each under the supervision of an academic dean. Each college and school is made up of several academic departments and offers different major fields of study which the student may elect to follow. Brief descriptions of each of these colleges and schools and the major fields each offers will be found on page 14. Exhaustive descriptions of departmental course offerings, major field requirements, and other related information about each college and school will be found in the main body of the catalog.

There are minimum academic conditions which an applicant must satisfy for admission to the University. Meeting these conditions is sufficient for admission into some academic units, while other units specify additional conditions for admission, such as the com-

pletion of two or more years of college work, the completion of specific sequences of courses, etc.

The following colleges and schools accept both beginning freshmen and advanced students transferring from other schools who meet general University admission requirements:

The College of Arts and Sciences, the College of Agriculture, the School of Home Economics, the College of Engineering, the College of Education, the College of Business and Economics, the College of Nursing, the School of Allied Health Professions, and the School of Social Professions.

The following colleges and schools do not admit freshmen, and require a specified number of years of college work and the meeting of additional academic conditions for admission:

The College of Law, College of Pharmacy, and the School of Architecture

The sections of the catalog devoted to each of these units describe the additional conditions for admission, and should be consulted by interested students.

Beginning freshmen and transfer students whose goal is a degree in Law, Pharmacy, or Architecture—or Medicine, Dentistry, or a Graduate program—should apply for admission into one of the undergraduate colleges or schools for which they are eligible and which offers a major which is preparatory for eventual admission to the advanced program of their choice.

Summer Advising Conference

All new undergraduate students must attend an Advising Conference prior to entering the University unless excused by permission in special circumstances and emergencies. For the Summer Session, these conferences are held on the first day of registration. New students for the Fall Semester are expected to attend the University's regular Summer Advising Conference in July unless excused by permission in special circumstances and emergencies. Each student attends for one day, and the day of attendance for each student is assigned by the Advising Conference Office. Upon acceptance by the Admissions Office, the applicant will be sent full information about the Advising Conference, and the applicant accepted for the Fall Semester will be given a choice of available dates for his attendance, except that the University reserves the right to assign a date to an applicant if the applicant's choice has been filled by earlier applicants.

All new students are urged to make their summer plans in such a way that they and their parents can participate in this program. In order to avoid disappointments, no prospective student should make the trip to Lexington for a Summer Advising Conference until he has received confirmation of a date from the Advising Conference Office.

All new students entering for a Spring Semester must attend an advising conference in November unless excused by permission in special circumstances or emergencies. Upon acceptance, these students will be assigned a date for attendance.

Definition of Resident Student for Fee Assessment Purposes for the State-Supported College & Universities in Kentucky

(Approved July 22, 1968)

Every student who is not a resident of Kentucky as defined below is required to pay non-resident registration and/or entrance fees.

The following policy, adopted by the Council on Public Higher Education, Commonwealth of Kentucky, in accordance with Section 164.020 (3) of the Kentucky Revised Statutes, is applied to determine a student's eligibility for fees assessed Kentucky residents who enroll at any of the state-supported institutions of higher learning in the Commonwealth of Kentucky. This determination is made at the time of initial enrollment and shall not be changed thereafter except as provided below.

A student under eighteen years of age is eligible to enroll as a resident of Kentucky if his parent or legal guardian has established or has maintained residence in the Commonwealth immediately preceding his original enrollment. No student under eighteen years of age shall be considered to have gained residence in the Commonwealth while a student unless or until his parent or guardian moves into the Commonwealth and acquires residence. If a student under eighteen years of age is enrolled 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 residences, the residence of the parent who has legal custody of the student's person or the residence of the parent who provides the main financial support shall be considered the residence of the student.

An adult student from out-of-state who seeks Kentucky residence status must assume the burden of proving conclusively that he is a resident of the Commonwealth with the present intention of making his permanent home in this state. In general, it is assumed that the intent to remain indefinitely in Kentucky is evidenced not only by what a person states but what a person has actually done. The following criteria may be among those used by authorities of the institution in ascertaining the legal residence of a

student: Obtaining full-time employment, establishing a home, buying property, filing state income tax returns, transferring or establishing church membership, affiliating with local organizations, and various other actions which give evidence of intent to remain indefinitely within the Commonwealth. Compliance with any one or more of these criteria does not in itself constitute Kentucky resident status for the student or his parents.

Any student or prospective student in doubt concerning his residence status must bear the responsibility for securing a ruling by stating his case in writing to the Admissions Officer. The student who, due to subsequent events, becomes eligible for a change in residence classification, whether from out-of-state to in-state, or the reverse, has the responsibility of immediately informing the Office of Admissions of this circumstance in writing.

The Council recommends that each institution establish a Non-Resident Fees Committee to consider changes in resident status based on the above criteria. Application for change of residence classification should be made in writing to the person who has been designated by the Board of Trustees or Regents as the Chairman of the Non-Resident Fees Committee. The Chairman may present each case to the Committee for a final decision, and the student will be notified in writing as to the disposition of his application.

This policy shall be applicable with exceptions allowable for possible conflicts with state and federal laws relating to residence such as the Federal Soldiers and Sailors Relief Act.

Guidelines for Administration of the Definition of Resident Student for Fee Assessment Purposes

(Approved October 7, 1968)

The following guidelines are adopted by the Council on Public Higher Education for the purpose of providing common definitions, interpretations and administration among the state-supported institutions of higher learning in Kentucky of the Council's adopted "definition of resident student for fee assessment purposes." Final responsibility for the classification of students as to residency and the assessment of appropriate enrollment fees is vested in the respective governing boards of the institutions of higher education.

GENERAL STATEMENTS

A student who is eligible to enroll as a resident student in another state cannot be enrolled as a resident student at a Kentucky state-supported institution of higher learning.

A student initially classified as a non-resident and who maintains continuous student status shall not normally be re-classified as a resident student. Exceptions to this policy may include the following: marriage of a non-resident female to a resident male, parents establish a legal residence in Kentucky or on an indefinite military assignment in Kentucky.

DEFINITION OF TERMS

Adult: The following are considered adult students:

a. A student who has reached his eighteenth (18) birthday.

b. A married student who has not reached his eighteenth (18th) birthday, but who is financially independent and whose legal residence is maintained independent of that of his parents or legal guardian.

An out-of-state student reaching his eighteenth birthday while attending school does not qualify for classification as an in-state student merely by virtue of having become an adult.

In-State Student: One whose legal resident is in Kentucky, as determined by proper authorities at the institution.

Legal Guardian: A person who by court order has been appointed to act in the place of the parents of a minor student.

Legal Residence: A person's residence is his permanent dwelling place. It is the place where he is generally understood to reside with the intention of remaining there indefinitely or of returning there when absent from it. For the purpose of these regulations, enrollment at an institution of higher education is not sufficient to establish residence in Kentucky.

a. *Maintenance of Residence:* The fact that one temporarily resides elsewhere, with the purpose of returning to his home, does not change his legal residence. It is presumed that the legal residence of a person continues to be in the place where it is proved to have been until the contrary is shown. A legal residence is never lost until a new one is established.

b. *Change of Legal Residence:* To effect a change of legal residence, the first legal residence must be abandoned with no intention of returning to it and actual residence taken up in another place coupled with the intention to remain there permanently and/or indefinitely The burden of proving legal residence rests with the student.

c. *Establishment of Residence:* An adult student attempting to establish residence in his own right is presumed to have met the requirements for residency when he has maintained continuous residence in Kentucky for at least one academic year exclusive of any time spent in attendance at any institution of higher learning in Kentucky.

Legal Residence of a Minor: The legal residence of an unmarried minor is normally that of the father.

a. *Father Deceased:* If the father is not living, the legal residence of the minor is that of the mother.

b. *Parents with Separate Residences:* If the parents maintain separate residences, the residence of the minor is that of the parent with whom he lives.

c. *Parents Divorced:* If the parents are divorced, the legal residence of the minor is that of the parent who was granted custody by court order; if custody was not granted, the minor's legal residence is that of the parent with whom he lives; but if he lives with neither, it remains that of his father.

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

Movement Into Kentucky: A student (or in the case of a minor, his parent or legal guardian) who has not established residence in Kentucky is classified as an out-of-state resident. For tuition assessment purposes, a person does not establish a legal residence merely by spending time in Kentucky, payment of taxes, owning real property or by attending an institution of higher education.

Military Personnel: No person shall be presumed to have gained or lost in-state residence status in Kentucky while serving in the Armed Forces. Persons assigned to military duty and residing in Kentucky for an indefinite period of time shall be considered residents of the Commonwealth of Kentucky. A minor dependent of military personnel whose sponsor is reassigned outside the United States but whose family remains in Kentucky will not lose resident status for tuition purposes.

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

Admission to the Freshman Class

Prospective candidates for admission to a freshman class should obtain an application packet either from their high school office or by writing to the office of the Dean of Admissions and Registrar. This packet contains the application of admission, an instructional pamphlet on the application procedure, and information on University housing.

The following required documents should be sent to the Office of the Dean of Admissions:

1. The application for admission.
2. The official report of the American College Test (ACT) from the headquarters office in Iowa City, Iowa. Only this complete official report can be accepted, since it contains extensive and pertinent information beyond the mere listing of test scores which might be posted on a high school record or the ACT report sent to the student.
3. The student's confirmation of his participation in the Summer Advising Conference Program. The form for reporting this confirmation is not in the application packet. It will be sent to accepted students soon after the receipt by the University of both the application for admission and the official ACT report from Iowa City.
4. Certification of graduation from high school.

Deadlines for Freshmen

April 1—Out-of-state freshmen must have filed the application for admission and the official American College Test report by this date for admission to the Summer Session or Fall Semester.

May 18—Kentucky freshmen must have filed the application for admission and the official American College Test (ACT) report by this date for admission to the Summer Session.

June 15—Kentucky freshmen must have filed the application for admission and the official American College Test (ACT) report by this date for admission to the Fall Semester.

All new freshmen accepted for the Fall Semester must have returned the Advising Conference Reservation Reply Card by this date.

July 29—All new freshmen accepted for the Fall Semester must have filed certification of their graduation from high school by this date.

October 27—Freshman applicants for the Spring Semester, 1971, must have filed an application for admission and the official American College Test (ACT) report by this date.

Conditions for Admission to the Freshman Class

Kentucky Residents. The University of Kentucky accepts as beginning freshmen all Kentucky residents who graduate from an accredited high school and have not attended another college. It requires only that the preceding forms be received by the University's deadline dates for the semester in which the student intends to enroll, except that additional supportive documents may be needed in individual cases to clarify the student's status or to establish his eligibility. If these are required, the student will be so informed. The University must also reserve the right to deny admission

to anyone who falsely reports information on the application for admission or the required admission test report.

Residents of Other States. The University is not able to accept all of the many students from other states applying for admission to the freshman class. It must observe both a quota established by the Kentucky Council on Public Higher Education and the practical limitation of available physical facilities. The selection of candidates from other states is made on the basis of probable academic success as it can be predicted from high school grades and the student's performance in the American College Testing Program academic tests. An applicant whose high school grades and test scores demonstrate a high degree of probability that he can achieve a satisfactory grade standing in his freshman year will be considered for acceptance. Other non-resident applicants will not be considered for acceptance unless the Dean of Admissions and Registrar can determine that additional factors in the student's record make acceptance possible.

A non-resident applicant must officially apply and all required documents and tests must be received before the admissions office can determine whether or not he can be considered for acceptance. For this reason it is extremely important that non-resident students apply as early as possible in their senior year or in the preceding summer, and that they take the American College Test on the earliest possible date. Since April 1 is the last date for non-resident applicants to submit all required documents, including the official ACT report from Iowa City, the February test date is the latest possible date for non-resident applicants to take the ACT in order to be considered for admission to the following summer or fall sessions.

Taking the American College Test. The American College Test is required of all beginning freshmen and of transfer students who have earned less than 12 semester hours of credit at another school. Due to the nature of the information supplied through the ACT and its reporting format, other tests cannot be accepted as a substitute. Your high school should be able to provide ACT registration forms, and information about deadlines for registration, testing dates, and the location of test centers. If your high school cannot provide this information, write directly to the ACT Registration Department, P.O. Box 414, Iowa City, Iowa 52240

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

Applicants who have taken the ACT but did not list the University of Kentucky as one of the three colleges to receive the results must arrange to have an Additional Score Report sent. Information on the procedure for doing this is contained in the ACT Student Handbook, and should be available at your high school. Again, it is important for the applicant to be aware that the complete report cannot be mailed from ACT headquarters to the University earlier than 10 days after the request for an Additional Score Report is received.

Advanced Placement Credit. The University participates in the College Entrance Examination Board Advanced Placement Program. High school seniors participating in this program should have their Advanced Placement Examinations forwarded by the CEEB office to the Admissions Office of the University of Kentucky. Examinations will be reviewed by the appropriate academic departments. The academic departments determine whether or not college credit and/or advanced placement will be granted.

CEEB achievement tests are not used by the University of Kentucky for placement purposes.

Exceptions for Freshman Admission

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

Applicants with less than 12 hours of College Work. A student who has enrolled in another college for less than 12 semester hours of college work must supply transcripts of such work in order to be considered for admission, and must in general meet the conditions for admission as a transfer student as described below. In addition, he must also submit all of the documents required of beginning freshmen. In this way he can receive the full benefits of the Advising Conference programs which are conducted for beginning freshmen in order to make their entry into University life as pleasant and helpful an experience as possible. Upon admission, a student in this category may be granted transfer credit for his previous college work, subject to the general University regulations governing the transfer of credit, which are given in the section dealing with transfer students.

Summer Work after Graduation from High School. Some students, after acceptance by the University for the Fall freshman class, may wish to take a class for college credit at another school near their home in the summer following high school graduation. This can

usually be done, upon advance approval by the University, without adversely affecting the eligibility of the student for entry in the Fall Semester.

Non-graduates of High School. Kentucky residents over 21 years of age who are not high school graduates and have not attended college may be granted admission as freshmen on the basis of a personal interview and tests administered by the University.



Transfer Students

A student who has attended another college prior to applying for admission to the University needs to be concerned about both his eligibility for admission and the possible acceptance by the University of course work taken elsewhere.

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

1) An over-all grade point average of 2.0 on a 4.0 quality point scale in all course work attempted, as computed by the University Admissions Office. The grade and credit for each course attempted is included in this computation, regardless of the practice of the offering institution in waiving a low grade for a repeated course.
2) Good standing in all respects at the college the applicant last attended as a full-time degree candidate, or part-time student if his enrollment has been only part-time. Generally, a student under academic suspension also cannot meet the grade point average requirement; however, a student under suspension cannot be admitted, regardless of his grade point average. Furthermore, this requirement cannot be satisfied by subsequent enrollment, while a suspension is in effect, in a non-baccalaureate degree type of program or school, an unaccredited school, or in a category which another college may make available to suspended students for limited, non-degree purposes; nor can it be satisfied by subsequent enrollment in a two-year college if the student, according to his original matriculation year, should have progressed beyond this point in his academic program.

Deadlines for Advanced Standing Transfers. The following deadlines apply to all new undergraduate applicants with advanced standing, including those from University Community Colleges, and to applicants to the Colleges of Law and Pharmacy:

April 20—The application for admission and official transcripts of all college work must be filed by this date for admission to the early (four-week) Summer Session.

May 18—The application for admission, official transcripts of all completed college work, and a roster of courses currently enrolled in must be filed by this date for admission to the regular Summer Session.

June 15—The application for admission, official transcripts of all completed college work, and a roster of courses currently enrolled in must be filed by this date for admission to the Fall Semester.

The Advising Conference Reservation Reply Card must be filed by all applicants excepting those for the Colleges of Law and Pharmacy.

July 29—Final official transcripts of all completed college work must be filed by this date.

October 27—The application for admission, official transcripts of all completed college work and a roster of courses currently enrolled in must be submitted by this date for admission to the Spring Semester.

Transfer of Credit. The University accepts baccalaureate degree credits earned at a fully accredited college or university, excepting that it cannot accept the credit for a course in which a grade lower than "C" has been given. "Fully accredited" means that the institution is a member in good standing of one of the six regional academic accrediting associations. Transfer work from institutions outside the United States is evaluated on an individual basis upon receipt of official transcripts.

Each academic college and school within the University must, in addition, review transfer coursework to determine its applicability towards degree programs under its supervision. It is important for each transfer candidate, in addition to determining the general acceptance of course work by the Registrar's Office, to consult further with the college or school in which he will be enrolled about the applicability of transferred work to the program in which he will enroll. This can be done when the student reports for registration, since both the acceptability of the coursework and its applicability towards a program will have been determined by that time. Earlier consultation by the individual student, however, will be helpful in determining the choice of a program and in gaining an understanding of the requirements for the completion of a degree program at the University.

Work at Unaccredited Schools. In some cases, credit earned at a school which is not a member of an accrediting association may be validated for acceptance by the University if the student, after admission has been granted, enrolls and completes at least 30 semester hours of University work with at least a 2.0 grade point average. This work must be in a normal degree sequence and approved by the proper academic authorities. However, in other cases, there can be no acceptance by the University of such coursework. The student will be notified upon receipt of his application and official transcript if the work presented can or cannot be considered by validation.

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

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

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

Credit by Examination. Students who have taken non-transferable courses at other institutions may, after entrance into the University, request to be examined for credit in a University course in the same discipline. Such an examination must be approved by the Registrar, the Dean of the College, and the Chairman of the department concerned.

Minimum Residence Requirement for Graduation. The transfer applicant should be aware that, regardless of the number of transfer hours the University may declare acceptable, all candidates for a bachelor's degree must complete 30 of the last 36 hours of their program in residence at the University.

Credit for Military Service. Upon presentation of a certified copy of honorable discharge from active duty in a branch of the armed forces of the United States, an enrolled veteran may be granted up to eight hours of credit in ROTC, less any amount the student may have earned previously or be currently enrolled in.

Academic credit is also granted for certain kinds of educational experience in service schools. After enrollment, the student should present to the Registrar's Office the documents certifying his attendance in a service school, and official descriptions of the nature and extent of the course work. Since there is considerable variation in the numerous schools within the military forces, an adequate evaluation can be made only through a careful examination of these records. Therefore, the student should ascertain from the Registrar's Office what documents will be needed well in advance of his request for a consideration of the possible granting of credit.

Credit granted for military service is available only to persons who have been on active duty. Reserve training programs are not included in these provisions.

Applying for Admission. Candidates for admission as a transfer student, including those applying for admission to the School of Architecture, the College

of Pharmacy, and the College of Law, should write for or otherwise obtain an application packet from the Office of the Dean of Admissions and Registrar. The following documents must be received by this office by the stated deadlines:

1. Application for admission to the University.
2. Two official transcripts from each college or school attended, containing a complete record of all courses completed at the time of application. In addition, the transfer student should bring with him when he reports for his Advising Conference a copy of the catalog of the school he has been attending.
3. A roster of courses in which the student is currently enrolled.
4. Final official transcripts of any additional work completed before entering the University.

The applicant will be notified, upon receipt of these documents, of his admissibility at that time, or of the rejection of his application. Applicants found to be acceptable at the time of application will be informed of the Advising Conference Program which they will be expected to attend, unless excused by permission in special circumstances and emergencies, either at the beginning of a Summer Session, in the summer preceding the opening of a Fall Semester, or in November preceding the opening of a Spring Semester.

Candidates found to be admissible at the time of application should be aware that the University will cancel the application or the early registration of an applicant whose final official record, after completion of a current semester, shows him to have become ineligible because of the lowering of his grade point average below the required 2.0, or suspension or dismissal. However, an applicant for admission to a Fall Semester whose admissibility has been established after completion of a Spring Semester may take summer work without losing this eligibility to attend the Summer Advising Conference. He must, of course, maintain a satisfactory grade average for this summer work.

Although entrance into most University programs may be granted for any semester or a Summer Session, some students will find that the academic calendar of the school in which they are enrolled will make transfer impossible for a Spring Semester or Summer Session. The applicant should consult the University's academic calendar, printed elsewhere in this catalog, to see if the deadlines for receipt of final transcripts can be met.

Readmission to the University

Former University students in good standing who have not attended another school since their last enrollment here are eligible for readmission. However, they must file an application for readmission at least 30 days prior to the beginning of the semester in which they wish to re-enroll. An exception to this is made on behalf of students who attend only University Summer Sessions. These students do not have to apply for readmission to a Summer Session if they were enrolled for the preceding Summer Session. Otherwise, an application for readmission must be filed by the 30-day deadline.

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

Applications for readmission cannot be accepted from students under suspension by any unit within the University, regardless of their current status with another institution, unless they are reinstated into the University by the dean of the college or school in which they will enroll, if the suspension is academic, or by the appropriate University office, if the suspension is non-academic. If a student is reinstated, he must, in addition, file an application for readmission by the stated deadline.

Purpose of the application for readmission. Computerized registration cards, which must be prepared in advance for any registration period, are not made for a student after one semester's absence from the University. It is only by the filing of an application for readmission in advance that the Registrar's Office can be alerted to the fact that a student intends to re-enter the University and prepare for him the necessary registration forms in time for registration.

Students from Other Countries

Due to the nature of the work involved and the time required to determine whether or not an undergraduate student from another country can be admitted to the University and assured that both his academic and his personal circumstances will be satisfactorily prepared for, it is necessary that these students apply for admission at least six months before the opening of the semester in which they will enroll. The University's academic requirements for admission must be met, and all necessary documents relating to academic records, financial ability, competency in the English language, and physical health must be received before permission to enroll and the I-20 form can be issued. Students from other countries must be fully prepared to meet all the financial costs of attendance, room and board, and other personal expenses.

All applicants from non-English speaking countries are required to take the Test of English as a Foreign Language, offered by the Education Testing Service, with headquarters in Princeton, New Jersey 98540, U.S.A. This test may be taken at various test centers throughout the world, but it is the applicant's responsibility to obtain the necessary information and application forms, and to arrange to take the test by a date which will assure that the results are reported to the University by the required deadline.

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

Other Categories of Admission

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

Persons holding an academic degree may be admitted as an undergraduate non-degree student to pursue coursework for personal or professional purposes. However, credit earned as a non-degree student will not be counted toward a graduate degree if the student subsequently is admitted to the Graduate School.

Non-degree students may become degree students upon application for admission in this category and the filing of the necessary documents, provided that they meet the admission requirements described above for undergraduate applicants. However, work taken as a non-degree student cannot in itself qualify a person for admission as a degree candidate. Only credit earned after a student meets admission requirements will be counted toward a degree awarded by the University. The fees for attendance as a non-degree student are the same as those set for other undergraduate students. Non-degree enrollment is not available to persons under suspension by the University.

Auditors. By filing an application for admission by the stated deadline, one may enroll in the University as an auditor. Auditors do not receive grades or course credit. The fees are the same as the student would pay for enrolling for credit. Auditors cannot change to credit status after the beginning of class work, and cannot be considered for admission to earn credit except by filing the required documents by the deadline for a subsequent semester. Courses taken by auditing cannot be recognized for credit by special examination. A student under suspension cannot be admitted as an auditor.

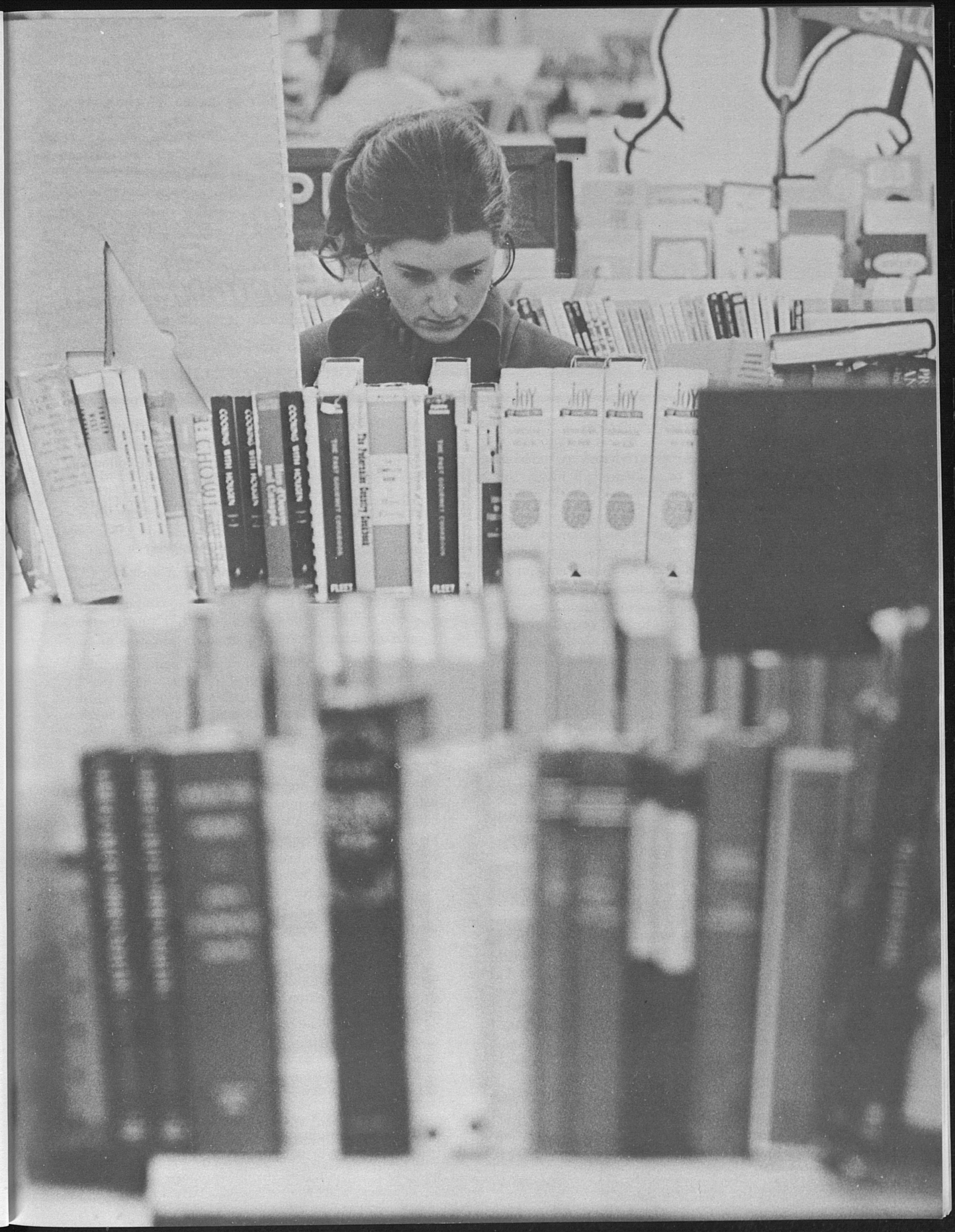
Students enrolled for credit may audit a course as part of their regular schedule by obtaining the permission of their adviser and the instructor.

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

UK Students as Transients at Other Schools. University students may earn a limited amount of credit toward a University baccalaureate degree by enrolling at another school, provided they have the prior approval of their dean and adviser, and provided the other school is fully accredited and the coursework meets the University's specifications for the acceptance of credit from other schools. The student should consult with his adviser or dean, and with the Registrar's Office well in advance of enrollment at another institution. If such enrollment is concurrent with enrollment at the University, the student must have the specific approval of his dean for double enrollment. It is the student's responsibility to ascertain the acceptability of course work at another school, and of its applicability towards his degree program. Since the University Senate has laid down the conditions for the acceptance of credit earned at other schools which the Registrar's Office must follow, improper enrollment at other institutions will necessarily result in the loss to the student of credit earned elsewhere.

Re-entering the University. A University student who enrolls elsewhere for only a Summer Session between a spring enrollment at UK and the following Fall Semester does not need to reapply for admission for the fall semester. He must arrange for transcripts of his summer work to be sent to the University Registrar's Office immediately following the end of the Summer Session. A student who attends another institution while absent from the University for a Fall or Spring Semester must apply for readmission to the University, as described in the section dealing with transfer and readmission.

University Health Reports. New full-time students entering the University, and returning students who have been absent one year or longer are required to file a health report form completed by a physician. These forms are mailed to applicants by the University Health Service after their official acceptance for admission.


JOY
JOY
JOY
JOY
FLEET
FLEET



Living Accommodations

General Information

The University of Kentucky is happy to offer its students a high standard of residence-hall living, surpassed by few other institutions.

During the past two years, in addition to completing the new $22 million Blanding-Kirwan Complex, more than $1 million has been spent in improving the older facilities. Each room has been furnished with innerspring mattresses; lobbies have been redecorated, and new furniture has been added. Now, more than half the space available has wall-to-wall carpeting, and nearly 75 per cent of that space is fully air-conditioned. Hallways in all units are carpeted to reduce noise.

Housing Office

The University's Housing Office is responsible for the receipt of housing applications and deposits, the establishment of consideration lists, the assignment of rooms and apartments, the notification of room or apartment assignments, and the payment of refunds (where applicable) for married and single student housing.

Who Must Apply for Housing

Most major universities have long considered residence-hall living a valuable part of the total educational experience of their students, and the University of Kentucky is no exception. In order to provide new and up-to-date residence halls for its students, it was necessary to borrow funds for their construction. Construction was financed through the sale of revenue bonds, with receipts to redeem these bonds pledged for a 40-year period.

In order to insure a reasonable cost to those students living on campus, occupancy of these buildings must be kept near capacity, otherwise the distribution of fixed costs (debt service, operational and maintenance costs) would make both room and board fees prohibitively high. With that objective in mind, the following policy regarding residency has been adopted:

All freshmen must submit applications for University residence halls, except the following:

1. Students who are twenty-one years or older
2. Students who are veterans of at least two (2) years of active military service
3. Students who commute from home
4. Students who are married
5. Students who obtain special permission from the Dean of Students' Office.

Freshman students are required to indicate on the application whether or not they desire to live in University residence halls. Those students who indicate that they do not desire to live in residence halls and whose applications are on file prior to June 1, 1970, will be informed by June 15, 1970 whether or not they have been given permission to live off-campus. Freshman students who apply for housing after June 1, will be required to live in residence halls if space is available.

Food Service

All undergraduate students living in residence halls will have a room and board contract; however, the student has the option of choosing one of three available plans:

(1) 3 meals per day;

(2) 2 meals a day—breakfast and dinner;

(3) 2 meals a day—lunch and dinner.

Room and board are not provided during the stated recesses of the University.

The two-meal options provide the stated two meals a day, six days a week, and breakfast and the noon meal on Sundays. Students electing the two-meal-per-day contract may eat the third meal (on a cash basis) in either the K-Lair Grill, the Student Center Cafeteria, or the Student Center Grill.

Those students with the three-meal-per-day contract will be served three meals a day, six days a week, and breakfast and the noon meal on Sundays. These students may eat all their meals in either Donovan Hall Cafeteria, Blazer Hall Cafeteria, or the Blanding-Kirwan dining facility. All undergraduates must indicate on their application the meal plan they prefer.

MEAL TICKET DISTRIBUTION

Those students who make their second room and board payments by August 15 will have the advantage of receiving their meal tickets at their residence halls when they check in. By making the second payment prior to arrival, the long lines normally experienced at meal ticket distribution time will be avoided.

After Sunday, August 30, meal tickets will be available in the Housing Office, Room 101 Old Agriculture Building. The second payment must be made prior to receipt of meal ticket. The University residence hall cafeterias will honor student meal tickets beginning with breakfast on August 31. The Student Center Cafeteria and the Blanding-Kirwan Cafeteria will be open to students, parents and staff for lunch on Saturday, August 29, and Sunday, August 30.

Food Service policies, including hours of operation, are described in a handbook presented to each student shortly after his arrival on campus. Please read the handbook carefully.

Cancellation of Application for Housing

An application for room and board may be cancelled, with $90 of the first installment refunded, if written cancellation is received in the Housing Office on or before June 1, 1970 for the Fall Semester or December 1, 1970 for the Spring Semester. NO REFUND will be made if the cancellation is received after June 1, 1970 for fall applicants or after December 1, 1970 for spring applicants.

Kentucky students who are accepted by the University, but who are advised to attend another school, may receive a $90.00 refund if they cancel prior to the cancellation deadline. After the cancellation deadline, there will be no refund of the first installment.

If housing space is unavailable, a student will be refunded the entire $100 first installment.

Single Undergraduate Student Residence Halls

(Double Rooms)

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

Jewell Hall accommodates only freshman women. It is the smallest of the units, housing 101 students. *Patterson Hall* houses 123 freshman women, and while the rooms in Patterson are not as spacious as those in some of the newer units, this hall is highly regarded by all who live there because of its friendly atmosphere and traditional air. *Boyd Hall*, situated between Patterson and Jewell, houses 137 freshman men.

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

Keeneland Hall accommodates 307 upperclass women students in its rooms arranged as suites—double rooms connected by a full bath. The building contains a formal reception room, library, a small grill, and corridor study rooms.

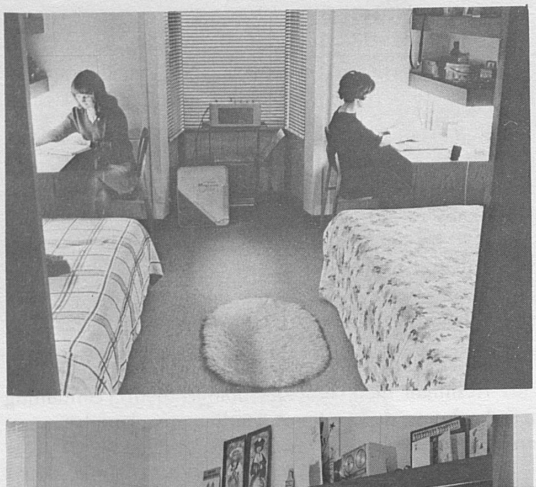
Blazer Hall houses 185 upperclass women students. This air-conditioned residence hall has corridor study rooms, a library and a music room. A cafeteria, designed to serve students on the north side of the campus, is also located in Blazer Hall.

On the south side of the campus is *Donovan Hall*, a residence unit for freshman women constructed in 1956, with a capacity of 340 students. This residence contains a lounge for the comfort of the students. One of the University's three main dining facilities, serving both men and women, is located on the ground floor of Donovan Hall.

Haggin Hall, another unit for freshman men, was completed in 1960. It has a capacity of 524 students—two assigned to each room. Constructed in the shape of a square with a large open court in the center, this four-story facility encourages small-group living with each corridor opening to the outside and locked to all but the occupants of that corridor. Haggin Hall has a study room for each corridor, a central lounge and recreation room, and is completely air-conditioned.

Located on the southeast side of the campus is the University's new 2,664 bed *Blanding-Kirwan Complex*. The Complex comprises eight three-story halls and two twenty-three story buildings, housing both men and women. These buildings are air-conditioned and have wall-to-wall carpeting throughout. The Blanding-Kirwan Commons Cafeteria is designed to serve those students who live in the Complex.

Single Graduate Student Residence Halls





COOPERSTOWN

A little farther to the southeast are residence units with apartment facilities. This housing area, known as Cooperstown, provides separate facilities for single graduate or advanced men and women students, assigned two to a unit for the academic year. With permission from the Housing Office, students may remain for the summer without additional charge. Students requesting single occupancy will be charged double rates. Students living in these facilities may prepare their own meals or may have University board contracts.

The one-bedroom unit can provide a single room for the student and the efficiency allows for sharing a room with another student. Each hall has a reception area, a study room, and laundry facilities. Each apartment includes a living area, kitchen and bath. Telephones are not provided by the University. Students desiring a telephone should arrange for the installation and payment with General Telephone Company. The individual arrangement with the telephone company allows for personal choice and is cheaper than service would be through the University Centrex system.

BLANDING TWO

Blanding Two, one of the low rise buildings in the new Blanding-Kirwan Complex, is also designed as a unit for unmarried graduate students. Blanding Two is occupied by both male (2nd and 3rd floors) and female (1st floor) students. Because of the maturity of the students living in this facility, the usual rules and regulations pertaining to hours, etc. are not applicable.

Each room is carpeted, contains two single beds, desk and chairs, a closet, dressing room area and telephone. Students may request either a single or double room in Blanding Two. (Please indicate single or double under "Residence Hall Preference" when completing application.) Students desiring single occupancy will be charged twice the amount of those living two to a room. Those students assigned to single rooms may not sublease or allow another student to occupy the second bed in the room.

Blanding Two is open twelve months of the year, including academic recesses. A student must sign a contract for the academic year, and may reside in the hall (without additional charge) during the summer if the Housing Office is notified in writing by May 10, 1971. Students vacating Blanding Two at the end of the summer must move by August 15 for proper cleaning of rooms to be accomplished and to allow time for incoming students to occupy the rooms by the time school begins.





MEALS

A choice of meal contracts is available to graduate students who wish to eat in University residence hall cafeterias. Graduate students desiring a meal plan must indicate, on the application, whether a two- or three-meal plan is desired.

Assignments

Room assignments are made according to the date the completed housing application, first installment, and housing contract are received in the Housing Office. Filing an application does not guarantee an assignment, nor does it in any way coincide with or affect admission to the University of Kentucky. Receipt of the residence hall assignment will be confirmation of housing for the student.

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

An effort is made to select a suitable roommate, according to similar interests and backgrounds, for those students not designating a roommate choice. Further, assignments to rooms are made within 30 days after admission to the University or by May 1, whichever is later. Notice of an assignment will contain the name of the residence hall, the room number and telephone number.

Late applicants may be temporarily assigned three to a room. These students will be reassigned as soon as determination can be made concerning those students who have been assigned and who do not come to the University. There are additional students who withdraw from the University shortly after arriving on campus, thus freeing space.

If some extra students were not assigned at the beginning of the semester, it would be necessary to have higher rates to account for vacancies, while later applicants would be forced off-campus.

Furnishings and Linen Service

The residence halls supply each student with a mattress pad. Pillows, sheets, pillow cases, blankets, spreads and towels are not furnished. Information concerning linen service is mailed to the student after he receives his housing assignment. Subscription to this service is voluntary, and is an agreement between the student and the linen company.

Laundry facilities in the residence halls are not adequate for bed linens and are limited to personal items. Desk blotters are not supplied, but must be used in order to protect the top surface of the furniture. Rooms should be kept locked. The residence staff is not responsible for personal property.

Pest-proof metal containers are required when food is kept in the rooms. Cooking appliances are not allowed in student rooms. Wastebaskets are to be provided by the student. Soap dishes, water glasses, ash trays, an electric iron and a laundry rack will probably be found useful. Ironing boards are furnished and automatic pay washing machines and dryers are located in all residence units. The rooms in Keeneland Hall have adjoining baths, and Keeneland residents are expected to provide cleaning supplies for their bath facilities.

It is suggested that students delay any decision concerning room accessories until arrival on campus. The room assignment will be mailed to the student between May and August, depending upon the date the completed application is received by the Housing Office.

Mail and Luggage

Student mail should be addressed to the residence hall and post office box number.

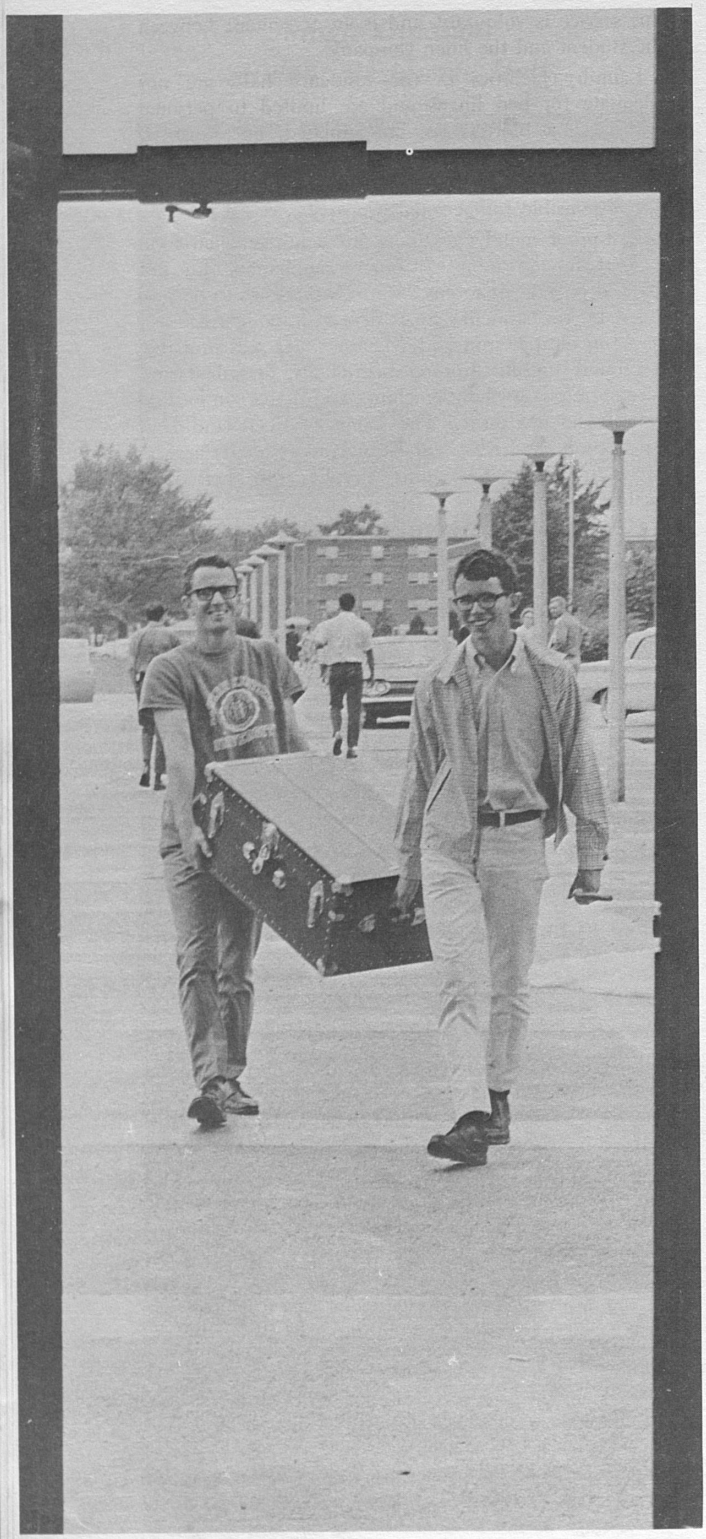
Luggage should be addressed to the specific room and residence to which the student has been assigned. Trunks may not be kept in bedrooms, but may be placed in the luggage storage room in each hall.

Student Motor Vehicles

All students registered as freshmen or 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/or operate motor vehicles at the University unless they are married, commuting, or have special permission from Safety and Security. All students are discouraged from bringing cars unless necessary. Parking space cannot be assured and students may not drive cars on the main campus during school hours, unless they have a parking permit for the campus area.

Damages

Occupants of the rooms are personally responsible for the care of furnishings. Assessments will be made for damage to the residence hall or its furnishings.



Rates

UNDERGRADUATES

The room and board rate for single undergraduate students in the residence halls is $980 per academic year for room and board with three meals a day; $874 for room and board with two meals a day; breakfast and dinner; or $930 for two meals a day, lunch and dinner.

GRADUATES

Graduate rates in Cooperstown are $524 for an efficiency apartment and $614 for a one-bedroom apartment for the academic year (may be extended to include summer session without additional charge). The rate for single occupancy in Cooperstown is $1048 for an efficiency and $1228 for a one-bedroom unit.

The rate for Blanding Two is $514 for double occupancy and $1028 for single occupancy.

The rates for graduate students DO NOT include meals. Meal contracts cost $490 for the three-meal plan; $384 for the two-meal plan, breakfast and dinner; or $440 for the two-meal plan, lunch and dinner.

BOARD ONLY

Contracts for board only are also available to students residing off-campus. The rate is $490 per year for a three-meal contract plan; $384 for the two-meal plan, breakfast and dinner; or $440 for the two-meal plan, lunch and dinner.

FIRST INSTALLMENT

The first installment of $100.00 must accompany the student's application. That installment as well as subsequent payments must be made by mail to the Housing Office, Box 999, University of Kentucky, Lexington, Kentucky 40506. In addition to the room and board rate, an activity fee of $10.00 or less, used to support student-managed programs in the residence halls, is collected at the beginning of the school year by the Residence Hall Programming staff.

PAYMENTS

Because of limited space in the Housing Office for collecting fees, payments for room and board must be *mailed* to the University Housing Office, Box 999, University of Kentucky, Lexington, Kentucky 40506. Receipts will be mailed to the student's permanent address.

RATE CHANGES

Upon action taken by the Board of Trustees, rates are subject to change at any time prior to the beginning of the academic year.

LOANS

Loan funds may be obtained through private lending agencies. Further information on these funds may be mailed to the student by the lending institution after his acceptance for admission to the University. The contractual arrangement in such loans is between the student or parent and the lending institution. Information regarding financial aid can be obtained from the Student Financial Aid Office, University of Kentucky, Lexington, Kentucky 40506.

Cancellations and Refunds

Before the semester begins:

1. A $90 refund of initial payment will be made if notice to cancel room reservation is given in writing to the Housing Office on or before June 1, 1970 for the fall applicants, or December 1, 1970 for spring applicants.
2. No refund will be made if cancellation of a room reservation is requested after June 1, 1970 for the Fall Semester, or after December 1, 1970 for the Spring Semester.
3. $90 will be refunded if a student is rejected for admission to the University.
4. No refund will be made for applications submitted and cancelled after June 1, 1970 for the Fall Semester, or after December 1, 1970 for the Spring Semester.
5. Kentucky students who are accepted by the University, but who are advised to attend another school, may receive a $90.00 refund if they cancel prior to the cancellation deadline. After the cancellation deadline, there will be no refund of the $100.00 first installment.

After the semester begins:

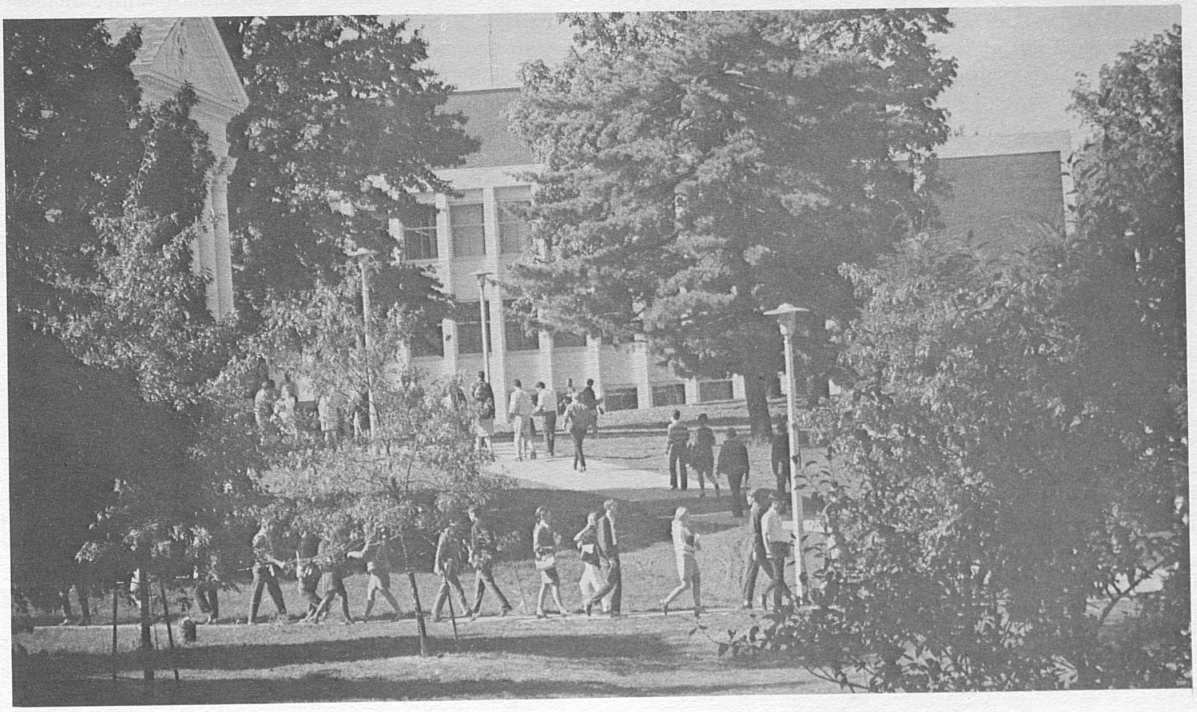
Regular semester (16 weeks): Students living in the residence halls who withdraw from the University of Kentucky will be assessed a charge for room and board of $100 through the first three weeks, plus a charge computed at the rate of 8% of the total semester charge for each week in residence through the 12th week. Any fractional part of a week will be considered a full week.

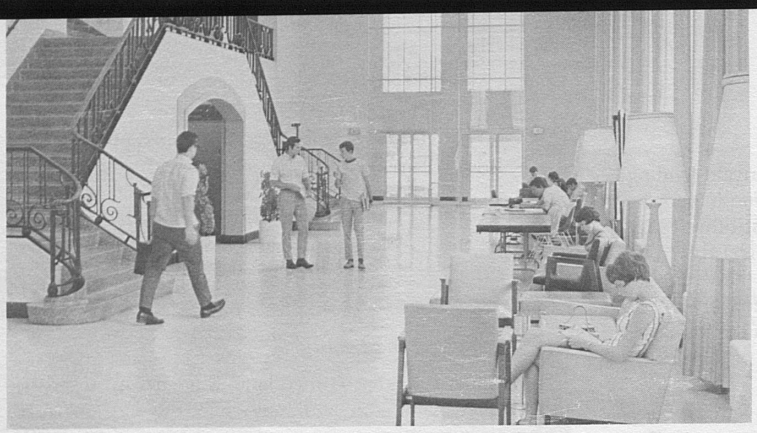
Students withdrawing from the residence halls to enter married student housing units will be assessed a charge for room and board at the rate of 6.25% of the total semester charge for each week in residence. Any fractional part of a week will be considered a full week.

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

Any questions not answered by this publication should be directed to:

University Housing Office
University of Kentucky
Lexington, Kentucky 40506





Student Affairs

Campus Activities

CULTURAL PROGRAMS

Extracurricular life at the University of Kentucky abounds with opportunities for enriching the academic career. Concerts featuring outstanding guest artists and chamber music ensembles of national and international renown are presented by the Lexington Philharmonic and the Lexington Chamber Music Society. The Kentucky Concert and Lecture Series features leading concert artists, orchestras, and lectures and distinguished presentations in fields such as politics, public affairs, sciences, and the arts.

The Department of Music presents professionally acclaimed student productions by the Symphonic Orchestra, the Symphonic Band, the Choristers, the chorus, Glee Club and the Chamber Singers. The Department of Theatre Arts offers a full season of drama staged in the Guignol and Laboratory Theatres and welcomes all interested to audition for roles. Pop concerts and top entertainers are scheduled for performances on campus by the Student Activities Board and Student Center Board. There are also several fine arts exhibits and related displays.

STUDENT PARTICIPATION

Students are encouraged not only to attend but to take part in the programs and activities of extracurricular campus life. Many will enjoy participating in the activity provided by the musical organizations on campus, including bands, orchestras, choruses, and smaller ensembles. Others become interested in working with the various student publications, including the *Kentucky Kernel*, the university newspaper published five times a week, and the annual, *The Kentuckian*. The Department of Theatre Arts invites students to take part in the many phases of dramatic productions.

Student Government participation is open to all students. As the official voice of students within the University community, Student Government is challenged with the responsibility of recommending policy considerations in the areas of academic affairs and student life, and provides numerous student services.

Students are urged to take part in the activities ranging from those of their living units to the all-campus student government represented by the executive, legislative, and judicial branches. The Student Center Board provides a wide variety of activity in its program of social, cultural, and recreational events. Traditional events, such as Little Kentucky Derby, Miss UK Pageant, Focus, and the Awards Program, are planned by the Student Activities Board. Several honorary organizations each year confer awards and membership on selected students who exhibit outstanding qualities of scholastic achievement, leadership, and character.

RELIGION

While the University endorses no particular faith or religious tradition, it welcomes and assists the work of many diverse religious organizations. These include: Ba'Hai, Baptist, Roman Catholic, Campus Crusade, Christian Science, Christian, Jewish, Episcopal, Unitarian, Presbyterian, Disciples, Lutheran, Methodist, and Intervarsity.

Students are encouraged to participate in the many worship programs, seminars, service projects, discussions, and social activities sponsored by these groups. The professional staffs of these organizations are available for personal counseling and can be reached at their respective centers adjacent to the University campus. The University encourages students to draw upon the resources of religious activities on campus and to be aware of the various ways to relate their own religious convictions to the experience of higher education.

ATHLETICS

The University of Kentucky is a member of the Southeastern Conference and has an enviable record in many areas of intercollegiate competition. Kentucky's athletic program is a well-balanced and ambitious activity featuring intercollegiate competition in eight different sports and encourages participation by all students. Although football and basketball get the big headlines, other sports receive prime treatment from the Department of Athletics, which conducts its ac-

tivities without overemphasis or sacrifice of educational objectives. The University fields representative teams in baseball, track, swimming, golf, tennis, and rifle.

CAMPUS RECREATION

The Department of Campus Recreation was organized with the belief that it is an educational responsibility of a modern university to promote a complete and intelligently conducted intramural and recreation program for the large mass of its students who are unable to experience the thrill of competing on varsity teams. Opportunities are provided for recreation and relaxation from strenuous school work and the rapid pace of modern living that exists today. It is the desire of the Department to provide every student in the university with the opportunity to participate in the activity of his or her choice as often as time, space and inclination permit.

Each student is invited to participate in as many activities as deemed advisable. Some sports in the program are organized for team competition and others for individual participation. Non-competitive recreational outlets are also available. It is wise to select activities for each group. In the case of team competition, groups or teams may be organized by a residence hall, a fraternity, a club, a department or a group of individuals.

FRATERNITIES AND SORORITIES

The fraternity system has been designed to supplement the formal educational process by providing opportunities for men to mature mentally, physically and emotionally. By encouraging the most complete personal development of its members, the fraternity emphasizes academic excellence, leadership, social competence and brotherhood.

In relation to student affairs, the fraternities sponsor various weekends, many all-campus jam sessions, service projects, and have one of the strongest intramural leagues at the University. Each fraternity has its own chapter house operating as sanctioned University housing. The primary responsibility for the fraternity's operation rests with the undergraduates, with the assistance of the house director, fraternity alumni and the fraternity adviser.

In the fall, fraternities rush entering freshmen, and upperclassmen who have a 2.0 grade point average. It is necessary for all men to achieve a minimum of 2.0 over-all before they are eligible for initiation. The fall rush period will last approximately ten days and will allow all interested men to learn more about the fraternity system. A short rush also will be held at the beginning of the second semester. Twenty national fraternities and one local fraternity maintain chapters at the University of Kentucky.

The purpose of a sorority is to aid the coed in getting the most out of her college career—academically, socially, and culturally. The sororities stress learning, responsibility, achievement, and friendship. They strive to make a genuine contribution to chapter, campus, and community life. Among the many activities offered through the sororities are: faculty firesides, retreats, scholarship programs, support of cultural programs, civic work, and social activities. Each sorority has its own chapter house operating as sanctioned University housing. The responsibility for the sorority's operation rests with the undergraduates, with the assistance of the house director, sorority alumnae and sorority adviser.

Rushing activities for sororities begin before the opening day of fall classes and conclude during the first week of classes. All entering freshmen and transfer women who are in good standing with the University are eligible for rush. Women who have attended the University at least one semester may participate in rush if they have a 2.0 over-all standing and a 2.0 the previous semester (based on a 4.0 system). Open bidding is in effect throughout the year as vacancies in the chapters occur. Chapter limitation is presently 90 initiated and pledging members combined. Fourteen national sororities maintain chapters at the University of Kentucky.

Student Services

DEAN OF STUDENTS' OFFICE

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

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

UNIVERSITY DISCIPLINE

University of Kentucky students are citizens of two communities—the academic community and the city of Lexington. Students are subject to institutional disciplinary procedures when offenses are committed against the University or its community of scholars. The *Code of Student Conduct* adopted by the Board of Trustees, July 28, 1969, sets expectations for student behavior which are consistent with the goals and purposes of this academic institution and establishes procedures which insure equality and fairness in dealing with all students. While the University is a place where the search for truth is carried on through free inquiry, it is not a sanctuary for those who seek

freedom from moral, social and legal obligations. As residents of the City of Lexington, students have the same rights and responsibilities as other citizens.

FORMATION OF STUDENT ORGANIZATIONS

Student organizations are an outgrowth of student interest and are developed to meet a variety of student needs. Many provide programs which supplement the classroom experience and extend beyond campus boundaries into areas of community service. All provide learning situations and leadership training for the individual students who become involved.

There are nearly 200 registered student organizations on the University of Kentucky campus. These include government organizations, political organizations, social sororities and fraternities, honors and leadership organizations, recognition societies, departmental organizations, professional fraternities, and special interest groups such as Associated Women Students, Black Student Union, Cosmopolitan Club, religious, athletic and military groups.

Students wishing to form an organization are required to submit to the Dean of Students Office an application for registration, a copy of the constitution of the group, a petition signed by those persons desiring to form the group, and an affirmative statement of non-discrimination. All student organizations are advised by a member of the tenured faculty of the University. In addition, a member of the Dean of Students staff serves as a University adviser to all social sororities and fraternities, political organizations and government organizations.

Privileges of registered student organizations include those of reserving University facilities, securing University agency accounts, use of the campus mail service and inclusion of a description of the organization in the Student Handbook.

Hours: Monday-Friday
8:00 a.m.-12:00 noon
1:00 p.m.-5:00 p.m.
Location: Room 531, Office Tower

FRATERNITY AND SORORITY AFFAIRS

The advisers to fraternities and sororities work with the twenty national fraternities and fourteen national sororities represented on the University of Kentucky campus. In addition, they serve as advisers to Interfraternity Council, Panhellenic Association, and Greek Activities Steering Committee.

They work closely with the individual officers of each chapter, with the respective chapter advisers, house directors, Alumni Corporations, and national officers and representatives. The advisers are concerned with all areas of fraternity and sorority operations: rushing, pledging, scholarship, finance, leadership, personal growth, and University involvement. They work with the various groups, both individually and collectively, in redefining purposes and goals, and assist in establishing direction, policy, and programs which the chapters pursue in their integral role in the University community.

Hours: Monday-Friday
8:00 a.m.-12:00 noon
1:00 p.m.-5:00 p.m.
Location: Room 555, Office Tower

THE STUDENT CENTER

The University of Kentucky Student Center is owned and operated by the University of Kentucky as a service to the students, faculty, and staff of the academic community. Open approximately 120 hours a week during the academic year, the Center is where students, faculty and staff members and their friends can get together in an informal atmosphere. In fact, it is often referred to as "the living room" of the University family. Since the Student Center's major source of income is derived from activity fees, it seems fitting that the policies governing the building be made by a Student Center Board, composed of students, faculty and staff.

With over 133,000 square feet of floor space, the Student Center is equipped to offer many facilities and services for the enrichment of campus life. Included in these facilities and services are the following: art gallery, ballroom, barber shop, bookstore, browsing room and music room, cafeteria and grille, card room, check cashing, check room, game room, information desk, lost and found, offices and meeting rooms, patio, theatre, travel map, TV lounges.

HUMAN RELATIONS CENTER

The Human Relations Center provides services to campus specialty groups that have unique racial, religious, or cultural needs. The central purpose of the Center is to assist students to recognize the existence of diversity in people and to understand better the uniqueness of racial, religious, cultural, and socio-economic groups. Through special activities the Human Relations Center provides opportunities for cross-cultural experience and inter-group contact among the variety of campus groups. The Human Relations Center offers student services in the following areas: religious affairs, international student affairs, volunteer services, disabled student services.

OFFICE OF RELIGIOUS AFFAIRS: The Coordinator of Religious Affairs is available to students for religious counseling, information on all campus religious programs, and materials and resources for religious activities. In cooperation with the Religious Advisers Staff the Office of Religious Affairs offers various services to students which include: hospital

visitation, theological forums, inter-faith activities, church directory, special speakers and projects. Information on scholarships, travel abroad, and international service and educational opportunities are also available.

THE ADVISER TO INTERNATIONAL STUDENTS: The Adviser to International Students familiarizes over 200 graduate and undergraduate students, who represent some 50 countries, with the academic and social opportunities on the campus and in the community. He is also prepared to assist foreign students with any problems they may encounter, particularly those concerning University regulations, visas, passports, and correspondence with home governments.

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

DISABLED STUDENT SERVICES: Special assistance is made available to handicapped students through the Disabled Student Program. For the 40 severely handicapped students on campus the following services are provided:

1. Special academic advising and orientation
2. Personal Counseling
3. Recruitment of volunteer and employed attendants
4. Liaison with rehabilitation services, faculty, student personnel officers, and University Physical Plant Division
5. Special parking permits

Students with disabilities are urged to register with the Director of the Disabled Student Program and obtain information on the various types of assistance available to them.

Hours: Monday-Friday
8:00 a.m.-12:00 noon
1:00 p.m.-5:00 p.m.
Location: Room 120, Student Center

RESIDENCE HALLS PROGRAMMING

The residence halls provide experience in government, social planning and group living. Trained personnel and selected student advisers are concerned with the educational and personal development of students. With this guidance available, students are enabled to develop social skills in an atmosphere conducive to their academic pursuits. The residence halls encourage student participation both within residence halls and in the total campus community. The Head Residents, Receptionists, and Corridor Advisers who staff each undergraduate living unit help develop hall government and plan programs of interest for hall residents.

Hours: Monday-Friday
8:00 a.m.-12:00 noon
1:00 p.m.-5:00 p.m.
Location: Room 513, Office Tower

CAMPUS RECREATION

The University of Kentucky feels the responsibility to the students to provide opportunities for recreation as a part of the educational offerings and as leisure time activities. Students, faculty, and staff of the University are offered a wide variety of leisure time pursuits through the following programs: Aquatics, Intramurals for Men, Intramurals for Women, Extramurals for Men, Extramurals for Women, Sports Clubs, Entertainment Dance Clubs, Co-Recreation—Faculty and Staff, and Free-Play. The finest facilities for swimming, tennis, basketball, handball, softball, track, and football are available.

Hours: Monday-Friday
9:00 a.m.-5:00 p.m.
Location: Room 102, Alumni Gym

Professional Services

FINANCIAL AID

All young men and women of each state are the primary concern of the state University. The University of Kentucky is particularly interested in students with high intellectual capacity, strong motivation toward a university education, and ability to help themselves. UK seeks to aid such students who, because of limited resources, find it difficult to finance a university education.

APPLYING FOR FINANCIAL ASSISTANCE: Uniform applications procedures and forms have been developed for all types of financial assistance administered by the Office of Student Financial Aid. Application procedures are divided into three categories: (1) entering freshmen, (2) returning students and transfers, and (3) health professions—students in the Colleges of Medicine, Dentistry, Nursing and Pharmacy.

(1) ENTERING FRESHMEN

Applications. The "University of Kentucky Application for Student Financial Aid" is distributed to all Kentucky high schools in November, and seniors may secure one from their principals or counselors. Out-of-state high school seniors obtain applications by writing the Office of Student Financial Aid, University of Kentucky, between November 1 and January 15. This one application enables applicants to receive consideration for all types of aid administered through this office.

All freshman applicants must:

1. Take the American College Test (ACT) no later than December of their senior year.
2. Submit a Parents' Confidential Statement (PCS) to the College Scholarship Service designating the University of Kentucky (Code 1937) to receive the analysis. The PCS is available at the local high school and must be submitted no later than February 1.
3. Submit the "University of Kentucky Application for Student Financial Aid" to the Office of Student Financial Aid, University of Kentucky, no later than February 1. Even though you are applying for assistance at one of the Community Colleges you still must submit the application directly to this office, clearly designating the Community College you will attend in the appropriate space on the face of the application.

Every effort is made to notify applicants of amounts and kinds of assistance by April 15. Assistance is based on need. No awards are final until applicants are accepted for admission by the University or the Community College.

(2) RETURNING UNIVERSITY STUDENTS AND TRANSFERS

Returning University students and transfers must:

1. Secure a "University of Kentucky Application for Student Financial Aid" between March 1 and March 30.
2. Return the completed application to the Office of Student Financial Aid no later than two weeks after it was obtained.
3. Submit the Parents Confidential Statement (PCS) to the College Scholarship Service, designating the University of Kentucky to receive the analysis no later than March 30. (The PCS will be made available to all applicants requesting the "University of Kentucky Application for Financial Aid".)
4. In addition to the above, students transferring to the University from other institutions must furnish the Office of Student Financial Aid a transcript of their college grades.

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

(3) HEALTH PROFESSIONS STUDENTS

MEDICINE AND DENTISTRY

University of Kentucky Medical and Dental students and students accepted for admission in the Colleges of Medicine and Dentistry are offered an opportunity to apply for financial assistance through the Office of Student Services, University Medical Center, prior to the beginning of each Fall Semester.

PHARMACY AND NURSING

Pharmacy and Nursing students should request a Health Professions Application for Financial Assistance from the Office of Student Financial Aid between March 1 and March 30.

Financial Aid Programs

SCHOLARSHIPS

Scholarships at the University of Kentucky are supported by gifts from friends and alumni of the University, and from funds provided by the University in support of its scholarship program. Consequently, the number of scholarships available at any one time depends upon the extent of private giving and the ability of the University to provide funds from other sources. When looking at scholarships offered by colleges and universities, potential recipients should examine carefully what proportion of expenses the award will actually defray. The actual dollar-value of the award does not always reflect its true worth.

FRESHMAN SCHOLARSHIPS

In the freshman awards program, the University bases its grants on outstanding academic ability and the need for financial assistance. The University uses the American College Test (ACT) to measure scholastic aptitude and promise of scholarship applicants. Generally speaking, to receive consideration for a scholarship, an applicant should rank in the top 10 per cent of his graduating class and attain a composite standard (ACT) score of not less than 24.

UPPERCLASS SCHOLARSHIPS

In addition to the freshman scholarships, the University provides a number of awards for upperclassmen. The awards are assigned on the basis of academic performance and the need for financial assistance.

EDUCATIONAL OPPORTUNITY GRANTS

The Higher Education Act of 1965 provides Educational Opportunity Grants for students who could

not enter or remain in college without them. Specifically, this means students whose parents cannot contribute more than $600 a year to their educational costs.

The amount of the grant is $1000 or one-half of the student's determined need, whichever is the least. The University must provide the remaining one-half or an amount equal to the grant through its other programs.

STUDENT LOANS

Loans are available to qualified undergraduate, professional and graduate students. Funds are not sufficient, however, to provide loans to cover all expenses for a semester or year at the University. Loans supplement the student's personal savings and/or earnings, assistance from parents, or other financial assistance. When possible, loans are combined with other types of financial assistance to reduce the amount a student must borrow.

HONOR LOANS

A limited number of honor loans have been established by alumni and other friends of the University. Interest is usually not charged on these loans while the borrowers are in school. These loans are restricted to students in a specific college and/or major field of study. Interested students should contact the Office of Student Financial Aid after enrolling.

SHORT-TERM EMERGENCY LOANS

Two University student organizations, the Student Government and the Little Kentucky Derby, have provided funds from which a student may borrow up to $100 for 60 days. A limited number of smaller loan funds, all of which are restricted to a major field of study, are also available to eligible University students. Students in need of short-term emergency loans should contact the Office of Student Financial Aid.

NATIONAL DEFENSE STUDENT LOANS

The National Defense Student Loan fund is the largest part of the University's loan program. This is a cooperative loan program made available on a fund-matching basis between the University and the Federal Government.

A student must demonstrate the need for a loan and the ability to do acceptable work at the University. The amount of loan is determined primarily by the needs and resources of the student. However, by the terms of the Act, the loan for one year must not exceed $1,000 and the aggregate over a number of years cannot exceed $5,000 for undergraduates and $2,500 per year and an aggregate of $10,000 for graduate and professional school students.

Interest does not accrue and payments are not required while a borrower is a full-time student. The interest rate is 3 per cent per year, but does not begin to accrue until the beginning of the 10th month after the borrower ceases to be a full-time student. The first payment is ordinarily scheduled to become due at the end of the first year a borrower is out of school.

Students who enter 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.

In certain cases 100% of the loans may be cancelled at the rate of 15% for each year of full-time teaching.

HEALTH PROFESSIONS LOANS AND SCHOLARSHIPS

Health Professions Student Loan Programs are available for students in the Colleges of Medicine, Dentistry, and Pharmacy. These are cooperative loan funds made available on the same basis as the National Defense Student Loan Program described previously.

The law requires that each borrower be enrolled or accepted for full-time enrollment in good standing in the Colleges of Medicine, Dentistry, or Pharmacy and be in need of a loan to continue his professional education.

A student may borrow up to $2,500 in one academic year. The borrower must sign a note for the loan, and repayment begins one year after the borrower ceases to be a full-time student. Repayment is to be completed within 10 years thereafter. Interest does not accrue on the loan prior to the beginning of the repayment period, and interest thereafter is charged at the rate of 3 per cent per annum. A loan is cancelled on receipt of proof of death or total, permanent disability.

Related to the Health Professions Student Loans are the Health Professions Scholarships for full-time students entering the Colleges of Medicine, Dentistry, or Pharmacy after February 1, 1966. An award cannot exceed $2,500 a year and the recipient must have exceptional financial need. Nursing Student Loans and Scholarships—The Nursing Student Loan Program for full-time students in the College of Nursing—is established on the same basis as the National Defense and Health Professions Student Loan Programs. A full-time nursing student at the University may borrow up to $1,000 in one academic year and an aggregate of $5,000. The borrower must sign a note. Repayment of the loan begins nine months after the borrower ceases full-time student status and must be completed within 10 years thereafter. Interest begins to accrue at the beginning of the second year a borrower is out of school, and is 3 per cent per annum. The loan is cancelled upon receipt of proof of death or total, permanent disability of the borrower.

Related to the Nursing Loans are the Nursing Scholarships for full-time students in the College of Nursing or Associate Degree Programs. An award cannot exceed $2,500 a year and the recipient must have exceptional financial need.

FEDERALLY INSURED LOAN PROGRAM

The State of Kentucky participates in the Federally Insured Loan Program through an agreement with the Department of Health, Education, and Welfare. Through this program, a student is eligible to borrow up to $1,500 a year. If the applicant's adjusted gross family income is less than $15,000 per year, the federal government will pay the interest until repayments are to begin. Repayment of the loan begins not earlier than nine months nor later than one year after the date of graduation or withdrawal from school. Repayment schedules will normally be arranged for 5 to 10 years, although the student will be required to pay a minimum of $360.00 per year. The current interest rate is 7 per cent simple interest. A fee of one-fourth of one per cent of the amount of the loan for the term of the in-school note is paid in advance.

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

Each of the states participate in the Federally Insured Program or have a State Guaranteed Loan Program which is similar.

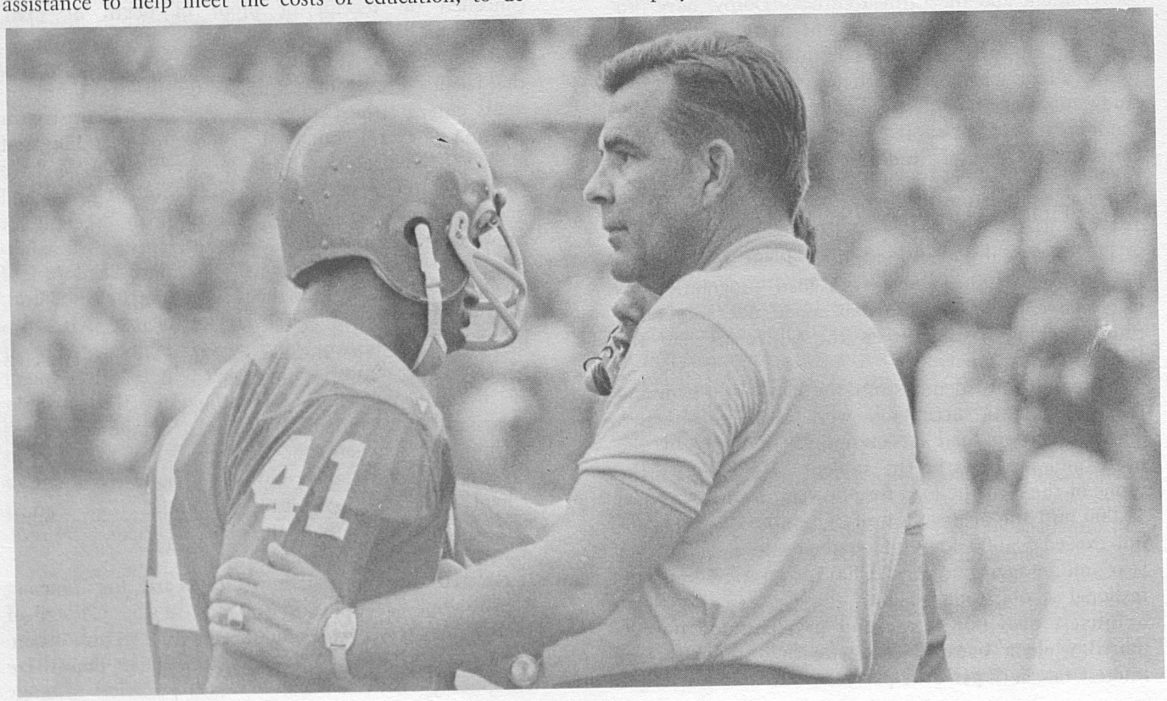
PART-TIME EMPLOYMENT

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

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

Work opportunities are available through the University for both on and off campus employment for qualified students who require and desire this type of assistance. These opportunities include general office workers, clerk-typists, secretaries, receptionists, sales clerks, tutors, research assistants, laboratory aides, nurses' aides, service station and parking lot attendants, delivery truck drivers, agricultural workers, and library assistants. Most jobs are for a maximum of fifteen (15) hours per week.

Students seeking part-time employment should contact the Office of Student Financial Aid, Student Part-Time Employment Service, well in advance of the time a job is needed. In this office they will be interviewed and will file an application for employment. A student must keep in contact with this office until placed. The student worker should report promptly any unsatisfactory work relationships, and is welcome to discuss his work program with the Student Part-Time Employment Office at any time.



VETERAN AND WAR ORPHAN BENEFITS

The Office of Student Financial Aid coordinates veteran and war orphan affairs between the University and the Veterans Administration. The veteran or war orphan should report to the Office of Student Financial Aid 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 catalog.

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.

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.

THE COLLEGE WORK-STUDY PROGRAM

The Economic Opportunity Act of 1964, as amended by the Higher Education Act of 1965, provides funds to create part-time work opportunities for students from low-income families. In doing so, the University has attempted to provide meaningful work experience for students. Many jobs are related to the student's area of study. Such opportunities include faculty aides, research assistants, laboratory assistants, clerical and secretarial, bookstore assistants, administrative office assistance, food service workers, building and grounds workers, and others.

Under the College Work-Study Program, students may work up to 15 hours per week during the academic year and up to 40 hours per week during summer and vacation periods. The number of hours a student may work is also determined by the student's need for financial assistance. Hourly rates range from $1.45 to $2.00 per hour.

Health Services

Through the resources of the Medical Center, the University provides health care for full-time students. The University Health Service staff of physicians, nurses and other health professionals is available for consultation and treatment of medical, surgical and emotional problems.

The Health Service utilizes the following means in providing a comprehensive medical care program for students:

(1) A Health Report Form, mailed to each full-time student upon his acceptance by the University, is used for recording of his health history, his immunization status and his medical examination. The submission of a completed form is a requirement of the University. This confidential record helps the Health Service to keep informed of the student's current health state. This may include problems for which he will need attention while attending the University.

(2) Health surveys are conducted, including screening programs for tuberculosis and other disorders. Their purposes are twofold: first 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—students with more urgent illnesses will be seen on a walk-in basis.

Medical Center facilities available to students include:

(1) The University Health Service, providing medical, surgical and psychiatric outpatient care.

(2) University Health Service infirmary for students with moderately severe illnesses.

(3) University Hospital inpatient facilities for severe illnesses.

(4) University Hospital specialty clinics.

(5) University Hospital emergency room for after hours emergency care.

Some of these facilities and health benefits are available to students without charge. (These are described in the Health Service brochure.) To cover those charges for which the student and/or his family are responsible, the University Health Service strongly

recommends adequate health insurance coverage for all students. (The University of Kentucky Student Government makes available for all full-time students a low premium group policy that provides coverage on a 12-month basis. The Graduate and Professional Student Association also makes available a group health insurance policy for its members.)

Hours: Monday-Friday—8:00 a.m.-5:00 p.m.
Saturday—8:00 a.m.-12:00 noon
Location: First floor North wing of Medical Center

University Counseling and Testing Center

The University Counseling and Testing Center has a staff of trained counselors whose primary function is helping students to solve academic, vocational and personal problems. Some typical student concerns are: ineffective study skills and habits, need for improved reading skills, difficulty in adjusting to the college environment, lack of a specific field of interest, vocational planning, inadequate interpersonal relations, feelings of depression, emotional insecurity, and more specific problems of a personal nature. All interviews are confidential and voluntary; no student is required to have counseling. Individual testing is available only upon referral by a Center staff counselor. Tests of intelligence, aptitude, achievement, personality, vocational interests, study skills, and many others may be used, if the student wishes, to aid him in understanding himself and in increasing his efficiency.

All placement, orientation, and classification tests administered to new and transfer students are given under the supervision of the Center. The Center also acts as a testing center for the local administration of various national scholastic tests, e.g., Graduate Record Examinations, Medical College Admission Test, National Teacher Examinations, etc., which are required by most universities as part of the application for admission to academic and professional programs of higher education.

The University Counseling and Testing Center has been certified by the American Board on Counseling Services as an agency providing approved counseling services. The services of the Center are available by appointment to all students enrolled in the University as well as faculty and staff. There are no fees for the testing or counseling of University-connected clients. Appointments may be made by calling 2197; referral from another campus agency is not necessary.

Hours: Monday-Friday—8:00 a.m.-12:00 noon
1:00 p.m.-5:00 p.m.
Saturday—9:00 a.m.-12:00 noon
Location: Room 301, Old Agriculture Building

Placement Service

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

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

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

Undergraduates and postgraduates are encouraged to register for full-time employment opportunities at the beginning of their final year at the University. Students who are seeking summer employment may register after their freshman year.

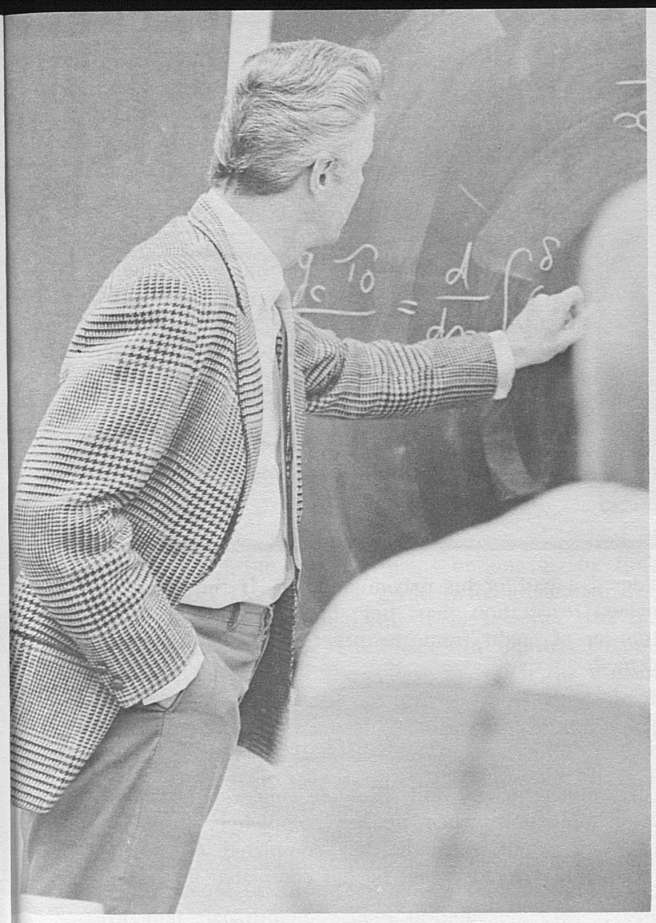
The Placement Service strongly urges each student to become acquainted with the many opportunities available to him through the Service.

Hours: Monday-Friday—8:00 a.m.-12:00 noon
1:00 p.m.-5:00 p.m.
Location: Room 201, Old Agriculture Building

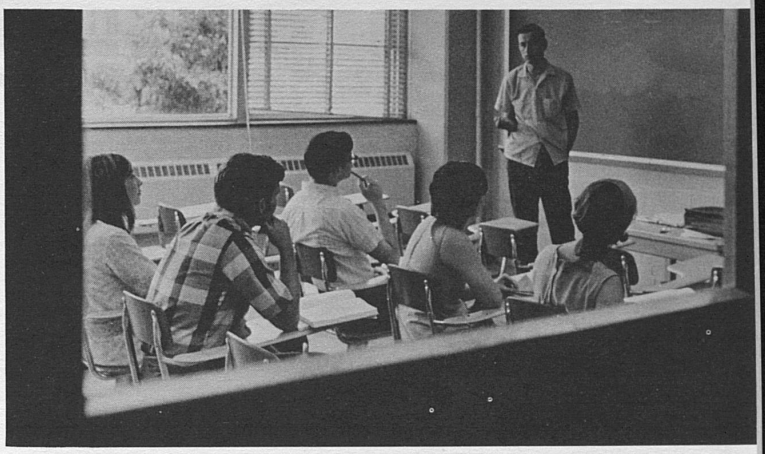
Safety and Security

The Safety and Security Division is responsible for the safety of all University personnel and property. The University Safety Department, the University Police Department, and the University's parking program are administered by this Division. Students are especially encouraged to become familiar with the University parking and traffic regulations. Freshman and sophomore students are not permitted to operate motor vehicles while at the University unless given special permission by the Dean of Students. Students residing on campus are given parking permits for specific areas. Commuting students may also purchase permits for specified parking areas. Information concerning parking permits is available at registration each semester.

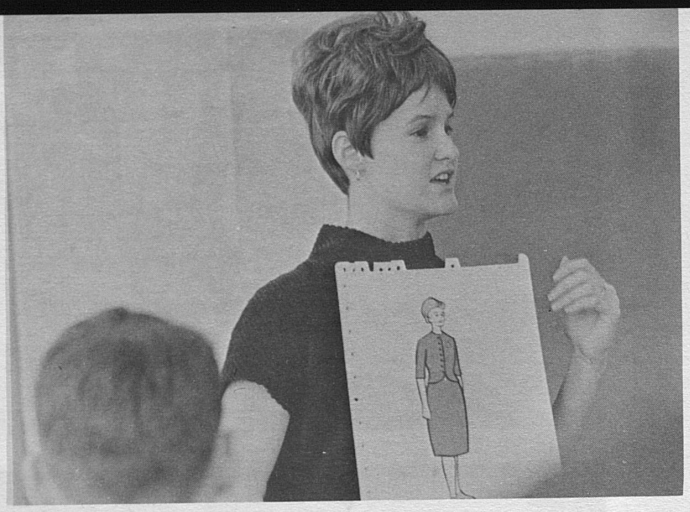
Hours: Monday-Friday—8:00 a.m.-12:00 noon
1:00 p.m.-5:00 p.m.
Location: Room 109, Kinkead Hall











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

The maximum load for the summer session shall be 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 may be permitted by the dean of his college to carry a maximum of three extra credit hours provided the total is not in excess of 22 credit hours (10 hours for the summer session).

A student on academic probation shall take no more than 15 credit hours in a semester or seven credit hours in a 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 college at the University of Kentucky in which he is registered; the credit hours obtained at the other institution being considered a part of his maximum load. If the simultaneous registration has not been authorized, the transfer of credit from the other institution may be denied.

Classification

A student in any undergraduate college is classified as a sophomore when he has completed 30 credit hours, a junior when he has completed 60 credit hours, and a senior when he has completed 90 credit hours.

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

A Pharmacy student is classified as a second-year student when he has completed 28 credit hours and as a third-year student when he has completed 56 credit hours.

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 average achievement. It is valued at two grade points for each credit hour.

Grade D represents the minimum passing grade (not

to be used for graduate students). It is valued at one grade point for each credit hour.

Grade E represents unsatisfactory performance and indicates failure in the course. It is valued at zero credit hours and zero grade 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 F represents failure in a course taken on a pass-fail basis.

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 by midterm of the semester after the student re-enters the University. In unusual circumstances, the dean of the college in which the student is enrolled may grant an extension of time, to a specified date, for removal of an incomplete and notify the Registrar of such action. However, in no case shall more than two extensions be granted for each I grade. A student may not enroll in a course in which he has an I grade.

Each department, school or college shall maintain a file record of incomplete grades recorded in courses of that department, school or college. This record, completed by the instructor, shall include (1) the name of the student, (2) the course number and hours of credit, (3) semester and year of enrollment, (4) signature of the instructor, (5) a brief statement of the reason for recording the incomplete, and (6) an adequate guide for removal of the incomplete grade (with a suggested final grade). I grades which are not removed within this time period shall be changed to E grades by the Registrar.

Grade P represents a passing grade in a course taken on a pass-fail basis.

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

Grade S may also be recorded as a permanent mark in courses carrying no academic credit. The grade may not be given to a student who has done unsatisfactory work or to one who has failed to do a reasonable amount of work. The project must be substantially continuous in its progress. When the work is completed a final grade will be substituted for the S. No student may receive a degree with I or S marks on his record without permission of his adviser and approval of the dean of his college.

Grade W—withdraw passing—will not be given if the student is failing at the time of his withdrawal and will not be given unless the student withdraws officially. 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 W or E as reported by the instructor of a class.

Official Withdrawal from a Course: A student may officialy withdraw from a course by permission of the dean of the college in which he is registered; provided, however, that no student shall be permitted to withdraw within five weeks (two weeks during the summer term) of the final examination period except for urgent reasons relating to extended illness or equivalent distress. The dean shall report withdrawal from class to the Registrar.

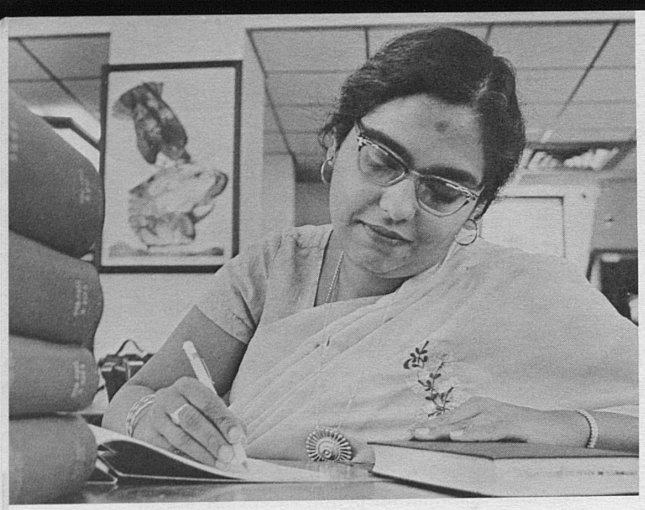
Audit. Any change from audit to credit by a student regularly enrolled in a college must be accomplished by the last day of late registration and any change from credit to audit must be made by the last day to drop a course without a grade. No credit can be given for a class audited, nor is the student permitted an examination for credit. No instructor is authorized to admit anyone as an auditor to any of his classes unless the auditor has registered as such.

PASS-FAIL OPTION

Undergraduate students above the freshman level and not on academic probation may select a maximum of four elective courses, with certain restrictions, to be taken on a pass-fail basis. Students in the Honors Program above the freshman level may, with advance written approval of the Director of the Honors Program, select additional elective courses to be taken on such a pass-fail basis. Credit hours successfully completed under this option will count toward graduation but not be used in calculating grade-point standing. Courses taken on a pass-fail basis shall be limited to those considered as elective in the student's program and such other courses or types of courses as might be specifically approved by the Senate for a college or department. Prerequisites for such courses may be ignored at the student's own hazard. The student is expected to participate fully in the course and take all examinations as though he were enrolled on a regular basis. Students may not change from a pass-fail basis nor from a regular basis to a pass-fail basis after the last date for entering an organized class.

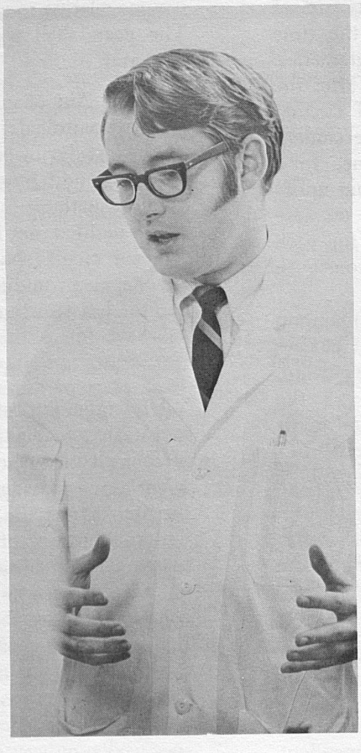
GRADE POINT AVERAGE

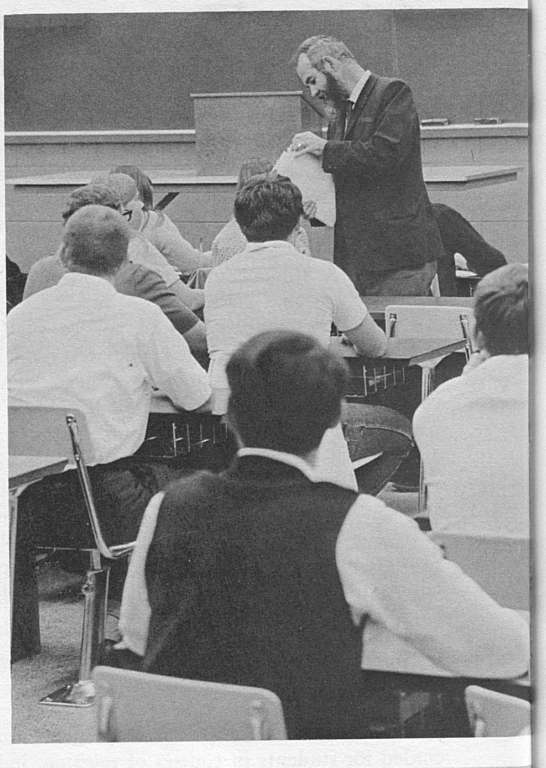
The grade point average is the ratio of the number of points gained to the number of credit hours attempted. As stated above, an A counts four points for each credit hour carried, a B counts three points, a C two, and a D one. Thus, a student would earn 12 quality

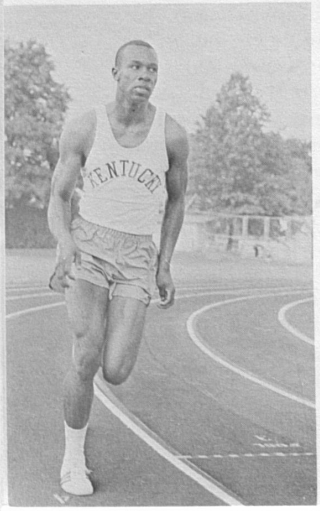




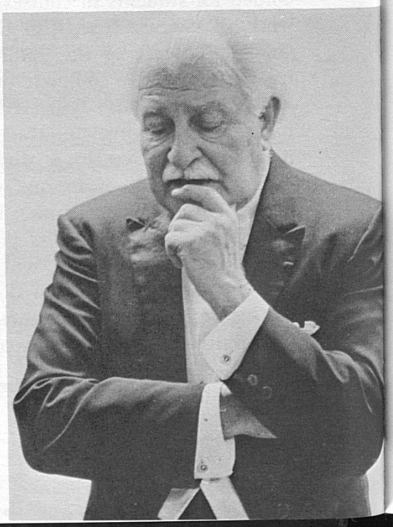







ENTUCK


FIRST
AID



points for an A in a three-hour course and four quality points for a C in a two-hour course. To figure his over-all 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.

COLLEGE OF MEDICINE GRADING SYSTEM

Honors, Pass and Unsatisfactory are the designations for the College of Medicine students. The H, P, U designations are utilized only for medical students. The few graduate students in essentially medical classes are graded as before.

Other Regulations

Entrance Examination. All new full-time students, other than those entering the Graduate School, are required to take the American College Test (ACT) and such physical examinations as the University may require.

Financial Delinquency. A student who is delinquent in his financial obligations to the University, to any department or division of it, 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 the college, and the chairman of the department concerned. Application must be made in writing to the Registrar. Credit for courses taken by special examination shall be considered residence credit.

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

CREDIT FOR STUDENTS WHO WITHDRAW TO ENTER MILITARY SERVICE

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

Scholastic Probation, Academic Suspension and Reinstatement

UNDERGRADUATE COLLEGES

1. *General regulations for undergraduate students:*
   a. The scholastic probation and academic suspension systems are based on quality point deficit. The base for determining the deficit is the number of quality points which would result from multiplying the number of hours attempted by two. Deficit is the difference, if any, between this base and the number of quality points earned.
   b. Courses which have been completed with a grade of "B" or better shall not be repeated for credit hours or quality points, except for those courses for which repeated registration is provided in the official course description.

      A student shall have the option to repeat once as many as three different courses which have been completed with a grade of C, D, or E with only the grade, credit hours, and quality points for the second completion used in computing the student's academic standing and credit for graduation. Before enrolling in a class under this option, the student must notify in writing the dean of the college in which he is enrolled and his adviser. If a student officially withdraws from the second attempt, then the grade, credit hours, and quality points for the first completion shall constitute the grade in that course for official purposes, and the second attempt shall constitute exhaustion of one of the three options to repeat a course under this provision unless at the time of withdrawal permission to attempt again the same course shall be granted by the instructor and the dean of the college in which the student is enrolled.

2. *Scholastic probation:*
   a. The academic record of each freshman student will be reviewed after his first full semester. If a student has a deficit in excess of 5 quality points at the end of his first full semester, the

dean shall either place him on scholastic probation or warn him that he is making unsatisfactory progress. If he has demonstrated that he cannot or will not do satisfactory work, he shall be subject to academic suspension from the University, but the dean may place the student on scholastic probation if the individual case justifies it.

b. The following undergraduate student shall be placed on scholastic probation by the dean of his college:

(1) Except for first semester freshmen, a student who, at the end of any semester or session, has a cumulative deficit in excess of 5 quality points.

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

3. *Removal from probation:*

The following undergraduate student shall be removed from probation by the dean of his college:

a. A student on scholastic probation who has not earned 90 semester hours (senior standing), and who at the end of a semester or session has reduced his cumulative deficit to 5 quality points or less.

b. A student on scholastic probation who has earned 90 semester hours (senior standing), and who at the end of a semester or session has a cumulative grade point standing of 2.0.

4. *Academic suspension:*

The following undergraduate student who has not previously been academically suspended shall be subject to academic suspension from the University, but a dean may continue a student on scholastic probation if the individual case justifies it:

a. A student who acquires an additional deficit in excess of 5 quality points during any semester or session while on scholastic probation.

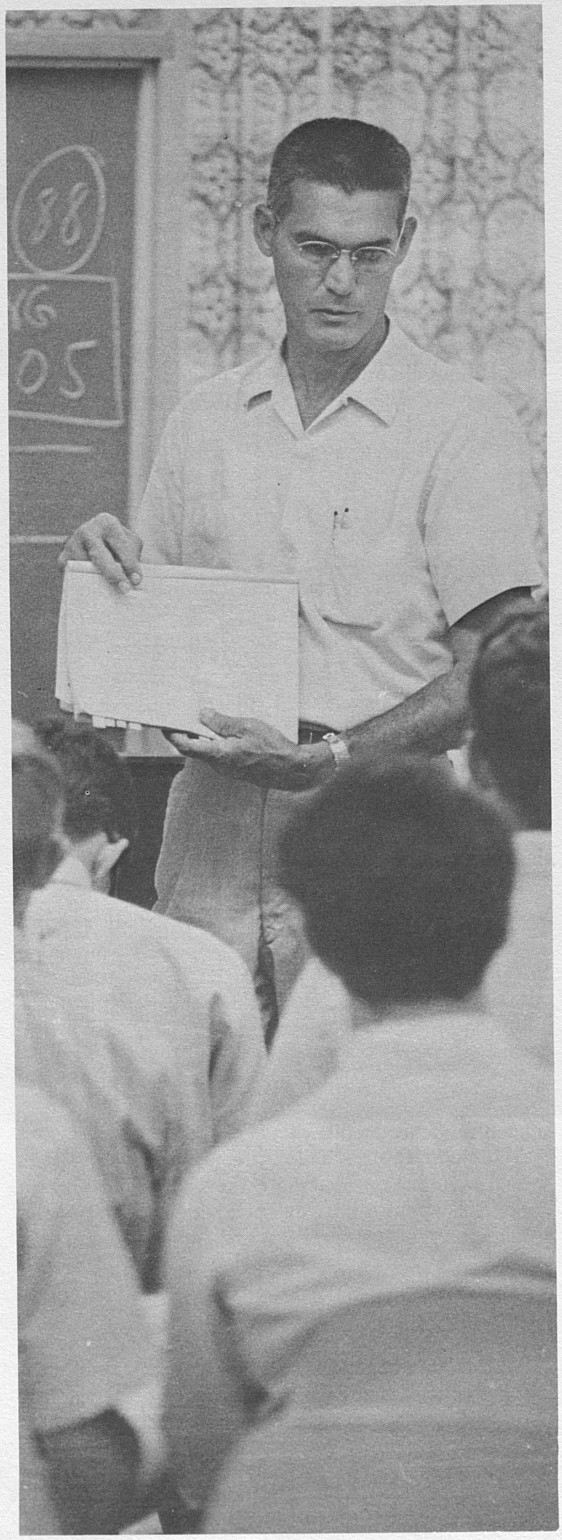
b. A student who has a cumulative deficit in excess of 15 quality points at the end of any semester or session while on scholastic probation.

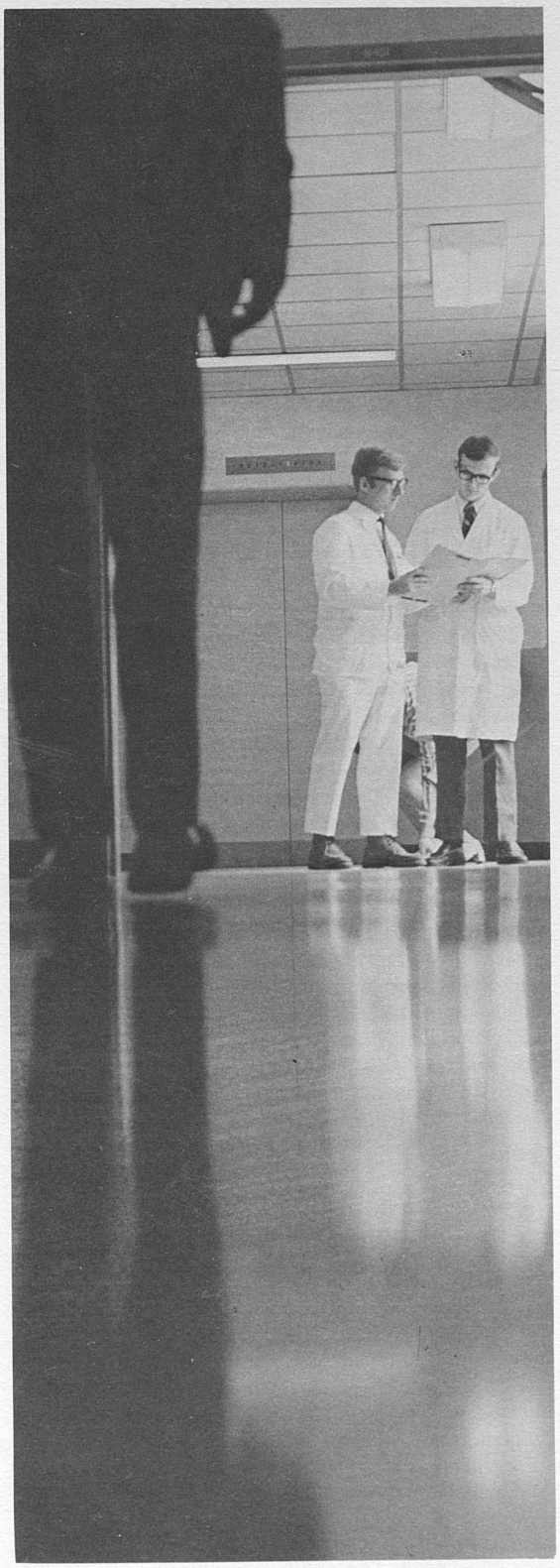
c. A student who has been on scholastic probation for three consecutive semesters.

d. A student who demonstrates that he cannot or will not do satisfactory work.

5. *Reinstatement:*

After he has remained out of the University for at least a semester and a summer session (a semester for a student academically suspended at the end of a summer session). A student who has been aca-





demically suspended may be reinstated by the dean of the college in which he plans to enroll when he presents evidence that he is capable of performing at the level required to prevent being suspended a second time.

6. *General rules for reinstated students:*

   A student who has been academically suspended shall, upon reinstatement, be placed on scholastic probation and be subject to final academic suspension from the University if:

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

   b. He has not reduced his deficit by 8 quality points or eliminated it by the end of the second semester following his reinstatement.

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

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

7. *General rules pertaining to students under academic suspension:*

   a. A student who is under academic suspension may not enroll in any courses offered by the University of Kentucky.

   b. A student who has been academically suspended a second time shall not be readmitted to the University except in unusual circumstances and then only upon recommendation of the dean of the college in which he plans to enroll and approval of the University Senate Council.

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

PROFESSIONAL COLLEGES

PHARMACY. Definition: Pharmacy standing is the over-all 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 two consecutive semesters may be placed on probation.

LAW. Students beginning the study of law must achieve a cumulative numerical grade average of 60 at the end of the first two semesters and must maintain a cumulative average of 60 at the end of each semester thereafter. A student failing to meet this academic requirement will be dropped from the University for poor scholarship. After the first semester and regardless of the cumulative average, any student will be dropped for poor scholarship who fails to achieve a numerical grade average of at least 56 in any particular semester, or who receives a grade of less than 50 in two or more courses in any one semester.

A student who has been dropped from the college will not be recommended by the Dean for readmission 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 Students 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.

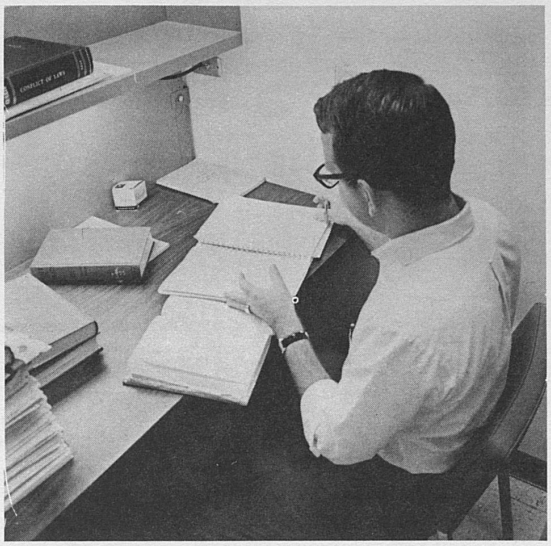
Readmission of a student who has been dropped from the University shall be upon recommendation of the dean of the college in which the student is to be registered.

A student who has been dropped a second time shall not be readmitted to the University except in unusual circumstances and then only upon recommendation of his dean and the approval of the University Senate Council.

Each student has access to rules that deal with scholastic probation, academic suspension, and reinstatement through the printed class schedule and the University catalog.

Graduation Requirements

To be eligible for any degree, a student must have completed the requirements as approved by the University Senate, except that curriculum substitutions may be made by the college affected. Curriculum requirements must include, in addition to specified credits, a specified grade point average which shall in no case be less than 2.0. Every baccalaureate degree program shall include four divisions or components: (1) general studies (2) pre-major or pre-professional (3) major or professional (4) free electives. Two semesters of English Composition (6 credits) are required of all students unless they can demonstrate



proficiency. The above requirement will be reduced to three credits for University students who receive a grade of B or above in ENG 105, *Advanced Freshman Composition*. Full-time students must enroll in English Composition each semester they are in attendance until the requirement is satisfied. Postponement of this requirement or withdrawal from English Composition is rarely permissible and must be approved by the Dean of the College of Arts and Sciences. The student must file an application with the dean of his college within 30 days after the beginning of the semester or 15 days in the Summer Session in which he expects to complete his work. The degree applicant must pay his graduation fees within 60 days after the beginning of the semester or 30 days in the Summer Session in which he expects to complete his work. Credit in Mathematics 110, 111, and 112, College Algebra and Trigonometry, respectively, is not counted toward degree requirements in the University. The graduation fee for an undergraduate degree is $11.50; for the Specialist in Education degree, $12.50; for the master's degree, $25.00; and for the doctor's degree, $75.00.

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 previous to enrollment or re-enrollment in a community college or by concurrent enrollment in another institution or program.

COMMENCEMENT HONORS

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

A student who attains a grade point average of 3.6 or higher for at least three years of work at the University (excepting 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 work at the University 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.

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

A SECOND BACHELOR'S OR MASTER'S DEGREE

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



Libraries

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 independent research and reading in the University libraries.

The University of Kentucky libraries house over a million volumes, and rank among the largest in the South and Midwest. The libraries contain extensive collections of source materials—both printed and manuscript.

The general collections in the King (Main) Library and other libraries are on open shelves and are available to all students.

The main card catalogue, located on the second floor of King Library, lists all books and library materials in all the libraries on the Lexington campus, including the Lexington Theological Seminary.

Most of the books and research materials are housed in the following areas of the King Library:

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

Government Publications Department—Official publications of the United States, United Nations, Kentucky, selected states, and selected foreign countries.

Newspaper and Microtext Room—Newspapers from Kentucky and throughout the world. Documents, books, periodicals, and newspapers in various microforms.

Periodical Reading Room—Current copies of the most frequently used periodicals.

Reserve Book Room—Books and articles from periodicals of required reading in University courses.

Special Collections—Manuscripts and other items of research value, especially in the field of Kentucky and Ohio Valley history. Among the collections are tobacco literature, rare books, typographical materials, Kentucky music, and the personal and public papers of such public figures as Alben W. Barkley, Jouett Shouse, and Thruston B. Morton, which provide a detailed picture of twentieth century American political life.

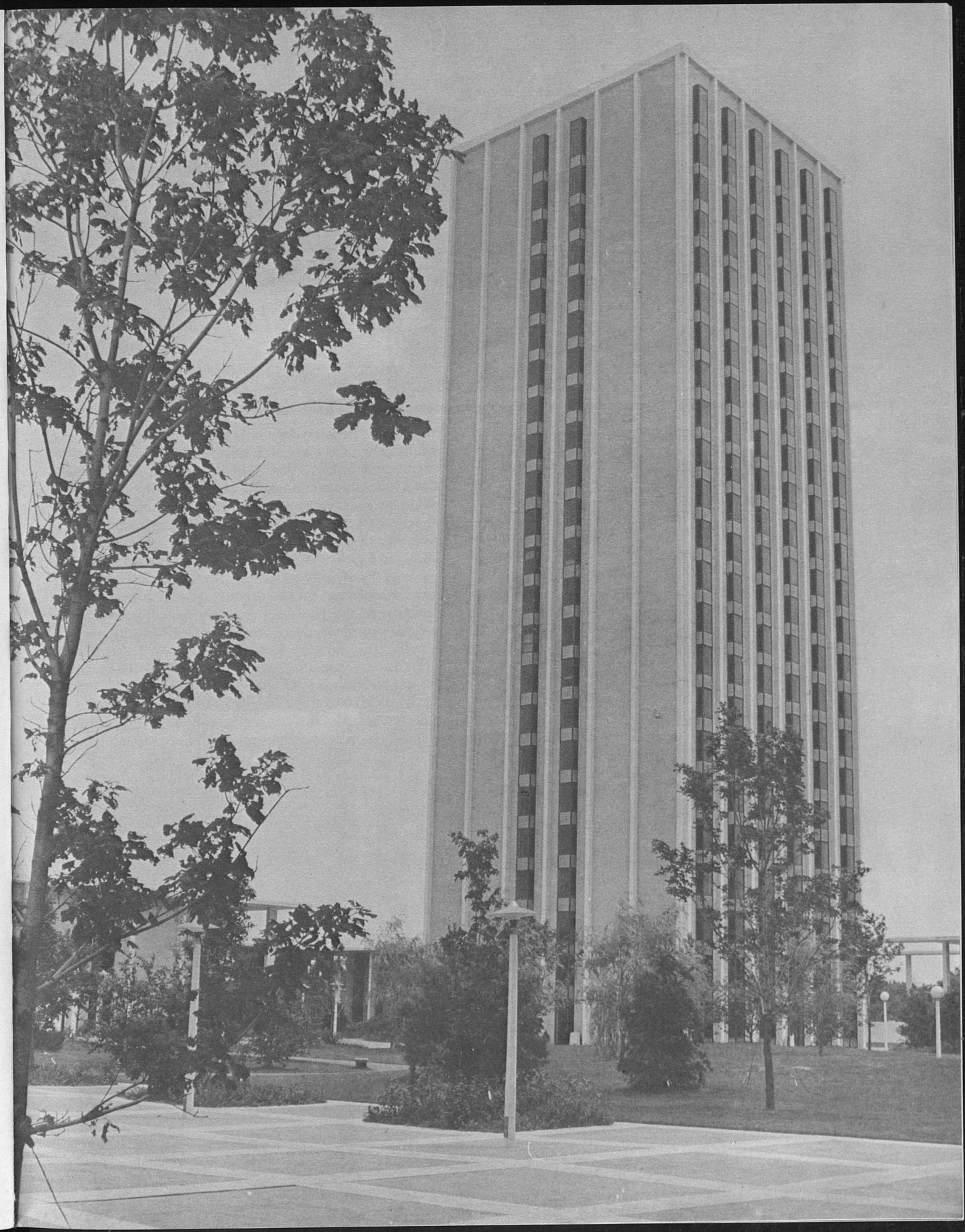
University Archives—Manuscripts and printed materials of offices, colleges, departments and organizations of the University of Kentucky.

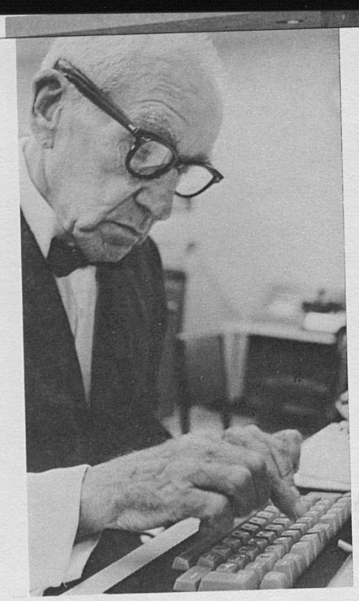
In addition to the King Library, the library facilities of the University include specialized collections in the following departments and colleges: Agriculture, Architecture, Fine Arts, Biological Sciences, Chemistry and Physics, Education, Engineering, Geology, Law, Library Science, Mathematics, Medicine and Pharmacy. Each community college has a library equipped with a selective collection geared to the special needs of the local program.

The University of Kentucky is a member of the Center for Research Libraries in Chicago. The Center's collections, totaling over two million volumes, consist of deposits of infrequently used research materials by University libraries throughout the country. Members also elect to purchase infrequently needed journals and books for common use—often on microform. Faculty and graduate students may request any of the Center's collections on long-term loans through the reference department of the King Library.

Through its participation in Public Law 480 and a program of selective acquisition, the University library is acquiring a collection of Arabic language publications in all fields currently published in the Middle East.

The collection of books, periodicals, microforms, 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 loan at their local libraries.







Special Assistance & Benefits

The Herman L. Donovan Fellowship for Senior Citizens

Named in honor of the late Herman L. Donovan, University President 1940-1956, this Fellowship is for people 65 years of age and older. It provides that they can enter the University and attend any regular course without the payment of fees. Work may be taken for credit; some have earned baccalaureate and graduate degrees. Others register as auditors and attend classes for the sheer joy of learning. The program is available at the main campus in Lexington and at all community colleges in the University system.

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

Inquiries about the Donovan Fellowship should be addressed to the Council on Aging, Bowman Hall.

Special Awards

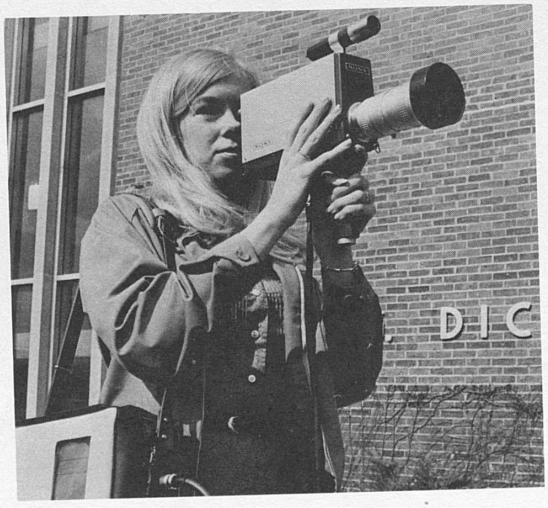
UNDERGRADUATE RESEARCH AND CREATIVITY PROGRAM

The Undergraduate Research and Creativity Program began in 1964 with the express purpose of encouraging research and creative activities on the part of undergraduate students at the University of Kentucky.

The objectives of the program are twofold: (1) to stimulate creative work on the part of undergraduate students and (2) to provide a measure of recognition for individuals who demonstrate outstanding achievement. This recognition emphasizes the importance which the University places upon academic excellence. The Undergraduate Research and Creativity Program makes a significant contribution toward stimulating our students to better academic efforts. Undergraduate students submit papers or projects in five disciplines (Social Sciences, Physical Sciences, Biological Sciences, Humanities, Creative Work in Fine Arts) and the program culminates in an awards banquet at which time the President of the University presents specially designed plaques to students whose work is judged to be the best in each of the above categories.

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

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



ROTC Financial Assistance

ARMY ROTC

Two-, three-, and four-year scholarships are available through the Army Reserve Officer Training Corps program. These scholarships pay full tuition, laboratory fees, books, and $50.00 a month. The recipient increases his active duty obligation from two to four years.

Interested high school seniors may obtain an application from their school counselor or principal or by writing to the Commanding General, First U.S. Army, ATTN: AHAAG-CE, Fort George G. Meade, Maryland 20755.

Length of Scholarship, Application Deadline, Where to Apply: 4 years—January 15, senior year of high school—directly to Army Headquarters

3 years—June 22, end of freshman year—Army ROTC Office

2 years—March 5, sophomore year—Army ROTC Office

Two-Year Program: A student already enrolled at the University of Kentucky or at another college may qualify for a commission through the two-year program. Applicants must apply at an Army ROTC Office at the beginning of their second semester. Those applying must have two years of undergraduate school, graduate school or combination thereof remaining. Those accepted will receive $50.00 a month while in the program. For further details, contact the Army ROTC Detachment at the University of Kentucky or at the college you are now attending.

AIR FORCE ROTC GRANTS

Grants are available for one to four years. Each grant provides for full payment of tuition, laboratory and associated fees, $75.00 yearly for textbooks and $50.00 a month.

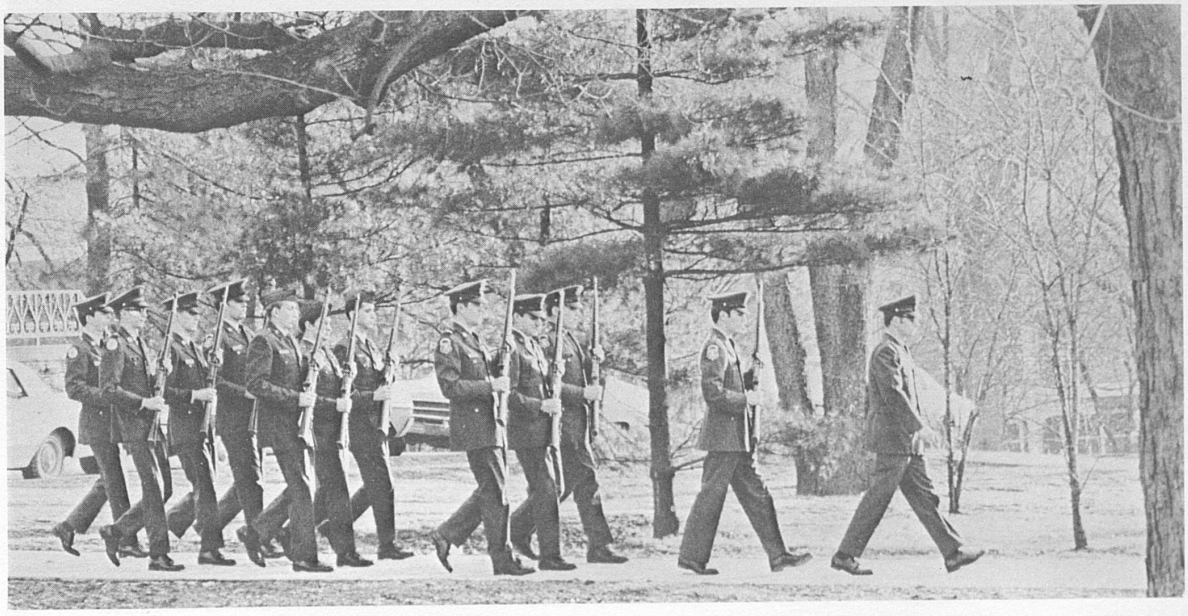
High school seniors desiring a four-year grant must apply no later than November 14 of their senior year. To be eligible, they must be physically qualified and desire to become either a pilot or navigator in the U.S. Air Force.

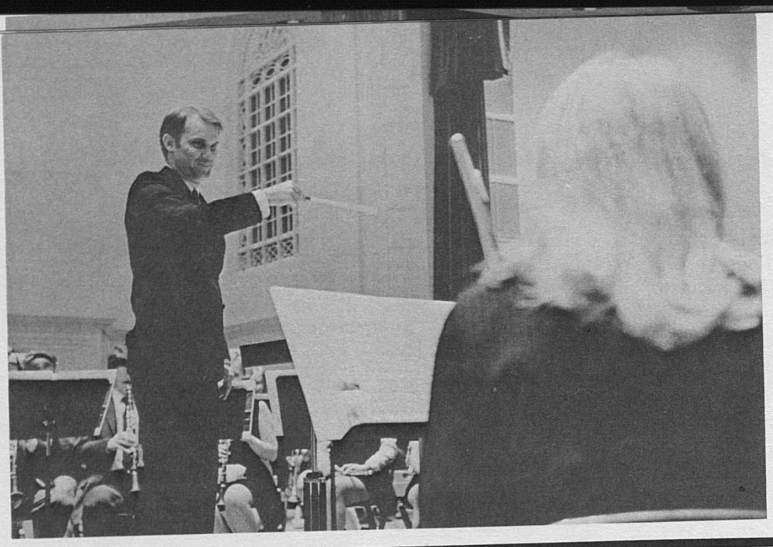
Those desiring a one-, two-, or three-year grant may apply after enrolling in Air Force ROTC and are not required to meet pilot or navigator physical standards.

Where to Apply: High school seniors may obtain an application from their school counselor or principal. Applications may also be obtained from the Professor of Aerospace Science, University of Kentucky, or by writing to Air Force ROTC (ARTOI), Maxwell AFB, Alabama 36112.

Two-Year Program: A young man attending the University of Kentucky or elsewhere and who did not enroll in the first two years of Air Force ROTC may qualify for a commission through the Two-Year Program. Those accepted will receive $50.00 a month for two years. To be eligible they must be in good physical condition, have a grade point average (GPA) of 2.0 or better and be able to pass the Air Force Officer's Qualification Test.

For further details of eligibility and commitment contact the Aerospace Science Department, University of Kentucky. Those interested must submit an application to the Aerospace Science Department no later than the fall semester of their sophomore year. Additional information may be found in this catalog under Aerospace Science.





Cultural Opportunities

THEATRE

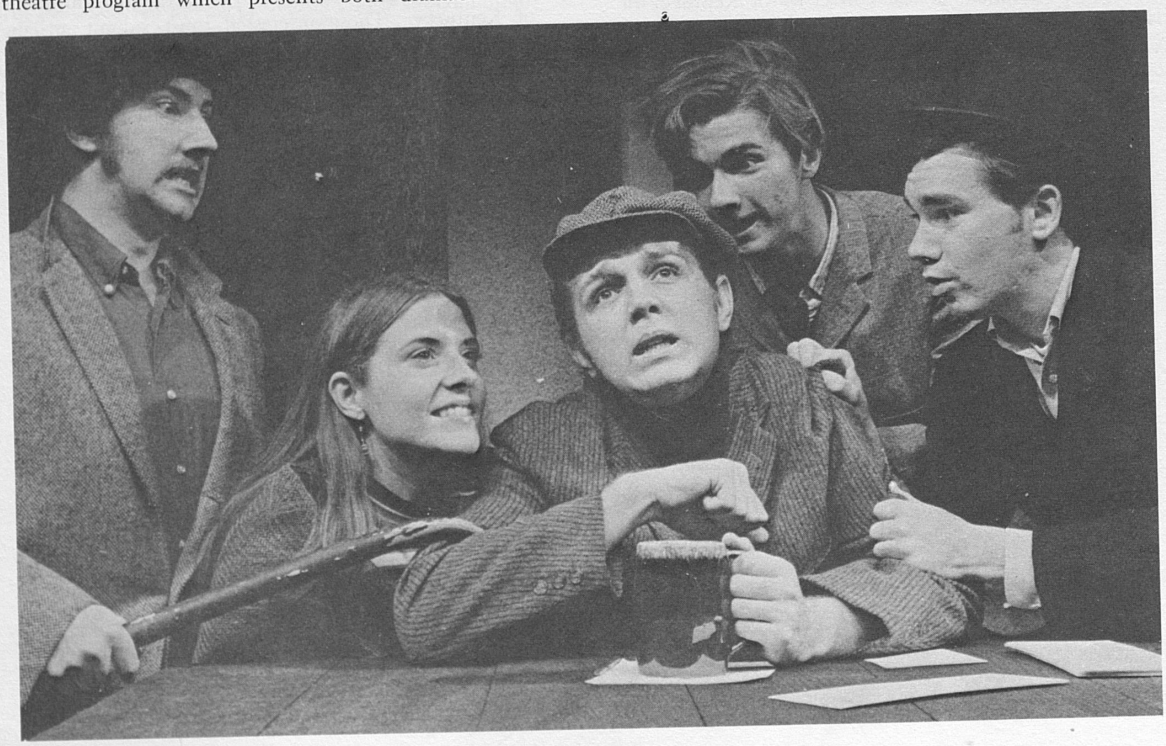
The Department of Theatre Arts offers opportunities for interested students, faculty, and members of the community to participate in its programs both as audience and performers.

All university students are invited to audition for roles in the five or six dramas which the Department selects for production during its regular season in the Guignol and Laboratory theatres. These dramas are staged in order to provide a cultural background and technical training in all areas of Theatre Arts.

Similar opportunities are made available by a summer theatre program which presents both dramatic and musical works and includes professional actors and singers. The summer program offers academic credit in Theatre Arts.

Guest actors, directors, designers and lecturers during the school year also contribute to both programs and are available to the University and to the community as well. The faculty and staff of the Department of Theatre Arts serve actively as guest lecturers, directors and designers, consultants and judges of theatre and speech events in Kentucky and neighboring states.

The State Drama Festival is co-sponsored annually in the spring by the Kentucky High School Speech League and the Department of Theatre Arts in the Guignol Theatre.





UNIVERSITY CONCERTS

The Department of Music of the School of Fine Arts offers a large number of student and faculty recitals, concerts by faculty ensembles, and concerts by student musical organizations. The faculty ensembles include the Heritage String Quartet, the Faculty Brass Quintet, and the Concord Trio.

Student musical orgainzations include the Symphony Orchestra, the Symphonic Band, the University Choristers, the University Chorus, the Men's Glee Club, the Women's Glee Club and the Chamber Singers. The individual faculty recitals, faculty ensemble concerts and concerts by student organizations are all offered free of charge to students as well as to the general public.

A music calendar, listing all concert and recital events, is published each semester for the convenience of students, faculty and the public. Further inquiries may be directed to the Department of Music of the University.

CENTRAL KENTUCKY CONCERT AND LECTURE SERIES

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

THE LEXINGTON CHAMBER MUSIC SOCIETY

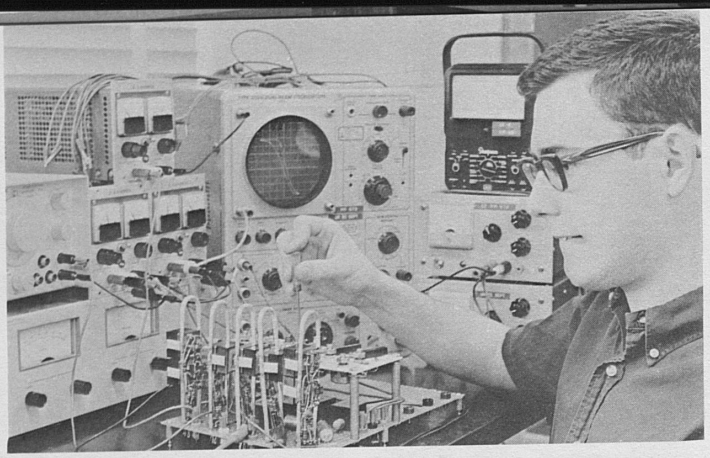
The Lexington Chamber Music Society annually presents a series of concerts featuring outstanding chamber music ensembles of national and international reputation. These concerts are open to University students upon presentation of I.D. cards.

THE LEXINGTON PHILHARMONIC ORCHESTRA

Composed of talented instrumentalists from throughout the central Kentucky area, the Lexington Philharmonic Orchestra performs one of each pair of concerts in Memorial Hall on the University campus. A semi-professional organization, the Orchestra features outstanding guest artists at each concert. Performances on the campus are open to students upon the presentation of I.D. cards.

UNIVERSITY ART GALLERIES

The University Art Gallery in the Fine Arts Building offers a series of exhibitions each year, including group shows, special exhibitions in various media, the work of major individual artists and the annual student exhibition. Painting, drawing, graphic arts, photography and sculpture, as well as experimental forms and media, are subjects of these exhibitions. The Student Center Gallery maintains a similar program, under the supervision of a student board, and the Raymond Barnhart Gallery in the Reynolds Building serves the needs of the studio program in art. The Pence Hall Gallery, under the auspices of the School of Architecture, combines exhibits of architectural interest featuring painting, drawing and sculpture. The four galleries provide a varied and balanced fare for students, staff and faculty.



Honors Program

The Honors Program at the University of Kentucky serves an important function in the University's commitment to excellence in undergraduate education. It is an instructional and advisory program providing a special academic track for students with superior abilities.

PURPOSE

The University recognizes an obligation to provide special teaching and learning facilities for superior students, who, we believe, will furnish future intellectual leadership in the Commonwealth and nation. Accordingly, it provides an opportunity for such students, if they wish, to participate in the Honors Program. The essential purpose of the program is to provide suitable opportunities for intellectual development.

THE HONORS CURRICULUM

The academic development of superior students is served in the Honors Program in several separate and distinct ways.

(1) Freshmen and sophomores participate in the core Colloquia; that is, four Honors courses in history of ideas. The first of these is titled "The Greek World View;" the second, "The Christian World View in the Middle Ages;" the third, "The Christian World View in the Renaissance and After;" and fourth, "The Secular Challenge of the 20th Century."

(2) Juniors and seniors have an additional opportunity to participate in pro-seminar type colloquia in specially selected subject matter which differs each semester.

(3) All Honors students have a number of special sections of large multi-section courses which they select in place of ordinary sections. There are Honors sections of courses ranging from Anthropology, Economics and Mathematics to Chemistry, Physics, and Psychology. These homogeneously grouped sections are generally much smaller than regular classes and are customarily staffed by the most exciting teachers the University can provide.

(4) Juniors and seniors in the Honors Program also participate in a segment of independent work or research under the direction of selected faculty members. They may in special cases be freed from other academic requirements for as much as a complete semester in order to pursue independent work away from the campus (for example, at national laboratories, observatories, etc.).

Students in the Honors Program do not, however, have additional requirements to fulfill beyond those regularly required for graduation. They need take only the same number of credit hours as regular students.

SPECIAL OPPORTUNITIES

Students in the Honors Program have many opportunities to develop academic excellence. For example, they have very close advising from a member of the Honors staff and from an adviser appointed in each department. Lower division students in the program are often housed together in separate sections of the dormitories; however, no student is required to live in the Honors dormitories if he does not wish. Honors students are encouraged to make decisions for themselves in the light of the fullest information available to them and the best advice they can secure. Students in the program have many opportunities to meet and discuss problems with faculty members.

Perhaps even more important is the opportunity for dedicated students to meet with other students of similar interests. The Honors Program students mingle in their classes, in their special study room, and at semi-social functions which are held regularly.

SELECTION OF HONORS STUDENTS

Entering freshmen with superior abilities are identified by test scores, high school records, and recommendations from principals and guidance counselors. Then, if it appears the program can be of real service to their academic ambitions, they are invited to participate. No one is arbitrarily assigned to the Honors Program. Students choose to participate and, accordingly, make a decided commitment to academic excellence.

Opportunities are also provided for upperclassmen to enter the program. Each semester students who have

made an excellent record at the University are invited to discuss their participation; and transfer students are invited to enter the program, through the middle of the junior year, provided they are willing and able to make a commitment to the Honors approach to education.

Also, any student in the University may apply for consideration by the selections committee at any time. If the committee is convinced the program will best serve a student's academic endeavors, he is invited to participate.

Students are very seldom dismissed from the Honors Program for failure to maintain academic standards; instead, should such failure ensue, students are provided with counseling in hopes they can solve their problems. Graduation with Honors in the program, of course, means with high academic record, but students who do not attain academic distinction are permitted to continue participation so long as the program is able to serve their needs.

REWARDS

The greatest reward an Honors student can earn is a sense of the importance of his own achievement. There are, however, other more tangible rewards to be gained from participation in the Honors Program. Among these are lasting friendships with other young persons of superior intellectual ability, graduate fellowships, assistantships, etc. At any given time about 90% of the graduates of the Honors Program enter professional or graduate schools, most of them with financial support. A considerable portion of each class initiated into societies such as Phi Beta Kappa or Sigma Xi comes from the Honors Program.

HOW TO APPLY

Students interested in the Honors approach to education, who believe they have superior abilities and whose interests in academic work are serious, are invited to write to:

Director, Honors Program
Office Tower 805
University of Kentucky
Lexington, Kentucky 40506

FACULTY

Robert O. Evans, director

Professor

Robert O. Evans	Ph.D., Florida, 1954

Assistant Professor

John L. Greenway	Ph.D., Wisconsin, 1969

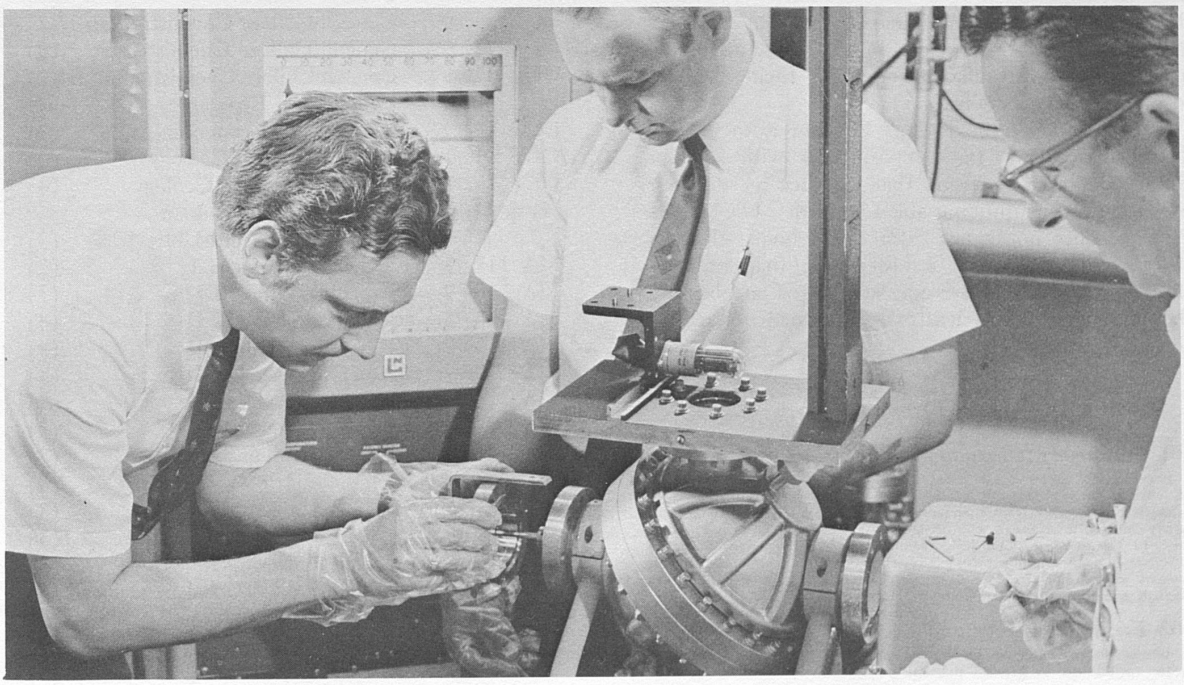
Instructor

Carl D. Dockery	A.B., Newberry College, 1963

Lecturers

Josephine C. Donovan	M.A., Wisconsin, 1967
Anna K. Reed	M.A., Duke, 1960

Instructors in courses designated by departmental titles are members of those respective departments and are so listed in this catalog.



The Honors Program is an educational system for superior students. The instructional aspects are threefold:

(1) The Honors colloquia. Four consecutive courses in history of ideas (HON 101, 102, 201, 202) and two pro-seminars, also in history of ideas but with the content varying from semester to semester (HON 301, 302). The first two courses (HON 101, 102) are required of all freshmen entering the Honors Program; students who enter the Honors Program after the freshman year will be required to take at least two colloquia, the particular courses to be decided by the Director. The colloquia are taught by members of the Honors staff or by Visiting Professors from other departments.

(2) Independent work. All Honors Program students are required to engage in an independent study project under the direction of a faculty member during the junior and/or senior year. The project may be undertaken for credit; the program is designed so that a student with a sufficiently valid research problem may be freed from other academic obligations for an entire semester, with the permission of the Director and his departmental adviser. Most students, however, undertake three credit hour projects. Students may use either HON 395 or departmental 395 courses to fulfill this obligation.

(3) Honors sections of departmental classes (or, in the case of mathematics, special departmental classes). The students in these sections are homogeneously grouped. Students who are not members of the Honors Program are permitted to attend Honors classes with permission of the respective departments. Honors students are expected to take these sections if they take the courses; however, they may be excused and permitted to take other sections by the Director, particularly if they have difficulty arranging their schedules to include these sections.

The purpose of the Honors Program is to provide a special academic track for students with superior abilities in order to assure that they receive the best education the institution is able to provide. The Honors Program does not entail extra credit hours. Honors students often move at a faster pace than ordinary students because they are especially gifted and because they have been sufficiently well trained to receive advanced placement.

Course Descriptions

101 *Freshman Colloquium.* (3) I
A two-semester sequence in the history of western ideas, readings to be varied but in general beginning with Plato's Republic and/or Aristotle's Politics or Nichomachean Ethics, one of which will be read slowly in depth, Dante's Divine Comedy, and/or Milton's Paradise Lost, to Theilhard de Chardin's Phenomenon of Man (with attention to cosmological schemes, especially the Ptolomaic and Copernican systems in relation to Theilhard de Chardin's synthesis). Satisfies English requirement of freshmen in Honors Program. *Staff.*

102 *Freshman Colloquium.* (3) II
A two-semester sequence in the history of western ideas, readings to be varied but in general beginning with Plato's Republic and/or Aristotle's Politics or Nichomachean Ethics, one of which will be read slowly in depth, Dante's Divine Comedy, and/or Milton's Paradise Lost, to Theilhard de Chardin's Phenomenon of Man (with attention to cosmological schemes, especially the Ptolomaic and Copernican systems in relation to Theilhard de Chardin's synthesis). Satisfies English requirement of freshmen in Honors Program. *Staff.*

201 *Sophomore Colloquium.* (3) I
A seminar in Literature and Science. Satisfies humanities requirement for students enrolled in Honors Program. Prereq: Sophomore standing. *Staff.*

202 *Sophomore Colloquium.* (3) II
A seminar in Literature and Science. Satisfies humanities requirement for students enrolled in Honors Program. Prereq: Sophomore standing. *Staff.*

301 *Junior-Senior Colloquium.* (3) I
A continuation of HON 101, 102, 201, 202 for Juniors and Seniors. Prereq: Junior status. *Staff, or Visiting Professor.*

302 *Junior-Senior Colloquium.* (3) II
A continuation of HON 101, 102, 201, 202 for Juniors and Seniors. Prereq: Junior status. *Staff, or Visiting Professor.*

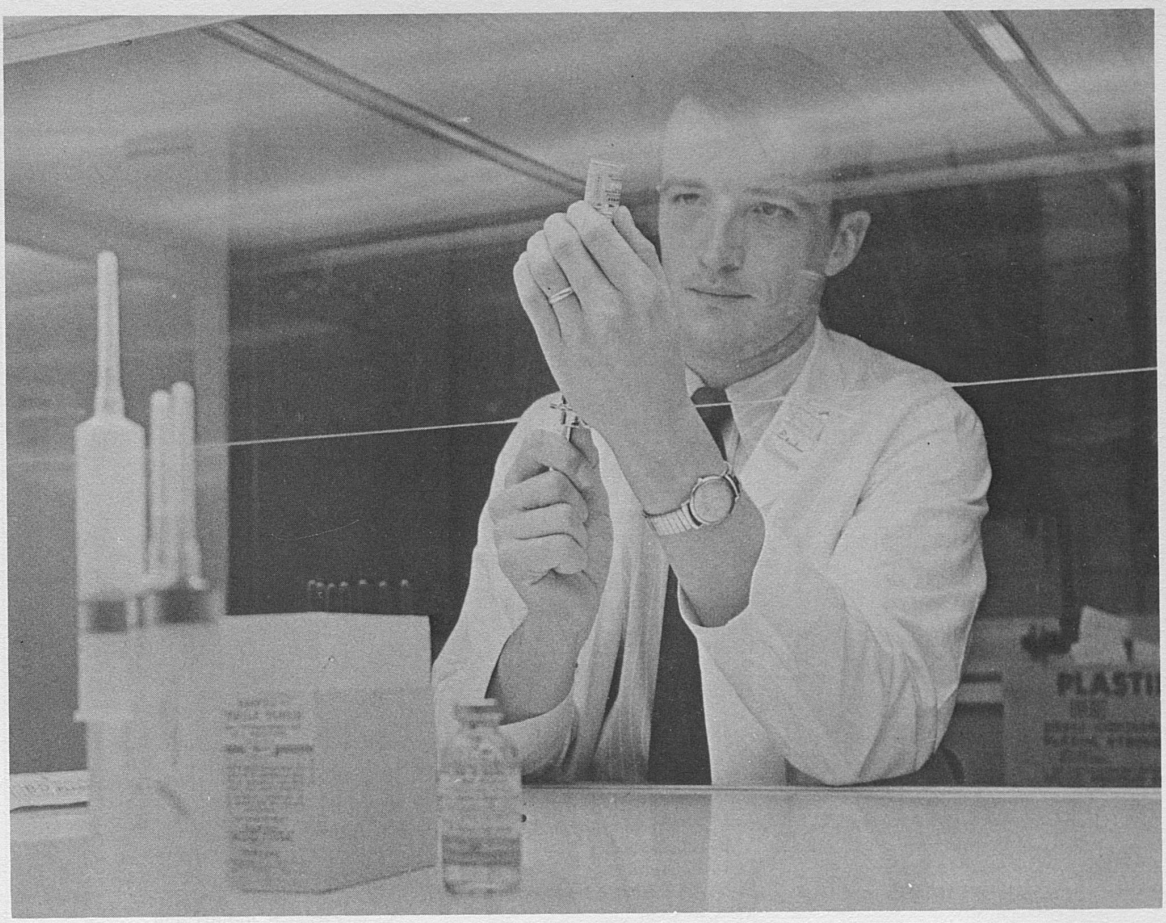
395 *Independent Work—Juniors and Seniors* (3-15)
Prereq: Upper division status, membership in Honors Program, consent of Honors Director.

Departmental Honors Courses

The following courses are open only to students in the Honors Program or to especially well-qualified students with the permission of the respective department.

Descriptions for these courses may be found under the respective departments.

COURSE		CRS.
ANT 121-99:	Introduction to Cultural Anthropology	(3)
CHE 110-99:	General Chemistry I	(3)
CHE 111-99:	General College Chemistry Lab 1	(2)
CHE 112-99:	General College Chemistry II	(3)
CHE 113-99:	General College Chemistry Lab II	(2)
ECO 260-99:	Principles of Economics	(3)
ECO 261-99:	Principles of Economics	(3)
GLY 140-99:	General Physical Geology	(4)
GLY 142-99:	General Historical Geology	(4)
HYG 110-99:	Introduction to Human Biology and Health	(3)
MA 115-99:	Elementary Analysis I	(2)
MA 115-99:	Elementary Analysis I	(3)
MA 116-98:	Elementary Analysis II	(4)
MA 116-99:	Elementary Analysis II	(4)
MA 215-99:	Elementary Analysis III	(4)
MA 216-99:	Elementary Analysis IV	(4)
MA 395-99:	Problem Seminar	(3)
MA 396-99:	Problem Seminar	(3)
PHI 200-99:	Introduction to Philosophy	(3)
PHY 250-99:	Honors University Physics	(3)
PHY 251-99:	Honors University Physics	(3)
PS 151-99:	American Government	(3)
PS 201-99:	Introduction to Political Behavior	(3)
PSY 104-99:	Basic Psychology I	(3)
PSY 106-99:	Basic Psychology II	(3)
SOC 101-99:	Introductory Sociology	(3)



COURSE NUMBERING SYSTEM

001 to 099—Non-credit and/or non-degree courses

100 to 199—Open to freshmen; undergraduate credit only

200 to 299—Sophomore classification 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

800 to 999—Open only to professional students in professional colleges except by permission of college dean.

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

Repeated registration in a course may be allowed if the course description carries the statement: "May be repeated to maximum of ..... credits." However, a student may enroll only one time in a specific course during a given semester. Courses with the same number are not considered to be the same course if different identifying titles are an integral part of the record.

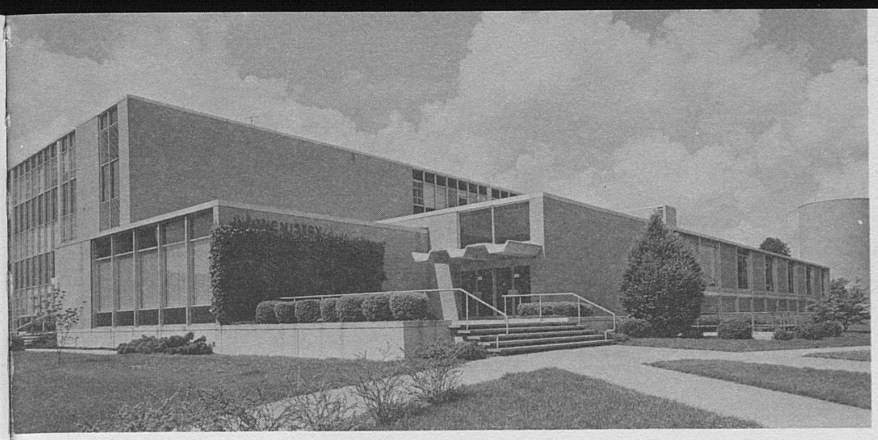
Number in parenthesis indicates the number of credit hours allowed for the course. "I, II, and S" indicate the Fall Semester, Spring Semester, and Summer Session, respectively.

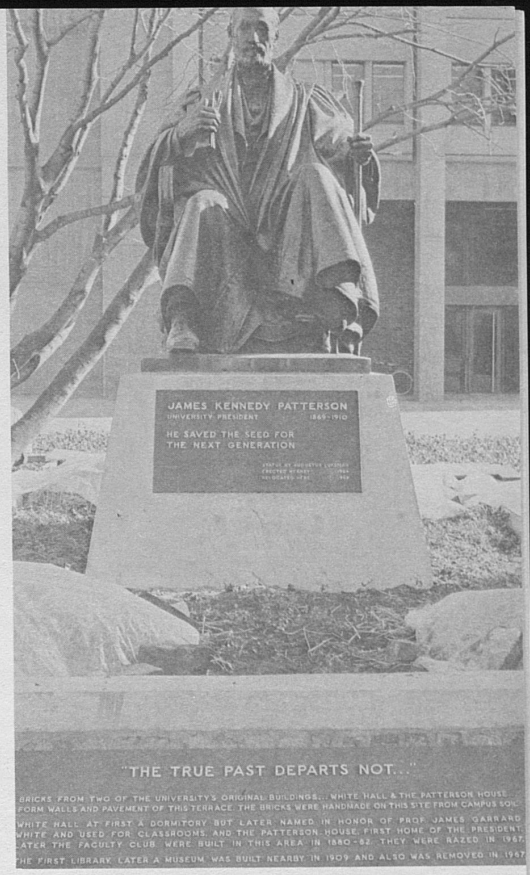
ABBREVIATIONS

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.

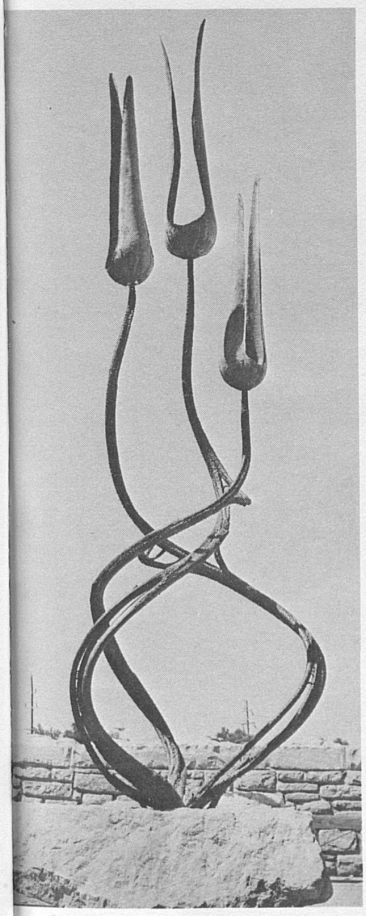
Standardized Departmental Abbreviations
(alphabetical by abbreviation)

ACC—Accounting
A-E—Art-Education
AEC—Agricultural Economics
AEN—Agricultural Engineering
AGR—Agronomy
A-H—Art-History
ANA—Anatomy
ANS—Anesthesiology
ANT—Anthropology
ARC—Architecture
ART—Art
A&S—Arts and Sciences
AS—Aerospace Science
A-S—Art-Studio
ASC—Animal Sciences
AST—Astronomy
BA—Business Administration
BIO—Biology
BCH—Biochemistry
BOE—Business and Office Education
BOT—Botany
BSC—Behavioral Science
CD—Community Dentistry
CDS—Conjoint Dental Science
CE—Civil Engineering
CEX—Cooperative Extension
CH—Community Health
CHE—Chemistry
CLA—Classical Languages and Literatures
CM—Community Medicine
CME—Chemical Engineering
CMO—Communications
CNU—Clinical Nutrition
CON—Conjoint
CPC—Clinical Pastoral Counseling
CPH—Clinical Pharmacy
CS—Computer Science
DH—Dental Hygiene
DIP—Diplomacy
DR—Diagnostic Radiology
ECO—Economics
EDA—Administration and Supervision
EDC—Curriculum and Instruction
EDH—Higher and Adult Education
EDF—Social and Philosophical Studies
EDP—Educational Psychology and Counseling
EDS—Special Education
EDV—Vocational Education
EE—Electrical Engineering
EM—Engineering Mechanics
EN—Endodontics
ENG—English
ENT—Entomology
FOR—Forestry
FR—French Language and Literature
GEN—General Agriculture
GEO—Geography
GER—Germanic Languages and Literatures
GLY—Geology
HE—Home Economics
HF—Human Development and Family Relations
HID—Housing and Interior Design
HIS—History
HON—Honors
HOR—Horticulture
HPR—Health, Physical Education and Recreation
HUM—Humanities
HYG—Hygiene
JOU—Journalism
LAW—Law
LS—Library Science
MA—Mathematics
MB—Microbiology
ME—Mechanical Engineering
MED—Medicine
MET—Metallurgical Engineering
MFE—Management and Family Economics
MM—Materia Medica
MS—Military Science
MT—Medical Technology
MUS—Music
NEU—Neurology
NFS—Nutrition and Food Science
NUR—Nursing
OB—Oral Biology
OBG—Obstetrics and Gynecology
ODM—Oral Diagnosis and Oral Medicine
OP—Oral Pathology
OPH—Ophthalmology
ORT—Orthodontics
OS—Oral Surgery
OTO—Otolaryngology
OTP—Orthopedics
PAT—Pathology
PCH—Pharmaceutical Chemistry
PDO—Pedodontics
PED—Pediatrics
PER—Periodontics
PFM—Music Performance
PGY—Physiology and Biophysics
PHA—Pharmacology
PHI—Philosophy
PHR—Pharmacy
PHY—Physics and Astronomy
PLA—Planning
PPA—Plant Pathology
PR—Prosthodontics
PS—Political Science
PSC—Psychiatry
PSY—Psychology
PT—Physical Therapy
RAD—Radiology
RM—Radiation Medicine
RSD—Restorative Dentistry
RT—Therapeutic Radiology
SO—Slavic and Oriental Languages and Literatures
SOC—Sociology
SP—Speech
SPI—Spanish and Italian Languages and Literatures
STA—Statistics
SUR—Surgery
SW—Social Work
TA—Theatre Arts
TBE—Technical Business and Office Education
TC—Textiles, Clothing and Merchandising
TCE—Civil Engineering Technology
TCM—Technical Communications
TDN—Dental Technology
TDP—Technical Data Processing
TE—Electrical Engineering Technology
TEL—Telecommunications
TET—Electroencephalographic Technology
TFR—Technical Forestry
TGN—Technical General
TGS—Technical General Science
TMA—Technical Mathematics
TME—Technical Mechanical Engineering
TMF—Technical Manufacturing
TMR—Medical Record Technology
TNR—Associate Degree Nursing
TPT—Technical Physical Therapy
TRT—Respiratory Therapy
TTP—Technical Transportation
TWU—Technical Wood Utilization
TXR—Radiologic Technology
VS—Veterinary Science
ZOO—Zoology



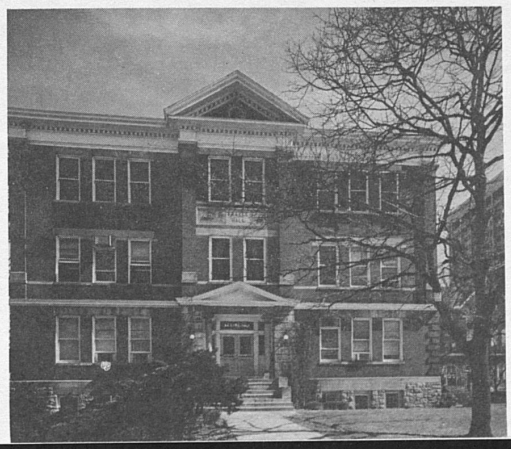




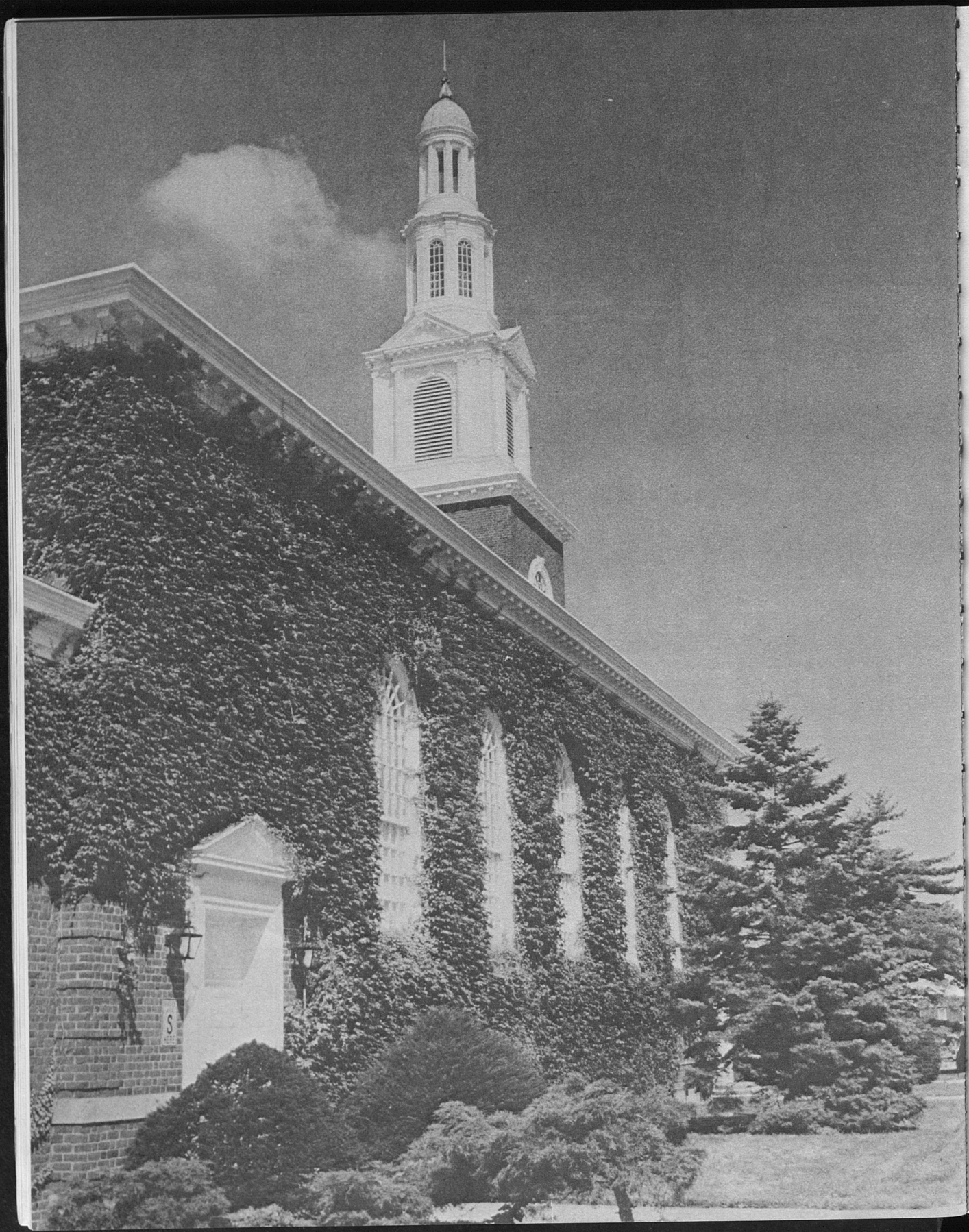


COLLEGES AND SCHOOLS













Arts & Sciences

Wimberly C. Royster, Ph.D., Dean of the College of Arts and Sciences; Herbert N. Drennon, Ph.D., Associate Dean for Instruction of the College of Arts and Sciences; Robert Murphy, Ph.D., Associate Dean and Director of the School of Communications; Samuel F. Conti, Ph.D., Associate Dean and Director of the Thomas Hunt Morgan School of Biological Sciences; Hubert Henderson, Ph.D., Associate Dean and Director of the School of Fine Arts; John E. Keller, Ph.D., Associate Dean and Director of the School of Letters and Languages.

The College of Arts and Sciences offers programs leading to the degrees of Bachelor of Arts, Bachelor of Science, Bachelor of Arts in Journalism, and Bachelor of Music.

The course of study leading to the Bachelor's degree traditionally requires four years, although it is possible to receive the degree in less time. While in the lower division (first two years) the student normally concentrates on courses selected from the general studies area and, if he has determined upon a major, he takes the necessary prerequisites to that major. Courses in the general studies areas are designed to introduce the student to the different areas of the College and University curriculum. This experience guides the undetermined student in selecting his eventual major. In the upper division (final two years) the student pursues a major program to gain in the time allotted as deep a knowledge as possible in a particular field while seeking broad academic experience in related fields.

The College of Arts and Sciences encompasses most of the basic instruction and research carried on by the University. In addition, nearly all of the general studies courses are taught in this College. In discharging its responsibility from lower division through graduate studies, the College of Arts and Sciences is guided by the tradition of the liberal arts; that is, knowledge is sought, developed and cherished with concern for its ultimate value as well as for its immediate value.

PROGRAMS AND 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, and music.
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, and dentistry.
6. Graduate courses leading to the master's and the doctor's degrees in the graduate school.

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 two units of mathematics for admission.

ADVISING

Primary responsibility rests with the student to familiarize himself with the academic requirements of the University, the College and his major department. He can expect every reasonable assistance from his faculty adviser and from the Office of the Associate Dean for Instruction. The student should never hesitate to seek aggressively an answer to any question pertaining to his academic program.

Freshmen. New freshmen should make every effort to attend the Summer Advising Conference and registration period. At this time the students are advised by specially chosen advisers. When they return in the fall, the students should go as soon as possible to their major departments where they will be assigned a faculty adviser. Thereafter they will be advised under the supervision of their major departments. Undetermined students are advised in the Office of the Associate Dean for Instruction.

Students unable to attend the Summer Advising Conference and registration are directed to their major departments for assignment to advisers.

Transfer Students. New transfer students should also attend the Summer Advising Conference and registration period. They are assigned advisers in the same manner as new freshmen. The new transfer student should bring a catalog of his previous college and should check with the Office of the Associate Dean for Instruction if any question concerning the interpretation of his transfer work arises.

Sophomore and Upper Division Advisers. The department in which the student is doing his major work appoints the student's adviser.

Probation Students. Students placed on academic probation should be certain to contact the Office of the Associate Dean for Instruction so that they may be fully informed and advised as to their academic status. Such students are also urged to utilize the services of the University Counseling Service.

DEGREES

The College offers courses leading to the following degrees: Bachelor of Arts, Bachelor of Science, Bachelor of Arts in Journalism, and Bachelor of Music. 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 physical education service courses) and a standing of 2.0. The normal load per semester is 16 credits.

In the departments of Anthropology, Art, Economics, Journalism, Music, Psychology, and Zoology, the student must pass a final comprehensive examination on his major subject. A topical major is required to write a comprehensive paper in his 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 physical, biological, and mathematical sciences.

The Lower Division

A. *English Composition:* All full-time students are required to demonstrate competency in English Composition by completion of six hours of English Composition or the passing of English 105 with a grade of B or better. Postponement of this requirement or withdrawal from English Composition, is rarely permissible and must be approved by the Associate Dean for Instruction. Students whose high school English grades are superior and whose English ACT scores are above the 85th percentile should enroll in English 105.

B. *General Studies Requirements:* The eight areas of the General Studies Component and course sequences for each area are detailed on page 6. Each student who seeks to graduate from the College of Arts and Sciences must take a total of *six* of the areas. These must include Areas II (Physical Sciences), III (Biological Sciences), IV (Foreign Language), and V (Humanities). However, students who take *Mathematics* in Area I (Mathematics-Philosophy) may omit either II or III.

Departments may specify additional areas, or may specify particular sequences to be followed. Departmental requirements are indicated under the departmental headings in this catalog.

C. *Foreign Language Requirement:* A student may satisfy the foreign language requirement by passing the fourth semester course in one language or by demonstrating equivalent competence by examination. In the case of a student who wishes to continue the language begun in high school, the course level at which he will enroll will be determined by a placement test to be administered to all such students. In most instances the student will be required to begin at the level indicated. The student who offers two high school units of a foreign lagnuage should normally 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. A student who has credit for *three units* of a foreign language in high school may not take the *first year* of that language in college for degree credit. A student who has completed *two units* of a foreign language in high school may not take the *first semester* of that language in college for degree credit.

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.

The requirements in whole or in part for English, and for any of the courses in the General Studies Component may be satisfied without credit by passing a departmental proficiency examination.

The Upper Division

JUNIOR AND SENIOR YEARS

A major in the College of Arts and Sciences is composed of prerequisite courses and a 40-hour program referred to as the "field of concentration." Specific requirements for each departmental major are listed in this catalog under each department.

In outline, general requirements are as follows:

1. A prerequisite of at least 6 credits.
2. A total of 40 credits in the field of concentration, including credits in the major.
3. A minimum of 18 credits in the department, exclusive of prerequisites.
4. At least 14 credits in the field must be outside the major department.
5. At least 24 credits must be in courses above the sophomore level.
6. No course open to freshmen may be counted in the field of concentration.

The student is required to gain at least 40 credits in a field of concentration, most of which must be taken during the junior and senior years. These 40 credits are to be elected subject to the approval of the student's adviser and the Associate Dean for Instruction of the College. These 40 credits must be in courses not open to freshmen. At least 24 credits must be in courses above the 200 level, but departments may adjust these limits for their majors with the approval of the Arts and Sciences Faculty Council and the Undergraduate Council.

At least 14 credits in the field of concentration must be outside the major department and should be in courses generically related to the major field of study. In planning his field of concentration the student should determine from his adviser what limits have been placed by his major department on the field of concentration in defining related course work.

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

Each department shall specify the requirements for a major, which shall include a minimum of 18 credits of non-freshman courses in that department, with the provision that this minimum may be set at 15 hours by a department with approval of the Arts and Sciences Faculty Council and Undergraduate Council, if there are special reasons for a lower minimum. A minimum of six credits is required as a prerequisite for a major in a department. As a general rule the prerequisites are to be acquired during the freshman and sophomore years.

At the beginning of the junior year the student and his adviser should work out a tentative plan for the 40 credits in the field of concentration. By the beginning of the senior year the student must file plan cards signed by his faculty adviser and approved by the Associate Dean for Instruction. This plan card must specify all of the courses comprising the 40 credits of the student's field of concentration. All courses listed must be taken. Changes in the plan card must be approved by the adviser and the Associate Dean for Instruction.

TOPICALLY RELATED FIELDS

If a student has an interest which does not fall into a departmental area he may select a topic for concentration instead of a departmental major. The topical major offers great flexibility and allows the student to cut across departmental and College lines in constructing a meaningful and imaginative program. For instance, a student might be interested in the Humanities. His program could include work in art and music history, comparative literature, philosophy, classical studies, and history. Courses in several departments might be selected to provide study of an area—Latin America, for instance.

Other examples might be Black Studies, Urban Problems, Behavioral Sciences, and Fashion Design and Merchandising. Each program is reviewed by faculty in the general area of study, and must finally have approval of the Associate Dean for Instruction. A student who has interests that he thinks could fit into the topical major should come first to the Associate Dean for Instruction. If his proposal seems to have promise he will be directed to faculty who can give him advice in further developing his program.

The specific requirements of the Topical Major are that the student must have a standing of 2.5. He must meet all lower division requirements and complete the 40-hour field of concentration requirement (see preceding section), except that rather than having a departmental major, all of his work must be generically related to his topic. In addition, he must complete in his senior year a comprehensive paper that serves to integrate in some fashion his topical field. Frequently it is advantageous to write this paper in the context of an independent work course or a seminar, with the instructor's approval. The paper must be filed with the Associate Dean for Instruction.

MAJOR FOR THE BACHELOR OF ARTS OR BACHELOR OF SCIENCE DEGREE WITH A TOPICAL MAJOR

University Requirements: Six semester hours in English Composition. This requirement will be re-

duced to three hours for students who make a grade of B or better in English 105, the first semester of Advanced Freshman Composition.

College Requirements: Completion of one sequence of courses in six of the General Studies Areas. These six areas must include II, III, IV, and V, except that the mathematics option in Area I may be substituted for Area II or III.

Field of Concentration Requirements: If a student has an interest which does not fall into a departmental area, he may select a topic for concentration instead of a departmental major and choose 40 hours of course work from any of the fields. These 40 hours must contribute to the topic and cannot be chosen from courses open to freshmen. At least 24 of the 40 hours must be in courses above the sophomore level. The student must have earned a minimum academic standing of 2.5 during his freshman and sophomore years and 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.

To be eligible for the Bachelor of Science Degree the Topical Major must earn at least 60 hours in the physical and biological sciences. These 60 hours may include freshman courses.

DOUBLE MAJORS

A student may obtain a double major by meeting all requirements in two departments. Major work in one department can, if there is a generic relationship, serve as the outside field in the second major, and vice versa. The student must indicate his double major to the Office of the Associate Dean for Instruction. He must have an adviser in both departments and must turn in two sets of plan cards. The student who completes requirements for a double major will receive only one degree, but his record will indicate his two majors.

MINORS

The College of Arts and Sciences does not have minors. A student desiring special strength in a second field should pursue a double major, or use his electives to add to the 14 hours of generically related work in the field of concentration.

CHANGING MAJORS

A student changing majors must consult the Office of the Associate Dean for Instruction as to the proper procedure. If the change is drastic, or delayed until well into the student's career, he must accept the probability that the new major may require additional time in residence.

THE PREPARATION OF TEACHERS

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

Any Arts and Sciences student intending to seek teaching certification should so indicate to his faculty adviser. Most departments assign such students to a special adviser. The student should also contact the Associate Dean of the College of Education. As soon as he has determined to seek certification he is assigned an adviser both in the College of Education and in his major department in the College of Arts and Sciences.

Students seeking certification should exercise special care to familiarize themselves with the requirements of the College of Education and of certification requirements as well as the requirements of their own department and College. The sooner and the more thoroughly this is done, the greater the advantage to the student.

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

The degree of A.B. or B.S. with Honors in the student's major subject will be conferred upon the student who, in addition to having completed the requirements for the degree, shall have (1) attained high standing in his major subject, (2) passed with distinction a thorough, comprehensive examination in his major subject, and (3) been recommended for the said degree by the faculty of the department in which his major work was done. 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 biweekly conferences, reports, and semester papers of some sustained effort.

ELECTIVES IN OTHER COLLEGES

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

Students registered in the College of Arts and Sciences may take work in the College of Law only on securing the consent of the Dean of the Law School.

Students taking the combined Arts-Law course must, before taking 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 undergraduate degree must be completed in residence at the University.

EXTENSION AND CORRESPONDENCE COURSES

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

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

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

1. He must gain at least 100 credits exclusive of physical education in Arts and Sciences subjects, with a standing of 2.0 or more, before transferring to the professional school. For Arts-Law he should have a standing of 2.75 on all work attempted, before transferring to the Law College.
2. He must have met the specified requirements of the College of Arts and Sciences and have gained at least 20 credits in his field of concentration before transferring to the professional school.
3. He must spend at least one year in a College of Law approved by the Association of American Law Schools, or in an accredited Medical School, an accredited College of Dentistry as rated by the Dental Educational Council of America.
4. He must, in his professional courses, secure sufficient credits to bring his total in the Arts and professional work up to 128 credits exclusive of Physical Education, and must secure a standing of at least 2.0, or its equivalent, in the professional work. Professional courses duplicating Arts and Sciences courses, or duplicating courses elected in other colleges of the University by the student while registered in the College of Arts and Sciences, will not be counted in the total.

PRE-LAW COURSES

There is no one specified program required for entry into law school. Students are advised to obtain the bulletins of law schools in which they are interested and to familiarize themselves with the admission standards. In general, the pre-law student should do everything possible to develop rigorous study habits, skill in clear and logical communication, and breadth of general education. Almost all law schools require that students take the Law School Admission Test. Students should contact the Dean's Office of the College of Law for information concerning the Test.

In most instances it is highly recommended that students complete the bachelor's degree before entering the College of Law. Many law schools require a degree prior to admission. Students considering the combined Arts-Law Program described in the preceding section should consult the Associate Dean for Instruction of the College of Arts and Sciences as to its advisability in their instance.

PRE-MEDICAL COURSES

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

MINIMUM REQUIREMENTS FOR ENTRANCE TO MEDICAL SCHOOLS

1 year English Composition
1 year Biology with laboratory
1 year Physics with laboratory
2 years Chemistry including
(a) General Chemistry (c) Quantitative Analysis
(b) Qualitative 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-year course of study and thereby obtains his degree will have time to meet the requirements for entrance to all medical schools. Opportunity is thus afforded for a broader background in the natural sciences, social studies, and humanities, which will be of advantage both in medical school and in later life. The student may elect any field of concentration and may major in any department of the field which he desires.

The number of students applying annually for admission to medical colleges exceeds the number which can be admitted. Boards of admission consequently fill their quotas from those who are best prepared, or who

have had three or four years of college work, or even a college degree. Furthermore, these boards seldom select a student who does not have a satisfactory standing, regardless of the number of years spent in college.

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. Early in your academic career, try to determine to what medical school or schools you will make application. Then, inform yourself as to the specific requirements and desires of these schools and try to conform to them. In order to do this, it is advisable for you to write the medical schools of your choice *or see the pre-medical adviser in the College of Arts and Sciences at U.K.*
3. The College of Arts and Sciences has a pre-medical adviser who himself is a physician on the faculty of the College of Medicine. It is advisable that you see him as soon as possible after you arrive on campus. He will guide you in the selection of proper courses, electives and discussion of various medical schools and their curricula. Most medical schools require a letter of recommendation from the pre-medical adviser so it is advantageous to you to see him periodically so that he may get to know you.

RECOMMENDED COURSES PREPARATORY TO THE STUDY OF MEDICINE

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

Freshman Year

First Semester	Crs.
CHE 110, General College Chemistry I	3
CHE 111, General Chemistry Lab I	2
MA 113, Calculus	4
ENG 101, Freshman Composition	3
*Electives (Liberal Arts)	3
Second Semester	
CHE 112, General College Chemistry II	3
CHE 113, General Chemistry Lab II	2
ENG 102, Freshman Composition	3
*Electives	7-9

Sophomore Year

First Semester	Crs.
CHE 230-231 (Organic Chemistry I)	5
BIO 200-201, General Biology I	5
Humanities (Music, Art, or Literature)	3
*Electives	3
Second Semester	
CHE 232-233 (Organic Chemistry II)	5
BIO 202-203, General Biology II	5
Humanities(Music, Art, or Literature)	3
*Electives	3

Third Year

First Semester	
PHY 211, General Elementary Physics	5
CHE 226, Analytical Chemistry, or	4
ZOO 220, Comparative Anatomy	
*Electives and/or "major" courses	6-9
Second Semester	
PHY 213, General Elementary Physics	5
ZOO 506, Embryology	4
*Electives and/or "major" courses	6-9

Fourth Year

Concentration in area of major interest and electives should include at least one Biological or Physical Science course each semester.

* Electives include many courses of the liberalizing type. (Sociology, Psychology, History, Literature, Philosophy, Anthropology, Etymology, Economics, Political Science, and others.)

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

PRE-DENTAL CURRICULUM

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

1 year of English (at least 6 semester hours)
1 year of biology (at least 6 semester hours)
1 year of physics (at least 6 semester hours)
1 year of inorganic chemistry (at least 6 semester hours)
½ year of organic chemistry (at least 3 semester hours)

All science courses must include both class and laboratory instruction.

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

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

A combination Arts-Dental curriculum which is similar to that of Arts-Medicine may be followed.

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

Students planning to enter the ministry or the field of religious education should consult the Office of the Associate Dean for Instruction, which will plan with them their schedule for the first year and help them in the choice of their major department after the first year.

All accredited theological seminaries require a degree for entrance. The American Association of Theological Schools recommends that a student's college work include:

English language and literature; history, including non-western cultures as well as European and American; philosophy, particularly its history and its methods; natural sciences, both the physical and the life sciences; social sciences—psychology, sociology, and anthropology are particularly appropriate; the fine arts and music, especially for their creative and their symbolic value; biblical and modern languages; religion, both in the Judeo-Christian and in the Near and Far Eastern traditions.

PRE-OPTOMETRY CURRICULUM

By means of a contract with the University of Houston, administered through the Southern Regional Education Board, the Commonwealth of Kentucky will pay to the University of Houston the non-resident differential for each academic year in the College of Optometry for those students who qualify under this program and demonstrate approved progress in the four-year curriculum which leads to the Doctor of Optometry Degree. It is possible at this instution for a student to earn a certificate in Optometry when the third year of the Optometry Curriculum is completed, and when the State Board Examinations are passed, after which the student can enter into the practice of optometry.

To be eligible for the financial assistance, a student must be a legal resident of the Commonwealth of Kentucky as defined by the Council on Public Higher Education and must be admitted to the College of Optometry, University of Houston.

THE PRE-OPTOMETRY REQUIREMENTS

	Crs.
General Chemistry	10 or 8
Freshman English	6
U.S. History	6
*College Algebra and Trigonometry	5
General Zoology	4
Principles of Bacteriology	4
English Literature	6
General Elementary Physics	10
Political Science	6
Physical Education	2
Electives	9 or 11
Total credits	68

* Degree credit is not given for College Algebra and Plane Trigonometry.

The electives should be selected from art, drama, economics, languages, music philosophy, psychology, sociology, anthropology and speech. Additional courses in English, history or political science may be chosen also.

The foregoing list of subjects will prepare a student for any college or school of optometry but financial support from the Commonwealth of Kentucky applies only to the College of Optometry of the University of Houston.

PRE-PHARMACY

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

The minimum requirements for admission to the College of Pharmacy beginning in the fall of 1970 are:

1 year English Composition
1 year Biology (with laboratory)
1 semester Microbiology (with laboratory)
1 semester Mathematics (Calculus I)
1 semester Principles of Economics
1 year Physics (with laboratory)
1 year General Chemistry (with laboratory) including qualitative analysis
1 year Organic Chemistry (with laboratory)

Additional courses: Sufficient elective courses need to be selected such that a minimum of 66 hours (Junior classification) are presented. Wise selection of electives will assist in meeting the General Studies Component requirement for graduation from the University.

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

RECOMMENDED COURSES PREPARATORY TO THE STUDY OF PHARMACY

First Year

Course	Cr.
CHE 110—General College Chemistry I	3
CHE 111—General Chemistry Lab I	2
ENG 101—English Composition	3
CHE 112—General College Chemistry II	3
CHE 113—General Chemistry Lab II	2
ENG 102—English Composition	3
MA 113—Calculus	4
*MB 200 Principles of Bacteriology	4

Second Year

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

* Students taking BIO 200 and BIO 202 on the University's Lexington campus are exempt from MB 200.

Additional electives, with these requirements, must total 66 semester hours.

ARTS AND SCIENCES 300, SPECIAL COURSE (1-3 CREDITS)

Interdisciplinary, topical and experimental courses to be approved by the Honors Program Committee, and taught by one or several instructors. Open to all University students, subject to such limits and prerequisites as set by the instructor. May be taken for a maximum of 3 credits. Prereq: As specified by the instructor.

AEROSPACE SCIENCE

FACULTY

John L. Sutton, chairman

Professor

John L. Sutton — Ph.D., Geneva, Switzerland, 1949

Assistant Professors

Ronald W. Janssen
M.S., Air Force Institute of Technology, 1967

Warren R. Spencer
M.S., Georgia Institute of Technology, 1968

THE AIR FORCE RESERVE OFFICERS' TRAINING CORPS

By successfully completing either the two-year or four-year Air Force ROTC program, male students may concurrently earn a United States Air Force officer's commission while completing the requirements for a degree in their chosen field.

The General Military Course, taken during the freshman and sophomore years by men in the four-year program, consists of four one credit hour courses (AS 111, 112, 211, 212). The General Military Course is elective for any male full-time students at the University, and the four courses, normally taken consecutively, meet twice weekly, once in academic session and once for corps training (leadership lab).

Admission to the Professional Officer Course (the junior and senior years) is competitive and by application of the individuals completing the General Military Course, or, in the case of men in the two-year program, through successful completion of a six-week summer camp. (For further details on the two-year program check under Course Descriptions, Alternative to Basic Course). The Professional Officer Course requires a three-hour course each semester for the junior and senior years plus a four-week summer camp between the junior and senior year for those in the four-year program. All summer camps are at active Air Force bases and involve jet orientation flights, tours, familiarization with normal base functions and general military training.

Professional Officer Course cadets who are physically and mentally qualified for pilot training will receive a program of flying instruction which includes thirty hours of ground school and thirty-six hours of dual and solo flying under the supervision of competent flight instructors at Blue Grass Field. This portion of the advanced course normally leads to the award of a private pilot license.

All Professional Officer Course cadets receive a subsistence pay of $50 per month, plus summer camp pay, and an individually tailored Air Force officer's uniform which they retain upon commissioning. Cadet uniforms and equipment are furnished to cadets in the General Military Course on a loan basis. Each student is required to make a $10 deposit with the Business Office of the University to cover the cost of lost or damaged articles. The deposit is refunded upon return of the items.

Financial Assistance Grants, which cover the costs of all tuition and fees, including laboratory fees, and a $75 annual book allowance, are available on a competitive basis to cadets in the four-year program.

Upon graduation, all students completing the AFROTC program are commissioned Second Lieutenants in the United States Air Force. Those students who desire to attend graduate school prior to entry to active duty are normally permitted to do so.

Departmental Requirements

For University and college requirements see page 6.

Course Descriptions

AIR FORCE ROTC GENERAL MILITARY COURSE

FIRST YEAR

111 *Aerospace Studies I, AFROTC.* (1) I
A course designed to provide the student with a basic understanding of the nature and principles of war, national power, and the Department of Defense role in the organization of national security. The student also develops leadership abilities by participating in a military organization, the cadet corps, which offers a wide variety of situations demanding effective leadership.

112 *Aerospace Studies I, AFROTC.* (1) II
A course designed to provide the student with a basic understanding of the contribution of aerospace power to the total U.S. strategic offensive and defensive military posture. The student also develops leadership abilities by participating in a military organization, the cadet corps, which offers a wide variety of situations demanding effective leadership.

SECOND YEAR

211 *Aerospace Studies II, AFROTC.* (1) I
Examines the organization and roles of U.S. general purpose military forces with emphasis on aerospace forces. Leadership experience is continued through active participation in the cadet corps. Prereq: AS 111, 112 or PAS approval.

212 *Aerospace Studies II, AFROTC.* (1) II

An examination of U.S. defense policy to include Free World and Communist military systems and alliances and the search for peace through crisis management, arms control and collective security. Leadership experience is continued through participation in the cadet corps. Prereq: AS 111, 112 or PAS approval.

ALTERNATIVE TO GENERAL MILITARY COURSE

Those students who elect to do so and qualify physically and mentally may substitute a six-week training period for the two-year General Military Course. Such students must apply no later than the fifth semester prior to their attainment of any degree, graduate or undergraduate. For details contact the Department of Aerospace Science.

PROFESSIONAL OFFICERS' 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 *Aerospace Studies III, AFROTC.* (3) I

A survey course of the development of airpower in the United States; mission and organization of the Defense Department, Air Force concepts and doctrine, leadership, communication skills, and the future development of aerospace power. Students refine their leadership abilities by organizing and managing a military unit, the cadet corps, which offers a wide variety of situations requiring effective leadership. Prereq: AS 212 or approval of PAS.

332 *Aerospace Studies III, AFROTC.* (3) II

Astronautics and space operations; includes the United States space programs, vehicles, systems, sub-systems, and problems in space exploration. Students also refine their leadership abilities by organizing and managing a military unit, the cadet corps, which offers a wide variety of situations requiring effective leadership. Prereq: AS 331 or approval of PAS.

303 *AFROTC Field Training.* (0) S

A program at an Air Force Base to include familiarization flying, field exercises, a knowledge of USAF base activities and equipment, and Air Base problems. Prereq: AS 331, 332 or approval of PAS.

FOURTH YEAR

341 *Aerospace Studies I, AFROTC.* (3) I

A study of Air Force leadership including its theoretical, professional, communicative and legal aspects. Students also refine their leadership abilities by organizing and managing a military unit, the cadet corps, which offers a wide variety of situations requiring effective leadership. Prereq: AS 331, 332 or PAS approval.

342 *Aerospace Studies IV, AFROTC.* (3) II

A study of military management functions, principles and techniques, with attention to the development of communicative skills. Students continue to refine their leadership abilities by organizing and managing a military unit, the cadet corps, which offers a wide variety of situations requiring effective leadership. Prereq: AS 331, 332 or PAS approval.

323 *Aerospace Studies—Flight Instruction Program.* (3) I

An integrated program of classroom instruction and flight instruction in which the student earns a FAA private pilot's license. Includes theory of flight, federal air regulations, fundamentals of meteorology and aerial navigation. Prereq: Category IP, AS 331, 332; Senior standing, or approval of PAS.

395 *Independent Work.* (2-6) I, II, S

A study of an advanced problem on subject area in aeronautical science under the guidance of a departmental staff member. One discussion per week; term paper required. Prereq: Senior standing in AFROTC Program; major and 3.0 standing in Aerospace Science.

ANTHROPOLOGY

FACULTY

Art Gallaher, chairman

Professors

Philip Drucker	Ph.D., California, 1936
Frank J. Essene	Ph.D., California, 1947
George Patterson Faust	Ph.D., Princeton, 1932
Art Gallaher	Ph.D., Arizona, 1956
Margaret Lantis	Ph.D., California, 1939
Marion Pearsall	Ph.D., California, 1950

Associate Professors

William Y. Adams	Ph.D., Arizona, 1958
Lathel F. Duffield	Ph.D., Wisconsin, 1969
Donald Lee Hochstrasser	Ph.D., Oregon, 1962

Assistant Professors

Albert S. Bacdayan	Ph.D., Cornell, 1967
John Edward Barrows	Ed.D., Kentucky, 1959
Robert H. Biggerstaff	Ph.D., Pennsylvania, 1969
Anthony C. Colson	Ph.D., Stanford, 1969
John T. Dorwin	Ph.D., Indiana, 1969
Louise M. Robbins	Ph.D., Indiana, 1968

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 120 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.

Departmental Requirements

For University and college requirements see page 6.

General Studies Requirements: See page 66.

Pre-Major Requirements: ANT 120 and 121.

Major Requirements: At least one course beyond the freshman level in each of the following five fields: archaeology, ethnology, linguistics, physical anthropology, and social anthropology. Minimum of 24 credits in anthropology at 200 level and above, exclusive of anthropology courses used to satisfy area requirements. During senior year ANT 582, repeated once, and comprehensive written and oral examinations are required.

Field of Concentration Requirements: See page 66.

Course Descriptions

120 *Human Ancestry.* (3) I, II
Introduction to human origins and the fossil remains of Pleistocene man throughout the world. Emphasizes methods of discovery and various means available for interpreting and understanding man's biological and early cultural development. *Robbins.*

*121 *Introduction to Cultural Anthropology.* (3) I, II, S
Archaeological remains of prehistoric man and the arts, industries, social organization, languages, and religions of modern primitive people. Meets Social Studies Requirements: *Essene, Bacdayan, Adams and Staff.*

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 GEO and SOC 153. Open to freshmen. Prereq: SOC 101. *Barrows.*

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. *Robbins.*

201 *Anthropology in the Modern World.* (3) I
The application of anthropology to the problems of contemporary society in industrialized and less developed parts of the world. Cultural factors affecting change. *Dobyns, Lantis.*

221 *Primitive Inventions.* (3) I
Ancient and modern inventions of primitive peoples. Theoretical approach combined with handling and manufacturing artifacts. Prereq: ANT 121. *Essene.*

232 *Living Races of Man.* (3) II
A survey of the principal aspects of human variation within and between populations. Attention is focused upon the concepts of race, racial mixture, human ecology, and human biology. *Robbins.*

241 *Beginnings of Civilization.* (3) I
Earliest evidences of agriculture, pastoralism, and complex social and political organization, with special emphasis on the origins of Western Civilization. *Adams.*

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
This course requires of the student a detailed and systematic knowledge of human anatomy, both of the skeleton and the soft part tissues. The first half is devoted to the positive identification of all the bones of the human skeleton. This approach involves knowing each bone and its fragments, including the identification by side. In addition, sex differences and age changes will be mastered as the student's knowledge increases. Finally, the student will be expected to determine the racial origins of skeletal remains from such skull features as the nose, palate, and its teeth, the chin and long bone proportions. One hour lecture, two hours laboratory per week. *Robbins.*

428 *Contemporary Cultures and Societies in Southeast Asia* (3)
A descriptive and analytical consideration of representative cultures from insular and mainland Southeast Asia in terms of their social, political, economic and religious organization. The history of the cultural contracts of Southeast Asia with India, China, Europe and the Islamic tradition will be discussed. Prereq: ANT 120, 121 or consent of instructor. *Bacdayan.*

438 *Ethnology of the Near East and North Africa.* (3)
Survey of Islamic, Christian, and Hebraic cultures of the Near East and North Africa, with emphasis on relations between religious traditions and political systems. Prereq: ANT 120 and 121, or consent of instructor. *Adams.*

439 *Circumpolar Peoples.* (3) I
Ethnology of Old World and New World peoples of the circumpolar region, with emphasis on its common characteristics. Prehistoric connections between Eurasia and America and historic developments in both will be considered. Prereq: ANT 121 or consent of instructor. *Lantis.*

442 *New World Prehistory.* (3) II
Survey of the origin and growth of prehistoric American Indian cultures as revealed by archaeological data. Prereq: ANT 120, 121. *Staff.*

490 *Pre-Field Study Seminar.* (3)
Orients students in a specific cultural area where they will conduct field research under faculty supervision and provides training in designing anthropological research. Prereq: ANT 120, 121, Major, and consent of instructor. *Staff.*

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 120 or 3 hours in any other biological science. *Robbins.*

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. *Bacdayan.*

---

* This course is prerequisite to a significant number of courses in this and related areas of study.

512 *Comparative Civilizations.* (3) II
Comparison of complex societies of the past and present, stressing similarities and differences in their historical development and cultural achievements. *Adams.*

514 *Descriptive 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: 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.) *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 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 241 or equivalent 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. Prereq: ANT 121. *Drucker.*

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. Prereq: ANT 120, 121. *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. *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. Prereq: SOC 101. (Same as SOC 526). *Lantis, Robbins, Hochstrasser and Colson.*

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.*

530 *Contemporary Latin American Cultures.* (3)
Detailed survey of societies and cultures of contemporary Latin America, utilizing contribution from anthropological research. Prereq: consent of instructor. *Dobyns and Drucker.*

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; SOC 101. (Same as SOC 533). *Dobyns or Bacdayan.*

536 *European Peasantries.* (3) II
Comparison of peasant populations and their modernization, with emphasis upon the dynamics of cultural stability and change encountered in relationships between national elites and peasantries in various countries. Prereq: ANT 510 and Junior classification. *Gallaher.*

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. *Drucker, Duffield.*

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

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

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. *Dobyns and Adams.*

548 *European and Near Eastern Archaeology.* (3) II
Prehistoric cultural development in Europe and the Near East, from the earliest times to the beginning of civilization. Prereq: ANT 120 and 121, or consent of instructor. *Adams.*

550 *Field Studies in Anthropology.* (1-6)
Field research as a part of a long-range anthropological research program. Provides student with an initial experience conducting research under faculty supervision. May be repeated for a maximum of 12 credits. (Three hours to full-time lab). Prereq: At least one semester of the appropriate language of the area of research and consent of instructor, in addition to ANT 120, 121. *Staff.*

555 *Eastern North American Archaeology.* (3) I
Detailed analysis of prehistoric cultures of eastern United States with emphasis on interpretation of prehistory in Ohio River Valley. Prereq: ANT 120, 121, and 442 or consent of instructor. *Staff.*

560 *Ethnographic Principles and Practice.* (3) II
Exposition of the principles of ethnographic data collection, and practice in the acquisition and use of censuses, genealogies, personal histories, maps, specialized recordings, specimen collections, and other materials. Prereq: ANT 510. *Dobyns, Lantis.*

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. *Bacdayan.*

575 *Prehistory of Eastern Asia.* (3) I
Prehistoric cultures of the East Asian mainland from the Old Stone Age to the beginnings of Chinese civilization, and their diffusion to Japan, Australia, and Oceania. Prereq: ANT 120 and 121, or consent of instructor. *Staff.*

581 *Independent Work in Anthropology.* (1-4) I, II, S
Prereq: Major and a standing of 3.0 in the dept. May be repeated to a maximum of 12 credits. *Staff.*

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

585 *Field Laboratory in Archeological Research.* (3-6)
Practical supervised training in field in archaeological research methods and techniques, problem analysis, field laboratory procedures, recording methods. Lab, 20 to 40 hours per week. May be repeated to a maximum of 12 credits. Prereq: ANT 541 and consent of instructor. *Staff.*

601 *Proseminar in Anthropology.* (4) I
Survey of contemporary anthropology and its constituent subfields, with emphasis upon its core concepts. Prereq: Graduate standing. *Lantis.*

602 *Contemporary Anthropological Theory Seminar.* (3)
Systematic survey of significant theories current in anthropology, the primary concepts employed, and important contributors to anthropological theory. Emphasizes distinctive characteristics of the discipline. Prereq: ANT 601. *Dobyns.*

610 *History of Anthropology.* (3)
Traces the development of anthropology in historical perspective, with particular attention to major theorists. Prereq: ANT 601 or consent of instructor. *Adams.*

614 *Field Methods in Linguistics.* (3)
Analysis of a language by working directly with a native speaker. Prereq: ANT (ENG) 514 or 515, and ANT (ENG) 516. *Faust.*

641 *Middle and South America Seminar.* (3)
Current trends in change and modernization in Latin America. Deals with social, economic, ideological and political aspects of contemporary Latin American culture. Prereq: ANT 601 or consent of instructor. *Dobyns.*

648 *Seminar on Southeast Asian Cultures and Societies.* (3)

A seminar in Southeast Asian culture and societies with emphasis on the contemporary, political, economic, religious and social scene. Particular emphasis will be placed upon the exploration and understanding of current problems in the region through consideration of its pre-history, physical habitats, and the influence of the Hindu, Chinese, Islamic and European cultures. Prereq: ANT 428, GEO 552, or consent of instructor, in addition to ANT 601. *Bacdayan.*

658 *Seminar on African Societies.* (3)

Analysis of differing sociocultural factors in sub-Saharan Africa and their influence upon patterns of modernization, nationalism, and changing tribal structures. Prereq: ANT 601; ANT 431 or consent of instructor. *Staff.*

661 *Seminar on Near Eastern Cultures.* (3)

Analysis of social and cultural factors resulting in differing patterns of change, modernization, nationalism in Islamic countries and Israel. Prereq: ANT 601; ANT 438 or consent of instructor. *Adams.*

670 *Seminar on Role Theory.* (3)

An exploration of differences and similarities in the utilization of the concept of role in Sociology, Anthropology and Psychology. Emphasis is placed on the potentiality of role as unifying concept in the behavioral sciences. Prereq: SOC 101. (Same as BSC 670.) (Same as SOC 670.) *Gallaher.*

690 *Advanced Pre-Field Study Seminar.* (3)

Orients graduate students on a special cultural area where they will conduct research under faculty supervision; provides training in anthropological research design. Prereq: ANT 601, requisite language skills, and consent of instructor. *Staff.*

727 *Seminar on Socio-Cultural Change.* (3)

A seminar for advanced students. Emphasizes economic, religious, political, technological, psychological, etc. factors in change, and social and cultural patterns and processes of change. Prereq: ANT 527 or SOC 518, or permission of instructor; SOC 101. (Same as SOC 727.)

730 *Seminar in Comparative Religious Systems.* (3)

A seminar on principles in the comparative study of religious behavior and religious institutions and principles of change in religion as a cultural form. Deals mainly with religions of non-literate peoples. Prereq: Consent of instructor. *Lantis.*

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. Prereq: SOC 101. (Same as SOC 731.) *Staff.*

750 *Graduate Field Study in Anthropology.* (1-6)

Field research as part of a long-range anthropological research program for graduate interns training under direct faculty supervision. Provides student with experience conducting scientific research as research team member. Report required. Prereq: Appropriate language fluency; preparatory area study plus consent of instructor in addition to ANT 601. *Staff.*

765 *Research Problems in Medical Anthropology.* (3)

(1) History and theory of medical anthropology; (2) Research design, field work, analysis of data, and report writing. Two class hours per week, three lab hours per week. Prereq: Graduate status in Anthropology, Sociology or Psychology, and a concentration or minor in Medical Behavioral Science. (Same as BSC 765.) *Pearsall.*

768 *Residence Credit for Master's Degree.* (0) I, II, S

May be repeated once. (1-6 credits equivalence.)

769 *Residence Credit for Doctor's Degree.* (0)

(1-12 credits equivalence).

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

(see page 93)

BIOLOGY

100 *Biology.* (3)

This course will introduce non-biology majors to basic concepts and formations in Biology, and will include information derived from animal, plant, and microbial life systems. Emphasis will be on activities at the cellular level. Prereq: Not open to students who have taken MB 100, ZOO 100, or BOT 101.

101 *Biology.* (3)

This course will introduce non-biology majors to basic concepts and formulation in Biology, and will include information derived from animal, plant, microbial life systems. Emphasis is placed on multicellular systems. Prereq: BIO 100.

110 *Introduction to Human Biology and Health.* (3)

A course describing basic anatomical and physiological functions of various body cells, tissues, and organs and their interrelationships as a functioning whole. It also deals with basic information as to *maintenance of health;* brief description of the major and common diseases affecting man—their control and prevention.

200 *General Biology I.* (3) I

An integrated study of organisms and life functions. Prereq: One year College Chemistry. Must be accompanied by BIO 201 (lab). *Staff.*

201 *General Biology Laboratory I.* (2)

Laboratory to accompany BIO 200. Four hours' laboratory per week. Prereq: Enrollment in BIO 200. Also open to students who have had BIO 101. One year college Chemistry (or concurrent). *Staff.*

202 *General Biology II.* (3) II

Continuation of BIO 200. Prereq: BIO 200-201. Must be accompanied by BIO 203 (lab). *Staff.*

203 *General Biology Laboratory II.* (2) II

Laboratory to accompany BIO 202. Four hours' laboratory per week. Prereq: Enrollment in BIO 202. Also open to students who have completed BIO 101 and 201. *Staff.*

620 *Genetic Structure of Populations.* (3)

A discussion of the development, theory and practice of experimental and theoretical population genetics, including the basic dynamics and integrating properties of populations, factors which produce changes in populations and their effects on population structure and evolution. Prereq: An introductory course in genetics and in statistics, and consent of instructor.

678 *Statistical Genetics.* (3)

Statistical approaches to the analysis of quantitative inheritance; definition and estimation of genetic parameters relating to selection; inbreeding theory; random-mating and inbred populations; testing and planning in genetic experiments. Prereq: STA 674 and BIO 620 or consent of instructor. (Same as STA 678 and AGR 678).

760 *Developmental Genetics.* (3)

Discussion of metabolism, phenogenesis, immunogenicity, and molecular evolution as relates to gene action and its modification in basic development and physiological processes of higher organisms. Prereq: Adequate background in genetics and Biochemistry and/or consent of instructor.

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

(1 to 6 credits equivalence). May be repeated to a maximum of six credits equivalence.

769 *Residence Credit for Doctor's Degree.* (0)

(1 to 12 credits equivalence). May be repeated indefinitely. *Staff.*

770 *Seminar in Genetics.* (1)

Review of current literature in genetics; presentation of papers on research in progress or on assigned topics; reports on meetings of scientific societies. Required of all graduate students in Genetics. May be repeated to a maximum of 10 credits. Prereq: ASC 562 or BOT 532 or consent of instructor.

771 *Seminar in Plant Physiology.* (1)

Reports and discussions on various topics in Plant Physiology. May be repeated for a maximum of eight credits. *Staff.*

BOTANY

FACULTY

Samuel F. Conti, acting chairman

Distinguished Professor

Herbert P. Riley	Ph.D., Princeton, 1931

Professor

Samuel F. Conti	Ph.D., Cornell, 1959

Associate Professors

Carl E. Henrickson	Ph.D., Ohio State, 1950
William Meijer	Ph.D., Amsterdam, 1951

Assistant Professors

Jerry M. Baskin	Ph.D., Vanderbilt, 1967
James H. Eley	Ph.D., Texas, 1967
Denny O. Harris	Ph.D., Indiana, 1967
Thomas J. Leonard	Ph.D., Indiana, 1967
P.S. Sabharwal	Ph.D., New Delhi, India, 1963

Courses in the Department of Botany are designed to give the student a basic understanding of plant sciences. In completing requirements for the bachelor's degree the undergraduate major receives training in morphology, anatomy, taxonomy, physiology, ecology and genetics. The curriculum is designed to prepare the undergraduate major for careers in teaching or industry and to provide him with an adequate background for graduate work in all areas of botany. Many of the courses also satisfy certain requirements of professional schools such as medicine, dentistry and pharmacy.

Departmental Requirements

General Studies Requirements: Area I, MA 113 or 122 and 123; Area II, PHY 211 and 213; Area III, BIO 200, 201, 202 and 203; Area IV, German, Russian or French recommended; Area V and Area VI or VII or VIII.

Pre-Major Requirements: BIO 200, 201, 202, 203; CHE 110, 111, 112, 113; MA 113 or 122 and 123.

Major Requirements: BOT 303, 501, 521, 530, 219 or 551 or 201, 515 (1 semester); CHE 230, 231, 232, 233. The following courses recommended for all majors: BOT 507, 513, 524.

Field of Concentration: Including the major must contain 40 credits of non-freshman work, with at least 24 credits above the 200 level. At least 14 credits must be outside the department and related to the major field of study. Departments offering such courses are Zoology, Microbiology, Geology, Chemistry, Biochemistry, Agronomy, Horticulture, and Plant Pathology.

Additional Requirements: Senior Comprehensive Examination and/or the GRE prior to graduation.

Course Descriptions

BIO 100 *Biology.* (3)
This course will introduce non-biology majors to basic concepts and formulations in Biology, and will include information derived from animal, plant, and microbial life systems. Emphasis will be on activities at the cellular level. Prereq: Not open to students who have taken MB 100, ZOO 100, or BOT 101.

BIO 101 *Biology.* (3)
This course will introduce non-biology majors to basic concepts and formulation in Biology, and will include information derived from animal, plant, microbial life systems. Emphasis is placed on multicellular systems. Prereq: BIO 100.

BIO 200 *General Biology I.* (3) I
An integrated study of organisms and life functions. Prereq: One year College Chemistry. Must be accompanied by BIO 201 (lab). *Staff.*

BIO 201 *General Biology Laboratory I.* (2)
Laboratory to accompany BIO 200. Four hours' laboratory per week. Prereq: Enrollment in BIO 200. Also open to students who have had BIO 101. One year college Chemistry (or concurrent). *Staff.*

BIO 202 *General Biology II.* (3) II
Continuation of BIO 200. Prereq: BIO 200-201. Must be accompanied by BIO 203 (lab). *Staff.*

BIO 203 *General Biology Laboratory II.* (2) II
Laboratory to accompany BIO 202. Four hours' laboratory per week. Prereq: Enrollment in BIO 202. Also open to students who have completed BIO 101 and 201. *Staff.*

BIO 620 *Genetic Structure of Populations.* (3)
A discussion of the development, theory and practice of experimental and theoretical population genetics, including the basic dynamics and integrating properties of populations, factors which produce changes in populations and their effects on population structure and evolution. Prereq: An introductory course in genetics and in statistics, and consent of instructor.

BIO 678 *Statistical Genetics.* (3)
Statistical approaches to the analysis of quantitative inheritance; definition and estimation of genetic parameters relating to selection; inbreeding theory; random-mating and inbred populations; testing and planning in genetic experiments. (Same as STA 678 and AGR 678). Prereq: STA 674 and BIO 620 or consent of instructor.

BIO 760 *Developmental Genetics.* (3)
Discussion of metabolism, phenogenesis, immunogenicity, and molecular evolution as relates to gene action and its modification in basic development and physiological processes of higher organisms. Prereq: Adequate background in genetics and Biochemistry and/or consent of instructor.

BIO 768 *Residence Credit for Master's Degree.*
(1 to 6 credits equivalence). May be repeated to a maximum of six credits equivalence.

BIO 769 *Residence Credit for Doctor's Degree.*
(1 to 12 credits equivalence). May be repeated indefinitely. *Staff.*

BIO 770 *Seminar in Genetics.* (1)
Review of current literature in genetics; presentation of papers on research in progress or on assigned topics; reports on meetings of scientific societies. Required of all graduate students in Genetics. May be repeated to a maximum of 10 credits. Prereq: ASC 562 or BOT 532 or consent of instructor.

BIO 771 *Seminar in Plant Physiology.* (1)
Reports and discussions on various topics in Plant Physiology. May be repeated for a maximum of eight credits. *Staff.*

†*101 *General Botany.* (3) 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 one two-hour lab period per week. *Staff.*

*125 *General Plant Biology.* (3) I, II, S
The principles underlying the structure, physiology and reproduction of flowering plants. Two lectures and one discussion per week. BOT 126 must be taken concurrently. May not be taken for credit if student has had BOT 101 or equivalent. *Staff.*

---

* This course is prerequisite to a significant number of courses in this and related areas of study.

† Will be dropped effective 1970 Fall Semester.

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 125. *Meijer.*

219 *Dendrology.* (3) I, II

Classification, nomenclature, identification and silvical characteristics of trees and other woody plants based on their morphological, phylogenetic and ecological relationships. Nominally three one-hour lectures per week, but weekend field trips will be taken in lieu of some class hours. Prereq: BOT 125, or BIO 102 or 202. (Same as FOR 219). *Meijer.*

303 *Plant Kingdom.* (3)

Survey of the morphology, taxonomy, life cycles, physiology and biological relationships of groups of plants comprising the plant kingdom. Two lectures and one two-hour laboratory per week. Prereq: BOT 125, or BIO 102 or 203. *Harris.*

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 ZOO 400.) *Staff.*

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. (Same as ZOO 402.) *Staff.*

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: Six credits in Botany or Biology and two semesters of inorganic chemistry. *Henrickson.*

506 *Special Problems.* (1-3) 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 *Algology.* (4) I

A survey of the physiology, structure, life histories, genetics and relationships of the various groups comprising the algae, with the main emphasis upon the fresh-water green algae. Two hours of lecture and two hours of laboratory per week. Prereq: Six credits in Biology. *Harris.*

513 *Ecology.* (4) I

The relationships of plants to the physical, chemical and biotic factors of their environment. Adaptations of species to these environmental factors are emphasized. Lecture, three hours; laboratory, two hours per week. Prereq: Six credits of Botany. *Baskin.*

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. *Sabharwal.*

524 *Mycology.* (4) I

The structure, life history, and physiology of the fungi. Two lecture-discussions and two two-hour lab periods per week. *Leonard.*

528 *Plant Cytology.* (4) I

The structure of plant cells; mitosis and meiosis. Lectures, three hours and two hours lab per week. Prereq: 3 credits in the Biological Sciences. *Riley.*

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.*

541 *Plant Pathology.* (3)

Significance, nature, causes, and methods of control of plant diseases. Lecture and discussion, two hours; lab, two hours. Prereq: BOT 125. (Same as PPA 541). *Diachun, Chapman.*

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: BIO 101, or consent of instructor. *Meijer.*

560 *Plant Microtechnique.* (3) II

The principal methods used in the preservation and preparation of plant materials for microscopic examination; basic microscopy; histochemistry; techniques for measurement and illustration. Six hours of laboratory per week. Prereq: BOT 125. *Sabharwal.*

575 *Botanical Problems of Southern and Central Africa.* (3)

Vegetative regions, significant plant families, plant migration, and climatic factors affecting the distribution of plants in South Africa, Central Africa, and adjacent territories. Prereq: Six hours of Botany. *Riley.*

600 *Plant Morphogenesis.* (5)

Culture of isolated plant organs in test tubes containing synthetic media. Study the effect of Auxins, Vitamins, amino acids and many other chemicals on the physiology and development of single cells, tissues and organs. Two lectures and three two-hour labs per week. Prereq: BOT 501, 521 or 560 or consent of instructor. *Sabharwal.*

620 *Topics in Modern Botany.* (1-3) I, II

A course for students in the biological and related sciences to be taught on various topics by specialists in their fields. Designed to give the student the most up-to-date information on the various topics. May be repeated three times for credit, but each time the course is taken, it must be under a different instructor. The type of course should be indicated by parentheses, i.e. (Systematic Botany), (Cytogenetics), (Morphogenesis), (Mycology), (Algal Physiology), etc. Prereq: Consent of instructor. *Staff.*

626 *Experimental Mycology.* (4) II

A study of the genetics, physiology and morphogenetic systems in the fungi. Lecture, two hours per week; laboratory, two two-hour periods per week. Prereq: BOT 524 and consent of instructor. *Leonard.*

634 *Cytogenetics.* (4)

Cytological and genetic evidence for the chromosome theory. Chromosome aberrations and their importance in heredity and evolution. The effect of ionizing radiation on chromosomes. Three lectures and two hours lab per week. Prereq: BOT 528 and 530 or equivalent. *Riley.*

701 *Plant Metabolism.* (3)

Various aspects of plant metabolism including photosynthesis, respiration, nitrogen and protein metabolism; enzyme kinetics; and relation of molecular structure of cell components to function. Prereq: CHE 236 or 232, BOT 501, or consent of instructor. *Eley.*

732 *Mineral Nutrition of Plants.* (3)

Discussion of accumulation, translocation, and utilization of mineral elements by higher plants. Emphasis will be placed on the relationship between these processes and plant metabolism. Lecture, two hours; laboratory, three hours per week. Prereq: BOT 701 or BCH 515 or consent of instructor. (Same as AGR 732.) *Hiatt.*

734 *Physiology of Growth and Development.* (3)

A critical evaluation of research in selected aspects of plant growth and development. Emphasis will be on effects of growth environment. Prereq: BOT 701 or consent of instructor. (Same as AGR 734) *Kasperbauer.*

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. Three lectures per week. Prereq: BOT 551, 530. *Staff.*

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

May be repeated once. (1-6 credits equivalence.) *Staff.*

769 *Residence Credit for Doctor's Degree.* (0)

May be repeated indefinitely. (1-12 credits equivalence.) *Staff.*

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 Botany.* (1-6)
May be repeated indefinitely, at the discretion of the department. Type of research to be enclosed in parentheses, e.g., (Plant Morphology), (Mycology), (Systematic Botany), (Cytogenetics), etc. *Staff.*

CHEMISTRY

FACULTY

Robert Wayne Kiser, chairman

Professors

Henry H. Bauer — Ph.D., University of Sydney, 1956
Ellis Vincent Brown — Ph.D., Iowa State, 1936
William Donald Ehmann — Ph.D., Carnegie Institute of Technology, 1957
Ellwood Meacham Hammaker — Ph.D., Rutgers, 1940
Robert Wayne Kiser — Ph.D., Purdue, 1958
John Miles Patterson — Ph.D., Northwestern, 1953
Donald Edgar Sands — Ph.D., Cornell, 1955
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
Kurt Niedenzu — Dr.rer.nat., Heidelberg, 1956
William K. Plucknett — Ph.D., Iowa State, 1942
Stanford L. Smith — Ph.D., Iowa State, 1961
Joseph W. Wilson — Ph.D., Indiana, 1961

Assistant Professors

Buddy L. Bruner — Ph.D., Iowa State, 1963
Gary D. Christian — Ph.D., Maryland, 1964
Robert Daulton Guthrie — Ph.D., Rochester, 1963
Kenneth J. Hofstetter — Ph.D., Purdue, 1967
Thomas T-S Huang — Ph.D., Illinois, 1969
John R. Wasson — Ph.D., Illinois Institute of Technology, 1969

Departmental Requirements

General Studies Requirements: Area I, MA 113; Area II, CHE 110, 111, 112, 113; Area IV, German; Area V, one sequence in Humanities; and one sequence in each of two of the following areas: Area III, Area VI, Area VII and Area VIII.

Prerequisite to Major: CHE 110, 111, 112, 113; SP 181; PHY 231, 232, 241, 242; and MA 113, 114, 213, 214.

Major: CHE 005, 007, 008, 230, 231, 232, 233, 395, 440, 441, 442, 443, 510, 520, 522, 532, 572, 582.

Field of Concentration: In addition to the major, 14 credits outside the department in related courses. Mathematics and Physics courses above the freshman level listed under prerequisites to major may be used to satisfy this requirement.

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

Freshman Year

First Semester	Crs.
ENG 101, Freshman Composition	3
CHE 110, General Chemistry I	3
CHE 111, General Chemistry Lab I	2
MA 113, Calculus	4
General Studies	3
	15

Second Semester	Crs.
ENG 102, Freshman Composition	3
CHE 112, General Chemistry II	3
CHE 113, General Chemistry Lab II	2
MA 114, Calculus	4
General Studies	3
	15

Sophomore Year

First Semester	Crs.
CHE 230, Organic Chemistry	3
CHE 231, Organic Chemistry Laboratory	2
MA 213, Analysis	4
PHY 231, General University Physics	3
PHY 241, General University Physics Lab	2
General Studies	3
	17

Second Semester	Crs.
CHE 232, Organic Chemistry	3
CHE 233, Organic Chemistry Laboratory	2
MA 214, Analysis	3
PHY 232, General University Physics	3
PHY 242, General University Physics Lab	2
General Studies	3
	16

Junior Year

First Semester	Crs.
CHE 440, Physical Chemistry	3
CHE 441, Physical Chemistry Laboratory	2
CHE 005, Profession	0
**CHE 532, Qualitative Organic Analysis	3
GER 121, Basic German	4
General Studies	3
Elective	3
	18

Second Semester	Crs.
CHE 442, Physical Chemistry	3
CHE 443, Physical Chemistry Laboratory	2
CHE 582, Chemical Literature	1
SP 181, Basic Public Speaking	3
GER 122, Basic German	4
General Studies	3
Elective	3
	19

Senior Year

First Semester	Crs.
CHE 510, Advanced Inorganic Chemistry	3
**CHE 520, Radiochemistry	3
CHE 395, Independent Work*	2
CHE 007, Chemical Profession	0
GER 201, Technical German	3
Elective	3
Elective	3
	17

Second Semester	Crs.
CHE 522, Instrumental Analysis	4
CHE 572, Seminar	1
CHE 395, Independent Work*	2
CHE 008, Chemical Profession	0
GER 202, Technical German	3
Elective	3
Elective	3
	16

* A student not having the required prerequisite of a 3.0 standing in chemistry must substitute a course with a number 300 or greater in physical science.

** A student may substitute CHE 538 or CHE 548 for CHE 520 or CHE 532.

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.

100 *Introductory Chemistry.* (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, two hours.

102 *Elementary General Chemistry.* (5) I, II

This course is for students who have not had high school chemistry and for other students who desire an elementary approach to the subject. Lectures and recitations, five hours. Prereq: Score above ACT 25%ile; no CHE prereq.

*104 *Elementary General Chemistry.* (5) I, II

This course is for students who have not had high school chemistry and for other students who desire an elementary approach to the subject. Lecture three hours; lab four hours. Prereq: CHE 102.

*110,*112 *General College Chemistry I and II.* (3 ea.)

The principles of chemistry and the properties and reactions of the more important elements and their compounds. Lecture and recitation, three hours. Prereq: High School chemistry and composite score above ACT 50%ile (College Bound Norms).

*111,*113 *General Chemistry Laboratory I and II.* (2 ea.)

Laboratory and recitation to accompany CHE 110. One class hour, three laboratory hours per week. Prereq: High school chemistry, score above ACT 50%ile and credit or concurrent registration in CHE 110 (112).

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

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

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

Fundamental principles and theories of organic chemistry. Lectures, three hours. Lab, six hours. Prereq: CHE 112 or 104. *Guthrie.*

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

Laboratory for CHE 230, 232.

236 *Organic Chemistry.* (4) II

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

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. 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. Prereq: Employment as high school teacher.

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: CHE 104 or 112; MA 213; PHY 242. *Bruner.*

441,443 *Physical Chemistry Laboratory.* (2 ea.) I, II

Labortatory studies in physical Chemistry to accompany CHE 440, 442. Allow undergraduate credit only for chemistry majors. Laboratory, six hours. *Huang.*

444 *Physical Chemistry.* (3) II

For students in Agriculture and in the Biological Sciences. Prereq: CHE 236; PHY 213, MA 113. *Hofstetter.*

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 course dealing with the concepts of inorganic chemistry with emphasis on atomic structure, periodicity, nomenclature, bonding, chemistry of the non-transition elements and acid-base theories. Prereq: CHE 232 or consent of instructor. *Sears.*

512 *Inorganic Chemistry Laboratory.* (3)

Preparative techniques of inorganic chemistry to include: the use of liquefied gases, aqueous and non-aqueous solutions, anhydrous and oxygen-free systems, and the handling of highly reactive materials. Lecture one class hour per week; laboratory, six hours per week. Prereq: CHE 510 or equivalent. *Niedenzu.*

* This course is prerequisite to a significant number of courses in this and related areas of study.

520 *Radiochemistry.* (3) I

An introduction to the use of radionuclides in chemistry. Topics include principles of radioactive decay, interaction of radiations with matter, detection, hot-atom chemistry and specific applications. Lectures and lab, 5 hours. Prereq: CHE 226 or equivalent. *Ehmann.*

522 *Instrumental Analysis.* (4) I, II

The theory and application of instrumental methods of analysis. Lectures, two hours; lab, six hours. Prereq: CHE 442. *Bauer.*

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. *Wagner.*

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 232 and 233. *W. T. Smith.*

538 *Principles of Organic Chemistry.* (3) I

A general survey of the field of organic chemistry. Lectures, three hours. Prereq: CHE 232 and consent of instructor. *S. L. Smith.*

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. *Plucknett.*

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 equivalent and 232. *W. T. Smith.*

572 *Seminar.* (1) II

Reports and discussions on recent research and current chemical literature.

582 *Chemical Literature.* (1) II

Training in the use of chemical literature. One hour per week. Prereq: Junior or Senior standing. *Black.*

610 *Chemistry of the Transition Metals.* (3)

A detailed treatment of the chemistry of the transition elements, the lanthanides and actinides, including the structure of coordination complexes, bonding, reaction mechanisms and preparations. Prereq: CHE 510 or equivalent. *Wasson.*

612 *Inorganic Chemistry of the Non-metals.* (3)

A detailed treatment of the inorganic chemistry of the non-metals. Topics include theories of bonding, spectral characteristics, reaction mechanisms, preparations, physical methods of characterization and structural determination, and application. Three class hours per week. Prereq: CHE 510 or equivalent. *Niedenzu.*

616 *Nuclear Chemistry.* (2) II

An advanced study of nuclear chemistry and radiochemistry. Lecture, two hours. Prereq: CHE 442, 443 and 520. *Hofstetter.*

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. Laboratory, six hours. Prereq: CHE 522 and 442. *Wagner.*

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.*

633,635 *Advanced Organic Chemistry.* (3 each) I, II

Fundamental organic chemistry as interpreted by modern theory. Lectures, three hours. Prereq: CHE 538 or consent of instructor. *Guthrie.*

640 *Electrochemistry.* (2) I

Adsorption and potential distribution at the electrode surface. Mechanism and kinetics of electrode processes. Kinetic interpretation of such phenomena as reversibility and overvoltage. Lectures, two hours. Prereq: CHE 442 or 548. *Bauer.*

643 *Chemical Crystallography.* (2) I

An introduction to crystallography for chemists. Topics include the physical and chemical properties of crystals, crystal geometry, symmetry, x-ray diffraction, and crystal structure analysis. Prereq: CHE 442. *Sands.*

645 *Chemical Thermodynamics.* (3) II

Principles and applications of chemical thermodynamics. Lectures, three hours. Prereq: CHE 442, 443. *Plucknett.*

646 *Chemical Kinetics.* (3) I

Studies of chemical reactions from the standpoint of velocity and mechanism. Lectures, three hours. Prereq: CHE 442. *Plucknett.*

647 *Quantum Chemistry.* (3) I

An introduction to quantum mechanics with emphasis on the aspects closely related to chemistry. Lectures, three hours. Prereq: MA 214 and consent of instructor. *Bruner.*

710 *Topics in Inorganic Chemistry.* (2) I

Topic to be listed each time course is offered. Discussion of topics of recent interest in inorganic chemistry, including physical methods, syntheses, and structural theories. Prereq: CHE 610 or 612, or consent of instructor. May be repeated to a maximum of 6 credits. *Niedenzu.*

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, 443. *Sears.*

720 *Electrochemical Methods of Analysis.* (3) II

Classification of methods. Inherent and practical limits of sensitivity. Polarographic, voltametric and pulse methods. Lectures and laboratory, seven hours. Prereq: CHE 522 and 640. *Bauer.*

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. Lectures, three hours. Prereq: CHE 635 and MA 214.

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. Lectures, three hours. Prereq: CHE 635.

736 *Topics in Organic Chemistry.* (2-4) 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. Lectures, two to four hours. Prereq: Consent of instructor. May be repeated to a maximum of 12 credits.

743 *Molecular Structure.* (3) II

Applications of quantum theory to chemical problems, theories of chemical bond, structure and spectra of molecules. Prereq: CHE 742. *Bruner.*

744 *Statistical Thermodynamics.* (3)

The study of chemical thermodynamics from the viewpoint of the statistical treatment of systems rather than from the empirical classical approach. Lecture, three hours. Prereq: CHE 645 and MA 214. *Plucknett.*

746 *Topics in Physical Chemistry.* (2-4)

Selected topics which may include photochemistry, structure of crystals, molecular spectra, nature of the chemical bond, and other recent advances in the field of physical chemistry. Lectures, two to four hours. Prereq: CHE 548 or consent of instructor. May be repeated to a total of 12 credits.

747 *Advanced Quantum Chemistry.* (3)

An advanced treatment of quantum chemistry with emphasis on the methods and procedures used in its applications. Three class hours per week. Prereq: CHE 647. *Bruner.*

755 *Topics in Chemical Physics* (Subtitle required). (3)

An introduction to current research areas in chemical physics. Topics may include theory of atomic spectra, atomic and molecular processes, molecular theory, electrons and phonons in crystals, and optical properties of metals. Lectures, 2 or 3 hours. May be repeated to a total of 12 credits. Prereq: Consent of instructor. (Same as PHY 755).

768 *Residence Credit for the Master's Degree.* (0)
1 to 6 credits equivalence.
May be repeated.

769 *Residence Credit for the Doctor's Degree.* (0)
1 to 12 credits equivalence.
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, Radiochemistry, or Physical Chemistry. May be repeated indefinitely.

SCHOOL OF COMMUNICATIONS

Robert D. Murphy, director
Department of Journalism
Department of Telecommunications
Department of Speech
Division of Media Services

The School of Communications is devoted to studying and teaching the nature of communication, how it shapes our lives and our society; and to educating students for professional work in communications. The three academic departments of the School offer five undergraduate sequences and a program leading to the Master of Arts degree.

Some of the undergraduate programs are professional—designed to educate persons who plan careers in the media and related areas. These include work on newspapers, magazines, radio or television stations, or teaching speech and media-related courses in secondary schools. Other undergraduate sequences are designed for students who want to study the subject matter of oral and written communications. These include philosophy and theories of communication and how different communication systems work.

The communications sequence is designed for students who want to study communications as an academic discipline—its philosophy, theories and systems. This sequence primarily is intended to lay a foundation for the advanced study of communications. It is taught by faculty members of the three departments. The requirements are:

Communications Sequence

General Studies Requirements

Same as the College of Arts and Sciences, except that Area VIII, Behavioral Sciences, is required.

Pre-Major Requirements

CMO 101 Introduction to Communications (3)
JOU 204 Writing for the Mass Media (3)
JOU 241 Communications Practicum (1)

Major Requirements

CMO 550 Introduction to Communications Research Methods (3)
CMO 551 The Communications Process (3)
CMO 553 Mass Communications and Social Issues (3)
CMO 554 Seminar in Communication (2)
JOU 501 Reporting (3) or JOU 599 Advanced Writing for the Mass Media (3)

Plus 3 hours from the following:

PSY 336 Applications of Statistics in Psychology (3)
ECO 207 Statistical Method (3)
AEC 530 Agricultural Statistics (3)

plus 15 hours from the following:

PSY 501 Personality
PSY 505 Human Senses and Perception
PSY 507 Learning
PSY 544 Social Psychology
PSY 545 Small Group Behavior
SP 582 Persuasion
SOC 515 Diffusion of Technology in Modern Society
SOC 548 Sociology of Public Opinion
SOC 549 Sociological Aspects of Mass Communication
SOC 581 Techniques of Social Investigation
PS 570 Political Parties
PS 573 Public Opinion
PS 576 Legislative Process
BA 573 Automatic Data Processing
PHI 520 Introduction to Symbolic Logic
PHI 560 Philosophy of Science

plus 12-17 hours of electives in CMO, JOU, or TEL, from courses above the 200 level. Nine hours of this 12-hour requirement may be met by substituting courses in linguistics or in speech. Courses from the above list not used to meet requirements are recommended as electives.

Course Descriptions

101 *Introduction to Communications.* (3)
Lectures and readings to introduce students to the basic concepts of communication, to foster an understanding of the roles and functions of communications media in our society, to present concepts and principles of journalism, and to prepare students to be intelligent users of the media. Lecture, three hours per week.

250 *Mass Media and Mass Culture.* (3) I, II
An examination of the interplay between the technology and content of the mass communications media and popular culture.

550 *Introduction to Communication Research.* (3) II
To introduce undergraduate students to the philosophy of research—particularly as it applies to communications; and to study the principal types of communications research so that the student will be able to do simple projects and interpret research findings in his field.

551 *The Communications Process.* (3)
Considers the communications process and effects of communications on the individual. Draws upon research in these areas from the fields of communication, political science, psychology, sociology, and journalism.

553 *Mass Communication and Social Issues.* (3)
A course devoted to the examination of criticism of the mass media and an evaluation of the relationship of mass communication to contemporary social issues.

554 *Seminar in Communications.* (2)
Intensive study of a communication topic in professional, theoretical, and research (methodology) areas. May be repeated to a maximum of six credits.

607 *Evaluating and Communicating Information.* (3) I, S
A study of the communications systems with which students will work, of the effect of the communications systems on public decisions, and of the means by which students work efficiently with communications systems.

608 *Mass Communications and Society.* (3) I, S
A study of the ways in which the communications media play their roles in contemporary society with special attention to the major functions, rights, and responsibilities of media and individuals.

613 *Introduction to Information Science.* (3)
Introduction to the major aspects of scientific and technical information centers, documentation and the use and users of scientific information. Knowledge of systems analysis would be helpful. Prereq: CS 220 or equivalent. (Same as LS 613.)

614 *Information Storage and Retrieval Systems.* (3)
Review of the various solutions for storing and retrieving information, ranging from traditional records and devices to modern computers. Emphasis upon modern electronic equipment for information handling. (Same as LS 614.) Prereq: LS 613.

615 *Information Systems Design.* (3)
Principles and problems of information systems: systems analysis applied to information systems. Design of information systems with particular attention to equipment, training of personnel and evaluation. (Same as LS 615). Prereq: LS 614.

651 *Communications Theory.* (3) II
Major theories of the communications process and review of experiments and field studies on communications. Readings, discussion, and student experiments testing theoretical propositions about communications. Prereq: Course in statistics or in design of social research.

665 *Communications Research Methods.* (3) II
The scientific method. Communications research as a part of social science research. Study and practice of advanced behavioral research techniques which apply to communications. Prereq: A behavioral research and permission of instructor.

705 *Seminar: Information Sciences.* (3)
An investigation of the parameters of the information sciences from an interdisciplinary approach. Investigation and analysis of the literature of communications, management science, cybernetics, information theory to identify the similarities and differences. From this investigation, both qualitative and quantitative concepts of the directions of information science will be derived. (Same as LS 705.)

730 *Seminar in Mass Media and Public Policy.* (2)
The role of mass communications media in making public policy and the effects of public policies on the mass media. One subject area will be investigated each semester; typical topics are: a) political campaign communications; b) censorship; c) controversial public issues; d) rights; e) international and world agreements. Prereq: Graduate standing.

781 *Directed Study in Communication.* (1-6)
To provide advanced students with an opportunity for independent work to be conducted in regular consultation with the instructor. May be repeated for a total of six credits. (To be used for independent work.) Prereq: Consent of instructor.

JOURNALISM

FACULTY

Bruce H. Westley, chairman

Professors

Robert D. Murphy	Ph.D., Syracuse, 1951
Leonard Niel Plummer	Ph.D., Wisconsin, 1940
Bruce H. Westley	M.S., Columbia, 1941

Associate Professors

Robert Lewis Donohew	Ph.D., Iowa, 1965
J. Ardery McCauley	M.A., Kentucky, 1948
William M. Moore	Ph.D., Wisconsin, 1946
Raymond W. Wild	Ph.M., Wisconsin, 1939

Assistant Professor

Leonard M. Tipton	Ph.D., Wisconsin, 1969

Undergraduate programs of the Department of Journalism are designed to give the social, cultural and professional understanding desirable for persons who plan careers in the communication of news and public information and opinion, in advertising and public relations and in teaching journalism and communication in secondary schools.

Majors seeking a bachelor of arts degree will pursue one of two sequences—General Editorial, and Advertising-Public Relations—which are intended primarily for professional work with newspapers, magazines and other news media, with advertising and public relations agencies, and with government and private institutions.

The Department of Journalism, founded in 1914, has had a sequence accredited by the American Council for Education in Journalism since the Council was established in 1948.

Departmental facilities include laboratories for classes in writing, editing, photography and advertising; a reference room in which major newspapers, news magazines, professional journals and other information are available; and daily news-wire service of The Associated Press.

Students in Journalism are encouraged to work on the *Kentucky Kernel*, the University's daily newspaper, and *The Kentuckian*, the student yearbook. Majors also are helped to obtain summer internships with newspapers, magazines or press services.

Advertising-Public Relations Sequence

General Studies Requirements

Same as the College of Arts and Sciences.

Pre-Major Requirements

CMO 101 Introduction to Communications (3)
JOU 204 Writing for the Mass Media (3)
JOU 241 Communications Practicum (1)

Major Requirements

JOU 501 News Reporting (3)
JOU 503 Copyreading & Editing (3)
JOU 541 Public Relations (3)
CMO 551 The Communication Process (3)
JOU 561 Newspaper and Magazine Advertising (3)
plus at least 12 hours from the following:
JOU 509 Magazine Article Writing (3)
JOU 531 Law of the Press (2)
JOU 535 History of Journalism (3)
JOU 537 Seminar in Public Opinion (3)

CMO 553 Mass Communications and Social Issues (3)
JOU 563 Advertising Procedures (3)
JOU 575 Typography (2)
JOU 581 Intro to Press Photography (3)
JOU 591 Radio News Scripts (2)
TEL 510 Radio and Television Advertising (2)

plus at least 15 hours from the following:

A-S 220 Graphic Design (2)
BA 330 Marketing Management (3)
BA 332 Marketing Communications Systems (3)
BA 430 Marketing Distribution Systems (3)
BA 431 Contemporary Marketing Problems (3)
BA 435 Analysis of Organizational Behavior (3)
ECO 260 Principles of Economics (3)
ENG 512 Grammar of Structure and Usage (3)
SP 280 Discussion (3)
SP 582 Persuasion (3)
JOU 201 Etymology (3)
PSY 544 Social Psychology (3)
PSY 545 Small Group Behavior (3)
SOC 240 Collective Behavior (3)
ENG 510 Modern British and American English (3)
SP 283 Argumentation and Debate (3)

General Editorial

General Studies Requirements

Same as College of Arts and Sciences.

Pre-Major Requirements

CMO 101 Introduction to Communications (3)
JOU 204 Writing for the Mass Media (3)
JOU 241 Communications Practicum (1)

Major Requirements

JOU 501 News Reporting (3)
JOU 503 Copyreading and Editing (3)
JOU 531 Law of the Press (2)
CMO 551 The Communication Process (3)

Journalism Options

At least six hours from at least two of the following groups:

JOU 539 Reporting Public Affairs (3)

OR

JOU 599 Advanced Writing for the Mass Media (3)
JOU 535 History of Journalism (3)

OR

CMO 553 Mass Communications and Social Issues (3)
JOU 561 Newspaper and Magazine Advertising (3)

OR

JOU 507 Feature Writing (3)

Courses in JOU, CMO, SP or TEL selected with approval of the adviser, (9-15)

plus 15 hours of elective upper-division courses in the School of Letters and Languages and/or School of Social and Behavioral Sciences. These courses should be selected with the approval of the adviser and should form a logical sequence. Preferably all 15 hours will be in a single area. This does not mean that all courses must be in a single department, but that they should be united under a topic heading, such as "international relations."

Course Descriptions

201 *Etymology.* (3) I, II
A study of words and their fundamental values with reference to development of a writing vocabulary. Prereq: Consent of instructor. *Plummer.*

203 *Principles of News Writing.* (3) I, II
Lectures and readings on the development of the modern news style. Practice in effective writing. Designed for non-majors. Credit is not permitted for both JOU 203 and 204. *Moore.*

204 *Writing for the Mass Media.* (3) I, II
A course designed to introduce majors in the communications fields to practices and techniques in preparation of information materials for the printed and broadcast media. Designed for majors in the School of Communications. Credit is not permitted for both JOU 203 and 204. *Staff.*

241 *Communications Practicum.* (1-4) 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. May be repeated to a maximum of 4 credits. *Staff.*

395 *Independent Work.* (1-3)
Research and study of special problems proposed by journalism and communications students, approved by the department and supervised by a staff member. May be repeated for a total of seven credits. *Staff.*

501 *News Reporting.* (3) I, II
A reporting course which emphasizes special fields of information, news gathering, and news evaluation. *Staff.*

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.*

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 advisers or prospective advisers with consent of the instructor. *Staff.*

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.*

535 *History of Journalism.* (3) II
A study of the rise and development of American journalism and newspapers. Prereq: Senior standing. *Staff.*

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. *Staff.*

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. Prereq: Consent of instructor. *Wild.*

563 *Advertising Procedures.* (3)

Study of organizations and functions of advertising institutions and of product analysis, and research, consumer motivation, production methods, copy and layout. Lecture, two hours; laboratory, two hours. Prereq: JOU 561. *Staff.*

571 *Community Journalism.* (3) I, S

A study of the problems which confront the community weekly and the small city daily. *Staff.*

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. *Staff.*

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. Prereq: Consent of instructor. *Wild.*

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. Prereq: Consent of instructor. *Staff.*

591 *Radio News Scripts.* (2) I, II

Instruction and practice in writing news and feature material for radio presentation. *Moore.*

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

A course designed to provide communications majors advanced training in reporting and writing articles on current events, public issues, personalities, culture and entertainment for newspapers, magazines and the broadcast media. Twice weekly seminars; laboratory and independent work by students as needed to complete assignments; individual consultation between instructor and students. Prereq: Consent of instructor required. *Staff.*

TELECOMMUNICATIONS

FACULTY

J. M. Ripley, chairman

Professor

J. M. Ripley — Ph.D., Ohio State, 1961

Assistant Professors

Joseph H. Berman — Ph.D., Ohio University, 1968
John H. Frahm — Ph.D., Michigan State, 1969
Elizabeth Ellis Taylor — M.A., Kentucky, 1952

The Telecommunications Department is part of the School of Communications. Graduates receive a B.A. degree.

The curriculum presently offers two course sequences: Programming and Message Preparation. Another sequence is in the planning.

Extra-curricular experience in telecommunications is available to the major as well as to other qualified students.

Broadcast training utilizes some facilities of WBKY-FM for radio, the fully-equipped facilities in Taylor Building for television, and the Motion Picture Service Center's film equipment.

Telecommunications Curriculum

University Requirements:

English 101 and 102 or 105 and 106. If a student makes a grade of B or better in English 105, he is not required to take 106.

General Studies: Same as College requirement.

Pre-Major

CMO 101 Introduction to Communications	3
TEL 101 Broadcasting Today	3
CMO 250 Mass Media-Mass Culture	3
	9

Major Requirements

TEL 312 Signs, Images, and Symbols	3
TEL 500 Programs and Audience Analysis	3
TEL 530 Pro-seminar	2
	8

Major Electives A) 12 hours from the following courses:

TEL 501 Broadcast Regulations	3
TEL 505 Broadcasting Program Policies	2
TEL 507 The Public Affairs Program	2
TEL 510 Radio and Television Advertising	2
JOU 531 Law of the Press	2
CMO 551 The Communications Process	3
CMO 553 Mass Communications and Social Issues	3

B) 5-6 hours from the following courses:

TEL 321 Broadcast and Film Writing	2
TEL 323 Broadcast Performance	2
TEL 324 Sound in Broadcasting and Film	2
TEL 421 Television Production	2
TEL 432 Film Production	2
JOU 599 Advanced Writing for the Mass Media	3
JOU 591 Radio News Scripts	2
SP 582 Persuasion	3

Cognates: 14 hours in generically related courses to be approved by the Department. Not more than 40 hours including the major and pre-major requirements are permitted from within the School of Communications. Normally, cognate courses should be selected from Journalism, Speech, Political Science, Psychology, Sociology, or History.

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

Current problem areas in American broadcasting related to the program content of the radio and television media. Lecture and recitation, three hours per week. Prereq: TEL 101. NOT OPEN TO MAJORS.

312 *Signs, Images, and Symbols.* (3)
An exploration of the creative use of image making and symbol making in the encoding of broadcasting and film messages. Aspects of comprehension, observation, perception, and representation are to be studied. Lecture, two hours; viewing, two hours per week. Lab, two hours.

321 *Broadcast and Film Writing.* (2)
Methods and principles involved in writing documentaries and dramas. Emphasis on the documentary as a communications tool. Lecture, two hours; lab, one hour per week. Prereq: TEL 312.

323 *Broadcast Performance.* (2)
The study and practice of message preparation with an emphasis on studio and microphone techniques, pronunciation, inflection. Lecture, two hours; lab, two hours per week. Prereq: TEL 312.

324 *Sound for Broadcasting and Film.* (2)
Principles and practices of creating audio images for radio, television, and film. Lecture, two hours; lab, four hours. Prereq: TEL 312.

421 *Television Production.* (2)
Translation of ideas into television programs. Students prepare, produce, and direct different program types designed to illustrate the process of solving problems of creative work in television. Lecture, one hour; lab, four hours per week. Prereq: TEL 312.

432 *Film Production.* (2)
Integration of visual images with emphasis on idea presentation, form, and structure for motion pictures. Lecture, one hour; lab, four hours per week. Prereq: TEL 312.

500 *Program and Audience Analysis.* (3)
Course designed to assist students to develop criteria for analyzing structure and content of programs, for analyzing audience size and composition, for analyzing the relationship of audience, program, and the American system. Lecture, two hours per week; lab, two hours per week.

501 *Broadcast Regulations.* (3)
A study of the governmental regulations of broadcasting by the FCC, and other federal, state and local agencies; licensing, libel and slander, copyrights, illegal practices, self regulation. Lecture and recitation, 3 hours.

505 *Broadcast Program Policies.* (2)
The determination of program policies, program scheduling, and program planning for a community. Lecture, two hours per week. Prereq: TEL 500.

507 *The Public Affairs Program.* (2)
The role of broadcasting in politics, public affairs, education, and the arts. A consideration of the factors which determine the form, function, and method used by documentaries, interviews, newscasts, and their program forms. Lecture, two hours per week; lab, two hours per week. Prereq: TEL 500.

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.

530 *Pro-Seminar in Radio and Television.* (2) II
Discussion and reports on current broadcasting highlights and problems. Required of all seniors. Lecture and recitation, two hours.

SPEECH

FACULTY

Halbert E. Gulley, chairman

Professors

Gifford Blyton	Ph.D., Ohio State, 1941
Halbert E. Gulley	Ph.D., Iowa, 1948

Associate Professor

J. W. Patterson	Ph.D., Oklahoma, 1960

Assistant Professor

John R. Baseheart	Ph.D., Michigan State, 1969

Lecturers

H. Howell Brady	J.D., Kentucky, 1969
Thelma Leenhouts	M.A., Michigan, 1967

Departmental Requirements

For University and college requirements see page 6.

General Studies Requirements: Same as college.

Pre-Major Requirements: SP 181, CMO 101.

Major Requirements: SP 581, SP 582, SP 583; plus 9 credits chosen from: SP 280, SP 283, SP 285, SP 287, SP 288; plus 6 credits chosen from: SP 585, SP 586, SP 588, CMO 250, CMO 551; plus 16 hours of allied requirements.

Sixteen semester hours are required. Courses, which will be chosen in consultation with the adviser, may be selected from one or more disciplines upon determination of the student's individual academic interests and needs. At least 24 of the 40 hours in the major and the field of concentration should be in courses above the 200 level.

Cognate courses will often be selected from English, Theatre Arts, Speech Therapy and Audiology, Telecommunications, Journalism, Political Science, History, Sociology, Anthropology, Economics, Business Administration, Philosophy, and Education.

Field of Concentration Requirements: See page 66.

Speech—Teacher Certification (Major)

Lower Division: Two semesters Freshman Composition; two semesters Physical Education, BIO 110 and PSY 104 or 210.

General Studies Requirements: Areas II, III, IV, V, VI and VII.

Pre-Major Requirements: SP 181, SP 285.

Major Requirements: SP 288, SP 581, SP 582, SP 583, SP 584; plus 9 credits chosen from: SP 280, SP 283, SP 287, SP 585, SP 586, SP 588, CMO 551.

Majors in Speech are also required to take sixteen hours in related courses outside the department. These must be in courses not open to freshmen and must not include courses selected to meet the area requirements. A maximum of 6 hours of credit in Education courses may be counted. At least 24 of the 40 hours in the major and the field of concentration should be in courses above the 200 level.

The student should consult the College of Education for additional information.

Field of Concentration Requirements: See page 214.

Course Descriptions

181 *Basic Public Speaking.* (3)
A course designed to give the student platform experience in the fundamentals of effective speaking. *Baseheart.*

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. *Staff.*

184 *Intercollegiate Debating.* (1)
Preparation for and participation in intercollegiate debating. May be repeated once for a total of 2 credits. *Brady.*

280 *Discussion.* (3)
A study of communication processes in small group situations including participation in the various forms of discussion. *Brady.*

283 *Argumentation and Debate.* (3)
A course in the theory of argument, with practice in the several forms of debate. *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. (Same as EDS 285). *Blyton.*

287 *Persuasive Speaking.* (3)
A study of the processes involved in attitude change, with emphasis on the preparation and delivery of persuasive messages. *Leenhouts.*

288 *Oral Interpretation.* (3)
An analysis of prose and poetry for oral interpretation. Helpful to those who plan to teach literature. *Staff.*

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. *Staff.*

395 *Independent Work.* (3)
For undergraduate majors in Speech with a high standing. Each pursues a course independently under the guidance of a staff member, writes a paper embodying the results of his study, and takes an examination. May be repeated once for a maximum of six credits. Prereq: Major and a standing of 3.0 in department. *Staff.*

500 *Speech Analysis and Perception.* (3)
Physics of sound; acoustic and structural properties of speech and their relationship to speech perception; analysis of speech intensity, fundamental frequency, wave composition, and time (rate, duration, and transitional change). (Same as EDS 500).

581 *Communication Processes in Discussion.* (3)
A study of the communication processes in small group discussions; emphasis on empirical research findings concerning leadership, interpersonal relations and the logical and psychological aspects of group problem-solving. *Gulley.*

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. *Gulley.*

583 *Studies in Argumentation.* (3)
A study of the theories of argumentation and debate as derived from rhetorical, philosophical and psychological sources; critical examination of representative examples of oral argument.

584 *Teaching of Speech.* (3)
An analysis of the field of speech education as related to the teacher of speech. *Patterson.*

585 *American Public Address to 1865.* (3)
An historical and critical study of public discussion in the United States, from the Colonial Period to 1865, through the analysis of major speakers, speeches, and debates. Prereq: Permission of instructor. *Patterson.*

586 *American Public Address since 1865.* (3)
An historical and critical study of public address in the United States from 1865 to the present. Prereq: Permission of instructor.

588 *Oral Interpretation of Drama.* (3)
The cutting and adapting of the three-act play for oral presentation.

687 *Studies in Ancient and Medieval Rhetoric.* (3)
A comparative and critical study of the major treatises on the art of speaking, from the time of Aristotle to the Renaissance, with attention to the rhetorical practice, criticism, and pedagogy of the succeeding periods. Prereq: Permission of instructor.

688 *Studies in Renaissance and Modern Rhetoric.* (3)
A comparative and critical study of the major contributions to the body of rhetorical theory from the Renaissance to the present. Prereq: Permission of instructor.

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 maximum of nine credits.

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.*

COMPUTER SCIENCE

FACULTY

Richard L. Anderson, acting chairman

Visiting Professor

Thaddeus B. Curtz — Ph.D., Yale, 1960

Associate Professors

A. Chris Newbery — Ph.D., London, 1962
Garth L. Olde — Ph.D., Western Ontario, 1960

Assistant Professor

Ronald Alter — Ph.D., Pennsylvania, 1965

Lecturer

James M. Watts — M.S., Kentucky, 1968

The courses offered by the Department of Computer Science serve two distinct purposes.

First, for students concentrating in Computer Science, there are undergraduate courses leading either to a B.A. or a B.S. degree in Computer Science. These courses treat in depth the techniques for the representation, storage, manipulation, retrieval and presentation of computer information.

Secondly, recognizing the basically interdisciplinary nature of Computer Science, the department offers courses designed to provide a working knowledge of the arts and sciences of computation to fit the needs of students in their disciplines.

The facilities of the University of Kentucky Computing Center, including the IBM 360 Model 65 are available to students in Computer Science.

Departmental Requirements

For University and college requirements see page 6.

General Studies Requirements

Area I—Mathematics 113
Area II—Physics 231, 232, 241, 242
Area IV—German, French, or Russian recommended
Area V—Either sequence (six credits)
plus a sequence in two of the four remaining Areas for a total of at least 12 credits

Prerequisites to Major

Computer Science 220, 320; Mathematics 113

Major Requirements

Minimum of 23 credits in Computer Science courses, including CS 440 and at least 2 credits in CS 472. Minimum of 23 credits in Mathematics or Statistics courses, including MA 211, 213, 262, 421. PHI 220 or an equivalent course approved by the department. Of the 46 credits in Computer Science and Mathematics, at least 40 must be in courses not open to freshmen and at least 24 must be in courses not open to sophomores, unless the exceptions are approved by the department.

Field of Concentration Requirements: See page 66.

Course Descriptions

220 *Introduction to Algorithmic Processes.* (2)
Characteristics of a procedure-oriented language; description of a computer as to internal structure and the representation of information; introduction to Algorithms. Prereq: MA 110.

235 *Logic for Computer Science.* (3)
An introduction to principles and techniques of modern formal logic and Boolean algebra applicable to Computer Science. Prereq: Major in Computer Science, or consent of instructor.

320 *Computer Organization and Programming.* (3)
Limitations of procedure-oriented languages; machine languages; symbolic languages; subroutines, interpretive routines, assembly programs and macros; advanced input-output. Prereq: CS 220 or equivalent.

340 *Discrete Structures in Computer Science.* (3) I, II
An introduction to those algebraic and logical concepts fundamental to computer science and to their application in computer science. Including basic set algebra, groups, semigroups, elements of graph theory and Boolean algebra. Prereq: MA 262 or consent of instructor.

396 *Independent Work in Computer Science.* (2)
A course for computer science majors only. A problem, approved by the chairman of the department, provides an opportunity for individual research and study. May be repeated to a maximum of 6 credits. Prereq: Major and standing of 3.0 in the Department.

420 *Algorithmic Languages and Compilers.* (3)
This course acquaints the student with the formal description of procedure-oriented languages and the techniques useful in the translation of these languages into computer programs. Prereq: CS 320.

440 *Information Processing Systems.* (3)
An introduction to structures of information sets covering syntactic or semantic relations. The generation, development and processing of structures and their interrelationships, machine instructions and storage hierarchies. Prereq: CS 320.

472 *Seminar.* (2)
Weekly report on current research papers. Discussion of new advances in computer science. May be repeated to a maximum of 6 credits. Prereq: CS 320 or 440 or consent of instructor.

525 *Analog and Hybrid Computer Techniques.* (3)
Application of analog and hybrid computers in the solution of systems of integro-differential-difference equations. Prereq: MA 214 or consent of instructor.

530 *Computational Methods.* (3)
A study of computational methods from the user's standpoint rather than from the designer's. Lecture, two hours; lab, two hours. Prereq: MA 421 or instructor's consent, plus ability to program a digital computer.

540 *System Simulation.* (3)
Computer simulation techniques including building and utilizing deterministic and stochastic models for digital and analog computers. Prereq: CS 220 or equivalent and a course in statistics.

560 *Non-Numerical Applications of Computers.* (3)
Introduction to and training in non-numerical techniques by digital computers. Prereq: CS 220 or equivalent.

570 *Computers and Programming Systems.* (3)
Advanced concepts in software design, development, and implementation including priority, executive, and real time computer systems. Prereq: CS 420.

DIPLOMACY AND INTERNATIONAL COMMERCE

A bachelor's degree is not offered in the area; however, under the auspices of the Patterson School of Diplomacy and International Commerce, the University offers extensive graduate training in international affairs. Doctoral programs are available in International Relations, Diplomatic History, International Economics and Economic Development, and International Business and Commerce. The Graduate School Bulletin should be consulted for further information and inquiries should be addressed to the Director of Graduate Studies, Patterson School of Diplomacy and International Commerce.

Course Descriptions

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once. (1-6 credits equivalence.)

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely. (1-12 credits equivalence.)

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 adviser in the Economics Department of the College of Business and Economics.

Departmental Requirements

For University and College requirements see page 6.

1. Economics majors must take the mathematics option of Area I which can be substituted for Area II or III.
2. Economics majors must complete Area VII (Social Sciences) which may *not* be fulfilled by the economics sequence (ECO 260 and 261).

Pre-Major Requirements: ECO 260, 261 and 291.

Field of Concentration Requirements: See page 66.

Major Requirements: A minimum of 18 credits of advanced work in Economics, including ECO 360, 361 and 391. Tutorial course 396 must be taken in the senior year to prepare for the required comprehensive examination.

ENGLISH

FACULTY

Stephen Manning, chairman

Professors

Wendell Erdman Berry	M.A., Kentucky, 1957
Arthur Louis Cooke	Ph.D., Michigan, 1944
Guy Mattison Davenport, Jr.	Ph.D., Harvard, 1961
Robert O. Evans	Ph.D., Florida, 1954
Robert Durene Jacobs	Ph.D., Johns Hopkins, 1953
Stephen Manning	Ph.D., Johns Hopkins, 1956
Donald A. Ringe	Ph.D., Harvard, 1954
Thomas Bradley Stroup	Ph.D., North Carolina, 1933
William Smith Ward	Ph.D., Duke, 1943

Associate Professors

Michael E. Adelstein	Ph.D., Michigan, 1958
John Levi Cutler	Ph.D., Ohio State, 1949
William A. Gordon	Ph.D., Tulane, 1963
Maurice A. Hatch	Ph.D., Cornell, 1948
William Hugh Jansen	Ph.D., Indiana, 1948
Lizette O. Van Gelder	M.A., Syracuse, 1944

Assistant Professors

Michael G. Andrews	Ph.D., Duke, 1966
Kenneth R. Ball	Ph.D., Wisconsin, 1967
Ben W. Black	Ph.D., Michigan, 1953
Thomas O. Blues	Ph.D., Iowa, 1966
David F. Burg	Ph.D., Pennsylvania, 1969
William Royce Campbell	Ph.D., Oregon, 1967
James Harrell Cobb	M.A., Indiana, 1931
Alfred L. Crabb, Jr.	M.A., Peabody, 1941
Joseph H. Gardner	Ph.D., California, 1969
John Langford Greenway	Ph.D., Wisconsin, 1969
Leila Gott Harris	M.A., Kentucky, 1945
Richard H. Henze	Ph.D., Nebraska, 1965
T. Walter Herbert, Jr.	Ph.D., Princeton, 1969
William H. Ireland	Ph.D., Virginia, 1968
Michael F. Kelly	Ph.D., Tennessee, 1966
Denis G. Mahoney	Ph.D., Illinois, 1969
Maurice Lee McCullen	Ph.D., Colorado, 1966
Byron F. Petrakis	Ph.D., Florida, 1968
Clayton C. Reeve	Ph.D., Illinois, 1969
Thomas A. Van	Ph.D., Duke, 1966
John Albert Via	Ph.D., Illinois, 1967
Arthur Wrobel	Ph.D., North Carolina, 1968

Instructors

Carl D. Dockery	A.B., Newberry, 1963
Connie C. Eble	M.A., North Carolina, 1967
Robert L. Joyce	M.A., Ohio State, 1957
Clyde Patrick White	M.A., Virginia, 1962
Jan S. Willoughby	M.A., Michigan, 1963

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.

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 courses in English, American and comparative literature, courses in literary criticism, creative writing, and advanced composition because they provide a good background for an editor, or professional book reviewer, dramatic or literary critic, or author of imaginative literature. And others take courses in the history of the English language or the structure of modern English because they need to learn the accurate, precise use of language and because such courses are a needed part of their training as teachers, journalists, and specialists in communication.

The Department offers undergraduate training in language study: English, American, and comparative literature; creative writing; criticism, folklore, and composition. Course work leading to the M.A. degree is available in most of these areas, and to the Ph.D. in English (which includes American and comparative language and literature).

Departmental Requirements

For University and college requirements see page 6.

General Studies Requirements: Same as College requirements except that the normal appropriate language is French, German, or Italian.

Pre-Major Requirements: ENG 221 and 222; ENG 161 is strongly recommended. ENG 251 and 252 are *not* recommended, even as free electives.

Major Requirements: 24 semester hours chosen from the following:

A. *English Literature:* Choose 3 or 4, distributed as wisely as possible, but to include one Shakespeare

course, and usually one other from English literature prior to 1800, and one after. Choices should be approved by the adviser.

ENG 425, 526, 527
ENG 520, 522, 523, 524, 525, 528, 530, 531, 532, 533
ENG 535, 536, 538, 539, 540, 541, 542

B. *American Literature:* Choose one or two, with approval of adviser, with at least one from the first line. Secondary certification candidates choose *two*.

ENG 551, 552, 553
ENG 550, 554, 555

C. *Comparative Literature:* Choose one, two, or three, with approval of adviser, normally not more than one from 300 level.

ENG 361, 362, 365, 366, 560, 561, 562, 563, 565, 566, 568, 569, 570, 571, 573, 574.

D. *Composition and Linguistics:* Choose one or two, normally including one from linguistics. Secondary certification candidates choose two, ENG 412 (or, preferably) 510 or 512, and, normally, ENG 509.

ENG 205, 207, 412, 501, 509, 510, 512, 514, 515, 516, *572.

Field of Concentration: Majors in English enrolled in the College of Arts and Sciences must have 16 hours in courses from other departments which have been chosen for their relationship to the student's program. At least six of these hours must be in courses above the sophomore level.

Teacher certification candidates may count a maximum of six hours from the professional education sequence (normally EDP 202, EDC 344) toward this requirement. Courses in the minor or Area programs may sometimes meet this requirement; consult adviser for advance approval.

Area of Concentration: Certification candidates in English must have either a teaching minor or an Area which meets requirements set by the State Department of Education and the College of Education. The Area of Concentration in English may be satisfied by 18 credits chosen from:

A. *English:* (Maximum of 3 credits chosen from courses listed for the major, or from the following)

ENG 161, 226, 261, or 262 (whichever is *not* counted toward the humanities area of the General Studies program).

B. *Theatre Arts:* TA 194, 292 or 293, 590, 591, 592, 593, 594, and/or 595, 598.

C. *Speech:* SP 181, 280, 283, 285, 287, 288, 581, 582, 583, 584, 585, 586, 588, 599.

D. *Journalism:* JOU 201, 203, 501, 507, 509, 511, 513. CMO 101, 250, 550, 551, 553.

(* permission of adviser required)

Course Descriptions

1 *Sub-Freshman Composition.* (0)
A course for students inadequately prepared for ENG 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 ENG 101.

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.

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.

102 *Freshman Composition.* (3)
A continuation of ENG 101, which is prerequisite. Emphasis on composition continues, with particular attention to forming and expressing acceptable judgments about significant topics of discussion.

105 *Advanced Freshman Composition.* (3)
A variant of ENG 101 for students who score in the 85th percentile or above on their classification tests.

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.

203 *Writing for Business and Industry.* (3)
Instruction and experience in writing for business and industry. Emphasis on clarity, conciseness, and effectiveness in preparing letters, memoranda, articles, and reports for specific audiences. Prereq: Freshman Composition.

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.

207 *Imaginative Writing.* (3)
Exercise in imaginative writing; description, character study, narrative. Prereq: Permission of instructor; ENG 101 and 102 normally required. With consent of instructor, may be repeated once for a total of six credits; but only three credits may be used toward fulfilling requirements for English major.

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.

501 *Workshop in Imaginative Writing.* (2)
For advanced students. This course assumes that the student has already acquired competence as a writer. Prereq: ENG 207 and consent of instructor. With consent of instructor, may be repeated once for a total of 4 credits.

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.

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.

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.

514 *Descriptive Linguistics: Phonetics.* (3)
Articulatory description of speech sounds; practice in recognition and control. (Same as ANT 514.) Prereq: Consent of instructor.

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.

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; consent of instructor.

572 *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: Employment as a high school teacher.

610 *Old English.* (3)
Introduction to Old English language and literature.

611 *Beowulf.* (3)
Chiefly a study of *Beowulf*, though with some reference to allied literature and the Germanic background.

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."

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.

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.

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.

226 *Introduction to the British Novel.* (3)
An aesthetic and analytical approach to selected major British novels of the 18th, 19th and 20th centuries. Prereq: Sophomore status.

251 *Major American Writers before* 1900. (3)
An aesthetic and analytical approach to selected works by major American writers before 1900. Authors such as the following may be included: Franklin, Irving, Cooper, Poe, Hawthorne, Emerson, Thoreau, Melville, Twain, Howells, James, Whitman, Dickinson, Norris, Crane. Recommended for non-majors, the course does *not* satisfy any of the requirements of the English major.

252 *Major American Writers of the Twentieth Century.* (3)
An aesthetic and analytical approach to selected works by major American writers of the 20th Century. Authors such as the following may be included: Dreiser, Pound, Stevens, Hart Crane, Anderson, Hemingway, Fitzgerald, Steinbeck, O'Neill, Robert Lowell, Updike, Mailer, Bellow. Recommended for non-majors, the course does *not* satisfy any of the requirements of the major.

261 *Survey of Western Literature from the Greeks through the Renaissance.* (3)
A study of major continental writers and their works, using anthology selections and one complete work.

262 *Survey of Western Literature from 1660 to the Present.* (3)
A study of major continental writers and their works, using anthology selections and one complete work.

264 *Major Black Writers.* (3)
An aesthetic and analytical approach to selected works by major Black writers, such as Wright, Baldwin, Jones, Malcolm X., Cleaver, Achebe, Ekwensi, Ngugi.

356 *Studies in Black American Literature.* (3)
An analytical-historical approach to the development of Black American Literature from Douglass and DuBois to Ellison, Baldwin and Cleaver.

361 *The Comic Mode.* (3)
Studies in comedy and the theories of the comic.

362 *The Tragic Mode.* (3)
Studies in the forms of tragedy, dramatic and non-dramatic, with emphasis upon the theory of tragedy.

363 *Literary Studies in Intellectual Movements.* (3)
A survey of the growth and development in literature of one or more major intellectual movements or philosophies, such as Classicism, Romanticism, Realism, Naturalism, Existentialism. Topics announced the preceding semester.

364 *Contemporary Fiction of England and America.* (3)
Studies in British and American fiction of the post-World War II era.

365 *Contemporary Poetry of England and America.* (3)
Studies in the British and American poets of the post-World War II era.

366 *Studies in Fiction.* (3)
Studies in the forms of fiction, with emphasis upon the novel, the novella, the short story, but including fiction before the novel and a study of the theory of fiction.

368 *Studies in Drama.* (3)
Studies in world drama from the Greeks to the present. Emphasis on changing concepts of dramatic form and the nature of the dramatic experience.

370 *Black Folklore of North America.* (3)
An introduction to the narrative and other verbal forms of folklore current among English-speaking North American Negroes from slavery times to the present and a brief survey of the scholarly problems related to this material.

390 *Junior Seminar.* (3)
Detailed investigation of a given topic, author, or theme with emphasis on both content and methods of research. Topics vary from section to section and are announced the preceding semester. Enrollment limited to 15 students; consent of instructor required. Prereq: Junior standing.

395 *Independent Work.* (1-3)
For undergraduate majors in English with a high standing. Each pursues a course independently under the guidance of a staff member, writes a paper embodying the results of his study, and takes an examination. May be repeated once for a total of 6 credits. Prereq: Major and standing of 3.0 in the Department.

425 *Shakespeare Survey.* (3)
A study of ten to twelve of the major plays of Shakespeare, including comedies, tragedies, and histories. The student may receive credit for this course and for either ENG 526 or ENG 527, but not both; and only one of these three courses may count toward fulfillment of the requirements for the English major.

500 *Level Courses*: Many courses on the 500 level are basically survey courses, whose purpose is to give an intensive overview of the literature and literary history of the period as a whole.

520 *Chaucer.* (3)
Extensive readings in the principal works of Chaucer, with particular attention to *The Canterbury Tales* and *Troilus* and *Criseyde.*

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.

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.

524 *Pre-Shakespearean Drama.* (2)
A course in English origins, beginning with the *Quem Quaeritis Trope* and extending through the works of the early Elizabethans.

525 *Elizabethan Drama, Exclusive of Shakespeare.* (3)
A survey of English drama from the early Elizabethans until the closing of the theatres.

526 *Shakespeare: The Comedies.* (3)
Shakespeare's comedies will be studied in detail.

527 *Shakespeare: The Tragedies.* (3)
Shakespeare's tragedies will be studied in detail.

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.

530 *Age of Pope.* (3)
Addison and Steele, Swift, Pope, Defoe, and other contemporary figures.

531 *Age of Johnson.* (2)
Johnson and his circle: Burke, Goldsmith, Gray, Walpole, Cowper. The Pre-Romantic movement.

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.

533 *Eighteenth Century British Novel.* (3)
Study of the novel from its beginnings in English literature through the eighteenth century.

535 *The Romantic Movement*: 1780-1815. (3)
A study of the poetry and prose of the first half of the romantic movement. The emphasis is on the poetry of Blake, Wordsworth, and Coleridge.

536 *The Romantic Movement*: 1815-1830. (3)
A study of the poetry and prose of the second half of the romantic movement. The emphasis is on the poetry of Keats, Shelley, and Byron.

538 *Victorian Literature: 1830-1860.* (3)
Poets and essayists—Macaulay, Mill, Carlyle, Newman, Tennyson, Mrs. Browning, Browning, Ruskin, and Arnold—in their historical setting.

539 *Victorian Literature: 1860-1900.* (2)
Poets and essayists—Rossetti, Swinburne, Meredith, Huxley, Pater, Wilde, Davidson, Henley, Stevenson, Housman, Hardy, Kipling, and some others—in their historical setting.

540 *Nineteenth Century British Novel.* (3)
Study of the novel in English literature from Scott through Gissing.

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.

542 *Twentieth Century British Literature.* (3)
British literature of the 20th century, with particular attention to the poetry, to literary movements, and to critical theory.

550 *American Literature before 1800.* (2)
A survey of the development of American life, thought, and letters from the beginnings to 1800.

551 *American Literature: 1800-1860.* (3)
A survey of the development of American life, thought, and letters from 1800 to 1860.

552 *American Literature: 1860-1900.* (3)
A survey of the development of American life, thought, and letters, in the later years of the 19th century.

553 *American Literature since 1900.* (3)
A survey of the development of American life, thought, and letters in the 20th century.

554 *American Novel Before 1900.* (3)
Study of the American novel from the beginnings to Henry James.

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.

560 *Comparative Literature I.* (3)
A study of Greek and Latin literature from Homer to the Middle Ages.

561 *Comparative Literature II.* (3)
Study in English of major works of continental European Literature. Late medieval period to mid-Seventeenth Century.

562 *Comparative Literature III.* (3)
Study in English of major works of continental European literature written in modern languages, especially French, German, Spanish, Italian, Russian, mid-Seventeenth Century to end of Nineteenth Century.

563 *Comparative Literature IV.* (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.

565 *The Lyric in English.* (2)
A critical examination of selected lyrics from the Middle Ages to to the present.

566 *Modern Drama.* (3)
Continental, British, and American dramatic literature from Ibsen to the present. (Previously numbered 563.)

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.

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.

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.

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.

574 *American Folklore.* (2)
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.

Pro-seminars: The purpose of the pro-seminar courses (600 level) is to impart through lectures and discussion both the facts of literary history and the techniques of literary analysis. They are, therefore, designed to go beyond the mere information level to techniques of contemporary literary criticism and scholarship.

600 *Bibliography and Methods of Research.* (3)
Studies in enumerative bibliography and in the methods and materials of scholarly and critical investigation. Required of M.A. students in English.

620 *Middle English Literature.* (3)
Survey of Middle English literature, exclusive of Chaucer, with collateral reading of non-English monuments in English translation.

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.

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.

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.

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.

635 *Studies in Literature:* 1780-1815. (3)
A study in depth of selected writers and movements.

636 *Studies in Literature:* 1815-1830. (3)
A study in depth of selected writers and movements.

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.

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.

651 *Studies in American Literature Before 1860.* (3)
A study in depth of selected writers and movements.

652 *Studies in American Literature Since 1860.* (3)
A study in depth of selected writers and movements.

660 *Modern Critical Theory.* (3)
Examination of the theories supporting the modern versions of Genre, Genetic, and Formalist Criticism.

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once. (1-6 credits equivalence.)

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely. (1-12 credits equivalence.)

Seminars: Seminars (700 level courses) are designed to help the student develop, under close guidance and supervision, his ability to define problems of literary significance and to complete critical and scholarly studies in connection with such problems. The emphasis in the courses is on critical and scholarly methods and procedures rather than on content.

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.

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.

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.

780 *Directed Studies.* (1-3)
Independent work devoted to study and research on specific subjects and problems according to the interests and needs of individual students. May be repeated for a total of 9 credits.

SCHOOL OF FINE ARTS

Hubert Henderson, director

Department of Art
Department of Music
Department of Theatre Arts

ART

FACULTY

James S. Pierce, chairman

Professors

Clifford Amyx	M.A., Kentucky, 1943
Richard B. Freeman	M.A., Harvard, 1934
James S. Pierce	Ph.D., Harvard, 1962

Associate Professors

Michael D. Hall	M.F.A., Washington, 1964
Takao Iijima	B.A., Koyoiku, 1958
James Suzuki	
John R. Tuska	M.F.A., Alfred, 1960

Assistant Professors

Deborah Frederick	M.F.A., Rochester Inst. of Tech., 1967
Anne G. Green	M.A., Columbia, 1945
Edwin H. Harris	M.A., Northern Iowa, 1965
Terence Johnson	M.F.A., Washington, 1964
Lowell D. Jones	M.F.A., Cranbrook, 1966
Marian Winsryg	M.F.A., Otis Art Inst., 1965

Instructors

Stanley Mock	M.F.A., Cranbrook, 1966
Trond Sandvik	M.A., Wisconsin, 1962
Kathleen Serenska	M.A., Indiana, 1969

As a Department within the College of Arts and Sciences and the School of Fine Arts, the Art Department is concerned that its students should have a balanced education emphasizing both the liberal arts and a strong foundation for professional work in art. All students participate in the General Studies program and are grounded in the accepted studies in the liberal arts: the sciences, social studies, language, and the humanities. The Department offers a broad training to the major in all aspects of the visual arts. This kind of education should result in a command of ideas and basic skills which afford the student a possibility for creative action throughout his life. A departmental faculty of scholars and artists is dedicated to these purposes.

The Department offers majors in (1) studio, (2) art history, and (3) art education.

1. *The Studio Major* provides for a balanced program of studio classes in creative work in painting, sculpture, printmaking, ceramics, and textiles, 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. A system of independent-work courses offers opportunities for separate and individual instruction.

Students with professional intentions in the Applied Arts (Industrial Design, Interior Design, Advertising

Design and Illustration) will find that the basic courses offered by the Department of Art constitute limited preparation for advanced work in these fields. A portfolio of work completed in the lower division art program will be required prior to entry into upper division. A comprehensive studio presentation will be required prior to graduation. In addition, appropriate electives can be chosen from courses given by other departments and colleges.

2. *The Art History Major* is designed as a broad introduction to the history of art and related disciplines in the Humanities, with emphases on the liberal arts and foundation for work in art history at the graduate level. A balance between survey courses, courses at the senior level with a more substantial content in the formal and cultural aspects of art, and seminars in special and professional aspects of art history will be offered. A comprehensive examination and acceptable work in languages and the arts will be required.

3. *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. Teaching 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. Candidates for graduate studio program are required to submit a portfolio of work completed in undergraduate school.

Departmental Requirements

The University of Kentucky offers to the student an expanding curriculum in the arts, in association with other programs in the Fine Arts. There are active programs in drawing, painting, printmaking, ceramics, carving, casting, welding, and weaving; classrooms and conference rooms for the critical and historical study of art; a substantial collection of slides and reproductions.

For University and College requirements see page 6.

General Studies Requirements: Area II, sequence E or D recommended; Area III, sequence A or B; Area IV, French recommended, but student may continue study of another language begun in high school; Area V, MUS 200 and one of the literature courses; plus a sequence from two of the remaining Areas. Art majors are urged to take work in European History, Psychology, and Cultural Anthropology.

Pre-Major Requirements: A-H 001, A-H 002, A-H 003, A-H 004, A-H 200, A-H 201; A-S 102, A-S 103, A-S 180, A-S 215, A-S 255.

Major in Studio: Required, A-H 005, A-H 006, A-H 007, A-H 008; one course in Art History at the 300 level, one at the 500 level, and A-H 593 (Seminar). The Studio Major consists of 18 hours in the major field, with 6 hours in a related field. Graduation is contingent on the admission of a satisfactory portfolio or body of work. Studio majors are urged to take work in the Field of Concentration (see p. 66), including History, Psychology and Cultural Anthropology.

Major in Art History: (Pre-Major requirements same as above.) Required: A-H 005, A-H 006, A-H 007, A-H 008; A-H 591, A-H 592, A-H 593. The Area of Concentration will total at least 24 credits, including 9 hours at the 300 level and at least 9 hours in closely related A-H courses at the 500 level. Graduation is contingent upon a satisfactory comprehensive examination. Art History Majors are expected to emphasize work in History, Languages and the Arts within the Field of Concentration (see p. 66).

Major in Art Education: The major in art education is the joint concern of the Department of Art and the College of Education. Majors in Art Education are required to meet the Area Requirements in the College of Arts and Sciences and the College of Education. A provisional curriculum for Majors in Art Education may be obtained from the Department of Art, Room 205, Fine Arts Building.

Course Descriptions

GENERAL COURSE

768 *Residence Credit for Master's Degree.* (0)
May be repeated once. (1-6 credits equivalence.) *Staff.*

ART-HISTORY

001-008 *Art Professions.* (0) I, II
Lectures, seminars and discussions on professional responsibilities as they affect the student, the professional and the community. Prereq: Major in Art Department. *Staff.*

200 *Art History Survey: Primitive to Medieval Art.* (3) 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. Prereq: Art Majors or consent of instructor. *Staff.*

201 *Art History Survey: Renaissance to Modern Art.* (3) II
Continuation of A-H 200. A survey of major styles and of major artists from the early Renaissance to the present. Required of prospective majors in art. *Staff.*

232 *History of Architecture Survey.* (3)
A survey of the development of architecture in relation to world culture with emphasis on aesthetics, principles and philosophies of design, structure, use of materials, and the social and political backgrounds. Illustrated lectures, parallel reading, discussion, sketching and research. Not open to students in Architecture. (Same as ARC 232.) *Noffsinger.*

300 *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. *Staff.*

334 *Medieval Art.* (3) II
The arts 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. *Freeman.*

350 *Renaissance Art in Northern Europe.* (2) I
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. *Amyx.*

355 *Renaissance Art.* (3) I
The art of the Renaissance from early 14th Century through 16th Century, with special emphasis on the Renaissance in Italy, in the North and the beginning of Courtley Art in France. Prereq: A-H 200, 201. *Amyx.*

365 *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.*

370 *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. *Sandvik.*

371 *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. *Sandvik.*

505 *Roman Art:* 5thC BC to 4thC AD. (3)
Painting, sculpture, and architecture of the Roman Empire from the Etruscans through the Age of Constantine. Prereq: A-H 200, 201, 300. *Hull.*

506 *Greek Art.* (3)
The development of architecture, sculpture, painting and minor arts of Classical Greece. Greece from its beginning to the end of the Hellenistic period. Prereq: A-H 200 or approval of Department. *Staff.*

530 *Medieval Art of Italy and Sicily.* (3)
While emphasizing the architectural developments and the mural and mosaic decoration, much attention given to the small scale major arts of stone and metal sculpture, ivory carving, gold and enamel work and manuscript illumination from the 4th to the 14th Centuries. Prereq: A-H 334. *Freeman.*

550 *Italian Renaissance Painting:* 1350-1550. (3)
Painting in Italy from the time of Giotto and Duccio to Mannerism. Painting in Tuscany, Umbria, Rome, and the creation of Venetian painting and the spread of Mannerist tendencies. *Amyx.*

551 *Italian Renaissance Architecture:*
15th and 16th Centuries. (3)
The history of architecture in Italy from Brunelleschi to Palladio. Prereq: A-H 201, 355, or permission of instructor. *Amyx.*

555 *Italian Renaissance Sculpture.* (3)
A concentrated study of Renaissance Sculpture in Italy from 1400-1600; from the beginnings of the "new Humanism" to Michelangelo, tracing the philosophical, social, artistic and historical influences upon the major sculptors of this era. Prereq: A-H 201, 355 or permission of instructor. *Amyx.*

565 *Roman Baroque Art.* (3)
The arts in Rome from the beginning of the 17th through early 18th Centuries; the diffusion of Roman Baroque forms in Central and Northern Italy. Prereq: Either A-H 355 or A-H 365 or permission of instructor. *Amyx.*

570 *19th Century Architecture:*
Neo-Classicism to the Chicago School. (3)
European and American architecture from Ledoux to Louis Sullivan. Prereq: A-H 201, 370, or permission of the instructor. *Sandvik.*

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

580 *French Painting: The Nineteenth Century.* (3)
The history of French painting from David to Cezanne. Prereq: A-H 201, 370 or permission of instructor. *Sandvik.*

590 *The History of Western Graphic Arts.* (3)
The origin in the 15th Century and the subsequent developments in the Relief and Intaglio methods of printmaking, principally in Italy, Germany, and the Netherlands; the significant artists contributing to the extension of the medium as a fine art with the highest creative possibilities; the later invention and various developments in the Planographic method. Prereq: A-H 201 and two of the following: A-H 350, A-H 355, A-H 365, A-H 370. *Freeman.*

591 *Seminar in Art History.* (2) I
An intensive study of a particular medium, area, period, or style in art history, with special emphasis on interpretation of sources and the handling of visual and bibliographical materials. Required of majors in the History of Art. Required of all candidates for M.A. Degree in Art History. Prereq: Two courses in art history at the 300 level. *Amyx, Freeman, Sandvik.*

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.*

593 *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 three times for a maximum of four credits. *Amyx, Freeman.*

594 *Criticism of Art.* (3) I
History and theory of criticism in the Visual Arts. A survey of major types of critical theory, historical and contemporary. Required of majors in art history; open to majors in philosophy, literature, and the arts. *Amyx.*

599 *Independent Work: Art History.* (3) I, II, S
Individual research: history, criticism, aesthetics, etc. May be repeated 2 times for a maximum of 9 credits. Prereq: Major and a standing of 3.0 in the department. *Amyx.*

600 *Studies in Ancient Art.* (3)
Special studies—Ancient Art to emphasize the material and stylistic factors in the development of art, and the relevant cultural factors within a given area or period. Prereq: Graduate standing and consent of department.

630 *Studies in Medieval Art.* (3)
Intensive study of specific topics in Western European art between Constantine and Giotto, roughly 300-1200 A.D., according to the special interests and needs of individual students. May be repeated for a total of 6 hours. Prereq: Graduate standing and consent of department. *Freeman.*

650 *Studies in Italian Renaissance Art.* (3)
Special studies in the Art of Italy between 1300 and 1600, with emphasis on the material, stylistic factors in the development of art, and the relevant cultural factors within a given area or period. Prereq: Graduate standing and consent of department. *Amyx.*

670 *Studies in Modern Art.* (3)
Special studies in selected topics in 19th and 20th Century European and American art. Prereq: Graduate standing and consent of department. *Sandvik.*

781 *Problems in Art History and Criticism.* (3) I, II, S
Sustained individual research and interpretation in history, criticism, aesthetics. May be repeated 2 times for a maximum of 9 credits. Prereq: 12 hours in art history and criticism and the consent of the instructor. *Amyx.*

ART-STUDIO

102 *Drawing.* (3) I, II
Exploration of basic visual awareness as it relates to a two-dimensional surface, development of seeing and representing. Problems of scale, space, volume are dealt with. Little emphasis on individual expression. Lab, 9 hours. *Staff.*

103 *Intermediate Drawing.* (3) I
Continuation of the investigative process in drawing. Exploration of media in depth. Gesture contour, light and shade, modeled form and perspective drawing in creating, selecting and composing. Nine studio hours. Prereq: A-S 102. *Staff.*

180 *Basic Design.* (2) I, II
Training in basic design skills. Creative construction in common materials; logical development of unified forms. *Staff.*

215 *Basic Painting and Pictorial Composition.* (3) I, II
Introduction to technical and aesthetic problems in painting, and two-dimensional composition. Nine lab hours per week. Prereq: A-S 102, A-S 103, A-S 180. *Staff.*

220 *Graphic Design.* (2) I, S
Basic training in the design of printing, lettering, layouts, and presentation. Studio 6 hours. Prereq: A-S 102. *Sternbergs.*

255 *Basic Sculpture.* (3)
Introduction to 3-dimensional form; tools, processes and materials. Projects in clay, plaster, metals, and wood. Introduction to historical and contemporary sculpture. Nine studio hours per week. Prereq: A-S 102, 103, 180. *Staff.*

302 *Intermediate Drawing.* (3)
Development of draughtmanship at an advanced level stressed. Formal and conceptual problems of drawing discussed in depth. Personal point of view encouraged. Nine lab hours per week. Prereq: A-S 102, 103, 180, 215, 255. *Mock.*

310 *Intermediate Painting.* (3) I, II, S
Principles of pictorial structures and composition. Still life and landscape. Medium: oil. Prereq: A-S 103. *Suzuki.*

311 *Intermediate Painting.* (3) I, II, S
A continuation of 310. Prereq: A-S 310. *Suzuki.*

320 *Printmaking: Intaglio.* (3) I, II
Technical instruction in traditional intaglio methods: drypoint, etching, engraving, mezzotint, bitten lines, soft ground, lift ground, dust ground. Stenciling, paper stencil, cut film, lithocrayon, touch and glue and light sensitive methods. Nine lab hours per week. Prereq: A-S 215. *Sternbergs.*

325 *Printmaking, Planographic and Relief.* (3) I, II
Lithography and relief printing with an emphasis on experimentation and the print as an object. Media and procedures will be used as a means of creative development. Nine lab hours per week. Prereq: A-S 215. *Jones.*

340 *Textiles: Weaving.* (3)
Design of textiles, emphasis on structure, color, texture. Techniques of drafting, warping and weaving on various types of looms. Nine studio hours per week. Prereq: A-S 102, 180, or consent of instructor. *Green.*

341 *Textiles: Intermediate Weaving.* (3)
Continuation of A-S 340; emphasis concerned with developing technical skill as well as increased aesthetic values. Weaving on four or multiple harness looms. Nine lab hours per week. Prereq: A-S 340. *Green.*

342 *Textiles: Non-Woven Fabrics.* (3)
Exploration of the designing and execution of wall hangings and other fabrics using stitchery and applique techniques. Intensive work in color and textures, threads and natural materials. Nine lab hours per week. Prereq: A-S 102, 180, or consent of the instructor. *Frederick.*

343 *Textiles: Non-Woven Fabrics.* (3)
Continuation of A-S 342. Emphasis concerned with developing technical skill as well as increased aesthetic value in stitchery, rug knotting, Macramee. Nine lab hours per week. Prereq: A-S 342. *Frederick.*

355 *Basic Casting.* (3) I, II
Introduction to foundry procedure. Casting in lead, aluminum, and bronze utilizing various methods of investment casting. Nine lab hours per week. Prereq: A-S 255. *Hall.*

356 *Intermediate Casting.* (3)
Introduction to bonded sand casting and industrial foundry practices. Continued work in investment casting. Projects directed toward a moderate scale and complexity. Nine lab hours per week. Prereq: A-S 355. *Hall.*

359 *Experimental Media.* (3)
An advanced course involving work in plastics and other experimental sculptural materials. Problems in mixed media and in painted sculpture. Professional quality work expected. Nine lab hours per week. Prereq: Consent of the instructor. *Hall, Johnson.*

360 *Basic Welding.* (3) I, II
An introduction to the tools and techniques of welding. Projects in steel, brass, and copper. Lecture and discussion on welded sculpture. Nine lab hours per week. Prereq: A-S 255. *Hall.*

361 *Intermediate Welding.* (3) I
A continuation of work begun in basic welding. Introduction to arc welding. Work in steel and aluminum. Large scale work encouraged. Nine lab hours per week. Prereq: A-S 255, 360. *Hall.*

364 *Figure Modeling.* (3)
A vigorous investigation of the human figure as sculptural form primarily through the media of clay modeling. Rendering of figure with anatomical and structural understanding stressed. Nine lab hours per week. Prereq: A-S 255. *Mock.*

365 *Basic Wood Sculpture.* (3) I, II
Introduction to basic skills, materials, tools, and methods. Lecture and discussion of wood sculpture from history of art. Nine lab hours per week. Prereq: A-S 255. *Johnson.*

366 *Intermediate Wood Sculpture.* (3)
Introduction to diverse methods of surface treatment and finish. Emphasis on wood construction including the use of power tools and equipment. Nine lab hours per week. Prereq: A-S 365. *Johnson.*

369 *Stone Carving.* (3)
Introduction to traditional and contemporary methods, tools and concepts. Lectures and discussion of stone sculpture from history of art. Nine lab hours per week. Prereq: A-S 255. *Staff.*

370 *Ceramics.* (3) II
The design, construction, glazing and firing of pottery. Studio 9 hours. Prereq: A-S 180, 255 or consent of instructor. *Tuska.*

371 *Ceramics.* (3) II
A continuation of A-S 370. Prereq: A-S 370. *Tuska.*

502 *Advanced Drawing.* (3)
Introduction and exploration into experimental materials and media. Relation of traditional and contemporary drawing attitudes to other areas investigated. Independent projects encouraged. Nine lab hours per week. Prereq: A-S 302. *Mock.*

510 *Advanced Painting.* (3) I, II, S
Individual development in creative painting. May be repeated to a maximum of 9 credits. Prereq: A-S 311. *Ay-O, Suzuki.*

525 *Advanced Printmaking.* (3) I, II
Individual development in creative printmaking. Media and procedures within the general areas of lithography, intaglio, relief, and serigraphy will be chosen or devised as a means of creative expression, and/or new processes of printmaking will be devised. Nine hours per week. Prereq: A-S 320, 325. May be repeated for a total of 9 credits. *Jones.*

540 *Textiles: Advanced Weaving.* (3)
Woven and non-woven techniques combined in creating fabrics in relation to architectural demands. Aesthetic exploration in depth of materials, color and texture. Nine lab hours per week. Prereq: A-S 340, 342. *Frederick.*

555 *Advanced Casting.* (3)
Furthering of technical competence with the introduction of bronze alloying. Development of a professional and personal point of view toward cast sculpture will be stressed. Independent projects of architectural scale will be encouraged. Nine lab hours per week. Prereq: A-S 356. *Hall.*

560 *Advanced Welding.* (3)
All types of welding in all metals. A course for the expert welder showing great promise as a sculptor. Personal, individual directions encouraged with professional quality work expected. Nine lab hours per week. Prereq: A-S 255, 360, 361. *Hall.*

565 *Advanced Wood Sculpture.* (3)
Independent projects at professional level expected. Combination of wood and other materials to be investigated. New industrial products and methods will be utilized. Nine lab hours per week. Prereq: A-S 366. *Johnson.*

570 *Theory of Glazes and Refractories.* (3)
Theory and application in calculation of low and high fire glazes and clay bodies. Studying the properties of raw materials, and exploring the possibilities of various firing ranges. Original development of clay and glazes is encouraged and results analyzed. Nine lab hours per week. Prereq: A-S 371. *Tuska.*

571 *Advanced Problems in Ceramics.* (3)
In addition to doing advanced wheel problems, students concentrate on the creation of "new" functional forms and the problems of one-man production methods. Personal development of clay and glazes is encouraged. Nine lab hours per week. May be repeated twice to a total of 9 hours. Prereq: A-S 570. *Tuska.*

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

596 *Workshop.* (1-6) S
Summer workshops in sculpture or ceramics dealing with advanced problems. Prereq: Consent of instructor.

597 *Independent Work: Advanced Sculpture and Other Three-Dimensional Media.* (3) I, II
May be repeated two times for a maximum of 9 credits. Individual research and experimental work. Prereq: Major and a standing of 3.0 in the Department; any course in the 330 sequence, and consent of instructor. *Hall, Tuska.*

610 *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: Three credits in advanced painting; consent of instructor. *Suzuki.*

798 *Problems in Sculpture, Ceramics and Design.* (3) I, II, S
Sustained individual problems and experimental work in the technical and theoretical problems of design. May be repeated two times for a maximum of 9 credits. Prereq: Twelve credits in upper division studio work and consent of the instructor. *Hall, Tuska.*

799 *Problems in Painting and Printmaking.* (3) I, II, S
Sustained individual problems in drawing, painting and printmaking. May be repeated two times for a maximum of 9 credits. Prereq: Twelve credits of upper division studio work and consent of the instructor. *Suzuki, Jones.*

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. *Frederick, Harris.*

171 *Studio for A-E 170.*

172 *Public School Art.* (3) I, II, S
Continuation of A-E 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: A-E 170, 171. *Frederick, Harris.*

173 *Studio for A-E 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: A-E 170, 171.

575 *Art in Elementary Schools* (3)
Study of perceptual and aesthetic awareness in children. Methods and materials appropriate to the teaching of art in the elementary school. Prereq: Major in Art Education. *Frederick.*

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. *Harris.*

579 *Seminar in Art Education* (2)
A relationship of current philosophies of art education and aesthetics; a consolidation of art education ideas with a formation of criteria for making value judgments; a development of a vocabulary consistent with education and art. Prereq: Major in Art Education.

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: A-H 371, A-E 575 or 577; SOC 220; EDC 732 or EDF 661; or consent of the instructor. *Frederick, Harris.*

MUSIC

FACULTY

Paul Lehman, acting chairman
Aimo Kiviniemi, associate chairman

Professors

Arnold Blackburn — M.M., Michigan, 1943
R. Bernard Fitzgerald — M.M., Jordan Conservatory, 1935
Hubert P. Henderson — Ph.D., North Carolina, 1962
Gordon J. Kinney — Ph.D., Florida State, 1962
Aimo Justus Kiviniemi — M.A., Ohio State, 1952
Paul R. Lehman — Ph.D., Michigan, 1962
Nathaniel Maxwell Patch — M.M., Rochester, 1941
Kenneth W. Wright — Ph.D., Rochester, 1941

Associate Professors

James L. Bonn — M.M., Manhattan Conservatory, 1960
Joseph Ceo — M.M., Illinois, 1956
Rex A. Conner — M.M.E., Missouri, 1953
Arthur Graham — Ed.D., Columbia, 1960
Donald W. Ivey — D.M.A., Illinois, 1962
Phyllis Jenness — M.A., Kentucky, 1958
James R. London — Curtis Institute of Music, Diploma 1958
Rey M. Longyear — Ph.D., Cornell, 1957
Phillip Miller — M.M.E., Boston University, 1958
Ford McRae Montgomery — M.M., Michigan, 1949
Bruce N. Morrison — M.M., Northwestern, 1960
Gordon A. Nash — M.A., Kentucky, 1950

Assistant Professors

Walter Blanton — M.M., Indiana, 1968
John W. Coe — M.M., Manhattan School of Music, 1961
John B. Chance — M.M., Texas, 1956
W. Harry Clarke — M.A., George Peabody, 1963
Rodney K. Farrar — B.M., Oberlin, 1965
Sara Holroyd — M.A., Columbia, 1951
John Meacham — M.M., Northwestern, 1959
Peter S. Schaffer — Artist Diploma, Mannes College, 1952
Frank Traficante — Ph.D., Pittsburgh, 1965

Instructor

Paul M. Moore, Jr. B.M., Cincinnati, 1969

Staff Accompanist

Carolyn M. Rankin M.M., Louisiana State, 1950

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.

DEGREES

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 other instrument. A brief description of each undergraduate degree is given below.

The Department of Music also offers courses leading to the Master of Music degree (in Applied Music, Composition, Music Theory, or Music Education), the Master of Arts degree, and the Doctor of Musical Arts in Music Teaching.

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, a modern listening center, 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.

Approximately $750.00 is available each year from the McCracken Music Scholarship Fund for Kentucky students with exceptional musical talent.

The Marching Band offers certain scholarship aids to students. Information regarding these can be had by writing the Director of Bands, Department of Music.

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.

For further information or application write to the Chairman of the Department of Music.

UNIVERSITY BANDS

The University has three bands: the Marching Band, the Symphonic Band, and the Concert Band. The Marching Band 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 Concert Band performs in two annual concerts and its membership is comprised of interested students who do not qualify for the Symphonic Band.

UNIVERSITY CHORAL ENSEMBLES

For those students interested in singing, there are five choral organizations on campus: the Men's Glee Club, the Women's Glee Club, the Choristers (a select mixed choir), the Chamber Singers, and the University Chorus of approximately 150 members. These organizations are open to every University student by permission of the respective directors.

UNIVERSITY ORCHESTRA

The University Orchestra is a student musical organization and presents standard symphonic literature regularly in concert. Admission to the orchestra is arranged by consultation with the director.

SPECIAL FEES

Music Performance Courses

$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)

STUDENT ACTIVITIES

The Department of Music sponsors numerous student organizations including a Student Chapter of the Music Educators National Conference. Through a variety of activities, the Chapter attempts to supplement classroom work by aiding the music education major in his professional development and providing additional insight into matters affecting his career.

Sigma Alpha Iota, international professional fraternity for women, seeks to enable women music students and musicians, through their interest and influence, to uphold the highest ideals of music. Delta Omega Chapter at the University of Kentucky was inaugurated in 1967.

Kappa Chapter of Phi Beta, national professional organization for women, is dedicated to the highest standards of professional achievement in music and speech arts. Phi Beta is the only fraternity encompassing theater arts and dance as well as music and speech.

Phi Mu Alpha Sinfonia fraternity for men is dedicated to the cause of music and music at all levels. Its members seek to maintain the highest ideals of service to music and to musicians.

BACHELOR OF ARTS DEGREE IN MUSIC

The Bachelor of Arts in Music is the standard Bachelor of Arts degree of the College of Arts and Sciences with music as the major field of concentration. Like the various Bachelor of Music degrees, it includes music performance courses, ensembles, and a core of theory and music literature courses, but it also provides a broader coverage of liberal arts courses. With a great degree of flexibility, it includes 30 hours of electives that can be used either for additional work in music or for the pursuit of interests outside the field. The B.A. is a logical choice for those who intend to teach music courses, other than music performance courses, at the college or university level. It provides a sound preparation for entrance into most graduate schools, and for work at the doctoral level.

BACHELOR OF MUSIC DEGREE IN MUSIC EDUCATION

The Bachelor of Music degree with a major in Music Education is designed for the student who desires to teach music in the elementary or secondary schools. The curriculum leading to the B.M. in music education qualifies the graduate to obtain the Kentucky Provisional High School Certificate with an endorsement to teach at the elementary level. The student desiring to specialize in vocal music education should have participated in high school choral groups and should have studied piano. The student desiring to specialize in instrumental music should have studied his major instrument for several years and participated in band and orchestra. The study of other instruments, including piano, is desirable. A half recital must be presented on the major instrument during the senior year in partial fulfillment of the degree requirements.

Each of these programs includes a nucleus of courses in liberal arts, music theory, music history and literature, performance, education, and music education. The Bachelor of Music degree in music education also will supply suitable basic training for the student who wishes to pursue graduate study in music education and eventually hold an administrative position in school music or a college or university position in teacher training.

BACHELOR OF MUSIC IN APPLIED MUSIC WITH A CONCENTRATION IN VOICE, PIANO, ORGAN, OR AN INSTRUMENT

The Bachelor of Music degree in Applied Music is designed to prepare students for performance or teaching of performance music courses at the college level. Structured with the expectancy that the student enters college with an above-average capacity for performance and with considerable performing experience, the program provides a heavier concentration of music courses than any of the other undergraduate degrees. At the conclusion of the sophomore year, all students in the degree program must perform before the music faculty and receive their approval before continuing applied music at the upper division level. A full recital must be presented during the senior year in partial fulfillment of the degree requirements.

For University and college requirements see page 6.

Pre-Major Requirements (INSTRUMENT): PFM 101*, 201*, major instrument (Music Performance Course—Series III) each semester; MUS 170, 171, 270, 271, 272, 273, 280, 281, 190 or 191 each semester —40 hours.

Pre-Major Requirements (ORGAN): PFM 101*, 143*, 201*, 243*, MUS 170, 171, 270, 271, 272, 273, 280, 281, Music Ensemble (such as MUS 192) each semester—40 hours.

Pre-Major Requirements (PIANO): PFM 141*, 241*, MUS 170, 171, 270, 271, 272, 273, 280, 281, Music Ensemble (such as MUS 190, 192) each semester —36 hours.

Pre-Major Requirements (VOICE): PFM 101*, 142*, 201*, 242*, MUS 170, 171, 270, 271, 272, 273, 280, 281, Music Ensemble each semester (such as MUS 192, 195)—40 hours.

Major Requirements (INSTRUMENT): Major Instrument (Series III) each semester, MUS 370, 371, 372, 562, 572, 573—25 hours; elected from MUS 579, 580, 581, 583, 587, 588, 589—9 hours; Ensemble (MUS 190 or 191)—9 hours. Nine hours of electives and the senior comprehensive examination.

Major Requirements (ORGAN): PFM 343*, 443*, MUS 370, 372, 572, 573, 585, 586—25 hours; elected from MUS 579, 580, 581, 583, 587, 588, 589—9 hours; Music Ensemble—4 hours. Nine hours of electives and senior comprehensive examination.

Major Requirements (PIANO): PFM 341*, 441*, MUS 370, 372, 572, 573, 582—24 hours; elected from MUS 579, 580, 581, 583, 587, 588, 589—9 hours; Music Ensemble—4 hours. Fourteen hours of electives and senior comprehensive examination.

Major Requirements (VOICE): PFM 342*, 442*, MUS 370, 372, 564, 572, 573, 584—26 hours; elected

* Repeated once.

from MUS 579, 580, 581, 583, 587, 588, 589—9 hours; Music Ensemble—4 hours. Eight hours of electives and senior comprehensive examination.

Field of Concentration Requirements (INSTRUMENT, ORGAN, PIANO, VOICE: Including the major, must include a minimum of 40 credits of non-freshman work with at least 24 credits above the 200 level. At least 14 credits must be outside the department, selected with approval of adviser from courses generically related to major field of study.

Music Performance Courses

Non-Credit

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
Harp	19	39

Students enrolled in courses numbered 1-19 receive one half-hour lesson a week.

Students enrolled in courses numbered 21-39 receive two half-hour lessons a week.

Series I—Secondary

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 (but only upon approval of the Department of Music) 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
Harp	119, 219, 319, 419	

Series II—Major

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
Harp	139, 239, 339, 439	

Series III—Major

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	
Harp	159, 259, 359, 459	

Music Performance Courses are taught by the following faculty members:

Piano—Patch, Bonn, Rankin, Montgomery
Voice—Jenness, Ivey, Graham
Organ—Blackburn
Violin, Viola—Ceo, Shaffer
Cello, String Bass—Farrar
Harp—Ceo
Flute—Meacham
Oboe, Bassoon—Morrison
Clarinet, Saxophone—Miller
Trumpet—Blanton
Trombone—Coe
French Horn, Baritone—London
Tuba—Conner
Percussion—Moore

Departmental Requirements

For University and college requirements see page 6.

General Studies Requirements: One sequence in each of six areas of general studies. The areas must include II, III, IV, V (Art Humanities required), and two chosen from VI, VII, and VIII, except that a student electing a mathematics sequence in Area I may omit Area II.

Pre-Major Requirements: Major musical instrument or voice (Series II) each semester, MUS 170, 171, 270, 271, 272, 273, 280, 281; Music Ensemble (such as MUS 190, 192, etc.) each semester.

Major Requirements: Major musical instrument or voice (Series I or II), 4 hours; Ensemble (such as MUS 190, 195, etc.) 4 hours; Music electives, 16 hours; Non-music electives (14 hours of which must be chosen from courses generically related to the major field of study, 31 hours; Senior Comprehensive Examination.

Field of Concentration Requirements: See page 66.

Course Descriptions

120 *Italian Vocal Repertory and Diction.* (2)
A study of Italian vocal repertory and allied Italian vocal diction. Prereq: Permission of instructor.

121 *German Vocal Repertory and Diction.* (2)
A study of the German Art Song repertory, and allied diction factors. Prerequisite: Permission of instructor.

160 *Introduction to String Instruments.* (1) I, II, S
A beginning course for music education majors (vocal emphasis); others by permission of instructor. Two class hours per week.

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. For music majors only; others by permission of instructor.

162 *Class Instruction in String Instruments.* (1) I, II, S
A course in the fundamentals of playing and teaching violin, viola, cello and string bass. For music majors only; others by permission of instructor. Prereq: MUS 161.

163 *Class Instruction in Brass Instruments.* (1) I, II, S
A beginning course in the fundamentals of playing and teaching. Two class hours per week.

164 *Class Instruction in Brass Instruments.* (1) I, II, S
A beginning course in the fundamentals of playing and teaching brass instruments. For music majors; others by permission of instructor. Two class hours per week. Prereq: MUS 163.

165 *Class Instruction in Woodwind Instruments.* (1) I, II, S
A beginning course in the fundamentals of playing and teaching woodwind instruments. For music majors only; others by permission of instructor.

166 *Class Instruction in Woodwind Instruments.* (1) I, II, S
A course in the fundamentals of playing and teaching woodwind instruments. For music majors only; others by permission of instructor. Prereq: MUS 165.

167 *Introduction to Wind and Percussion Instruments.* (1) II
A beginning course for music education majors (vocal emphasis); others by permission of instructor. Two class hours per week.

168 *Class Instruction in Voice.* (1) I, II
A beginning course in the fundamentals of singing. For music majors; other students by permission of instructor. Two class hours per week.

169 *Class Instruction in Voice, Second Course.* (1) I, II
A beginning course in the fundamentals of singing. For music majors; other students by permission of instructor. Two class hours per week. Prereq: MUS 168 (class instruction in Voice).

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.

171 *Theory I—The Elements of Musical Theory.* (3) II
A continuation of MUS 170. Prereq: MUS 170.

180 *Class Instruction in Percussion Instruments.* (1) I
A beginning course in the fundamentals of playing and teaching percussion instruments. Two class hours per week. Prereq: For music majors only; others by permission of instructor.

181 *Class Instruction in Piano.* (1) I, II
A beginning course in the fundamentals of playing the piano. Two class hours per week. Prereq: For music majors; other students by permission of instructor.

182 *Class Instruction in Piano.* (1) I, II
A beginning course in the fundamentals of playing the piano. For music majors; other students by permission of instructor. Two class hours per week. Prereq: MUS 181.

183 *Class Instruction in Piano.* (1) I, II
A course in the fundamentals of playing the piano. For music majors; other students by permission of instructor. Two class hours per week. Prereq: MUS 182.

184 *Class Instruction in Piano.* (1) I
A course in the fundamentals of playing the piano. For music majors; other students by permission of instructor. May be repeated with permission of instructor for a total of two credits. Two class hours per week. Prereq: MUS 183.

190 *Band.* (1) I, II
May be repeated 11 times for a total of 12 credits.

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.

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.

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.

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.

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.

196 *Opera Workshop.* (1) I, II, S
Study of the principles and techniques of opera production through class presentation of scenes and complete works. Three class hours per week. Prereq: Permission of instructor.

200 *Introduction to Music.* (3) I, II, S
A basic introduction to the elements of music for the non-music student with no prior knowledge of music. Topics treated in the course will include aspects of notation, general musical forms, and a broad survey of musical periods from the Renaissance to the present.

201 *Music in Western Civilization.* (3)
A course for the non-music major with some prior musical training, including background in the elements of music. The subject matter will involve study of the large style periods of music from the Renaissance to the present, and representative works of the last four centuries. Prereq: Sophomore standing.

220 *French Vocal Repertory and Diction.* (2)
A study of French vocal repertory and allied diction factors. Prereq: Permission of instructor.

221 *The Art Song Repertory.* (2)
A study of English, American, Scandinavian, Russian, Spanish vocal repertory. Prereq: Permission of instructor.

260 *Music Fundamentals and Skills for Classroom Teachers.* (3) I, II, S
Designed to aid elementary teachers in the College of Education in learning to read music. Keyboard and autoharp experiences are stressed. For non-music majors or classroom teachers. Three meetings each week. Two hours lecture; one hour laboratory.

261 *Methods and Materials of Teaching Music in the Elementary Grades.* (3) I, II, S
Principles, techniques, and procedures for teaching music in Grades 1-6. Opportunities for using current materials are included. Prereq: MUS 260 or permission of the instructor. Three meetings each week.

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.

271 *Theory II—Aural Theory.* (2) II
The continuation of the aural and sightsinging techniques of MUS 270. Prereq: MUS 270.

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. Prereq: MUS 171.

273 *Theory II—Written Theory.* (2) II
The continuation of the work of MUS 272. This course must be taken concurrently with MUS 271. Prereq: MUS 272.

280 *History of Music.* (3) I, S
A survey of the history of music from ancient times to the present.

281 *History of Music.* (3) II, S
A continuation of MUS 280. Prereq: MUS 200 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: MUS 200 or consent of instructor.

283 *Survey of Music Literature.* (2) II, S
A continuation of MUS 282. Prereq: MUS 200 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 maximum of 2 credits.

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. Prereq: Junior standing in Music.

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.

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.

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, 362.

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.

371 *Instrumentation and Arranging.* (2) I, II, S
A basic course in instrumentation and arranging for typical school instrumental and vocal ensembles.

372 *Musical Analysis.* (3) I, II, S
A study of musical style through structural, harmonic and melodic analyses.

390 *Chamber Music Ensembles.* (1) I, II, S
A continuation of MUS 290. May be repeated once for a total of 2 credits. Two hour class per week.

395 *Independent Work in Music.* (3)
May be repeated once for a total of six credits. Prereq: Major in music and a standing of 3.0 in the department.

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.

561 *Music Activities in the Elementary School.* (2) I, II, S

570.
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, 261 or equivalent, consent of the instructor.

562 *Conducting.* (2) I
A study of the technique and practice of the fundamentals of conducting. Two meetings a week.

563 *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.

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.

568 *General Music in the Secondary School.* (2) I, S
Techniques and materials for general music activities in junior and senior high schools, emphasizing teaching of music as a humanistic discipline.

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.

571 *Orchestration.* (2) II, S
A continuation of MUS 570. Two meetings a week. Prereq: MUS

572 *Counterpoint.* (2) I, S
A study of Counterpoint based on 16th century and 18th century contrapuntal techniques, original compositions and analysis.

573 *Counterpoint.* (2) II, S
A continuation of MUS 572. Prereq: MUS 572.

574 *Composition.* (2) I, S
A basic course in original composition and orchestration. Prereq: MUS 371.

575 *Composition.* (2) II, S
A continuation of MUS 574. Prereq: MUS 574.

577 *Acoustics of Music.* (3) II
A study of the musical applications of sound phenomena. Prereq: Completion of 14 hours of music theory.

579 *Baroque Music.* (3) I, II, S
The history of vocal and instrumental music in the Baroque style from 1600 to 1750. Prereq: MUS 280, 281; or MUS 200 and permission of instructor.

580 *Music in the Eighteenth Century.* (3) I, S
The development of music in the Classic style from the early 18th century to 1800. Prereq: MUS 280, 281; or MUS 200 and permission of instructor.

581 *Nineteenth Century Music.* (3) II, S
A study of master works of music composed in the 19th century. Prereq: MUS 280, 281; or MUS 200 and permission of instructor.

582 *Piano Literature.* (3) I, S
A historical and analytical study of music written for the piano. Matters such as the emergence of the piano idiom and the development of the instrument will also be considered. Prereq: MUS 280, 281; or MUS 200 and permission of instructor.

583 *Symphonic Literature.* (3) II, S
An intensive study of orchestral literature. Prereq: MUS 280, 281; or MUS 200 and permission of instructor.

584 *Music for the Solo Voice.* (3) I, S
A stylistic study of solo vocal music from the Troubadours to the present. Prereq: MUS 280, 281; or MUS 200 and permission of instructor.

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. Prereq: MUS 280, 281; or MUS 200 and permission of instructor.

586 *History and Literature of the Organ.* (2) II, S
A continuation of MUS 585. Prereq: MUS 585.

587 *Twentieth Century Music.* (3) II, S
A stylistic study of representative compositions of the twentieth century. Prereq: MUS 280, 281; or MUS 200 and permission of instructor.

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. Prereq: MUS 280, 281; or MUS 200 and permission of instructor.

589 *History of American Music.* (3) II, S
A study of music in America from colonial times to the present. Prereq: MUS 280, 281; or MUS 200 and permission of instructor.

590 *Opera Theater.* (1)
May be repeated twice for a total of 3 credits. Prereq: By permission of instructor.

591 *Music Education Workshop.* (1) S
Intensive study of advanced methods and materials in one of the following areas of music education: elementary and general music, the school orchestra, the school band, choral music. May be repeated once for a total of two credits.

592 *Music Education Workshop.* (2) S
Intensive study of advanced methods and materials in one of the following areas of music education: elementary and general music, the school orchestra, the school band, choral music. May be repeated once for a total of four credits.

598 *Chamber Music Ensembles.* (1) I, II, S
The study of chamber music through performance. May be repeated once for a total of 2 credits. Two lab hours per week. Prereq: Permission of instructor.

599 *Collegium Musicum.* (3) I, II, S
The study and realization of performance practices in early music. May be repeated once for credit.

620 *Advanced German Vocal Repertory.* (3)
An intensive study of the German vocal repertory from the standpoint of interpretive problems, diction, and vocal elements. This course is designed primarily for singers, vocal teachers, and coaches. Prereq: Graduate standing and undergraduate voice major background in German diction and German Lieder Repertory.

621 *Advanced French Vocal Repertory.* (3)
An intensive study of the French vocal repertory from the standpoint of interpretive problems, diction, and vocal factors. This course is designed primarily for singers, vocal teachers, and coaches. Prereq: Graduate standing. Undergraduate preparation in an undergraduate voice major background in French vocal repertory.

660 *Advanced Instrumental Conducting.* (2) II, S
This course is intended to develop further the ability to interpret and conduct the larger forms written for the symphony orchestra and concert band. Prereq: MUS 562, 564.

661 *Advanced Choral Conducting.* (2) I, S
The art of choral conducting as applied to various styles and forms of music. Study of unaccompanied works, works with small instrumental combinations, and works for orchestra and chorus. Prereq: MUS 563.

662 *Advanced Band Techniques.* (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.

663 *Advanced Instrumental Techniques.* (2)
An advanced technical study of playing string, brass, and woodwind instruments, designed for the needs of school music teachers. May be repeated once for credit.

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.

668 *Introduction to Ethnomusicology.* (3) II, S
Studies in the folk and tribal music of all cultures and in the functional and art music of the non-Western world. Brief consideration will also be given to specific problems and techniques of the ethnomusicologist.

669 *Analytical Techniques.* (2) I, S
Studies in the analysis of stylistic practices in the music of the 18th and 19th centuries. Prereq: MUS 271 and 273 or equivalent.

670 *Theory Review.* (0) I, S
A review of the fundamentals of music theory.

671 *Advanced Musical Analysis.* (3) I, S
A course designed to show the changing aspects of musical style through analysis of representative compositions from all periods. Prereq: at least 8 hours of upper division theory or consent of instructor.

672 *Advanced Musical Analysis.* (3) II, S
A continuation of MUS 671. Prereq: MUS 671.

673 *Advanced Composition.* (2) I, II, S
Prereq: MUS 574 and 575. May be repeated 2 times for a total of 6 credits.

674 *Pedagogy of Theory.* (2) I, II, S
The teaching of music theory.

675 *Pedagogy of Theory.* (2) I, II, S
A continuation of MUS 674.

676 *Sixteenth Century Counterpoint.* (2) I
The study of sixteenth century contrapuntal techniques through analysis and composition.

680 *Medieval Music.* (3) II, S
The development of Western music through the 14th century.

682 *Research Methods.* (2) I, S
A course designed to acquaint the student with the basic research techniques and materials in music.

683 *Advanced Research Methods.* (2) II, S
A continuation of MUS 682. For doctoral students. Two class hours per week. Prereq: MUS 682.

684 *Renaissance Music.* (3) II
A survey of vocal and instrumental music of the 15th and 16th centuries.

685 *Choral Music.* (3) I, S
The history and literature of vocal ensemble and choral music from 1500 to the present.

686 *History of Chamber Music.* (3) I, S
An intensive study of the development of instrumental chamber music.

687 *History of Performance Practices.* (3) I, II, S
A survey of practices in the performing of European music from the later Middle Ages to 1800, based on evidence from contemporary sources. Must be taken concurrently with MUS 599.

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 EDC 742.

744 *History and Philosophy of Music Education.* (3) I, S
A historical survey of thought concerning the place and significance of music in the education of the individual and the group. (Same as EDC 744.)

760 *Psychology of Music.* (3) II, S
A study of the processes of musical thinking and the effects of music on human behavior.

761 *Seminar in Music Education.* (3) I, II, S
Advanced professional study in the theory and practices of music education. May be repeated once for total of 6 credits. Prereq: Permission of instructor.

762 *Music in Higher Education.* (3) II, S
Historical and comparative studies in the teaching and administration of music in colleges and universities. Includes case studies in administration, music in European higher education and the relationship of music to all other elements of the academic program. Prereq: MUS 744.

768 *Residence Credit for the Master's Degree.* (0) I, II, S
May be repeated once. (1-6 credits equivalence.)

769 *Residence Credit for Doctor's Degree.* (0)
May be repeated indefinitely. (1-12 credits equivalence.)

771 *Contemporary Musical Idioms.* (3)
An intensive study of compositional procedures in music since 1920. Prereq: MUS 587 (may be taken concurrently with the consent of instructor.)

775 *Medieval Notation.* (3)
The study and transcription of the notation of Medieval music from the earliest plainchant sources to mannered notation of the late Ars Nova in Italy and France. Three class hours per week; one laboratory hour per week. Prereq: MUS 680 (may be taken concurrently) and consent of instructor.

776 *Renaissance Notation.* (3)
The study and transcription of the notation of Renaissance polyphony from the time of the Burgundian school through Palestrina and contemporaries, and of the various keyboard and lute tablatures of the 16th and 17th centuries. Three class hours per week; one laboratory hour per week. Prereq: MUS 684 (may be taken concurrently) and consent of instructor.

777 *Seminar in Musicology.* (3)
Study and research in specific musicological problems. May be repeated twice for credit. Prereq: Four graduate level courses in Musicology.

779 *Studies in Music History.* (2) I, II, S
Intensive studies of a musical genre, a composer, or a school of composers.

780 *Independent Work in Music Education.* (1) 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) 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) 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.

THEATRE ARTS

FACULTY

Raymond A. Smith, acting chairman

Associate Professors

Wallace Neal Briggs — M.A., Kentucky, 1945
Raymond A. Smith — M.F.A., Western Reserve, 1955

Assistant Professors

Charles F. Dickens — M.F.A., Western Reserve, 1957
Mary A. Stephenson — M.A., Florida, 1963

Instructor

Barry T. Baughman — M.A., Kent State, 1968

The Department of Theatre Arts of the University provides the opportunity for cultural and professional growth in the appreciation and understanding of theatre through intensive study and performance of drama. In addition, the Department presents a wide variety of theatrical activity for the entire university community.

A student whose main interest lies in professional theatre may work toward the Bachelor of Arts degree with special emphasis on directing, acting and technical theatre. This program also allows the student adequate time during the junior and senior years for the election of related and other subject matter fields. A student planning to teach Speech and Theatre Arts may work toward certification by completing the requirements in the College of Education.

The Department of Theatre Arts also offers graduate courses which will eventually lead to the Master of Arts degree. All degrees offered by the Department require the fulfillment of the basic lower division course requirements of the College of Arts and Sciences.

DEPARTMENTAL FACILITIES

The University provides a modern and well-equipped Fine Arts Building in which are housed the Departments of Art, Music and Theatre Arts. These three departments comprise the School of Fine Arts. The Department of Theatre Arts has two theatres. The Guignol Theatre, one of the finest operating theatre plants in the Southeast, seats 425, has a large well-equipped stage and shop area, adjacent green room and dressing room facilities, costume construction and property storage rooms. The Laboratory Theatre, adjacent to the Guignol Theatre, seats 140. Five productions in the Guignol Theatre and two staff-directed productions in the Laboratory Theatre are presented during the school year. Six productions are presented by the Centennial Theatre during the summer term. The Laboratory Theatre is also used for classes in Theatre Arts and for student executed productions.

SCHOLARSHIPS

The Department offers a number of grants made available each year through the Student Financial Aid Program in Theatre Arts. These grants are awarded on the basis of scholarship, character, general theatre ability and personal need.

The Lolo Robinson Guignol Scholarship of $300 is awarded annually on the basis of scholarship, need, and active interest in theatre. Any student applying for the Robinson Scholarship Award must have been in residence at the University of Kentucky for at least one year.

Departmental Requirements

General Studies Requirements: Same as College.

Pre-Major Requirements: TA 194, ENG 260, and TA 292 and 293 or TA 190 and 292 or 293.

Major Requirements: TA 590, 592, 594, 598, 599, plus 9 credits chosen from: ENG 524, 525, 526, 527, 532, 563; plus 16 additional hours chosen from languages, speech, and the fine arts.

Field of Concentration Requirements: See page 66.

Course Descriptions

190 *Centennial Summer Theatre Workshop.* (3)
Open to apprentice students in the Centennial Summer Theatre. Classes in the theory and application of acting, directing and production principles supplemented by assignments in the University's Centennial Theatre. Admission by permission of staff. Students may receive credit for not more than two of the three courses, TA 190, 292 and 293. Lecture, three hours; lab, to be scheduled. Prereq: acceptance as an apprentice student in the Centennial Summer Theatre. Staff of Centennial Theatre.

191 *Stage Speaking: Theory and Practice.* (2)
An introduction to the auditory phase of acting and play directing. Training in correct breathing, correct production of tone and elimination of local dialects. Exercises for flexibility and relief of tension. Recommended for potential Theatre Arts majors who lack proficiency in stage speaking techniques. Two class hours per week; one lab hour per week.

194 *Orientation to the Theatre.* (3)
An orientation to the theory and practice of the theatre arts.

292 *Stagecraft I.* (3)
Study of theory, principles and techniques of contemporary theatre production. Assignments in laboratory and backstage during rehearsals and performances. Recommended for those interested in any technical phase of theatre.

293 *Stagecraft II.* (3)
Intensified and expanded application of TA 292. Advanced theory and practice in technical problems of play production. Assignments in laboratory and backstage during rehearsals and performances. Prereq: TA 292 or consent of instructor.

390 *Costume Design I.* (3)
A lecture-lab course to teach basic history, theory and practical construction of costume for the stage. Three class hours per week; four lab hours per week.

391 *Costume Design II.* (3)
An advanced course in the area of costume design with special attention paid to individual experimentation and development. Three class hours per week; lab, four hours per week. Prereq: TA 390.

395 *Independent Work.* (3)
For undergraduate majors in Theatre Arts. Independent work under the guidance of a staff member. Production of a paper embodying the results of study. Examination required. May be repeated once for a total of six credits. Prereq: Major and standing of 3.0 in the Department.

590 *History of the Theatre I.* (3)
A study of the theatre from primitive times through the Elizabethan period. Theatre and stage architecture, scene design, costuming and acting styles are discussed and their relation to dramatic literature analyzed.

591 *History of the Theatre II.* (3)
A continuation of TA 590, a study of the theatre from the Jacobean period to the present.

592 *Scene Design I.* (3)
Study of theory, principles and techniques of scenè and lighting design for the contemporary theatre. Comprehensive analysis of a play and the development of a design through the media of floor plans, lighting plot, and perspective line drawings. Prereq: TA 292 or 293 or consent of instructor.

593 *Scene Design II.* (3)
Intensified and expanded application of TA 592. Advanced theory and practice in scene and lighting design for the theatre. Prereq: TA 592 or consent of instructor.

594 *Acting I.* (3)
Study of acting styles from antiquity to the present, with emphasis on important acting periods. Lecture and weekly demonstrations for the development of skill in the use of body and for projection of voice and total characterization. Two hours of lecture and two hours of laboratory weekly. Prereq: major or consent of instructor.

595 *Acting II.* (3)
Study and acting of scenes from classical and modern dramatic literature. Intensive application of techniques studied in TA 594. Two hours of lecture and two hours of laboratory weekly. Prereq: TA 594 or consent of instructor.

596 *Playwriting.* (3)
A course designed for students interested in creative drama. The completion of at least one play is required. May be repeated to a total of six credits.

597 *Teaching of Theatre Arts.* (3)
A course designed to introduce teachers and community theatre workers to the problems of staging under circumscribed conditions; minimum essentials of play production and the means of supplying these needs. Required of all certification students.

598 *Theatre Directing I.* (3)
Study of movement, interpretation of lines, creation of atmosphere, use of stage areas, use of levels, methods of achieving a climax, handling of groups, planning of mob scenes. Prereq: major or consent of instructor.

599 *Theatre Directing II.* (3)
Analyses and direction of the characteristics of tragedy, comedy, melodrama, farce and their variants. Intensive application of techniques studied in TA 598. Prereq: TA 598 or consent of instructor.

690 *Studies in Technical Theatre: Production.* (3)
Problems in advanced sceno-graphic techniques including drafting for the theatre, period composition and design, translation of the design into actuality, planning and laying out the technical schedule. Prereq: consent of instructor.

691 *Studies in Technical Theatre: Lighting.* (3)
Investigation and critical evaluation of lighting practice and artistry in the contemporary theatre. Prereq: consent of instructor.

694 *Advanced Styles of Acting.* (3)
The rehearsal and performance of scenes and class exercises in improvisation to develop creative imagination as a basis for acting. Three class hours per week; lab, two hours per week. May be repeated once for a total of six credits. Prereq: Graduate standing.

794 *Special Topics in Theatre 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. (May be repeated once for a total of six credits.)

798 *Directing.* (3)
Seminar and research in the aesthetics and techniques required for the production of period classics of dramatic literature. Three class hours per week; lab, two hours per week. May be repeated once for a total of six credits.

FRENCH LANGUAGE AND LITERATURE

FACULTY

Lewis A. M. Sumberg, chairman

Professors

Jean D. Charron	Ph.D., North Carolina, 1956
Phillip A. Duncan	Ph.D., Indiana, 1958
L. Clark Keating	Ph.D., Harvard, 1934
Walter G. Langlois	Ph.D., Yale, 1956
Theodore H. Mueller	Ph.D., Northwestern, 1953
Lewis A. M. Sumberg	D.d'U., Paris, 1954

Associate Professors

Raymond La Charité	Ph.D., Pennsylvania, 1966
Virginia La Charité	Ph.D., Pennsylvania, 1966
Jane Haselden	Ph.D., Kentucky, 1941

Assistant Professors

Eric C. Hicks	Ph.D., Yale, 1965
Rupert T. Pickens	Ph.D., North Carolina, 1966
John A. Rea	A.B., Miami, 1948

Lecturer

Sarah R. Chandler	M.A.C.T., Western Kentucky, 1969

The Department of French Language and Literature offers curricula leading to the A.B., the M.A., and the Ph.D. degrees. As a branch of the liberal arts curriculum, one of the fundamental aims of the departmental program is to broaden and deepen the student's acquaintance with the French-speaking world through the medium of its language and literature.

In addition, the Department provides training for:

1) those interested in entering the diplomatic and various other Government services whose knowledge of French is required;
2) prospective high school and college language teachers;
3) graduate and science students (especially in: Art, History, International Commerce, Library Science, Mathematics, Philosophy, the other Romance Languages, Slavic and Oriental Languages, Theology) requiring a practical knowledge of French for reference and research.

Departmental Requirements

For University and college requirements see page 6.

General Studies Areas Required: II (any sequence), III (either sequence), IV (French 104, 105, 201, 202), V (either sequence), VI (HIS 104, 105), plus one of the following: I (PHI 220 and PHI 200 or 230); VII (ANT 121, SOC 101); VIII (either sequence).

Pre-Major Requirements: ENG 161; 6 credits of a second foreign language, and FR 203, 204, 205.

Major Requirements: 18 credits of upper division French courses, including at least 3 of the following courses: FR 502, 504, 508, 510.

Field of Concentration Requirements: See page 66.

Certification Requirements: 30 credits in French, including elementary and intermediate French; minor subject, 18-24 credits; EDP 202, EDF 301, EDC 344, 564 and student teaching.

Course Descriptions

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. (For correspondence study only.)

102 *Elementary French.* (3) I, II, S
A continuation of 101. Several short readers are translated. Prereq: FR 101 or one year of high school French. (For correspondence study only.)

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. Prereq: FR 104 or permission of instructor.

106 *Elementary French Review.* (4)
A course designed to give remedial work to students who enter with two units of high school French but do not qualify for FR 201. Prereq: Two years of high school French.

200 *Intermediate Aural-Oral Practice in French.* (1)
Introduction to conversation. For potential majors in French. To be taken concurrently with FR 201. Lecture, two hours per week; lab, one hour per week. Prereq: FR 105. Open to French majors and other students who have completed FR 105 with a grade of B.

201 *Intermediate French.* (3) I, II, S
A good pronunciation, a thorough knowledge of grammar and verbs, reading and conversation are the aims of the course. Prereq: FR 101, 102 or two years of high school French. *Staff.*

202 *Intermediate French.* (3) I, II, S
A continuation of FR 201. Prereq: FR 201 or three years of high school French. *Staff.*

203 *French Conversation and Composition.* (2)
The course will develop conversational skill and introduce elementary writing. Radio plays followed by class discussion will develop conversational facility. Writing summaries of the plays and of articles of interest will develop facility in composition. To be taken simultaneously with FR 202. Required of French majors. Others may elect with consent of instructor. Prereq: FR 200.

204 *Introduction to French Literature.* (3)
A study of selected readings from the literature of the Middle Ages to 1800. Lecture, discussion, oral reports. Conducted in French. Prereq: FR 202.

205 *Introduction to French Literature.* (3)
A study of selected readings from the literature of the nineteenth and twentieth centuries. Lecture discussion, oral reports. Conducted in French. Prereq: FR 202.

206 *French Novel and Drama.* (3)
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: FR 201 and 202.

209 *French Conversation and Composition.* (2)
Further development of conversational skill and practice in writing. Again radio plays will be the stimulus for conversation and class discussion. Writing will be further developed through writing summaries and elementary compositions. To be taken simultaneously with FR 204. Required of French majors. Others may elect with consent of instructor. Prereq: FR 203.

306 *French Composition.* (3)
Practice in writing correct and stylistically appropriate formal French. Three class hours per week. Prereq: FR 209 or equivalent.

307 *French Phonetics.* (3)
Phonetics and phonemics, theory and practice. Advanced corrective pronunciation drill on an individual basis, primarily in the laboratory. Three class hours per week; lab, one hour. Prereq: FR 202 or equivalent.

395 *Independent Work in French.* (3) I, II, S
May be repeated once. Prereq: Major and a standing of 3.0 in the department.

412 *Advanced French Conversation.* (2)
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. Prereq: FR 209.

414 *Twentieth Century French Literature in Translation.* (3)
A study of selected prose and poetry (in English translation), representative of the major trends in modern French literature. No knowledge of French required. Not open to French majors.

415 *Masterpieces of French Literature in Translation.* (3)
A study of outstanding works of French poetry and prose to the end of the nineteenth century, with particular emphasis on movements in the seventeenth and nineteenth centuries. No knowledge of French required. Not open to French majors.

450 *La Civilization Francaise au XXeme Siecle.* (3)
A survey of French culture in the XX Century with emphasis on the period following World War II. Conducted in French. Prereq: FR 202.

502 *Survey of XIX Century French Literature.* (3)
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: FR 204, 205.

503 *Studies in XIX Century French Literature.* (3)
A study of a single genre or topic with representative readings selected from the literature of the XIX Century. Prereq: FR 204, 205.

504 *Survey of XVII Century French Literature.* (3)
A study of the representative writers of the XVII Century and the more important literary movements. Outside reading and reports on assigned topics. Prereq: FR 204, 205.

505 *Studies in XVII Century French Literature.* (3)
A study of a single genre or topic with representative readings selected from the literature of the XVII Century. Prereq: FR 204, 205.

506 *Advanced French Composition.* (3)
The course aims to present vocabulary and structures necessary in critical writing but not common to conversational French as well as to encourage logical thinking. Short weekly papers will be written and discussed in class. Reading material will be kept to a minimum and will serve as a subject matter for essay work.

508 *Survey of XVIII Century French Literature.* (3)
A study of the representative writers of the period, with special attention given to Voltaire, Rousseau, Montesquieu, and Diderot. Prereq: FR 204, 205.

509 *Studies in XVIII Century French Literature.* (3)
A study of a single genre or topic with representative readings selected from the literature of the XVIII Century. Prereq: FR 204, 205.

510 *Survey of XX Century Literature.* (3)
A study of representative writers of the XX Century and the more important literary movements. Outside reading and reports on assigned topics. Prereq: FR 204, 205.

511 *Studies in XX Century French Literature.* (3)
A study of a single genre or topic with representative readings selected from the literature of the XX Century. Prereq: FR 204, 205.

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.*

516 *Introduction to Old French.* (3)
An introduction to the study of early French, especially of the Eleventh through the Thirteenth Centuries. Emphasis will be on understanding the language, with readings from selected literary works and discussion of Old French phonology and grammar. Prereq: FR 204, 205. *Pickens, Rea.*

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: FR 203 (two semesters) or equivalent, consent of instructor. *Rea, Pickens.*

553 *The Teaching of Modern Foreign Languages.* (3)
A course for teachers and prospective teachers of French, Spanish, or German. (Required of graduate students in French). *Mueller.*

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. *R. La Charité, Keating.*

603 *The Development of the French Language.* (3)
A history of the phonology and grammar of French from the origins to the present, with analysis and study of appropriate documents, literary and otherwise, to illustrate these developments, along with some introduction to the basic concepts of historical linguistics. Prereq: FR 516. *Rea.*

604 *Medieval Literature I: to the Thirteenth Century.* (3)
Selected works of the major epic cycles; the elaboration of the romantic lyric; courtly love and courtly romance; satirical and realistic tendencies in the fabliaux and the *Roman de Renart.* Readings in the original texts. Prereq: FR 516. *Sumberg, Pickens.*

605 *Medieval Literature II: 13th to 15th Centuries.* (3) I
The new *ars poetica*: Machaut and Deschamps. Later lyric developments: Christine de Pisan, Charles d'Orleans, Villon, les grands rhetoriquers. The literary chronicles. The development of prose as a literary medium: *Lancelot-Graal, Quinze joies du mariage, Les Cent nouvelles nouvelles.* Three class hours per week. Prereq: Consent of instructor. *Sumberg.*

606 *Studies in Bibliography and Research Methods.* (3)
Designed to serve the needs of students beginning graduate work in French by acquainting them with the tools of research. Prereq: Consent of instructor. (Required of Ph.D. candidates in French). *Staff.*

610 *Romance Philology.* (3)
Study of the historical development of the various Romance languages with reading of texts chiefly from the medieval period. Special attention will be given to historical phonology and morphology. Prereq: FR 603 or equivalent. May be repeated once. *Rea.*

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: FR 604. *Sumberg.*

703 *The Old French Chanson de Geste.* (3)
A study of the medieval French Epic, with special emphasis on works of the Twelfth Century, and embracing a detailed discussion of theories of the origin of the genre, with special emphasis on recent work. *Sumberg.*

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. *Charron.*

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. *Charron.*

708 *Seminar in the Literature of the Enlightenment.* (3)
Intensive study of selected works of one or more representatives of the Enlightenment in France. Prereq: Consent of instructor. *Mueller.*

709 *Seminar in XVIII Century Novel and 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. *Mueller.*

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. *Keating.*

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. *Duncan.*

712 *Seminar in Post-Romantic Poetry of the XIX Century.* (3)
Intensive study of a single author or limited group of authors representative of this area of French literature. Prereq: Consent of instructor. *V. La Charité.*

713 *Seminar in the Naturalist Novel.* (3)
Intensive study of a single author or limited group of authors representative of this area of French literature. Prereq: Consent of instructor. *Duncan.*

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. *Langlois.*

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. *V. La Charité.*

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. *Langlois.*

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. *Langlois.*

723 *The Medieval French Drama.* (3)
The ecclesiastic origins of the drama, semi-liturgical drama, miracle plays of the Twelfth and Thirteenth Centuries, secular works and the jongleurs, late farces and the development of the mystery play. Prereq: FR 604. *Sumberg, Hicks.*

724 *Didactic Literature of the Middle Ages.* (3)
The development of allegory as a mode of expression, its adaptation to didactic ends and particularly to those of courtly love, with concentration in the *Roman de la Rose* of Guillaume de Lorris. The development of scholastic method and its encroachment upon the domain of allegory; its triumph over the latter in the continuation of the *Rose* by Jean de Meung, with consideration of other "scientific" works of encyclopaedic tendencies. Prereq: FR 604. *Hicks.*

730 *Seminar in French Literature of the Renaissance.* (3)
Intensive study of a single author or group of authors representing the period of the French Renaissance. Prereq: FR 601. *Keating, R. La Charité.*

731 *French Poetry of the 16th Century.* (3)
A study of the poetry of the Renaissance, its background, personalities and achievements. Prereq: FR 601.

768 *Residence Credit for Master's Degree.* (0)
May be repeated once. (1-6 credits equivalence.)

769 *Residence Credit for Doctor's Degree.* (0)
May be repeated indefinitely. (1-12 credits equivalence.)

778 *Seminar: Main Currents of Romance and German Literatures.* (3)
Studies of the principal works of the French, German and Spanish literatures. Lectures, student reports.

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. Prereq: Consent of instructor.

GEOGRAPHY

FACULTY

P. P. Karan, chairman

Professors

Thomas P. Field	Ph.D., North Carolina, 1948
P. P. Karan	Ph.D., Indiana, 1956

Associate Professors

Donald A. Blome	Ph.D., Iowa, 1963
S. A. Majid	Ph.D., London, 1949
William A. Withington	Ph.D., Northwestern, 1955

Assistant Professors

Melvin Albaum	Ph.D., Ohio State, 1969
Gary L. Fowler	Ph.D., Syracuse, 1969
Roger M. McCoy	Ph.D., Kansas, 1967

Lecturer

Louis M. Bykoski	Ph.D., Western Reserve, 1965

Instructors

Jeffrey Bassett	M.A., Bowling Green, 1966
Wilford A. Bladen	M.A., Kentucky, 1969

Geography is concerned with understanding the spatial organization of the man-environment system on the earth. Introductory geography is concerned with the basic characteristics of this system and the principles of its organization. Advanced work emphasizes the development of theories to explain the more complex parts of this system and to predict changes in the spatial distribution of phenomena.

There are several specific areas of concentration in geography. Physical geography studies the physiographic-biotic sub-system in terms of its spatial characteristics and related processes. Cultural geography studies phenomena relevant to an understanding of the spatial distribution and space relations of human cultures. Economic geography (urban-economic-transportation) studies the spatial structure and dynamics of economic activities. Political geography is concerned with the spatial distribution and space relations of political processes, especially as they relate to geographical area. And regional geography specializes in the study of the way in which these distinct sub-systems operate in particular parts of the world. Cartography and air photo interpretation and statistical analysis are important tools for all types of geographic study.

The Department of Geography has two basic functions. First, it offers courses as part of the undergraduate curriculum. The introductory courses (Geography 151, 152 and 251) stress fundamental concepts by examining the spatial distribution of physical elements and resources of the earth, cultural phenomena, economic systems and political organization at global and regional scale. Specific topics are examined more intensively in intermediate courses.

Secondly, the Department of Geography offers graduate studies leading to the Master of Arts and Doctor of Philosophy degrees. Specialization is in three general areas: (a) spatial analysis of economic and social systems with concentrations in urban studies, settlements, transportation, political geography and locational analysis; (b) environmental studies with concentrations in climatology, including urban and micro-climatology, remote sensing of the environment and resource use analysis; and (c) regional analysis with emphasis upon North America, Australia and the Pacific, the Indian subcontinent and Southeast Asia and the Middle East-North Africa.

Students who study geography have a wide variety of employment opportunities in teaching and academic research, urban and regional planning, developmental planning, business and in governmental agencies at the federal, state and local levels. The most challenging opportunities are open to students who complete programs of graduate study. Preparation for such programs is a course of study leading to the Bachelor of Arts degree with a major in geography or related field.

Departmental Requirements

For University and college requirements see page 6.

The requirements for this department are presently under review. A detailed statement of these requirements may be obtained from the chairman of the department.

Field of Concentration Requirements: See page 66.

Course Descriptions

151 *Elements of Physical Geography.* (3) II
The basic earth environment discussed from the standpoint of process. Weather, landforms, climates, vegetation and soils are emphasized. *Basset, McCoy.*

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.) *Field, Karan, Albaum.*

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.) Prereq: SOC 101. *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. Prereq: SOC 101. (Same as SOC 154.) *Staff.*

251 *Elements of Human Geography.* (3)
A study of the spatial distributions of significant elements of human occupance of the earth's surface, including basic concepts of population, settlement forms, land utilization, impact of technology on human occupance of the earth, the origin and dispersal of cultural elements among the various world realms, inter-regional relationships and spatial interaction. Lecture, three hours per week. *Withington, Fowler.*

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.

255 *Fundamentals of Economic Geography.* (3)
Development of understanding and application of relevant location theories in the analysis of micro- and macro-geographic patterns of world-wide economic activities. *Blome.*

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. *Karan.*

265 *Elements and Techniques of Map Making.* (3)
Fundamental training in projections, scales, lettering and symbolization, simple map drafting and map reproduction including emphasis on the conceptual planning and designing of maps as a medium for communication. Three class hours per week. Prereq: GEO 151 or 251, or consent of the instructor. *Field.*

520 *Regional Geography of Anglo-America.* (3) 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, Blome.*

522 *Geography of Kentucky.* (3) 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. *Field.*

524 *Regional Geography of Latin America.* (3) I
A study of countries and geographic regions of Mexico, Central America, and South America. Prereq: One geography course. *Staff.*

526 *Regional Geography of Europe.* (3) I
A study of Western Europe's major geographic regions, climate, soil, terrain, mineral, and biotic factors. Population problems, economic adjustments, and political significance of resources. Prereq: One geography course. *Staff.*

528 *Regional Geography of Asia.* (3) 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.*

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. *Karan.*

534 *Regional Geography of Australia and the Pacific Islands.* (3) I
A study of the geographic problems and adjustments of the peoples and countries of the Pacific area. Reference to the strategic nature of the location. Prereq: One geography course. *Field.*

536 *Regional Geography of Africa.* (3) 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 course in geography. *Field, Albaum.*

538 *Geography of Natural Resources and Resource Development Problems.* (3)
A study of the distribution and management of particular resources, resource development problems in specific regions, estimation of resource availability, tools for determining economic efficiency, the influence of institutional contraints of resource development, and the role of perception and attitudes in decision making related to man's use of natural resources. Prereq: GEO 255. *Staff.*

540 *Geography of Urban Areas.* (3) II
A study of the location and growth of cities and urban areas in relation to environmental factors. Prereq: GEO 255 or permission of instructor. *Withington, Blome.*

542 *Political Geography.* (3) I
A study of politico-geographic phenomena in their areal context, such as the analysis of boundaries, geographical patterns resulting from the application of governmental authority, the political viability of state units, and the spatial (territorial) variations and interrelationships of political activities and systems. *Karan.*

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. *Staff.*

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.*

550 *Regional Geography of South Asia.* (3)
A regional study of India, Pakistan, and the Himalayan Kingdoms with emphasis on politico-geographic, and socio-economic problems of the countries in the region. Prereq: GEO 151, 152, or 255, or consent of instructor. *Karan.*

552 *Regional Geography of Southeast Asia.* (3)
A study of the Southeast Asia region (between India-Pakistan to the west; China to the north; and Australia to the south) focusing on the politico-geographic, socio-economic, and resource potential problems of its countries. Prereq: GEO 151, 152, or 255, or consent of instructor. *Withington.*

560 *Regional Geography of the Caribbean.* (3)
A regional study of Central America and the West Indies. Prereq: GEO 151, 152, or 255, or consent of instructor. *Staff.*

610 *Seminar in Theoretical Geography.* (3)
A systematic review of the theoretical nature and character of geographic patterns with the use of mathematics. Application of geometry, primarily topology, to prove the geographic concept of spatial relation, spatial arrangements and spatial processes. Three class hours per week. Prereq: MA 521 or equivalent. *Blome.*

615 *Urban Climatology.* (3)
Study of the distributions of temperature, precipitation, and air pollutants in and around cities; the effect of cities on local heat and water budgets; and the relation between topographic situation and city climate. Prereq: GEO 151 and 544, or consent of instructor. *Staff.*

625 *Regional Theory.* (3)
The concept of regional structure and its application to geographic problems, modes, linkages, circulation and regions. Methods of regional research and analysis in geography. Prereq: GEO 255 or equivalent, or consent of the instructor. *Withington.*

635 *Fundamentals of Remote Sensing of Environment.* (3)

A systematic study of the application of remote sensors in geographic investigation with particular reference to integrated landscape analysis, land use classification, cluster analysis, and multisensor survey of physical environments. Prereq: GEO 547 or equivalent, or consent of the instructor. *McCoy.*

640 *Transportation Geography.* (3)

Conceptual and descriptive study of transport facilities and patterns of movement with special reference to the influence of geographic factors in the creation, transformation, and maintenance of transportation forms and functions; the bearings of transportation on urban and regional development and on industrial location; its role as an "organizing force" in economic geography, interaction of transportation, and regional development in different areas of the world. Prereq: GEO 255 or equivalent, or consent of the instructor. *Staff.*

643 *Urban Transportation Planning.* (3) I

A detailed review of the transportation planning process; inventory methodologies; trip generation, distribution and assignment with associated mathematical models and theories; prediction of future travel; land and use models; modal split; developing and testing proposed systems; simulation. Three class hours per week. (Same as CE 643.) Prereq: CE 543 or equivalent and MA 521, AEC 630 or equivalent statistics course. *Hutchinson.*

648 *Applied Cartography.* (3)

An analysis of cartographic presentation including mapping of areal relationships, and studies of the ways in which designs and scales of maps can influence the portrayal of geographical patterns and associations. *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. Prereq: A prior major or minor in Geography or consent of instructor. *Staff.*

652 *Soil Classification and Geography.* (3)

A critical evaluation of the concepts of soil classification, with particular reference to the current U.S. scheme. Study of geographic locations and the nature of their soil associations as related to gross considerations of soil genesis. (Same as AGR 652.) Prereq: AGR 573, 581, or consent of instructor. *Bailey.*

655 *Special Study of Systematic Geography.* (3)

The application of the methods of systematic geography to particular special studies in topical areas, such as conservation, urban areas, climatology, cartography, or others. Three class hours per week. Prereq: Appropriate 500-level course work in Systematic or Topical Geography (e.g., Conservation, Urban, Climatology, Cartography). May be repeated to a maximum of 6 hours. *Staff.*

660 *Advanced Field Studies.* (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 GEO 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, 547, or 548 and 530 for Geography students, or consent of instructor for students offering field experience in allied subjects, such as Geology. May be repeated once. *Karan.*

700 *Quantitative Methods in Geography.* (3)

A survey of the applications of quantitative techniques to geographical problems, with emphasis on the use of models in current geographic literature. Special emphasis will be given to the interpretation of recent findings in physical, urban, economic, and regional geography, and in the preparation of the student for the further use of certain techniques in his own research. Prereq: An elementary course in statistical methods. *Blome, Albaum.*

710 *Research Problems in Geography.* (3)

A comprehensive review of the problems involved in designing geographical research, planning field work, analysis of data, and in writing geographic reports. Prereq: GEO 545 or equivalent. *Karan.*

715 *Seminar in Systematic Geography.* (3)

Urban geography; population geography; political geography; transportation geography. (Sub-field will be chosen in keeping with the interest of the professor in charge). May be repeated for a total of 12 credits. Prereq: Appropriate 500-level systematic course or consent of the instructor. *Staff.*

750 *Applied Geography in Developmental Analysis.* (3)

A systematic review and critical evaluation of the application of geographic concepts and methods of survey, analysis and interpretation in the study of regional developmental problems with particular reference to the developing nations and underdeveloped areas in the United States, Canada, and Europe. Prereq: GEO 545 or equivalent. *Staff.*

760 *Seminar in Regional Geography.* (3)

Australia; Southeast Asia; Himalaya and Central Asia; other world regions in keeping with the regional specialization of the professor in charge. May be repeated twice for a total of 9 credits. Prereq: Appropriate 500-level course in regional area, or consent of instructor. *Staff.*

762 *Seminar in the Geography of Anglo-America.* (3)

Research seminar in topics or problems related to geographic aspects of Anglo-America. Topics will be chosen in keeping with the interest of the professors in charge. May be repeated for a total of six credits. Prereq: At least one year of graduate study in geography. *Staff.*

768 *Residence Credit for the Master's Degree.* (0) I, II, S

May be repeated once. (1-6 credits equivalence.)

769 *Residence Credit for the Doctor's Degree.* (0)

(1 to 12 credits equivalence). May be repeated indefinitely. *Staff.*

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. *Fowler.*

771 *Advanced Seminar in Geography.* (3)

The study of selected topics or current systematic concepts in geography. For Ph.D. candidates. May be repeated to a maximum of nine credits. Prereq: Consent of instructor. *Staff.*

772 *Special Research Problems in Geography.* (3)

Open to doctoral candidates who have the necessary training and ability to conduct research on a selected problem. Prereq: Approval of the director of graduate studies. May be repeated for a total of 12 credits. *Staff.*

775 *Spatial Models in Geography.* (3)

The spatial aspects of models in geographic research are examined with reference to economic, urban geography, settlement pattern, industrial location, and agricultural activity. May be repeated for a total of nine credits. *Blome.*

GEOLOGY

FACULTY

William H. Dennen, chairman

Professors

William Randall Brown	Ph.D., Cornell, 1942
William H. Dennen	Ph.D., M.I.T., 1949
William C. MacQuown	Ph.D., Cornell, 1943
Vincent E. Nelson	Ph.D., Chicago, 1942

Associate Professors

Irving Sanborn Fisher	Ph.D., Harvard, 1952
Erwin John Lyons	Ph.D., Wisconsin, 1947
Thomas Glasdir Roberts	Ph.D., Columbia, 1949

Assistant Professors

Richard Irven Barnhisel (co-appointed with Agronomy)	Ph.D., Va. Polytechnic, 1964
William Howard Blackburn	Ph.D., M.I.T., 1967

Lois Jeannette Campbell	Ph.D., Ohio State, 1955
Bruce Robert Moore	Ph.D., Melbourne, 1967
John Thrailkill	Ph.D., Princeton, 1965

The science of geology embraces the methods of inquiry by which we seek to understand the earth. These include investigations of the chemical and physical properties of earth materials; the nature and effect of earth processes; the historical interpretations of the rock record; and the history of life on the earth. Geological studies provide the information which is necessary for the discovery and exploitation of mineral resources; effective utilization of the atmosphere, oceans and land areas; and the successful planning and construction of modern engineering structures.

Geological employers include: oil, gas and mineral-producing industries; federal and state geological surveys; college and university geology departments; secondary schools as earth science teachers; museums; research institutes; engineering firms.

Departmental Requirements

For University and college requirements see page 6.

General Studies Requirements: Complete studies in areas I, II, III, IV, V, and one sequence in area VI, VII, or VIII.

Pre-Major Requirements: GLY 140, 142 or equivalent; CHE 110, 111, 112, 113; MA 113, 114; PHY 211, 213 or 231, 232, 241, 242. In certain fields of specialization the second semester of physics may be waived for another supporting science with departmental approval.

Major Requirements: Core subjects to be taken by all majors are GLY 224, 226, 424, 426, 460, 461, 570. Highly recommended courses normally taken by all majors are: GLY 401, 420, 450. Two elective courses in geology or a supporting science numbered in the 400 or 500 series.

Course Descriptions

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 Colorado in the field. The party works along with that in GLY 424. Prereq: Elementary Geology. Special fee.

140 *General Physical Geology.* (4)
A first course in the principles of physical geology, including topics from mineralogy, geochemistry, and geophysics. High school chemistry recommended. Lecture, three hours; lab, two hours. *Staff.*

142 *General Historical Geology.* (4)
A first course in historical geology, including a study of the development of earth's fundamental features and a review of the history of life. Lecture, three hours; laboratory, two hours per week. Prereq: GLY 140. *Staff.*

202 *Elementary Geology for Engineers.* (2)
The practical application of geology to engineering. Two lectures per week. Prereq: GLY 240. *Lyons.*

204 *Laboratory in Engineering Geology.* (1)
Prereq: GLY 240. *Lyons.*

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.

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.

224 *Field Geology I.* (2)
Introduction to field methods and use of instruments with application to topographic and geologic mapping and measurements of geologic sections. Prereq: GLY 142. *Staff.*

226 *Field Geology II.* (2)
Areal geologic mapping and field problems involving stratigraphy, sedimentation, and structure in local areas. Six hours' field work per week. Prereq: GLY 224. *Staff.*

240 *Elementary Geology for Engineers.* (4)
An introduction to the principles of geology. Lecture, three hours. One three-hour laboratory. *Lyons.*

300 *Gems and Gem Materials.* (3)
Recognition, distribution, geologic occurrence, and origin of gems and gem materials. Lecture, two hours; lab, two hours. *Lyons.*

395 *Independent Work in Geology.* (3)
Directed work in independent investigations. Thesis required. May be repeated to a maximum of six credits. Prereq: Major with standing of 3.0 in department. *Staff.*

401 *Paleontology.* (3)
A study of fossil invertebrates, their nature, classification, and geological distribution. Lecture, two hours; lab, two hours. Prereq: GLY 142. *Campbell.*

420 *Elementary Structural Geology.* (3)
An introduction to earth structures. Advanced geologic map interpretation. Prereq: GLY 142; PHY 213. *Nelson.*

424 *Field Work in Regional Geology.* (7)
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. Special fee. *Staff.*

426 *Field Work in Regional Geology—Report.* (1)
Staff.

445 *Advanced Principles of Geology I.* (4)
A general study of geologic processes, designed primarily to meet the needs of advanced students with backgrounds in other fields. *Staff.*

446 *Advanced Principles of Geology II.* (4)
A general study of earth history and the history of life on the earth, designed primarily to meet the needs of advanced students with backgrounds other than geologic. Lecture, three hours per week; laboratory, two hours per week. Prereq: GLY 445 or equivalent. *Staff.*

450 *Stratigraphy and Sedimentation.* (3) II
Basic principles and concepts of stratigraphy and sedimentation. Lithologic correlation and the interpretation of geologic history and paleogeography. Field and laboratory analysis of sedimentary rocks including megascopic and microscopic methods. Two class hours per week; lab, two hours per week. Prereq: GLY 142. *MacQuown.*

460 *Elementary Mineralogy.* (4) I
A study of fundamentals of mineralogy including crystallography, occurrence and identification of common and abundant minerals. Two class hours per week; lab, four hours per week. Prereq: CHE 112 or concurrent. *Fisher.*

461 *Elementary Petrology.* (3)
The elementary study of igneous, sedimentary and metamorphic rocks. Prereq: GLY 460. *Fisher.*

501 *Stratigraphic Paleontology.* (3)
The use of fossils and fossil assemblages for zonation and correlation; and the problems arising from the application of this method as illustrated by specific examples. Practice in the analysis of sample invertebrate faunas for purposes of correlation. Prereq: GLY 401, 450. Lecture, two hours per week; lab, two hours. *Campbell.*

510 *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 142, 460. *Brown.*

511 *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. *Roberts.*

520 *Advanced Field Geology.* (2)
A field course in geologic mapping involving problems of local structure and stratigraphy. Six hours a week in the field. Prereq: GLY 226. *Staff.*

530 *Low Temperature Geochemistry.* (3)
An introduction to the geochemistry of sediment deposition and diagenesis, weathering, and other topics in aqueous geochemistry. Prereq: GLY 461, MA 114, or consent of instructor. *Thrailkill.*

531 *Geochemistry of Igneous and Metamorphic Processes.* (3)
A discussion of the processes and principles of chemistry as they apply to the mineralogic and petrologic problems associated with the formation of igneous and metamorphic rocks. Prereq: GLY 530. *Blackburn.*

552 *Sedimentary Petrology.* (3)
Detailed description of sedimentary rock types, their origin and classification. Megascopic and microscopic examination of textures and structures of sediments. Mineralogy of sediments and the significance of sedimentary environments. Lecture, two hours; laboratory, two hours. Prereq: GLY 450. *Moore.*

560 *Optical Mineralogy.* (3)
A study of the optical properties of minerals by means of the petrographic microscope. Prereq: GLY 460, PHY 213. *Brown.*

562 *X-Ray Mineralogy.* (3)
The use of x-ray diffraction and spectroscopy in the qualitative and quantitative analysis of minerals and rocks. Emphasis will be placed upon the rock-forming minerals. One class hour per week. Laboratory, four hours per week. Prereq: GLY 461, PHY 213. *Fisher.*

570 *Geology Seminar.* (1)
Reading and discussion of classical and contemporary books and papers having relevance to geology, varying in scope and content to meet the special needs and interest of the participants. May be repeated to a maximum of four credits. Prereq: Geology major with junior standing. *Staff.*

612 *Advanced Economic Geology.* (3)
Lecture, two hours; lab, two hours. *Nelson.*

620 *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 420. *Nelson.*

650 *Sedimentology.* (3)
The classification and interpretation of sedimentary rocks, and study of sedimentary processes. Prereq: GLY 450. *Roberts.*

652 *Stratigraphy I.* (3)
Regional stratigraphy with emphasis on field relationships in Kentucky and stratigraphic equivalence of Paleozoic rocks in North America. Lecture, two hours; laboratory, two hours. Prereq: GLY 450. *MacQuown.*

653 *Stratigraphy II.* (3)
Regional stratigraphy with emphasis on world-wide stratigraphic equivalence and Mesozoic and Cenozoic rocks. Lecture, two hours; laboratory, two hours. Prereq: GLY 450. *MacQuown.*

655 *Hydrogeology.* (3)
A study of hydrologic processes and systems in geology, including topics in fluvial geomorphology and groundwater flow. Prereq: GLY 552 or consent of instructor. *Thrailkill.*

662 *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; laboratory, four hours. Prereq: GLY 460, 560 and consent of instructor. *Brown.*

664 *Petrology of Metamorphic Rocks.* (3) I
The conditions of metamorphism. The occurrence, classification and origin of metamorphic rocks. Metamorphic differentiation and equilibrium relations in metamorphic rocks will be discussed. Two class hours per week; laboratory, two hours. Prereq: GLY 460, 560 and consent of instructor. *Blackburn.*

710 *Mineral Exploration.* (1)
Techniques and applications of mineral exploration. Oreguides, sampling patterns and techniques, evaluation of data and related topics. One class hour per week. Prereq: GLY 612. *Dennen.*

711 *Evaluation of Mineral Properties.* (1)
Procedures in property evaluation. Tonnage and grade calculations, political and economic factors, and related topics. One class hour per week. Prereq: GLY 612. *Dennen.*

720 *Mesoscopic Structures.* (3)
The analysis of structures of mesoscopic scale in deformed rocks, particularly metamorphic tectonites, and their extrapolation to larger structures; also the study of certain mesoscopic features in igneous rocks and features in sediments useful in basin analysis and the determination of chronologic sequence and environment of deposition. Two class hours, two laboratory hours per week. Prereq: GLY 552 and 620 or consent of instructor. *Brown.*

730 *Graduate Geology Seminar.* (1)
Discussion of current research or advanced topics in geology and related fields. Subject matter will vary from term to term. May be repeated to a maximum of six credits. Prereq: Geology major with graduate standing. *Staff.*

732 *Advanced Low-Temperature Geochemistry.* (3)
Topics in low-temperature and aqueous geochemistry. Seminar involving review of current literature and laboratory investigation of significant geochemical problems. Two class hours and two laboratory hours per week. Prereq: CHE 442, GLY 530 and 650, or 652, or consent of instructor. *Thrailkill.*

733 *Petrologic Geochemistry.* (3)
Application of thermodynamics to geological problems, melt and aqueous equilibria, phase transitions and the geochemical differentiation of igneous and metamorphic rock systems. Prereq: CHE 442, GLY 530, 531 and either GLY 662 or 664, or consent of instructor. *Blackburn.*

760 *Petrology Seminar.* (2)
Review of classic works and recent developments in important and controversial aspects of igneous and metamorphic petrology. Prereq: GLY 662, 664 or consent of instructor. *Blackburn.*

768 *Residence Credit for Master's Degree.* (0)
May be repeated once. (1-6 credits equivalence.) *Staff.*

782 *Individual Work in Geology.* (3)
Problems involving independent laboratory and/or library study conforming to the student's special interest under the direction of an appropriate staff member having proficiency in the area selected. Prereq: Geology major with graduate standing. May be repeated for a total of 9 credits. *Staff.*

GERMANIC & CLASSICAL LANGUAGES & LITERATURES

FACULTY

Wayne Wonderley, chairman

Professors

Wayne Wonderley	Ph.D., Wisconsin, 1941
Paul Stapf	Ph.D., Berlin, 1937
John Wesley Thomas	Ph.D., Penn State, 1941

Lawrence S. Thompson	Ph.D., North Carolina, 1938
Paul K. Whitaker	Ph.D., Ohio State, 1942
Visiting Professor	
Wilbert L. Carr	LL.D., Drake, 1937
Assoicate Professors	
Norman H. Binger	Ph.D., Ohio State, 1942
Bernd Kratz	Ph.D., Marburg, 1963
Hubert M. Martin, Jr.	Ph.D., Johns Hopkins, 1958
Assistant Professor	
Robert F. Bell	Ph.D., Illinois, 1969
Instructor	
Edgar B. Warren, Jr.	B.S., North Carolina, 1955
Lecturers	
Ingeborg F. Riester	M.A., Kentucky, 1952
Katharine H. Shaw	M.A., North Carolina, 1961

The Department of Germanic and Classical Languages and Literatures embraces Germanic languages (including Scandinavian), and Greek and Latin. Undergraduate students are offered the choice of specialized curricula leading to the A.B. degree in these areas. The Department also offers advanced work in the literature and philology of each of the languages, leading to the M.A. degree in Classics and to the Ph.D. degree in German.

As a branch of the liberal arts curriculum, one of the fundamental aims of language study is to broaden and deepen our acquaintance with the world about us by presenting new aspects of its culture, ancient and modern, and a more intimate knowledge of its peoples. In addition, the Department provides training for:

1. prospective high school and college teachers of German, Greek, or Latin;
2. students who are planning to pursue graduate work or research in Classical languages, Germanic languages, history, archaeology, medieval studies, theology, philosophy, or linguistics;
3. students who are interested in entering the diplomatic and various other Government services where knowledge of foreign languages is required; and
4. students who wish to obtain a general liberal education without preparing for any specific vocation.

NOTE—It is inadvisable for the 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 units should register for the second semester of the intermediate course.

Departmental Requirements

For University and college requirements see page 6.

Major for the Bachelor of Arts degree with a major in GERMAN

Lower Division:

A. Two semesters, Freshman Composition

B. General Studies Requirements: Same as College requirements.

Upper Division:

A. *Pre-major requirements:*
   1. GER 121, 122, 221, 222
   2. A second foreign language (French, Greek, Italian, Latin, Russian, Scandinavian, Spanish, or comparable language), 6-8 credits.

B. *Major requirements:*
   1. GER 205 and 206, 6 credits
   2. A selection of four courses from the group GER 300, 302, 304, 306, 308, 310, 312: 12 credits
   3. GER 536, 538, and 553*: 9 credits
   4. One additional GER 500-level course: 3 credits

C. *Field of Concentration:* Fourteen additional non-freshman credits are to be selected with the help and approval of the adviser. The credits, complementing the major, are outside of, but related to the major in German. Normally, they should include cognate study in appropriate areas of Anthropology, Art-History, English, French, Greek, Geography, History, Latin, Music, Philosophy, Spanish and Italian, Linguistics, Slavic and Oriental Languages, and Theatre Arts.

Certification Requirements for a Major in German:

Lower Division:

A. Two semesters, Freshman Composition

B. Two semesters, physical education

C. BIO 110 and PSY 104 or 210

D. General Studies Requirements: Areas II, III, IV, V, VI and VII

E. One speech course (or proficiency in speech demonstrated)

Major Requirements:

30 credits (including Basic and Intermediate German). Recommended advanced courses include GER 205, 206, 536, 538 and 553. GER 553 preferably should precede student teaching.

Minor Requirements:

24 credits (including Basic and Intermediate Ger-

* A non-teaching major may substitute another GER 500-level course for GER 553.

man). Recommended courses include GER 205, 206, and 538.

Other requirements include (consult College of Education): EDF 101 or 301 (101 if program is begun in sophomore year), EDP 202, EDC 344, 564 and student teaching.

Major for the Bachelor of Arts degree with a major in LATIN or GREEK.

Lower Division:

A. Two semesters, Freshman Composition

B. General Studies Requirements: Same as College requirements

Upper Division:

A. *Pre-Major requirements:* CLA 101, 102, 150, 151

B. *Major requirements* (for students with no high school Latin or Greek. All others consult with Department for proper placement)

1. Latin Major: CLA 203, 204, 209, 210, 395, 396, 509, 510, and two courses chosen from the following: CLA 205, 206, 217, 218, 511, 512, 514, 515, 580: total of 26 credits.
2. Greek Major: CLA 252, 253, 254, 255, 395, 396, 556, 559, and two courses chosen from the following: CLA 364, 365, 561, 562, 580: total of 26 credits.

C. *Field of Concentration:* Fourteen additional non-freshman credits are to be selected with the help and approval of the adviser. These credits, complementing the major, are outside of, but related to the major. A reading knowledge of French or German is essential for any student who contemplates graduate work in Classical Language; therefore, all Latin and Greek majors are strongly urged to take some of their field of concentration courses in these languages. Also recommended are: ENG 221, 222, 561, 562, 563, 568, 571; A-H 300; HIS 229, 230, 573, 574, 576, 577; PHI 500, 502.

Certification Requirements for a Major in Latin

Lower Division:

A. Two semesters, Freshman Composition

B. Two semesters, physical education

C. BIO 110 and PSY 104 or 210

D. General Studies Requirements: Areas II, III, IV, V, VI and VII

E. One speech course (or proficiency in speech demonstrated)

Major Requirements: 30 credits in Latin

Minor Requirements: 18 credits in Latin

Other requirements include EDF 101 or 301 (101 if program is begun in sophomore year), EDP 202, EDC 344, 564 and student teaching. The student should consult the College of Education for additional requirements.

Course Descriptions

CLASSICS

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: CLA 101 or one year of high school Latin.

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: CLA 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: CLA 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: Three years of high school Latin or three semesters of college Latin or 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: CLA 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: Senior standing.

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: CLA 150 or consent of instructor.

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: CLA 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: CLA 151 or consent of instructor.

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

364,365 *Greek Composition.* (1 ea.) I, II, S
The writing of Greek of moderate difficulty. Prereq: CLA 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: CLA 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: CLA 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.

CLASSICS 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.

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.

235 *Mythology I.* (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.

236 *Mythology II.* (2)
Germanic and Celtic myths studied from the standpoint of their meaning for mediaeval and modern literature and history. Comparative viewpoint emphasized. Wide reading in source material in translation.

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.

524 *Greek Literature in Translation.* (3) I
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.

525 *Latin Literature in Translation.* (3) II
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 Latin necessary.

580 *Independent Work in Classics.* (3) I, II, S
Courses to meet the needs of the student will be arranged in various areas. Prereq: Major standing of 3.0 in department. May be repeated to a maximum of 12 credits.

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. (1-6 credits equivalence.)

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: CLA 530 or the equivalent.

GERMAN

021 *German for Reading Knowledge.* (0) I, II, S
This course is designed to meet the needs of upper division and graduate students who are preparing for the graduate reading examination, who need a reading knowledge of German in their minor, or who require a review of German grammar. *Staff.*

121 *Basic German.* (4) I, II, S
Fundamentals of German with development of the four basic skills. *Staff.*

122 *Basic German.* (4) I, II, S
Continuation of GER 121. Prereq: GER 121, or one year high school German, or equivalent. *Staff.*

123 *Elementary German.* (3)
The essentials of grammar with practice in reading and writing German.

124 *Elementary German.* (3)
Continuation of GER 123. Prereq: GER 123 or one year of high school German.

201 *Technical German.* (3)
Fundamentals and practice in reading scientific and technical German. Designed primarily for students with interest in science. This course is an alternate to GER 221. Prereq: GER 122 or two years high school German, or equivalent.

202 *Technical German.* (3)
Continuation of German 201. Prereq: GER 201, three years high school German, or equivalent.

205 *Oral German.* (3)
Emphasis upon increasing the student's command of spoken German. Required for German majors. Prereq: GER 122 or equivalent.

206 *German Composition.* (3)
Emphasis upon increasing the student's command of written German. Required for German majors. Prereq: GER 122 or equivalent.

221 *Intermediate German.* (3) I, II, S
Review and furthering of oral and reading skills based upon cultural and literary materials. Prereq: GER 122 or two years high school German, or equivalent. *Staff.*

222 *Intermediate German.* (3) I, II, S
Continuation of GER 221. Prereq: GER 221 or three years high school German, or equivalent. *Staff.*

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.*

300 *German Literature to the Reformation.* (3)
An introduction to German literature from the earliest times to the period of the Reformation with selections in modern German translation as required. Prereq: GER 222 or equivalent.

302 *German Literature from Baroque to Enlightenment.* (3)
An introduction to German literature highlighting the baroque period and the Enlightenment. Prereq: GER 222 or equivalent.

304 *Classical German Literature.* (3)
An introduction to the classic period in German literature with some attention to the *Sturm und Drang,* but emphasizing Schiller and Goethe. Prereq: GER 222 or equivalent.

306 *German 19th Century Literature.* (3)
An introduction to German Literature of Romanticism and Realism of the 19th Century. Prereq: GER 222 or equivalent.

308 *Modern German Literature.* (3)
An introduction to German literature of the 20th Century. Prereq: GER 222 or equivalent.

310 *The German Lyric.* (3)
An introduction to German lyric poetry. Prereq: GER 222 or equivalent.

312 *German Culture and Civilization.* (3)
An introduction to German civilization. Prereq: GER 222 or equivalent.

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.

412 *Modern German Literature in Translation.* (3)
A study in depth of the author's artistic development and of the structure and content of their major works. Authors treated are novelists Kafka, Hesse, and Mann or dramatists Brecht, Frisch, and Durrenmatt. The course is conducted in English and may be repeated for a total of six hours.

500 *Swedish.* (3)
Rapid coverage of morphology, phonology and syntax of modern Swedish and reading of selected literary texts. Prereq: Reading knowledge of German; consent of instructor.

501 *Swedish Literature from Bellman to the Present.* (3)
Readings in Swedish literature of the period. Prereq: GER 500.

504 *Danish.* (3)
Rapid coverage of morphology, phonology, and syntax of modern Danish and reading of selected literary texts. Prereq: Reading knowledge of German; consent of instructor.

505 *Danish Literature from Holberg to the Present.* (3)
Readings in Danish literature of the period. Prereq: GER 504 or equivalent.

520 *Germanic Proseminar.* (3)
The proseminar is designed primarily to introduce graduate or advanced undergraduate students into the methods of scholarly research based upon the study of a specific area of Germanic language or literature. Topic will vary, and will be announced. Representative components which may be treated in this course are Lessing, Schiller, Goethe, Buchner, Kleist, Grillparzer, Hebbel, Hauptmann, 18th (19th, 20th) century prose narrative, 18th (19th, 20th) century drama, semantics, and expressionism. The course may be repeated for a total of twelve hours. Prereq: GER 205-206 and 9 additional hours of German beyond GER 222.

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 *Introduction to the History 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 semesters of German. ***Binger.***

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. *Binger.*

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.

539 *Structure of the German Language.* (3) I, II
An introduction to the phonology, morphology and syntax of modern German by means of concepts and methods of linguistic science. Prereq: Six semesters of German or consent of instructor.

553 *The Teaching of German.* (3)
The course is designed for teachers and prospective teachers of the language. Theory and practice, with emphasis upon modern methodology and practical problems encountered by the teacher of beginning German. Required of graduate students in German. Prereq: GER 222, 205, and 206 or equivalent.

621 *Introduction to German Bibliographical Studies.* (2) I, II
An introduction to bibliography, original research, and textual criticism. Required of graduate students in German. Prereq: Six semesters of German.

622 *Theories of Literature in German.* (2)
An introduction to theories of literature with emphasis upon those of Germany and continental Europe.

623 *Medieval German Literature.* (3)
A survey of the literature of the Middle High German period, with special attention to one major genre or author, and involving extensive readings in the texts of the period. Prereq: GER 537.

624 *German Literature of the 16th and 17th Centuries.* (3)
A survey of the major literary documents of the German Reformation, Renaissance, and Baroque, with special attention given to one period, and involving extensive readings in the texts of the period.

625 *German Literature of the 18th Century.* (3) I, II
A survey of the literary themes and forms of the *Aufklärung* and *Sturm und Drang*, with special emphasis on selected aspects of German letters of the period 1700-1775.

626 *The Age of Goethe (1770-1830).* (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 1770-1830.

627 *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.

628 *The German Novelle.* (3) I, II
This course traces the development of the German Novelle from Goethe to Thomas Mann. Prereq: Six semesters of German.

630,631 *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.

635 *Gothic.* (3)
Readings; phonology and morphology of Gothic. Prereq: Reading knowledge of German and GER 536, or consent of instructor. *Kratz.*

636 *Old High German.* (3)
Readings; phonology, morphology, and dialects of Old High German. Prereq: Reading knowledge of German and GER 536, or consent of instructor. *Kratz.*

640 *Studies in Germanic Language and Literature.* (3)
Exploration in some depth of a theme, genre, author, or period. Topic will vary, and will be announced. Representative components which may be treated are earlier German literature, medieval epic, medieval German lyric, early New High German language and literature, late romanticism, idealism, realism, naturalism, impressionism, expressionism, symbolism, textual criticism, historical linguistics, structure of modern German, dialectology. The course may be repeated for a total of twelve hours with the approval of the departmental director of graduate studies.

768 *Residence Credit for Master's Degree.* (0)
May be repeated once. (1-6 credits equivalence.) *Staff.*

769 *Residence Credit for Doctor's Degree.* (0)
May be repeated indefinitely. (1-12 credits equivalence.) *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.

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 to a maximum of 12 credits.

790 *Germanic Seminar.* (4)
Topic to be selected from a Germanic literary or linguistic area. The seminar may be repeated for a total of twelve hours with the approval of the departmental director of graduate studies.

SCANDINAVIAN
(Offered as required)

610 *Old Icelandic.* (3) I
Rapid coverage of morphology, phonology and syntax of Old Icelandic, with some attention to linguistic affinities within the Indo-European and Germanic groups of languages. Prereq: Reading knowledge of German; consent of instructor. Alternate years. *Thompson.*

611 *Old Icelandic.* (3) II
Reading of selected saga texts and Elder Edda, with attention to the development of Icelandic literature from the tenth century to the present. Prereq: GER 610. Alternate years. *Thompson.*

HISTORY

FACULTY

Carl B. Cone, chairman

Professors

Carl B. Cone	Ph.D., Iowa, 1940
Owen S. Connelly, Jr.	Ph.D., North Carolina, 1960
Holman Hamilton	Ph.D., Kentucky, 1954
James Franklin Hopkins	Ph.D., Duke, 1949
Albert Dennis Kirwan	Ph.D., Duke, 1947
Richard Lowitt	Ph.D., Columbia, 1950
Robert Douglas Warth	Ph.D., Chicago, 1949

Associate Professors

William J. Chambliss	Ph.D., Michigan, 1963
Will D. Gilliam, Jr.	Ph.D., Indiana, 1941
Mary W. Hargreaves	Ph.D., Radcliffe College, 1951
Robert Gerhard Lunde	M.A., Chicago, 1928
Humbert S. Nelli	Ph.D., Chicago, 1965
Gerard E. Silberstein	Ph.D., Harvard, 1962
Rhea Alec Taylor	Ph.D., Chicago, 1948

Assistant Professors

Jerry M. Calton	M.A., Washington, 1966
Steven A. Channing	Ph.D., North Carolina, 1968
E. Randolph Daniel	Ph.D., Virginia, 1966
Spencer Di Scala	Ph.D., Columbia, 1969
George C. Herring, Jr.	Ph.D., Virginia, 1965
Robert M. Ireland	Ph.D., Nebraska, 1967
Joseph A. Kessler	Ph.D., California, 1967
Jerry W. Knudson	Ph.D., Virginia, 1962
Donald G. Nugent	Ph.D., Iowa, 1965
John Scarborough	Ph.D., Illinois, 1967
Glen W. Swanson	M.A., Indiana, 1966
Joseph Thompson	Ph.D., Stanford, 1966

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.

Departmental Requirements

For University and college requirements see page 6.

General Studies: Same as college, except that French or German is strongly recommended in Area IV.

Pre-Major: HIS 104-105 and 108-109.

Major: A minimum of 21 credits in History courses above the 100 level, of which at least half must be taken in 500 courses, plus the Junior Seminar (316). Credits in the major must be counted toward the 40 credits in the Upper Level Field of Concentration.

Distribution of courses within the major will be determined by the adviser and student with care being taken to avoid undue concentration of courses in only one field of History.

Field of Concentration Requirements: See page 66.

Course Descriptions

*104 A *History of Europe to 1713.* (3)
A survey of the growth of Europe from the 12th Century Renaissance through the Age of Louis XIV, preceded by a brief consideration of the Graeco-Roman heritage.

*105 A *History of Europe, 1713 to the Present.* (3)
A survey of European developments from the Age of the Enlightenment to the present. A continuation of HIS 104.

*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.

203 *History of the British People Since the Restoration.* (3) I, II
From the Stuart period to the present. A continuation of HIS 202.

208 *Colonial Latin America.* (3)
A survey of the origins and development of Latin American Colonies and their struggle for independence.

209 *Latin American Republics.* (3)
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.

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.

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.

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.

247 *The Middle East from the Rise of Islam to the French Revolution.* (3)
A survey of Muslim civilization in Asia, Africa, and Europe with particular attention to the roles of Arab, Turkic, Mongol, Persian, and European groups. Lecture, 3 hours. Prereq: HIS 104, 105, or consent of instructor.

248 *The Middle East since the French Revolution.* (3)
A continuation of HIS 247. A survey of major developments in the Middle East with emphasis on the response to nationalism and change, international rivalry in the area, collapse of the Ottoman Empire, and emergence of modern political units. Lecture, 3 hours. Prereq: HIS 105 or consent of instructor.

260 *The Negro in American History.* (3)
A study of the Negro experience in America, involving an examination of the African heritage, slavery, the rise of segregation and the ghetto, and aspects of contemporary race relations. Prereq: HIS 108-109 or equivalent.

270 *Early Middle Ages.* (3)
A survey of European history from the Fourth through the Twelfth Centuries.

271 *Later Middle Ages.* (3)
A survey of European history from the Thirteenth through the Fifteenth Centuries.

285 *History of Russia to 1825.* (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.

286 *History of Russia Since 1825.* (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.

295 *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 equiv.

296 *The Far East since 1850.* (3)
A continuation of HIS 295. 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 equiv.

---

* This course is prerequisite to a significant number of courses in this and related areas of study.

316 *Junior Seminar: Historical Method and Literature.* (3)
An introduction to research and writing in the field of History followed by study of the bibliography and literature of selected fields of history, with attention to problems of historiography, to schools of historical thought, and philosophies of history. To be taken during the first semester of the junior year and required of all History majors enrolled in the College of Arts and Sciences.

350 *Topics in History.* (3)
Readings, research, and discussions in seminar format to illuminate problems of historical and contemporary significance, in areas of special faculty competence. May be repeated once. One hour conference per week. Prereq: Standing of 3.0 in history courses; the history survey course appropriate to the topic for the semester; and consent of instructor.

395 *Independent Work.* (1-3)
Under special conditions selected students may investigate problems with weekly reports to the instructor. Prereq: Major and standing of 3.0 in the department. May be repeated to a maximum of six credits.

490 *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: HIS 104 and 105.

I. EUROPEAN HISTORY

204 *Introduction to the East European World.* (3)
A survey of the geographic, ethnic, political, socio-economic, religious, cultural, and ideological factors which form the historical experiences of the East European peoples. Prereq: HIS 104-105.

500 *Pre-Classical and Classical Greece.* (3)
A history of Greece from earliest times to the death of Alexander the Great.

501 *Fourth Century Greece and the Hellenistic World.* (3)
A history of Greece and the Greek world from the death of Alexander to the Roman conquest of Egypt. Prereq: HIS 500 or consent of instructor.

502 *A History of the Roman Republic.* (3)
A history of Rome from earliest times to the fall of the Republic. Emphasis will be placed upon the territorial expansion of Rome and the effects of this expansion on republican institutions.

503 *A History of the Roman Empire.* (3)
A study of the foundation of the Roman Empire, the development of Imperial institutions, social and intellectual developments of the Graeco-Roman world, the decline of Rome and the barbarian invasions of the fourth century. Prereq: HIS 502 or consent of instructor.

510 *Medieval Civilization to 1100.* (3)
The formation of a new civilization—our own—in Western Europe between the decline of the Roman Empire and the First Crusade is the central stress in this study of the cultural interests and achievements of the period 300-1100. Prereq: HIS 270 or consent of instructor.

511 *Medieval Civilization Since 1100.* (3)
Medieval culture at its height (1100-1350) is considered as the first notable achievement of European Civilization. Major topics are: Latin and vernacular literatures, the fine arts, philosophy, and science.

512 *Medieval Institutions to 1049.* (3)
A survey of medieval political, social, economic and ecclesiastical institutions from the fourth century to the papal reform movement. Lecture, three hours per week. Prereq: HIS 270, 271. (Alternating in the Fall Semester with HIS 510.)

513 *Medieval Institutions Since 1049.* (3)
A survey of medieval political, social, economic and ecclesiastical institutions from the beginning of the papal reform to the middle of the Fifteenth Century. Prereq: HIS 270, 271.

519 *The Era of the Renaissance.* (3)
A historical description and analysis of the development of political, economic, social, religious, intellectual and cultural institutions of Europe from Petrarch to Erasmus. Prereq: HIS 104.

520 *The Era of the Reformation.* (3)
An historical description and analysis of the development of the religious, intellectual, cultural, political, economic and social institutions of Europe from Luther to the Treaty of Westphalia. Prereq: HIS 104.

521 *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 despotism and the Age of Enlightment. Prereq: HIS 104 or equivalent.

523 *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.

524 *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.

525 *Europe since 1919.* (3)
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.

528 *Cultural and Intellectual History of Europe from the Renaissance to the French Revolution.* (3)
An interpretive analysis of the growth of ideas in Europe within their cultural setting. Emphasis upon the 17th and 18th Centuries.

530 *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.

531 *The French and European Revolutions, 1760-1795.* (3)
The origins, development, institutions, consequences, and interactions of the French and other European revolutions, counter-revolutions and wars and their impact upon France, Europe and the modern world. Prereq: HIS 105 or equivalent.

532 *Napoleonic Europe, 1796-1815.* (3)
A study of France and her European neighbors during the epoch of Napoleon. Political, institutional, social, economic, cultural, religious and international conditions, relationships and changes are analyzed within the historical context of the period. Lecture, three hours per week. Prereq: HIS 105 or equivalent. (Spring Semester of alternate years.)

534 *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 286 or graduate status or consent of instructor.

535 *Russian Revolutions and the Soviet System II.* (3)
A continuation of 534 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 286 or graduate status or consent of instructor.

536 *Intellectual and Cultural History of Russia and East Europe to 1890.* (3)
A study of the main intellectual currents with special emphasis on ideological confrontations between East and West Europe. Prereq: HIS 204 and 286.

537 *Intellectual and Cultural History of Russia and East Europe from 1890 to the Present.* (3)
Continuation of HIS 536. Prereq: HIS 204 and 286.

538 *The East European World from 1890-1920.* (3)
An intensive analysis of the problems which favored or frustrated (a) the modernization and national self-assertion of the East European peoples and (b) their consolidation into the Russian-led "Second World." Prereq: HIS 204.

539 *The East European World from 1920 to the Present.* (3)
Continuation of HIS 538.

540 *History of Modern France to* 1815. (3)
The course of French history to 1815, including the development of French political, administrative, legal, social, economic and cultural achievements and institutions and their contribution to the modern world. Lecture, three hours per week. Prereq: Permission of instructor. (Fall Semester of alternate years.)

541 *History of Modern France Since 1815.* (3)
Continuation of 540.

542 *German History 1815-1914.* (3)
This course is designed as a study of domestic development in Germany. While political history is emphasized due consideration is given to social, economic and intellectual trends. Prereq: HIS 104, 105 or consent of instructor.

543 *German History Since 1914.* (3)
Examines the fall of Imperial Germany, the Weimar Republic, Hitlerian period, and the post 1945 era. The course is primarily concerned with internal affairs, but attention is directed to the international scene when crucial. Prereq: HIS 104, 105 or consent of instructor.

544 A *History of Italy 1789-1890.* (3) I
An examination of the developments leading to Italian unification and an analysis of the problems faced during the united state's first twenty years. Prereq: HIS 104-105.

545 A *History of Italy, 1890 to the Present.* (3) II
A continuation of 544, this course will deal with political, economic, social and cultural developments in Italy since 1890, including an examination of Fascism and post-World War II Italy. Prereq: HIS 104-105.

547 *The Byzantine Empire.* (3)
A study of Byzantine history from the time of Constantine the Great to the capture of Constantinople by the Turks in 1453. Prereq: HIS 104 and 247, or consent of instructor.

548 *The Ottoman Empire.* (3)
The rise and expansion of the Ottoman Empire, its relations with the European states, its position in the Near East, and the Turkish state in the 20th century. Prereq: HIS 104, 105, and 247, 248, or consent of instructor.

549 *Independent Work.* (1-3)
Under special conditions selected students may investigate problems, with weekly reports to the instructor. Prereq: Major and standing of 3.0 in the department. May be repeated to a maximum of 6 credits.

II. ENGLAND AND THE BRITISH EMPIRE

550 *English Constitutional History to 1603.* (3) I
A study of the backgrounds of the English constitution. Prereq: HIS 202 or equivalent.

551 *English Constitutional History Since 1603.* (3)
A continuation of HIS 550. The constitutional struggle between the Stuart kings and Parliament; triumph of constitutional monarchy; rise of the Cabinet; effect of democracy in recent times. Prereq: HIS 203 or equivalent.

552 *British Social History During the Tudor Period, 1485-1603.* (3)
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.

554 *British History* 1815-1901. (3)
A detailed study of Britain's political, social, diplomatic and industrial development in the nineteenth century.

555 *British History Since* 1901. (3)
A detailed study of Britain in the twentieth century with special consideration of Britain in World War I and World War II, and her position in the contemporary world.

556 *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.

557 *The British Empire and Commonwealth.* (3) II
A continuation of HIS 556. Great Britain and the growth of the Dominions and the Commonwealth since 1860. Prereq: HIS 202 and 203.

558 *History of Canada.* (3)
A brief survey of Canada under the French; the development under British control; evolution of the Dominion; relation with the United States and British Commonwealth of Nations. Prereq: One year of college history.

III. AMERICAN HISTORY

560 *Colonial America to 1748.* (3)
A study of the origins and development of the English colonies; their relations with England and European states. Emphasis on imperial policies and colonial autonomy. Prereq: One year of American or European History.

561 *Colonial America and Independence, 1748-1789.* (3)
This course deals with England's triumph over France in the New World, the drastic change in her colonial policy and the rise of opposition to it, the war for American independence, and the establishment of the United States under the Constitution. Prereq: One year of American or European history.

562 *The New Nation, 1789-1828.* (3)
An intensive study of the most significant men, events, and trends in the first generation of American National growth. Prereq: HIS 108.

563 *Expansion and Conflict, 1828-1865.* (3)
A study of the territorial expansion of the United States and the growth of sectional controversy over expansion and slavery, culminating in the Civil War. Prereq: HIS 108, 109.

564 *Emergence of Modern America, 1865 to 1912.* (3)
A study of the transformation of America from a rural society "isolated" from world affairs into a highly industrialized power. Prereq: HIS 108 and 109 or equivalent.

565 *Recent History of the United States, 1912 to 1939.* (3)
An intensive study of the problems of maturing America from the election of 1912, through World War I, depression, and the New Deal to our involvement in World War II. Prereq: One year of American History.

566 *Recent History of the United States Since 1939.* (3)
An intensive study of the development and maturation of the United States from World War II to the present, synthesizing military, diplomatic, social, economic, political and cultural changes. Prereq: One year of American History.

568 *Cultural and Intellectual History of the United States to 1865.* (3)
An interpretive analysis of the growth of ideas in the United States within their cultural setting before 1865. Prereq: HIS 108 or consent of instructor.

569 *Cultural and Intellectual History of the United States Since 1865.* (3)
An interpretive analysis of the growth of ideas in the United States within their cultural setting since 1865. Prereq: HIS 109 or consent of instructor.

570 *Economic and Social History of the United States,* 1787-1900. (3)
The emergence of the United States from an underdeveloped economy to an industrial state. Interwoven in the theme of economic growth are the social ramifications of change and the role of government in American economic activity. Prereq: HIS 108 and 109, ECO 260 and 261, or consent of instructor. Offered in alternate years.

571 *Economic and Social History of the United States: Twentieth Century.* (3)
Emphasis is placed on 20th Century economic and social changes caused by technology, internal and external business modifications, the growing affluence of the United States, and, most importantly, the increasing role of government in American society. Prereq: HIS 108, 109, ECO 260, 261, or consent of instructor. Offered in alternate years.

572 *American Constitutional History to 1865.* (3)
A study of the origins and development of American constitutional institutions from 1603 to 1865, with emphasis on political, economic and social influences.

573 *American Constitutional History Since 1865.* (3)
A continuation of HIS 572 from 1865 to the present, with emphasis on constitutional problems posed by the industrial revolution and the warfare state.

574 *The Diplomacy and Foreign Policy of the United States Since 1919.* (3)
A survey designed to acquaint the student with the principles of American foreign policy and its historical evolution. Prereq: HIS 108 or equivalent.

575 *The Diplomacy and Foreign Policy of the United States Since 1919.* (3)
A continuation of 574. Foreign policy after the United States became a world power. Prereq: HIS 109 or equivalent.

576 *The American Frontier.* (3)
A course dealing specifically with American westward expansion. Prereq: HIS 108 and 109 or equivalent.

577 *The American Frontier.* (3)
A continuation of HIS 576. It will consider the Trans-Mississippi West.

578 *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.

579 *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.

580 *U.S. Urban History to 1865.* (3) I
A study of urban America from colonial times to 1865, emphasizing origins and growth of cities and their impact upon the development of the United States.

581 *U.S. Urban History Since 1865.* (3) II
A continuation of HIS 580, tracing changes and developments which have occurred since 1865.

582 *Immigration and American History, 1815 to the Present.* (3)
A study of the role of the immigrant in American history, emphasizing the impact of large scale immigration upon the receiving society and changes effected by the migration upon the new arrivals themselves, in the century after 1815, and the consequences of restriction in the decades since World War I.

584 *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: HIS 208 or 209; or approval of instructor.

587 *Twentieth Century Latin American Revolutions.* (3)
An historical and comparative approach to those Latin American social revolutions that have greatly influenced political movements in other Latin American countries. Prereq: HIS 208, 209, or PS 265 or 501, or consent of instructor.

IV. THE FAR EAST

590 *Japanese History to 1600.* (3)
A broad survey of the political, social, economic, and intellectual history of Japan from earliest times to the "unification" of Japan under Hideyoshi. Prereq: HIS 104 or equivalent, or consent of instructor.

591 *Japanese History Since 1600.* (3)
A continuation of HIS 590, from 1600 to present. Prereq: HIS 105 or equivalent, or consent of instructor.

592 *Diplocatic History of the Far East Since 1787.* (3)
A study of the international relations between China, Japan, and Korea and their relations with the major Western Powers. Prereq: HIS 105 or consent of instructor.

593 *Far Eastern History Since World War II.* (3)
A study of the revolutionary political, economic and social changes occurring in China, Japan, and Korea in the aftermath of World War II. Important political and institutional developments and their relations to pre-war trends will be emphasized. Prereq: HIS 105 or consent of instructor.

THE GRADUATE GROUP

Seminars

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

600 *European Historiography.* (3) I

603 *American Historiography.* (3) II

606 *Historical Criticism.* (3)
Required of every entering graduate student in history.

611,612 *Readings in Ancient History.* (3 ea.)
An intensive study of the bibliography of Greek and Roman history, primary (in translation) and secondary, criticism and analysis of selected books, and of recent articles in professional journals. Prereq: Consent of instructor.

613,614 *Readings in Medieval History.* (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 Medieval History.

621,622 *Readings in European History, 1500-1815.* (3 ea.)
These courses are designed to provide systematic and extensive reading over broad areas of the period indicated, to acquaint the student with the standard source materials and literature of the field, and to provide opportunity for critical discussion of outstanding issues. Prereq: An undergraduate course in European History.

623,624 *Readings in European History Since 1815.* (3 ea.)
These courses are designed to provide systematic and extensive reading over broad areas of the period indicated, to acquaint the student with the standard source materials and literature of the field, and to provide opportunity for critical discussion of outstanding issues. Prereq: An undergraduate course in European History.

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.)
These courses are designed to provide systematic and extensive reading over broad areas of American History in the period indicated, to acquaint students with source materials and the secondary literature of the field, and to provide opportunity for critical discussion of books and issues. Prereq: An undergraduate course in American History.

633,634 *Readings in United States History Since 1865.* (3 ea.)
These courses are designed to provide systematic and extensive reading over broad areas of American History in the period indicated, to acquaint students with source materials and the secondary literature of the field, and to provide opportunity for critical discussion of books and issues. Prereq: An undergraduate course in American History.

635 *Readings in Modern Russian History.* (3) I
A guided program (with readings primarily in translation) designed to familiarize the student with the broad patterns and specific developments of the modern imperial period (beginning with Peter I), to analyze the position of Russia in international affairs, and to assess the causes and nature of the 20th century revolutions. Prereq: Consent of instructor.

636 *Readings in Modern Russian History.* (3) II
A program relying considerably upon readings (mostly in translation) which will offer the student a broad comprehension of the nature of the Soviet system and of the blocs of other Marxist states by focusing upon the ideological foundations, evolutionary patterns and specific developments that comprise the history of the Soviet Union from 1917 to the present. Prereq: Consent of instructor.

637,638 *Readings in Latin American History.* (3 ea.)
Supervised reading at the graduate level of a select topical bibliography covering the main themes of colonial Latin American history or the modern period. Prereq: HIS 208 and 209 or consent of instructor.

639 *Readings in Far Eastern History.* (3)
Supervised reading at the graduate level of a select topical bibliography covering the main themes of Chinese history during the Ch'ing Dynasty (1644-1912) and Japanese history during the Tokugawa period (1615-1867). Prereq: HIS 295 and 296 or consent of instructor.

640 *Readings in Far Eastern History.* (3)
Supervised reading at the graduate level of a select topical bibliography covering the main themes of Chinese history since 1895 and Japanese history since 1868. Prereq: HIS 295 and 296 or consent of instructor.

695 *Independent Work.* (1-3)
Under special conditions selected students may investigate problems, with weekly reports to instructor. Prereq: Consent of instructor. May be repeated for a maximum of nine credits.

COURSES IN THE 700 GROUP

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

700 *Special Problems in History.* (3)
Visiting professors will conduct research seminars in topics or problems in which they have special research interests. Prereq: At least one year of graduate study in History.

705 *Seminar in Ancient History.* (3)
Select topics in Greek and Roman history, with an intensive study of a particular area or aspect of the ancient world. Prereq: Reading knowledge of at least one ancient language and one modern foreign language, or consent of instructor.

706 *Seminar in Medieval History.* (3)
Directed research on a common problem. Prereq: Latin and one modern European language.

710 *Seminar in American History, 1607-1783.* (3)
May be repeated to a total of 6 credits.

711 *Seminar in American History, 1783-1865.* (3)
May be repeated to a total of 6 credits.

712 *Seminar in American History, 1865 to the Present.* (3)
May be repeated to a total of 6 credits.

715 *Seminar in Latin American History.* (3)
This seminar course will consider special problems encountered in the study of Latin American History. Prereq: HIS 208, 209, 584 or consent of instructor.

720 *Seminar in Modern European History, 1500-1714.* (3)
May be repeated to a total of 6 credits.

721 *Seminar in Modern European History 1714-1870.* (3)
May be repeated to a total of 6 credits.

722 *Seminar in Modern European History, 1870 to the Present.* (3)
May be repeated to a total of 6 credits.

730 *Seminar in Modern British History.* (3)

740 *Seminar in Kentucky History.* (3)
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.

Theses

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once. (1-6 credits equivalence.)

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely. (1-12 credits equivalence.)

HUMANITIES

Course Description

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 four credits. Prereq: Consent of instructor.

JOURNALISM

(see page 83)

MATHEMATICS

FACULTY

James H. Wells, chairman

Professors

J. D. Buckholtz	Ph.D., Texas, 1960
Edgar E. Enochs	Ph.D., Notre Dame, 1959
Frank R. Keogh	Sc.D., Cambridge, 1963
Carl Langenhop	Ph.D., Iowa State, 1949
Donald Leigh	Ph.D., Cambridge, 1954
Wimberly C. Royster	Ph.D., Kentucky, 1952
S. M. Shah	Ph.D., London, 1942
Clasine van Winter	Ph.D., Groningen, The Netherlands, 1957
James H. Wells	Ph.D., Texas, 1958

Associate Professors

James C. Beidleman	Ph.D., Pennsylvania State, 1964
Donald Coleman	Ph.D., Purdue, 1961
R. H. Cox	Ph.D., North Carolina, 1963
T. L. Hayden	Ph.D., Texas, 1961
Henry C. Howard	Ph.D., Carnegie-Mellon, 1958
John E. Mack	Ph.D., Purdue, 1959
Michael C. McCord	Ph.D., Yale, 1963
A. C. R. Newbery	Ph.D., London, 1962
James E. Simpson	Ph.D., Yale, 1961

Assistant Professors

Ronald Alter	Ph.D., Pennsylvania, 1965
Lincoln E. Bragg	Ph.D., Carnegie-Mellon, 1964
Vasily C. Cateforis	Ph.D., Wisconsin, 1968
James G. Caughran	Ph.D., Michigan, 1967
Frederick H. Croom	Ph.D., North Carolina, 1967
Paul M. Eakin, Jr.	Ph.D., Louisiana State, 1968
Carl E. Eberhart	Ph.D., Louisiana State, 1966
J. B. Fugate	Ph.D., Iowa, 1964
L. Wayne Goodwyn	Ph.D., Maryland, 1968
Daniel B. Henry	Ph.D., Brown, 1969
Robert B. Hughes	Ph.D., California, Riverside, 1968
Charles N. Kellogg	Ph.D., Louisiana State, 1964
Stephen L. Langston	Ph.D., Wisconsin, 1968
Boo-Sang Lee	Ph.D., Washington University, 1967
Edward Newberger	Ph.D., Indiana, 1969
Edward T. Ordman	Ph.D., Princeton, 1969
W. Dennis Pepe	Ph.D., Indiana, 1966
Harvey R. Pousson	Ph.D., Virginia, 1966
C. David Schweickart	Ph.D., Virginia, 1969
T. K. Seo	Ph.D., Indiana, 1965
Armond Spencer	Ph.D., Michigan State, 1967
Donald Z. Spicer	Ph.D., Minnesota, 1965
Ted J. Suffridge	Ph.D., Kansas, 1965
James E. West	Ph.D., Louisiana State, 1967

Visiting Research Assistant Professors

James E. Brennan	Ph.D., Brown, 1969
Joel L. Cunningham	Ph.D., Oregon, 1969

Lecturer

Cliff Swauger, Jr.	M.S., Kentucky, 1962

The courses offered by the Department of Mathematics serve two purposes.

First, for students concentrating in mathematics, there are undergraduate courses leading either to a B.A. or a B.S. in mathematics. It is possible to major in mathematics in the College of Arts and Sciences and simultaneously to obtain a teacher's certificate. The department offers graduate work leading to the M.A., M.S., and Ph.D. degrees. The Ph.D. is currently granted in the fields of complex analysis, functional analysis, algebra, topology, numerical analysis, and applied mathematics.

Second, the Department of Mathematics provides courses to fit the specialized needs of students in other departments and colleges: physical sciences, life sciences, philosophy, social sciences, engineering, and commerce. It provides special background training for the prospective elementary and secondary school teacher. It offers a two-year sequence for Honors Program students during their freshman and sophomore years, and independent study for qualified upperclassmen.

Departmental Requirements

For University and college requirements see page 6.

General Studies Requirements: Same as College requirements. In Area IV, French, German, or Russian are recommended.

Major Requirements:

A. MA 113-114, 213, 214 or equivalent

B. A minimum of 18 credits in upper division courses in mathematics, to include a semester of at least four of the following five sequences, and a year of at least one sequence:
   1. MA 351, 352 (Topology)
   2. MA 361, 362 (Algebra)
   3. MA 441, 442 (Geometry)
   4. MA 471, 472 (Analysis)
   5. MA 481, 482 (Applied Mathematics)

C. *Field of Concentration Requirements:* 14 credits of non-freshman courses outside mathematics but in related fields. Any field to which mathematics has been significantly applied is acceptable. Examples: physics, chemistry, biology, philosophy, economics, statistics, computer science, political science, engineering and agriculture.

Recommended courses for students with special interests:

A. Teaching in secondary schools: MA 361, MA 341 or 441, MA 471, MA 472, MA 371, MA 261.

B. Work in industry or government: MA 421, MA 471, MA 472, MA 481, MA 482, STA 421, STA 423, MA 433, plus work in computer science.

C. Preparation for graduate work: MA 352, MA 362, MA 442, MA 472, MA 433.

Course Descriptions

2 *Solid Geometry.* (non-degree credit)
Offered by correspondence only. See University Extension Catalog.

*†110 *College Algebra and Trigonometry.* (5)
An integrated course in algebra and trigonometry covering the standard materials of these two courses.

111 *College Algebra.* (3)* I, II, S
Standard course.

112 *Plane Trigonometry.* (2)* I, II, S
Offered by correspondence only. See University Extension Catalog.

113, 114 *Calculus.* (4 ea.)
A year course in one-variable calculus, including some analytic geometry. Derivatives and integrals of elementary functions and applications. Taylor's formula and series. Introduction to differential equations. Prereq: An acquaintance with trigonometry.

115 *Elementary Analysis I* (Honors Mathematics). (3) I
MA 115, 116, 215, and 216 constitute a four-semester sequence of honors mathematics and when completed will include at least the following topics: Real number system, least upper bound axiom, functions, integral and differential calculus, elementary differential equations and vector algebra. Prereq: ACT MA score in 90th percentile or permission of the Department.

116 *Elementary Analysis II.* (4) II
Continuation of MA 115. Prereq: MA 115 or consent of Department.

121 *Mathematics of Finance.* (3)
Offered by correspondence only. See University Extension Catalog.

122 *Fundamental Concepts of Mathematics I.* (3)
A course in finite mathematics with emphasis on elementary logic and probability.

123 *The Fundamental Concepts of Mathematics II.* (3)
A continuation of MA 122. Introductory calculus and applications to infinite probability spaces. Not open to students who have credit for MA 113 or 115. Prereq: MA 122, or consent of instructor.

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: Open only to elementary and junior high school education majors.

202 *Fundamentals of Elementary Mathematics.* (3)
A course designed to give elementary teachers a basic understanding of the structure of the real number system, elementary number theory and geometry. This course is for elementary and junior high school education majors only. Prereq: MA 201 or consent of instructor.

213 *Analysis.* (4)
A year course in linear algebra, multivariate calculus and differential equations. Partial and directional derivatives, chain rule. Taylor's formula, local extrema. Vector spaces, linear transformations, matrices. Second order differential equations, variation of parameters, series solutions. Determinants, Jacobians, derivative general mappings. Multiple integrals, change of variable. Green's theorem. Prereq: MA 114 or equivalent.

214 *Analysis.* (3)
A year course in linear algebra, multivariate calculus and differential equations. Partial and directional derivatives, chain rule. Taylor's formula, local extrema. Vector spaces, linear transformations, matrices. Second order differential equations, variation of parameters, series solutions. Determinants, Jacobians, derivative general mappings. Multiple integrals, change of variable. Green's theorem. Prereq: MA 114 or equivalent.

215 *Elementary Analysis III.* (4) I
The third semester of a four-semester sequence designed for mathematics majors and honors students. See MA 115. Prereq: MA 116 or consent of Department.

216 *Elementary Analysis IV.* (4) II
Continuation of MA 215. Prereq: MA 215 or consent of Department.

261 *Introduction to Number Theory.* (3)
Selected topics in the properties of the integers. Prereq: Consent of instructor.

262 *Linear Algebra.* (3)
Vectors, vector spaces, linear transformations, matrices and determinants. Prereq: Consent of instructor.

341 *Topics in Geometry.* (3)
Selected topics in geometry including Euclidean and non-Euclidean geometry (hyperbolic and elliptic geometry). Material to accent the contrast among the various geometries. Prereq: MA 213 or equivalent.

351 *Introduction to Topology I.* (3)
A beginning course, with particular emphasis on point-set topology in Euclidean spaces. Prereq: MA 214 or consent of instructor.

352 *Introduction to Topology II.* (3)
A continuation of MA 351, to include an introduction to homology and homotopy of selected spaces. Prereq: MA 351 and 361.

361 *Algebra I.* (3)
An introduction to the basic structures: groups, rings, and fields. Prereq: MA 214 or consent of instructor.

362 *Algebra II.* (3)
A continuation of MA 361, including a thorough treatment of parts of linear algebra not reached in Analysis. Prereq: MA 361 or equivalent.

371 *Foundations of Mathematics.* (3)
Set theory including cardinal numbers, ordered sets, and ordinal numbers. Prereq: MA 213 or equivalent.

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.)
Reading courses for upper division students of high standing. Prereq: Major and a standing of 3.0 in the department.

421 *Elementary Numerical Methods.* (3)
Outline of capabilities and limitations of the computer. Number representation. Propagation of errors through basic arithmetical operations. Applications of analysis to error-estimation. Linear and non-linear equation solving. Matrix eigenvalues. (This course could serve as an introduction both for the specialist and the non-specialist.) Prereq: MA 214 or equivalent.

423 *Introductory Probability.* (3) I, II
Set theory; fundamental concepts of probability, including conditional and marginal probability; random variables and probability distributions (discrete and continuous); expected values and moments; moment-generating and characteristic functions; random experiments; distributions of random variables and functions of random variables; limit theorems. Three class hours per week. Prereq: MA 214. (Same as STA 423.)

432 *Methods of Applied Mathematics I.* (3)
Partial differentiation, Jacobians, implicit function theorem, uniform convergence of series, line and surface integrals, Green's and Stoke's theorems. Prereq: MA 214 or equivalent.

433 *Methods of Applied Mathematics II.* (3) II
Elementary complex variable theory with applications. Complex field, analytic functions, Cauchy theorum, power series, residue theory. Prereq: MA 432 or 471.

441 *Geometry I.* (3)
Euclidean, affine, projective spaces, and the classical groups. Prereq: MA 362 or equivalent.

442 *Geometry II.* (3)
Selected topics chosen from among: hyperbolic geometrics, spherical and elliptical geometries, differential geometry, geometric inequalities, circular transformations, manifolds and differential manifolds. Prereq: MA 441 or consent of instructor.

---

* Offered for non-degree credit only.

† Offered on Lexington campus on a *pass-fail basis only.* Does not affect student's option to take four courses on a pass-fail basis to count toward graduation.

462 *Matrix Analysis.* (3)
Vectors, matrices, vector-valued and matrix-valued functions, differentiation, integration, Jacobians, Wronskians, inversion of matrices, eigenvalues, matrices of special forms, inner product spaces and tensors. Prereq: MA 214 or equivalent.

471 *Advanced Calculus I.* (3)
The first half of a year sequence which will cover the standard topics of uniformity, integrals and derivatives in n-space, Stokes' theorem, and selected other topics. Prereq: MA 214 and 351 or equivalent.

472 *Advanced Calculus II.* (3)
A continuation of MA 471. Prereq: MA 471 or consent of instructor.

481 *Differential Equations.* (3)
Brief review of linear differential equations and matrix algebra, eigenvalues and eigenvectors of matrices, systems of linear differential equations with constant coefficients, applications, Sturm separation and comparison theorems, Sturm-Liouville theory for second-order equations and applications. Prereq: MA 214 or equivalent.

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. (Same as EM 585.) Prereq: MA 432 or equivalent.

501-502 *Seminar in Selected Topics.* (3 ea.) S
Various topics from the basic graduate courses. Designed as a course for teachers of lower division mathematics and usually offered in connection with a summer institute. May be repeated once. Prereq: Teaching experience in the field of mathematics and consent of instructor.

524 *Discrete Probability.* (3)
Sample space, combinatorial methods, combination of events, laws of large numbers, normal approximation to the binomial, generating functions, convolutions, random walks, branching processes, recurrent events. (Same as STA 524.) Prereq: MA 432 or 471 or consent of instructor.

531 *Theory of Statistical Inference I.* (4)
Sample space, concept of probability, conditional probability, random variables, density and distribution functions, mathematical expectation; moment generating functions; functions of random variables; limit laws, usual distributions, certain derived distributions, introduction to estimation and hypothesis testing. (Same as STA 531.) Prereq: MA 432 or 471 or consent of instructor.

532 *Ordinary Differential Equations.* (3)
Successive approximations and elementary existence theorems for scalar and vector equations, qualitative behavior of solutions as functions of initial conditions and parameters, linear systems with constant and periodic coefficients, stability theorems for second order linear and nearly linear equations, second order boundary value problems and regular singular point theory. Prereq: MA 462 and either 432 or 471.

533 *Partial Differential Equations.* (3)
Elementary existence theorems, equations of first order, classification of linear second order equations, the Cauchy and Dirichlet problems, potential theory, the heat and wave equations, Green's and Riemann functions, separation of variables, systems of equations. Prereq: MA 532 and MA 472 or equivalent.

535 *Vector and Tensor Analysis.* (3)
The algebra and calculus of vectors, cartesian tensors, curvilinear coordinates, Christoffel symbols, determinants, exterior forms, integration. Prereq: MA 214.

536 *Operational Calculus and Generalized Functions.* (3)
Testing functions; differentiation and integration of distributions or generalized functions; convolutions; Fourier and Laplace transforms; applications to linear differential equations. Prereq: MA 432 or 481.

538 *Elementary Numerical Analysis.* (3)
Interpolation. Gaussian quadrature, orthogonal polynomials. Richardson process. Numerical treatment of ordinary differential equations and intermediate linear algebra. Linear difference equations. Prereq: MA 421.

551 *Topology I.* (3)
General topology, separation axioms, normal spaces, connectedness and compactness. Prereq: Consent of instructor.

561 *Modern Algebra I.* (3)
Algebraic structures, quotient structures, substructures, product structures, groups, permutation groups, groups with operators, and the Jordan-Holder theorum. Prereq: Consent of instructor.

565 *Linear Algebra.* (3)
Fields, vector spaces, rings of linear transformations, matrices associated with linear transformations, dual spaces, eigenvectors, canonical forms, adjoint matrices, and tensor products. Prereq: MA 214 or equivalent.

566 *Theory of Numbers.* (3)
Divisibility, prime numbers, congruences and residues, Diophantine equations. Prereq: Consent of instructor.

570 *Multivariate Calculus.* (3)
A self-contained course in n-dimensional analysis, including the general form of Stokes' theorem. Prereq: MA 432 or equivalent.

571 *Analysis I.* (3) I
This course is designed for advanced undergraduates and beginning graduate students. Topics include metric spaces, metric space topology, continuous functions on metric spaces, Ascoli's theorum, Stone-Weierstrass theorum and Riemann-Stieltjes integration. Prereq: MA 471 or equivalent.

572 *Analysis II.* (3)
Lebesgue measure in E^n, Lebesgue integration, product measure, Fubini theorum. Applications to Lp spaces and Fourier series. Prereq: MA 571 or consent of instructor.

573 *Applied Complex Analysis.* (3)
Boundary value problems, analytic continuation, contour integration, special functions. Prereq: MA 433.

611 *Independent Work in Mathematics.* (3-9)
Reading course for graduate students in mathematics. Prereq: Major in mathematics, a standing of at least 3.0 and consent of instructor. May be repeated to a maximum of 9 credits.

624 *Advanced Probability I.* (3)
Markov chains, birth and death processes, renewal theory, central limit theorem, stochastic processes. (Same as STA 624.) Prereq: MA/STA 524 or 531; coreq: MA 433.

632 *Advanced Differential Equations.* (3)
General existence and uniqueness theorems, linear systems, regular and singular eigenvalue problems, stability theory, nonlinear oscillation theory, asymptotic theory, equations with retarded argument. Prereq: MA 532 or consent of instructor.

635 *Theory of Tensors.* (3)
Graded tensor algebra of a module over a ring, groups as modules over the integers, vector spaces over fields and the module of vector field germs, vector fields on open sets in vector spaces and on manifolds, graded exterior algebras, and integration of forms. Prereq: MA 561 or consent of instructor.

637 *Approximation Theory.* (3)
Approximation problems in linear normed spaces; Weierstrass theorem and extensions; Muntz theorem; characterization of polynomials of best approximation; approximation of L^p spaces; interpolation processes, entire functions as approximants. Prereq: MA 433 and 571.

638 *Advanced Numerical Analysis.* (3)
Discrete approximations to the solutions of boundary value problems in ordinary and partial differential equations, numerical treatment of associated systems of linear equations. Prereq: MA 538.

641, 642 *Differential Geometry.* (3 ea.) I
Tensor products, exterior algebra, differentiable maps, manifolds, geodesics, metric properties of curves in E^n fundamental forms, surfaces. Prereq: Consent of instructor.

651 *Topology II.* (3)
Embedding and metrization, compact spaces, uniform spaces and function spaces. Prereq: MA 551.

653 *Dimension Theory.* (3)
Primarily concerned with dimensions of separable metric spaces. Will also consider the relationships between various definitions of dimensions. Prereq: MA 651.

654 *Algebraic Topology I.* (3)
Homotopy, fundamental groups, simplicial homology, axioms for homology theory. Prereq: MA 551, 561, and 651 or equivalent.

655 *Algebraic Topology II.* (3)
Singular homology theory and applications, homology of products, singular and Cech cohomology with applications. Prereq: MA 654.

661 *Modern Algebra II.* (3)
Rings, fields of quotients, rings of polynomials, formal power series, modules, exact sequences, groups of homomorphisms, natural isomorphisms, algebras and tensor algebras. Prereq: MA 561 or consent of instructor.

667 *Group Theory.* (3)
A study of homomorphisms for groups, finite groups, solvable groups, nilpotent groups, free groups, and abelian groups. Prereq: MA 661.

671,672 *Functions of a Complex Variable.* (3 ea.)
Differentiation and integration, contour integration, poles and residues, Royster, Taylor and Laurent series, conformal mapping, Riemann mapping theorem, Dirichlet problem, multiple-valued functions, Riemann surfaces, and applications. Prereq: MA 571, 572.

673 *Several Complex Variables.* (3) I
Hartogs theorem, domains of holomorphy, pseudoconvexity, Cousin problems, differential forms, DeRham's theorum, cohomology of domains of holomorphy, Levi problem, sheaves, Stein manifolds. Entire functions of several variables. Prereq: MA 672.

678 *Calculus of Variations.* (3)
The ordinary problem for the plane and space; Weierstrass, the necessary conditions of Euler, Weierstrass, Legendre, and Jacobi. The parametric problem; the isoperimetric problem. Sufficiency conditions. Prereq: Consent of instructor.

681 *Functional Analysis I.* (3)
General theory of normed linear spaces including the Hahn-Banach separation theorems, principle of uniform boundedness and closed graph theorum. Dual spaces and representation theorems for linear functionals. Abstract measure theory and Riesz representation theorem for C(X). Prereq: MA 572 or consent of instructor.

682 *Functional Analysis II.* (3)
Weak and weak-star topologies, reflexive spaces, convexity in linear spaces, operators, adjoint operators, spectral theory and Fourier transforms. Prereq: MA 681.

683 *Convergence and Summability.* (3)
Fundamental limit ideas applied to infinite sequences, infinite series, infinite products, etc. Summability of Cesaro, Holder, Abel, Borel, and Leroy. Prereq: MA 571 or consent of instructor.

685 *Fourier Analysis.* (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 Fredholm, Volterra's equation. Prereq: Consent of instructor.

703 *Advanced Probability II.* (3)
Review of probability spaces; general stochastic processes; spectral analysis of stationary random processes; infinitely divisible distributions; theory of queues. (Same as STA 703.) Prereq: MA/STA 624; coreq: MA 572.

732 *Selected Topics in Differential and Integral Equations.* (3)
Advanced topics in theory of differential (ordinary or partial) and integral equations such as topological dynamics, almost periodic solutions, stochastic differential equations, integro-differential and differential-difference equations, generalized functions as solutions, non-linear partial differential equations, singular integral equations.

751,752 *Selected Topics in Topology.* (3 ea.)
Prereq: MA 651.

753,754 *Selected Topics in Functional Analysis.* (3 ea.)
Prereq: MA 682.

755,756 *Selected Topics in Topological Algebra.* (3 ea.)
Topics chosen from: Lie groups, transformation groups, topological groups, semigroups, rings, semirings, and lattices. Also reports on and discussion of recent advances in topological algebra. Prereq: MA 651 or consent of instructor.

757 *Seminar in Topology.* (3)
Review of current research in topology. Prereq: Consent of instructor.

761 *Homological Algebra.* (3)
Homological algebra, modules, exact sequences, functors, homological dimension, extension problems. Prereq: Consent of instructor.

762 *Theory of Rings.* (3)
This course will consist primarily of the study of ring theory. Prereq: Consent of instructor.

763 *The Theory of Fields.* (3)
Separable and inseparable extensions, splitting fields, normal extensions, fundamental theorems of Galois theory, and transcendental extensions. Prereq: MA 561 and 661.

764,765 *Selected Topics in Algebra.* (3 ea.) I, II
Reports and discussion on recent advances in group theory, ring theory, and homological algebra. Prereq: MA 661 and consent of instructor.

768 *Residence Credit for Master's Degree.* (0)
This course is designed for graduate students working for advanced degree. May be repeated once. (1-6 credits equivalence.)

769 *Residence Credit for Doctor's Degree.* (0)
This course is designed for graduate students working for an advanced degree. May be repeated indefinitely. (1-12 credits equivalence.)

771-772 *Selected Topics in the Theory of Complex Variables.* (3 ea.)
Prereq: Consent of instructor.

773,774 *Selected Topics in Analysis.* (3 ea.)
May be repeated once for a maximum of 6 credits. Prereq: Consent of instructor.

777,778 *Mathematical Seminar.* (3 ea.)
May be repeated once to a total of six credits.

MICROBIOLOGY

FACULTY

H. Earle Swim, chairman

Professors

M. I. H. Aleem	Ph.D., Cornell, 1958
Samuel F. Conti	Ph.D., Cornell, 1959
James C. Humphries	Ph.D., Yale, 1944
Isaac Ruchman	Ph.D., Cincinnati, 1944
H. Earle Swim	Ph.D., Western Reserve, 1952
Ralph H. Weaver	Ph.D., Michigan State, 1926
Ralph F. Wiseman	Ph.D., Wisconsin, 1956

Associate Professors

O. F. Edwards	Ph.D., Yale, 1936
Tadayo Hashimoto	M.D., Ph.D., Tokushima, 1960
Jesse E. Sisken	Ph.D., Columbia, 1957

Assistant Professors

John Gorman	Ph.D., Wisconsin, 1963
Thomas C. Gray	Ph.D., Vanderbilt, 1965
Burton S. Guttman	Ph.D., Oregon, 1963
Robert T. Probst	D.D.S., Ph.D., Maryland, 1966
Thomas L. Roszman	Ph.D., Michigan State, 1966

Instructors

Grace Donelly	Ph.D., Connecticut, 1962
Jessica A. Gorman	Ph.D., Wisconsin, 1963

The Department of Microbiology, as a unit in the School of Biological Sciences, is concerned with an understanding of the principles of structure and function of living organisms as they can be learned through the study of microorganisms. Courses from the elementary to the advanced graduate level deal with metabolism, growth and development, immunology, genetics, virology and cytology at both the descriptive and molecular levels. The processes by which viruses and the various microorganisms produce disease and the mechanisms involved in immunity to infection are studied. Courses also include consideration of fundamental principles involved in certain applied aspects of Microbiology.

Courses are available for students who wish simply to obtain an understanding of life processes, for those who plan to become biology teachers, for those who plan careers in medicine, agriculture or industry, as well as for those who plan to become professional biologists.

Students who obtain a Bachelor of Science degree with a major in Microbiology may qualify to take an examination for registration in the National Registry of Microbiologists of the American Academy of Microbiology by meeting the requirements of the Department in Mathematics and the Physical Sciences and taking a minimum of 30 credits in the Biological Sciences including 20 in Microbiology.

The Department of Microbiology offers the Master of Science degree in the various fields of microbiology, and the Doctor of Philosophy degree in the fields of structure-function and physiology and microorganisms, microbial genetics, immunology, virology and public health microbiology.

Graduate and advanced undergraduate students have an opportunity to participate in research programs in the Department.

Departmental Requirements

For University and college requirements see page 6.

The requirements for this department are presently under review. A detailed statement of these requiremnts may be obtained from the chairman of the department.

Field of Concentration Requirements: See page 66.

Course Descriptions

BIO 100 *Biology.* (3)
This course will introduce non-biology majors to basic concepts and formulations in Biology, and will include information derived from animal, plant, and microbial life systems. Emphasis will be on activities at the cellular level. Prereq: Not open to students who have taken MB 100, ZOO 100, or BOT 101.

BIO 101 *Biology.* (3)
This course will introduce non-biology majors to basic concepts and formulation in Biology, and will include information derived from animal, plant, microbial life systems. Emphasis is placed on multicellular systems. Prereq: BIO 100.

BIO 200 *General Biology I.* (3) I
An integrated study of organisms and life functions. Prereq: One year College Chemistry. Must be accompanied by BIO 201 (lab). *Staff.*

BIO 201 *General Biology Laboratory I.* (2)
Laboratory to accompany BIO 200. Four hours laboratory per week. Prereq: Enrollment in BIO 200. Also open to students who have had BIO 101. One year college Chemistry (or concurrent). *Staff.*

BIO 202 *General Biology II.* (3) II
Continuation of BIO 200. Three class hours per week. Prereq: BIO 200-201. Must be accompanied by BIO 203 (lab). *Staff.*

BIO 203 *General Biology Laboratory II.* (2) II
Laboratory to accompany BIO 202. Four hours laboratory per week. Prereq: Enrollment in BIO 202. Also open to students who have completed BIO 101 and 201. *Staff.*

BIO 620 *Genetic Structure of Populations.* (3)
A discussion of the development, theory and practice of experimental and theoretical population genetics, including the basic dynamics and integrating properties of populations, factors which produce changes in populations and their effects on population structure and evolution. Prereq: An introductory course in genetics and in statistics, and consent of instructor.

BIO 678 *Statistical Genetics.* (3)
Statistical approaches to the analysis of quantitative inheritance; definition and estimation of genetic parameters relating to selection; inbreeding theory; random-mating and inbred populations; testing and planning in genetic experiments. (Same as STA 678 and AGR 678.) Prereq: STA 674 and BIO 620 or consent of instructor.

BIO 760 *Developmental Genetics.* (3)
Discussion of metabolism, phenogenesis, immunogenicity, and molecular evolution as relates to gene action and its modification in basic development and physiological processes of higher organisms. Prereq: Adequate background in genetics and Biochemistry and/or consent of instructor.

BIO 768 *Residence Credit for Master's Degree.*
(1 to 6 credits equivalence). May be repeated to a maximum of six credits equivalence.

BIO 769 *Residence Credit for Doctor's Degree.*
(1 to 12 credits equivalence). May be repeated indefinitely. *Staff.*

BIO 770 *Seminar in Genetics.* (1)
Review of current literature in genetics; presentation of papers on research in progress or on assigned topics; reports on meetings of scientific societies. Required of all graduate students in Genetics. May be repeated to a maximum of 10 credits. Prereq: ASC 562 or BOT 532 or consent of instructor.

BIO 771 *Seminar in Plant Physiology.* (1)
Reports and discussions on various topics in Plant Physiology. May be repeated for a maximum of eight credits. *Staff.*

†100 *Elementary Microbiology.* (4) I, II
The fundamental nature of bacteria and other microorganisms. Morphology of microorganisms. Lecture, two hours; lab, four hours.

102 *Elementary Microbiology.* (4) I, II
Continuation of MB 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.

105,106 *Orientation in Microbiology.* (1 ea.)
A course of assigned readings, lectures and discussions to give the prospective major a view of the past and present nature and significance of the field of Microbiology. One class hour per week. *Weaver.*

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. *Edwards.*

† Will be dropped effective 1970 Fall Semester.

*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 MB 400.) Prereq. or concur: CHE 112 or 104. *Weaver.*

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; CHE 112. *Edwards.*

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. *Edwards.*

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. *Weaver.*

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.

500 *Pathogenic Bacteriology.* (4) I, S
Human and animal pathogenic microorganisms, especially their morphological, cultural, and pathogenic properties. Lecture, two hours; lab, four hours. Prereq: MB 400 or 200 or 102 and CHE 112. *Humphries, Ruchman.*

512 *Growth and Death of Bacteria.* (4)
Physiological aspects of bacterial growth and death; Chemotherapy and disinfection. Two class hours per week; lab, four hours per week. Prereq: MB 102 or 200, CHE 232, consent of instructor. *Staff.*

520 *Metabolism of Microorganisms.* (4)
Chemical changes produced by microorganisms; properties of their enzymes; the physiology of their growth. Lectures or conference, two hours; lab, four hours. Prereq: CHE 232; reading knowledge of German or French. *Aleem.*

550 *Immunology and Serology.* (5) II
The theories and mechanisms of infection and immunity; preparation, standardization, and uses of biological products; serology. Lecture, two hours; lab, six hours. Prereq: MB 500. *Humphries.*

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. *Edwards.*

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. *Edwards.*

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: reading knowledge of one foreign language; MB 550.

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 232, 444. *Humphries.*

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. *Conti, Edwards.*

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. Lecture, two hours; lab, four hours. Prereq: MB 550. *Ruchman.*

700 *History of Bacteriology.* (2) I, S
Conference, two hours. Prereq: MB 550. *Weaver.*

710 *Special Topics in Cell Biology.* (2)
A variety of topics relating to modern molecular and cell biology. Two class hours per week. Prereq: Permission of instructor. (Formerly CBI 710 in College of Medicine.)

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; recommended MB 660, CHE 232. *Staff.*

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; CHE 232. *Gray.*

722 *Metabolism of Microorganisms.* (4) II
Continuation of MB 520. Lectures or conferences, two hours; lab, four hours. Prereq: MB 520. *Aleem.*

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once. (1-6 credits equivalence.)

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely. (1-12 credits equivalence.)

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 and instructional scientific and professional societies and symposia. 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. Prereq: Master's degree or equivalent. *Senior Staff.*

811 *Cell Biology.* (5)
A course in general cell biology designed to provide the medical student with an understanding of the structure, function and control mechanisms in various cell types. Prereq: Admission to the College of Medicine. (Formerly CBI 811 in College of Medicine.)

831 *Cell Biology for Dental Students.* (4)
A required course for dental students including the taxonomic, metabolic and reproductive properties of bacteria, viruses and fungi of importance to man. Mechanisms of the immune responses and the role of these responses in disease will be discussed. The dynamic interrelationship between pathogenic microorganisms and man. Oral aspects will be stressed. Lectures 63 hours; conferences 16 hours; laboratory 40 hours. Prereq: Full-time College of Dentistry enrollment. (Formerly CBI 831 in College of Dentistry.)

* This course is prerequisite to a significant number of courses in this area of study.

MILITARY SCIENCE (ARMY ROTC)

FACULTY

Eugene J. Small, chairman

Professor

Eugene J. Small	M.S., American U., 1966

Assistant Professors

James G. Coston	B.A., Texas A & M, 1960
John B. Hubard	B.S., USMA, 1960
Claude H. Warren	B.S., V.P.I., 1958
David M. Phillips	B.S., Purdue, 1962

Instructors

Ivan R. Steele
Robert D. Digman

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, by agreement between the President of the University and the Secretary of the Army.

Object: The objective of the Reserve Officers' Training Corps is to provide preliminary military instruction at civil educational institutions for the purpose of evaluating and selecting qualified college students who by education, training, attitude and inherent qualities are suitable for continued development as officers in the reserve as well as the regular components of the Army of the United States. This object is attained by employing methods which prepare men physically, mentally, and morally for peaceful pursuits 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 preparation and standards 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 instill in them a respect for all lawful authority, and to acquaint each student with the fundamentals of the military service.

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: The following characteristics of an officer and a gentleman will be expected of each student: adherence to acceptable standards of appearance and dress expected of a public official, the cultivation of the manners and habits of a gentleman, a dignified and military bearing, recognition and appropriate exercise of authority, devotion to duty and consideration of others, 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-year 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 on whose behalf commutation of uniform is drawn and purchase of a uniform is made 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 rule as for the basic student.

Retainer Pay: Advanced course enrollees and 4-year scholarship students receive retainer pay of $50.00 per month.

Basic Course: The military department offers a two-year 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.

Advanced Course: The advanced course of two years, including a six-week summer encampment at the conclusion of the junior (MS III) 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 III) 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.

Departmental Requirements

For University and college requirements see page 6.

Major Requirements: Students desiring to major in Military Science may do so through the topical major program. Such students will complete all Military Science courses required by the Department of Military Science. In addition, the student will complete a topical program of courses totaling at least 40 hours and chosen with the approval of the Military Science Department and the Chairman of the Topical Major Committee. Junior and Senior courses in Military Science may be counted within the 40 hours (excepting Military Science 344). Examples of topical interests might include, "Military Factors in Foreign Policy," or "The Economic Basis of Military Power."

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 requirements as a prerequisite. The writing of a comprehensive paper is required in the senior year.

Course Descriptions

BASIC COURSE

101, 102 *Military Science I, ROTC.* (2 ea.)
Introductory course covering broad concepts of military science, including organization of the Army; role of Army in national security; American Military History; individual weapons and marksmanship, and leadership with attendant practical exercises in troop formations. Prereq: Full-time undergraduate male student, U.S. citizen, and physically fit to pursue program. *Staff.*

201, 202 *Military Science II, ROTC.* (2 ea.)
Course in map and aerial photograph reading; small unit tactics, contemporary military problems in world affairs, leadership and command. Prereq: MS 101 and 102; Physically fit to pursue program, successful completion of MS 101 and 102 or with the consent of PMS (based on prior military training and able to complete required course). *Staff.*

ADVANCED COURSE

Upon successful completion of the Advanced Course (MS III 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 chairman of the Department of Military Science.

301, 302 *Military Science III, ROTC.* (3 ea.)
(Branch General)
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; Graduate or undergraduate male student, successful completion of Basic Course or Basic Camp, be able to pass physical & qualification exam. Consent of PMS. *Staff.*

341-342 *Military Science IV, ROTC.* (3 ea.)
(Branch General)
An advanced study of logistics, operations, military administration, personnel management, military justice, world change and military implications, service orientation and leadership training. Prereq: MS 301, 302. *Staff.*

344 *Army ROTC Flight Training Program.* (3)
Academic classroom instruction (35 hours) in Theory and Principles of Flight, Federal Aviation Agency Air Regulations, fundamentals and principles of meteorology as applied to aviation, principles and techniques of aerial navigation by electronic instruments, use of flight computers and instruments, aerial safety practices. Laboratory instruction (36½ to 39½ hours) in Aircraft Performance, Aerial Maneuvers and Aircraft manipulations in controlled and emergency situations. In-flight instruction of principles and techniques of piloting an aircraft, practical application of principles and techniques learned in academic and laboratory instruction. Successful completion of the course and FAA examination, consisting of in-flight performance, qualifies the student for FAA Private Pilot license. Prereq: MS 301, 302; senior standing; physically qualified; qualifying score on Army Fixed Wing Battery Tests.

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.

MUSIC

(see page 97)

PHILOSOPHY

FACULTY

Dallas M. High, chairman

Professor
Jesse DeBoer — Ph.D., Harvard, 1942

Associate Professors
Dallas M. High — Ph.D., Duke, 1964
Thomas M. Olshewsky — Ph.D., Emory, 1965
Alan R. Perreiah — Ph.D., Indiana, 1967

Assistant Professor
Frederick E. Brouwer — Ph.D., Yale, 1960

Instructors
David A. Coomber — Ph.D., Washington, 1970*
Jack Cumbee — Ph.D., Wisconsin, 1970*
Pieter W. VanNuis — Ph.D., Princeton, 1970*

(* expected dates of Ph.D.)

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 of 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 the 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.

Departmental Requirements

For University and college requirements see page 6.

General Studies Requirements Same as college, except that French or German is recommended in Area IV; Greek may be elected if the student plans to concentrate on Ancient Philosophy.

Pre-Major Requirements: PHI 200, 220.

Major Requirements: PHI 230, 500, 510, 515, Senior Seminar, plus 9 credits chosen from PHI 502, 505, 518, 520, 530, 535, 540, 545, 550, 555, 560, 565, 570, 592.

Field of Concentration: In addition to the major, 16 credits chosen with the consent of the adviser from areas related to the student's total program and plans; courses open to freshmen and courses used to fulfill the General Studies requirements are excluded. At least 32 of the 40 credits in the Field of Concentration must be above the 200 level.

Course Descriptions

200 *Introduction to Philosophy.* (3) I, II, S
An elementary study of the principal problems of philosophy.

220 *Elementary Logic.* (3) I, II, S
A study of the logical principles underlying valid thought.

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.

300 *Senior Seminar.* (3)
A study of current issues in philosophy as found in the journals and outstanding recent books. Prereq: Undergraduate major in Department of Philosophy.

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. Prereq: Major in Philosophy.

395 *Independent Work.* (3) I, II, S
Open only to students who have distinguished themselves in philosophy or in allied subjects. Prereq: Major and standing of 3.0 in department. May be repeated three times for a total of 12 credits.

500 *History of Ancient Philosophy.* (3) I
A survey of the philosophical thought of ancient Greece and Rome, up to the rise of Christendom.

502 *Plato and Aristotle.* (3) II
Plato's life and writings. Principal topics in major dialogues (e.g. the Forms or Ideas, body and soul, immortality, the good life, cosmology and theology, and logical explorations). Selected passages in Aristotle's major works. Prereq: one course in Philosophy or consent of instructor.

505 *History of Medieval and Renaissance Philosophy.* (3)
Investigation of the major views in philosophy from Plotinus to Descartes. Neo-platonic and Aristotelian contributions to logic, metaphysics and the theory of knowledge will be examined critically in relation to modern and contemporary issues in philosophy.

510 *History of Modern Philosophy.* (3) II
A survey of modern philosophy from the seventeenth to the middle of the nineteenth century.

512 *American Philosophy.* (3)
A critical survey of American philosophical movements, notably idealism, pragmatism, realism, naturalism, logical positivism, and phenomenology.

515 *Contemporary Philosophy.* (3) I
A study of philosophical developments in the Twentieth Century, with concentration on the analytic movements (logical atomism, logical positivism, and linguistic analysis).

516 *Phenomenology.* (3)
An account of the Phenomenological movement from Husserl to the present with emphasis on the development of a phenomenological method including elements such as Intentionality, Reduction, Constitution and their relations to the Structure of Appearance. Prereq: PHI 510.

518 *Existentialism.* (3) II
A systematic study of the fundamental concepts and problems of existentialism. Readings selected from such philosophers as Kierkegaard, Nietzsche, Sartre, Marcel, Heidegger, and Jaspers.

520 *Intermediate Logic.* (3) I
An intermediate course in logic which reviews the logic of propositions, develops the logic of quantification and introduces metalogical issues in the construction, consistency and completeness of deductive systems. Prereq: PHI 220 or consent of instructor.

530 *Contemporary Ethics.* (3) II
A study of major developments in the field of ethics, notably intuitionism, naturalism, emotivism, and the analysis of the logic and the language of moral statements. Prereq: PHI 230 or consent of instructor.

535 *Social and Political Philosophy.* (3) II
A critical examination of some philosophical problems concerning the nature and evaluation of social and political organizations. For example, questions concerning the nature, justification, and limits of political power may be explored in connection with a study of important classical positions.

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.

545 *Philosophy of Religion.* (3) II
An analysis of the philosophical issues raised by religion, such as the problem of religious knowledge, the nature of religious language, science and religion, concepts of God, death, and evil.

550 *Metaphysics.* (3) II
Examination of efforts by philosophers to construct general conceptions of the world. Recent approaches to philosophy and metaphysical investigation. Prereq: two courses in Philosophy or consent of instructor.

555 *Epistemology.* (3) II
A study of the origins, nature, kinds and validity of knowledge, with accent both on traditional epistemological problems and on analyses of epistemological concepts.

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. Prereq: PHI 220.

565 *Philosophy of Language.* (3)
An investigation of problems current in the philosophy of language such as meaning and reference, the nature of analysis, linguistic relativity and the relation of linguistics to philosophy.

570 *Philosophy of History.* (3) I
A critical survey of philosophies of history including representative readings from the works of philosophers such as Hegel, Marx, Spengler, Niebuhr and Ortega y Gasset. Critical attention will be directed to the problem of "explanation" in history.

575 *Philosophy of Mind.* (3)
An examination of problems current in the philosophy of mind, such as the concept of person, the relation of mind and body, the relation of minds and machines, knowledge of other minds, and the roles of dispositions and volitions in human action. Attention will be given to the philosophical analysis of such psychological categories as consciousness, feeling, emotion, perception, imagination, thinking and will.

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 A-H 592.)

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.

625 *Advanced Logic.* (3)
Intensive study of selected topics arising from propositional as well as lower and higher order predicate logic, e.g., Modal Logic, Many-valued Logic, Quantification Theory, Class Logic and Paradoxes. The course will stress the diversity of approaches to these issues within formal logic. Prereq: PHI 520 or consent of instructor.

700 *Seminar in Ancient Philosophy.* (3)
Intensive study of original works of such major classical philosophers as Plato and Aristotle. May be repeated twice for a total of 9 credits. Prereq: PHI 500 or equivalent.

710 *Seminar in Modern Philosophy.* (3)
Intensive study in the major works of such prominent philosophers of modern times as Descartes, Locke, Hume, Kant, and Hegel. May be repeated twice for a total of 9 credits. Prereq: PHI 510 or its equivalent.

715 *Seminar in Contemporary Philosophy.* (3)
Intensive study of current developments in philosophy as found in books and periodicals. May be repeated two times for a total of 9 credits. Prereq: PHI 515 or its equivalent.

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once. (1-6 credits equivalence.)

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.

PHYSICS & ASTRONOMY

FACULTY

Ben Roger Gossick, chairman

Professors

Lewis Wellington Cochran	Ph.D., Kentucky, 1952
Wendell Carden DeMarcus	Ph.D., Yale, 1951
Ben Roger Gossick	Ph.D., Purdue, 1954
Richard Hanau	Ph.D., Michigan, 1947
George Samuel Hurst	Ph.D., Tennessee, 1959
Bernard Donald Kern	Ph.D., Indiana, 1949
Wasley Swen Krogdahl	Ph.D., Chicago, 1942
Marcus Thomas McEllistrem	Ph.D., Wisconsin, 1956
Clasine van Winter	Ph.D., Groningen, 1957
Francis Lorraine Yost	Ph.D., Wisconsin, 1936

Associate Professors

Jerry Duke Brandenberger	Ph.D., Texas, 1962
Marcel Coz	D. Sc., Sorbonne, 1960
Roy Fletcher Gabbard	Ph.D., Rice, 1959
Rudolph Schrils	Ph.D., Colorado, 1963
Jesse Leo Weil	Ph.D., Columbia, 1959

Assistant Professors

Frank Andrew Butler	Ph.D., Rensselaer, 1966
Robert Edward Knight	Ph.D., Texas, 1964
Alan Douglas MacKellar	Ph.D., Texas A & M, 1965
Frederick Wight Martin	Ph.D., Yale, 1964
Joel Ellis Philhours	Ph.D., Kansas State, 1966
Robert Allan Stokes	Ph.D., Princeton, 1968

The objectives of the Department are:

—to provide instruction to the end that a student, regardless of his special interests, may acquire a general understanding and appreciation of physics or astronomy;

—to provide a complete undergraduate curriculum with sufficient flexibility so that a graduate with a major in physics or astronomy may teach in second-

ary schools, go on to greater specialization in physics or astronomy, 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.

Departmental Requirements For A Major in Physics

For University and college requirements see page 6.

General Studies Requirements: Same as college.

Pre-Major Requirements: PHY 231, 232, 241, 242; MA 113, 114, 213; CHE 110, 111, 112, 113.

Major Requirements: Two courses chosen from PHY 512, 530, 535, 538; five courses chosen from PHY 404, 416, 417, 504, 508, 510, 514, 522, 524, 554, 555, 598.

Field of Concentration Requirements: See page 66.

The following suggested curriculum will meet the needs of the average student who intends to major in physics and possibly go on to graduate school. Students who intend to major in physics and prepare for high school teaching or for other work in physics, and who do not intend to enter graduate school, may be advised to select a slightly different sequence of courses. Students who intend to major in secondary education and teach physics in high school will be advised as to their special sequence of courses when they advance register.

Freshman Year

Fall Semester	
ENG 101*—Freshman Composition	3
CHE 110—General College Chemistry I	3
CHE 111—General Chemistry Lab I	2
MA 113—Calculus	4
General Studies	3
Spring Semester	
ENG 102*—Freshman Composition	3
CHE 112—General College Chemistry II	3
CHE 113—General Chemistry Lab II	2
MA 114—Calculus	4
PHY 231—General University Physics	3
PHY 241—General University Physics Lab	2

Sophomore Year

Fall Semester	
Foreign Language**	3
MA 213—Analysis	4
PHY 232—General University Physics	3
PHY 242—General University Physics Lab	2
General Studies	3
Spring Semester	
Foreign Language	3
MA 214—Analysis	3
PHY 260—Principles of Modern Physics	3
General Studies	6

Junior Year

Fall Semester	
Foreign Language***	3
MA 432—Methods of Applied Math I	3
PHY 404—Mechanics	3
PHY 416—Electricity & Magnetism	3
General Studies	3
Spring Semester	
Foreign Language***	3
PHY 417—Electricity & Magnetism	3
PHY 508—Optics	3
PHY 512—Experimental Physics: Electricity & Magnetism	2
or	
PHY 514—Electronics	3
Electives	3

Senior Year

Fall Semester	
MA 485—Fourier Series & Boundary Value Problems	3
PHY 522—Heat & Thermodynamics	3
PHY 538—Experimental Physics: Light	2
PHY 554—Fundamental Atomic & Nuclear Physics	3
Electives	3
General Studies	3
Spring Semester	
MA 433—Methods of Applied Math II	3
PHY 524—Solid State Physics	3
PHY 535—Experimental Physics: Atomic & Nuclear	2
PHY 555—Fundamental Atomic & Nuclear Physics	3
Electives	6

* Students with high ACT scores may substitute ENG 105 and ENG 106. See page 66.
** The foreign language should be French, German, or Russian.
*** Students with foreign language in high school may not need to take four semesters of language. See page 66.

Course Descriptions

Physics Courses

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.) *Staff.*

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 optics. *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. Prereq: high school or college algebra, plane geometry. *Staff.*

*213 *General Elementary Physics.* (5) I, II
Continuation of PHY 211, covering magnetism and electricity, sound, optics and radiation physics. Lectures and recitations, four hours; lab, two hours. Prereq: PHY 211 or equivalent. *Staff.*

231 *General University Physics.* (3) I, II, S
An advanced general course covering the mechanics of solids, liquids, and gases; heat; and sound. Lecture two hours, recitation two hours; Prereq: MA 114 concurrent. *Staff.*

° This course is prerequisite to a significant number of courses in this and related areas of study.

*232 *General University Physics.* (3) I, II, S

An advanced general course covering electricity, magnetism, and optics. Lecture two hours, recitation two hours. Prereq: PHY 231; MA 213 concurrent. *Staff.*

241 *General University Physics Laboratory.* (2) I, II, S

An advanced general laboratory course involving experiments on the mechanics of solids, liquids, and gases; and heat. Prereq: PHY 231 concurrent. *Staff.*

*242 *General University Physics Laboratory.* (2) I, II, S

An advanced general laboratory course involving experiments on electricity, magnetism, sound, and light. Prereq: PHY 241; PHY 232 concurrent. *Staff.*

250 *Honors University Physics.* (3) I, II, S

An advanced general course covering the mechanics of solids, liquids, and gases; heat and sound. Lecture two hours, recitation two hours. Prereq: MA 114 concurrent. Enrollment in Honors Program, or equivalent academic competence. (Satisfies same requirements as PHY 231.) *Staff.*

251 *Honors University Physics.* (3) I, II, S

An advanced general course covering electricity, magnetism, optics, and selected topics in modern physics. Lecture two hours, recitation two hours. Prereq: PHY 231 or 250; MA 213 concurrent. Enrollment in Honors Program, or equivalent academic competence. (Satisfies same requirements as PHY 232.) *Staff.*

260 *Principles of Modern Physics.* (3) I, II

An introduction to the principles of relativity, kinetic theory, atomic physics, structure of matter, nuclear physics. Lecture and problem course with associated laboratory experiments. Four hours. Prereq: PHY 213 or 232. *Gabbard.*

395 *Independent Work in Physics.* (3)

May be repeated three times for a maximum of 12 credits. Prereq: Major and a standing of 3.0 in the department. *Staff.*

404 *Mechanics.* (3)

A lecture and problem course covering the fundamental laws of mechanics. Newton's Laws, statics and dynamics of a particle and rigid bodies, and oscillatory motion. Prereq: PHY 232, 242, MA 213; concurrent: MA 214. *Brandenburger.*

416 *Electricity and Magnetism.* (3)

A lecture and problem course covering the theory of electrostatic fields, conductors, dielectrics, and steady currents. Prereq: PHY 232, 242; MA 213. *Kern.*

417 *Electricity and Magnetism.* (3)

A continuation of PHY 416. A lecture and problem course covering electromagnetic induction, magnetic fields, magnetic materials, alternating currents and electromagnetic radiation. Prereq: PHY 416. *Kern.*

472 *Interaction of Radiation with Matter.* (3) I

Sources of radiation; penetration of charged particles, electromagnetic radiation, and neutrons through matter; excitation and ionization processes; radiation detection and spectroscopy; dosimetry of ionizing radiations. Prereq: PHY 260. *Hurst.*

504 *Advanced Mechanics.* (3) I

A continuation and extension of PHY 404. Includes dynamics of a particle, rigid bodies, Lagrante's equations, constrained motions, and oscillations. Prereq: PHY 404, MA 214. *MacKellar.*

508 *Optics.* (3)

A lecture and problem course covering the basic phenomena of optics. Topics include thick lenses, apertures, wave motion, interference, diffraction, polarization, double refraction, and the theory of selected optical instruments. Prereq: PHY 232, 242; and MA 213. *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, interpretation of spectra in fields of atomic structure and spectrographic analysis. Prereq: PHY 232, 242; and MA 213. *Hanau.*

* This course is prerequisite to a significant number of courses in this and related areas of study.

512 *Experimental Physics: Electricity and Magnetism.* (2)

An advanced laboratory course in electrical measurements. Special projects are elected by the student to explore certain physical relations through standard electrical measurements. Prereq: PHY 416. *Gossick.*

514 *Electronics.* (3)

A lecture and laboratory course on the theory and application of solid-state, and vacuum tube electronic devices. Two hours lecture; two hours laboratory. Prereq: PHY 416. *Brandenburger.*

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, quantitative graphs, least square solutions. Prereq: PHY 504 and MA 213. *Hanau.*

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 213. *Staff.*

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 213. *Weil.*

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 213. *Gossick.*

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.*

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 260. *Weil.*

538 *Experimental Physics: Light.* (2)

An advanced laboratory course dealing with the properties of lenses, mirrors, prisms, gratings, and combinations of these elements in optical systems. The important phenomena of optics are studied experimentally by means of microscope, telescope, spectrometer, interferometer, polarimeter. Prereq: PHY 508. *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 213. *Stokes.*

555 *Fundamental Atomic and Nuclear Physics.* (3)

A continuation of PHY 554. Prereq: PHY 554. *Stokes.*

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 214. *Schrils.*

600 *Selected Topics in Advanced Physics.* (2-3)

Topics of an advanced and specialized nature such as the theory of angular momentum, topics in advanced theoretical nuclear physics, topics in advanced statistical mechanics. May be repeated twice. Prereq: Consent of instructor. *Coz.*

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 or equivalent; MA 214. *DeMarcus.*

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; MA 214. *DeMarcus.*

611 *Electromagnetic Theory I.* (3)
A lecture and problem course treating electrostatics, boundary conditions, potential problems, energy in electric and magnetic fields, magnetic materials and Maxwell's Equations. Prereq: PHY 416, MA 214. *Knight.*

613 *Electromagnetic Theory II.* (3)
Continuation and extension of PHY 611. Includes theory of electromagnetic waves and applications to optical phenomena of reflection, refraction, polarization and absorption. Prereq: PHY 611. *Knight.*

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 214. *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. *Philhours.*

629 *Nuclear Physics I.* (3)
A lecture and problem course dealing with advanced experimental nuclear physics. Topics include properties of nuclei, nuclear transformations, observational methods, radioactivity and interaction of radiation with matter. Prereq: PHY 604. *McEllistrem.*

630 *Nuclear Physics II.* (3)
A lecture and problem course concerned with the theories of the structure of atomic nuclei. Topics include nuclear shell structure, internuclear forces, nuclear binding energies, and theory of nuclear reactions. Prereq: PHY 714 or equivalent. *MacKellar.*

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. *Knight.*

632 *Statistical Mechanics.* (3)
A lecture and problem course dealing with the thermal properties of matter from the standpoint of statistical mechanics. Topics include thermodynamic properties, perfect gases, and Fermi-Dirac statistics. Prereq: PHY 522, 604. *Philhours.*

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 thse methods. Prereq: PHY 504, 611. *DeMarcus.*

650 *Theory of Relativity.* (3)
A lecture and problem course dealing with the special and general theories of relativity. Topics include relativistic kinematics, the Lorentz transformations, the principle of equivalence, Riemannian spaces, field equations and experimental tests of the special and general theories. Prereq: PHY 604. *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.*

682 *Electric Phenomena in Gases.* (3)
Considers basic phenomena of the motion and interaction of electrons in gases including ion formation, mobility, diffusion, recombination, ion lifetimes, atomic and molecular excitations and energetics. Prereq: PHY 417, 554, or 510; MA 214. *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. *van Winter.*

714 *Quantum Mechanics I.* (3)
A lecture course covering a brief review of the origin of quantum theories, mathematical techniques of quantum mechanics, the general aspects of wave mechanics and matrix mechanics, the uncertainty principle. *Butler.*

715 *Quantum Mechanics II.* (3)
A continuation of PHY 714 with extensions into special methods of solving problems in the theory, problems in more than one dimension, and the Pauli and Dirac theories of the electron. Prereq: PHY 714 or equivalent. *Butler.*

716 *Advanced Quantum Mechanics.* (3)
A continuation of PHY 715. Topics covered will include the relativistic wave equations, second quantization, quantum electrodynamics. Prereq: PHY 715. *Staff.*

755 *Topics in Chemical Physics* (subtitle required). (3)
An introduction to current research areas in chemical physics. Topics may include theory of atomic spectra, atomic and molecular processes, molecular theory, electrons and phonons in crystals, and optical properties of metals. Lectures, 2 or 3 hours. May be repeated to a total of 12 credits. Prereq: Consent of instructor. (Same as CHE 755.) *Staff.*

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once. (1-6 credits equivalence.)

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely. (1-12 credits equivalence.)

770 *Colloquium.* (1)
A weekly meeting of the staff and advanced students for the discussion of recent developments in physics and of work in progress in the department. Credit is given to those who satisfactorily present papers. May be repeated to a maximum of 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.*

Departmental Requirements for a Major in Astronomy

For University and College requirements see page 6.

General Studies Requirements: Completion of one sequence of courses in six of the General Studies Areas. These six areas must include MA 113 in Area I; Area II; French, German or Russian in Area IV; Area V; or VI or VII; and Area VIII.

Pre-Major Requirements: PHY 231, 232, 241, 242; MA 113, 114, 213, 214; AST 191, 192.

Major and Field of Concentration Requirements: 18 hours of astronomy beyond the 100-level courses; 15 hours of physics beyond the 200-level courses; 9 hours of mathematics beyond the 200-level courses.

Freshman Year

Fall Semester

ENG 101—Freshman Comp*	3
MA 113—Calculus	4
PHY 231—Gen Univ Phy	3
PHY 241—Gen Univ Phy, Lab	2
Foreign Lang**	3
General Studies	3

Spring Semester

ENG 102—Freshman Comp	3
MA 114—Calculus	4
PHY 232—Gen Univ Phy	3
PHY 242—Gen Univ Phy, Lab	2
Foreign Lang	3
General Studies	3

Sophomore Year

Fall Semester

Foreign Lang	3
Behavioral Sci	3
History or Soc Sci	3
AST 191—Des Astro	3
MA 213—Analysis	4
Elective	3

Spring Semester

Foreign Lang	3
Behavioral Sci	3
History or Soc Sci	3
AST 192—Des Astro	3
MA 214—Analysis	3
PHY 260—Prin of Mod Phy	3

Junior Year

Fall Semester

MA 432—Meth Appl Math I	3
PHY 416—Elec and Mag	3
PHY 404—Mechanics	3
AST 292—Gal Astro I***	3
Electives****	3-6

Spring Semester

MA 433—Meth Appl Math II	3
PHY 417—Elec and Mag	3
AST 391—Cel Mech***	3
AST 492—Gal Astro II***	3
Electives	3-6

Senior Year

Fall Semester

AST 495—Elem Astroph I***	3
PHY 554—Fund Atom and Nucl Phys	3
Electives	9-12

Spring Semester

AST 496—Elem Astroph II***	3
AST 291—Sph Astr***	3
PHY 555—Fund Atom and Nucl Phys	3
Electives	6-9

* Students with high ACT scores may substitute ENG 105 and ENG 106. See page 90.

** The foreign language should be French, German, or Russian. Students with foreign language in high school may not need to take four semesters of language. See page 66.

*** Interchangeable in junior-senior years.

**** It is recommended that PHY 530 (Spectroscopy) be elected in the junior or senior year.

Astronomy Courses

191 *Descriptive Astronomy.* (3) I

A non-mathematical course dealing with the earth, moon, sun, planets, comets, and meteors. *Krogdahl and Stokes.*

192 *Descriptive Astronomy.* (3) II

A non-mathematical course dealing with the earth, moon, solar system, the stars, the galaxy, and the universe at large. No prereq. *Krogdahl and Stokes.*

193 *Elementary Astronomy.* (3)

A descriptive, non-mathematical account of the solar system, the sun and stars, our galaxy, and the universe at large. For elective credit, non-science requirement. Credit is not given for both AST 193 and either 191 or 192. *Krogdahl.*

291 *Spherical Astronomy.* (3)

Application of the formulae for the spherical triangle to a variety of problems on the celestial sphere. Prereq: Plane Trigonometry. *Krogdahl.*

292 *Galactic Astronomy I.* (3)

Consideration of stellar statistics, radio astronomy, galactic rotation, stellar populations, interstellar medium. Prereq: AST 191, 192 or consent of department. *Krogdahl.*

391 *Celestial Mechanics.* (3)

The mechanics of systems of gravitating particles, with emphasis upon the calculation of orbits, theory of pertubatious. *Krogdahl.*

392 *Intermediate Spherical Astronomy.* (3)

Stellar parallax and proper motion; aberration; binary star orbits; atmospheric refractions. Prereq: Spherical Astronomy or consent of instructor. *Krogdahl.*

492 *Galactic Astronomy II.* (3)

Study of the content, organization, and evolution of our own and other galaxies. Prereq: AST 292 or consent of instructor. *Krogdahl.*

495 *Elementary Astrophysics I.* (3)

Applications of the principles of elementary physics to the problems of stellar and planetary interiors. Prereq: PHY 232. *Krogdahl.*

496 *Elementary Astrophysics II.* (3)

Applications of the principles of elementary physics to the problems of stellar atmospheres and interstellar matter. Prereq: AST 495. *Krogdahl.*

591 *Cosmology I.* (3)

Consideration of observational basis of cosmology, cosmological theories of general relativity, the steady state theory, and kinematic relativity. Prereq: MA 213. *Krogdahl.*

592 *Cosmology II.* (3)

A study of the universe as a complete physical unit. Consideration of the various relativistic models and theory evaluation in the light of current observations. Prereq: AST 591. *Krogdahl.*

593 *Advanced Celestial Mechanics.* (3)

The three- and n-body problems; special solutions; potential theory. Prereq: AST 391 or equivalent. *Krogdahl.*

POLITICAL SCIENCE

FACULTY

Malcolm E. Jewell, chairman

Professors

Malcolm E. Jewell	Ph.D., Penn. State, 1958
S. Sidney Ulmer	Ph.D., Duke, 1956

Associate Professors

Herbert N. Drennon	Ph.D., Duke, 1951
Dean Jaros	Ph.D., Vanderbilt, 1966
Lloyd Jensen	Ph.D., Michigan, 1963

Sheldon Simon	Ph.D., Minnesota, 1964
Kenneth E. Vanlandingham	Ph.D., Illinois, 1950

Assistant Professors

Michael A. Baer	Ph.D., Oregon, 1968
Bradley C. Canon	Ph.D., Wisconsin, 1967
Frederic J. Fleron, Jr.	Ph.D., Indiana, 1969
John Fraser	Ph.D., Illinois, 1968
George Gadbois	Ph.D., Duke, 1965
Allan F. Hershfield	Ph.D., Indiana, 1968
William E. Lyons	Ph.D., Penn. State, 1965
Gene L. Mason	Ph.D., Kansas, 1967
Herbert E. Reid	Ph.D., North Carolina, 1968
H. Fred Vetter	Ph.D., Florida State, 1967

Instructors

Peter Nixdorff	Ph.D., Florida, 1970*
Michael J. White	Ph.D., Northwestern, 1970*

(* expected dates of Ph.D.)

The courses and facilities of the Department of Political Science are designed to serve a number of purposes. Among these 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. Recent 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.

Departmental Requirements

For University and college requirements see page 6.

General Studies Requirements: In addition to the University and College requirements each student must complete a sequence in Area VII (Social Sciences).

Pre-Major Requirements: PS 151 and 200 or 201.

Major Requirements: A minimum of 21 credits in Political Science, of which at least three credits shall be at the 200 level, and at least 15 credits at the 500 level. At least one course must be taken in each of four fields of Political Science.

Field of Concentration Requirements: See page 66.

Course Descriptions

151 *American Government.* (3) I, II, S
A survey of national government in the United States, with emphasis on the Constitution, the structure of Government, and politics.

152 *Functions of American Government.* (3) I, II
An introductory study of the policy-making processes in American Government through analysis of domestic and foreign programs and their impact upon the American policy. Prereq: PS 151.

200 *Introduction to Political Analysis.* (3) I, II
Introduction to the basic knowledge of research methodology in Political Science: a review of methods of data collection; historical, quantitative and comparative techniques of analysis.

201 *Introduction to Political Behavior.* (3) I, II
The study of behavior in a political context; its significance and antecedents; analysis of behavioral concepts used in Political Science, such as political roles, groups, power, systems, and decision-making; relation of political behavior to democratic theory.

250 *Comparative Politics and Political Development.* (3) I
An introduction to the theories and concepts employed in comparative political studies. The course is designed to prepare undergraduate students for the more advanced course in comparative politics and government. Prereq: PS 151.

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.

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.

390 *Seminar in Political Science.* (3) I, II
A topical seminar primarily for senior Political Science majors. Prereq: A standing of 3.0 in department or consent of instructor.

395 *Independent Work.* (3) I, II
Honors course for seniors who are majors 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.

501 *Latin American Relations.* (3) II
The relations between the United States and the Latin American countries, with emphasis on the Monroe Doctrine and Pan-Americanism.

520 *Governments and Politics of South Asia.* (3)
A study of the political processes of India, Pakistan, and Ceylon.

521 *Government and Politics of Southeast Asia.* (3) I
Study of the political processes, problems and behavior of the several states of Southeast Asia with emphasis on their chief determinants. The different patterns of political development will be examined.

530 *The Conduct of American Foreign Relations.* (3) I, II
The formulation, conduct, and control of American foreign policy, basic principles, comparison with other countries. Prereq: PS 151.

531 *National Security Policy.* (3) I
The organization and formulation of military policy; the theory and practice of deterrence; and the problems of disarmament and arms control. Prereq: PS 265.

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.

541 *The Foreign Policy of the Soviet Union.* (3) I, II
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 consent of instructor.

551 *Comparative Foreign Policies.* (3)
This course will emphasize comparative analysis and the development of propositions to explain why states behave as they do. Lecture, three hours. Prereq: PS 265 or consent of instructor.

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.

553 *Urban Government and Politics.* (3) I
An analysis of the formulation of public policy in small towns, middle-sized cities, and metropolitan areas. A theoretical model appropriate to all three settings will be formulated. The principal methods of studying community decision-making will be evaluated.

554 *Survey of Sub-Saharan Politics.* (3) I
A survey of Sub-Saharan government and politics intended to give the student broad knowledge about the setting of African politics, pre-colonial African political systems, the political legacies of major European colonial powers, and problems of political development.

555 *Comparative Government—Parliamentary Democracies.* (3) I, S
A study of the governments of Great Britain and the Dominions, France, and Scandinavia.

556 *Government and Politics of the Soviet Union.* (3) I, II
Analysis of political development in the Soviet Union with emphasis on party-government relations, Communist ideology, and major approaches to the study of Soviet politics.

557 *Government and Politics in Subsaharan Africa.* (3)
The course will focus on the relationship between ideologies, institutions, and individuals in African political systems. Implications of these factors for African political behavior (domestic and international) will be examined. Prereq: PS 554.

559 *Constitutional Politics I.* (3) I
A survey of the interpretation of the Constitution is embodied in leading Supreme Court decisions. Concentrates upon (1) the substantive nature of constitutional doctrine, and (2) its relationship to political, economic and social trends.

560 *Constitutional Politics II.* (3) II
A study of the philosophy and development of civil liberties in the U.S. Major concentration on the interpretation of constitutional guarantees by the Supreme Court.

563 *The American Judicial Process.* (3) I
A study from the standpoint of the social sciences, of the judicial process at the state and national levels, dealing with the organization of courts, the making of judicial decisions, and the exercising of judicial power.

566 *The United Nations.* (3) II
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.

568 *The Governments and Politics of Eastern Asia.* (3) I, S
A comparative analysis of the modern political experiences of China and Japan, exploring their responses to the West, the development of differing political elites in each country, and contemporary problems of the Chinese Communist and Japanees politics.

569 *Latin American Government and Politics.* (3) I
A study of contemporary Latin American political institutions and of the dynamics of the Latin American political process.

570 *Political Parties.* (3) I, II
An analysis of pressure groups; organization, methods, and functions of political parties in the United States.

571 *Early Political Theory.* (3) I, II
The history of political theory from classical Greece to the Seventeenth Century with emphasis on the relationships between political and cultural change and the development of Western political thought.

572 *Modern Political Theory.* (3) I, II
Political theory from the seventeenth century to the present with emphasis on the development of contemporary ideologies, the impact of industrialism and modern science, and the relationships between modern democracy and dictatorship.

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.

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.

575 *American Political Thought.* (3) I
Analysis of the development of American political thought especially as it relates to the role of government in the society.

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.

577 *Introduction to Public Administration.* (3) I, II
A study of theories of administration and organization, problems of line management and control, the principal staff and auxiliary functions and agencies, and the problem of administrative responsibilities under democratic government.

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.

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.

610 *Comparative Politics: Theory and Method* (3) I
A study of the evolution and development of comparative government and politics within the discipline with particular emphasis upon the formulation, application, and limitations of the theories, taxonomies and conceptual frameworks employed in comparative research.

654 *Proseminar in Judicial Process.* (3) I
A thorough survey of the recent literature in the judicial process, focusing particularly on judicial recruitment, the relationship of the judiciary to other power centers, and the decision-making process of judges.

671 *Introduction to Methods and Methodology in Political Science I.* (3) I

Analysis of the application of scientific method to the study of political phenomena; problems of concept formation; law, cause and explanation; theory construction; and the place of values in political inquiry.

672 *Introduction to Methods and Methodology in Political Science II.* (3) II

Consideration of various modes of conducting research in political science. Focus on research techniques, applications, and theory building. Prereq: PS 671.

674 *Proseminar in Theories of International Politics.* (3) II

A survey of the major theoretical approaches to the study of international systems and processes.

680 *Proseminar in American Political Systems and Process.* (3) I

A thorough survey of recent literature on the political systems at all levels of American government, including political parties, the legislative and executive process, and local power structures and decision-making.

751 *Seminar in Metropolitics.* (3)

Overview of research on Metropolitan Government and Politics; power structures, voting behavior and elections in Metropolitan areas; emphasis on student research in Metropolitan problems. Prereq: PS 553 or permission of instructor.

752 *Problems in State and Local Government.* (3) II

An intensive study of the basic problems of state and local government. Special emphasis will be given to such current problems as are of fundamental importance. May be repeated once.

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.

758 *Seminar in Soviet Politics, Government and Foreign Policy.* (3)

Emphasis on methodology of various approaches to the study of the USSR, as well as substantive research. Subjects will alternate yearly between Soviet Politics and Soviet Foreign Policy. Prereq: PS 556 and PS 541 or permission of instructor.

759 *Seminar in African Political Systems.* (3)

The seminar will focus on dimensions of change in African political systems. Dimensions to be analyzed include ideology, economic development, socialization, authority, political recruitment and political party and interest group behavior.

761 *The Constitution and Civil Rights.* (3) I

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.

762 *Seminar in Judicial Policy Making.* (3) II

Formulation, development and implementation of Constitutional policy by the United States Supreme Court and other agencies. Primary focus on areas of contemporary importance (excluding Civil Rights). Cases and supporting materials. May be repeated once. Prereq: Permission of instructor.

763 *Seminar in Administrative Politics.* (3) II

The processes by which administrative agencies establish and enforce policy are analyzed in terms of both legal and political considerations and behavioral theory. Prereq: Consent of instructor.

764 *Research in Judicial Behavior.* (3) II

Participant research on selected substantive inquiries about judicial behavior; in depth examination of related theory, methods, and research strategies. Prereq: Permission of instructor.

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

May be repeated once. (1-6 credits equivalence.)

769 *Residence Credit for the Doctor's Degree.* (0)

May be repeated indefinitely. (1-12 credits equivalence.)

770 *Seminar in Contemporary Political Theory.* (3) II, S

An intensive study of contemporary political ideologies. May be repeated once to a maximum of six credits.

772 *Advanced Problems in Research Methods* (3) I

A seminar in selected topics; the application of mathematical models and advanced statistical techniques to political science data.

773 *Asian Political Theory.* (3) I

An examination of the major political thought patterns of ancient and contemporary Asia, with emphasis on India and China. Three class hours per week. Prereq: Consent of instructor.

776 *Political Development of Southeast Asia.* (3) II

Study of the processes of political change in Southeast Asia; concepts, approaches and methodology; problems of political development; research problems in studying political development in Southeast Asia. Prereq: permission of instructor.

777 *Research Problems in International Relations.* (3) II

This seminar focuses on research strategies that can be utilized in dealing with problems in International Relations. May be repeated once with consent of instructor. Prereq: PS 774 or consent of instructor.

778 *Seminar in Comparative Foreign Policies.* (3) I

Emphasis upon internal and external factors impinging upon decision-making in the area of foreign policy. May be repeated once with consent of instructor.

779 *Voting Behavior.* (3) I

A study of recent research in the field of voting behavior, including analysis of survey research techniques. Prereq: An undergraduate course in parties or public opinion or consent of instructor.

780 *Legislative Behavior.* (3) II

A study of recent research in the legislative process emphasizing both the substantive and methodological aspects. Prereq: An upper division course in the legislative process or consent of instructor.

784 *Seminar in Political Socialization.* (3) II

A course in contemporary research in the acquisition of political orientations. The focus is on children. The objects, agents, and consequences of political socialization are analyzed, as well as the processes by which it may proceed. Some attention is given to research design appropriate to the area. Prereq: Graduate student status.

785 *Psychological Bases of Political Behavior.* (3) II

The role of psychological constructs and theory in political explanation; measurement and inference problems; critical analysis of research concerned with such topics as the effect of psychological mechanisms on loyalty, quiescence, participation, political change and revolution. Prereq: PS 671 and PS 672 or consent of instructor.

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.

791 *The Organization as a Political System.* (3) I

This course involves an examination of theoretical concepts pertaining to the design of organizational structure and the prediction and control of administrative behavior, including detailed analysis of the models evolving from traditional, behavioral and decision-making approaches to the study of administrative organization. Major emphasis will be placed on such concepts as those relative to power and its allocations, leadership, representation and policy formation. Student work will include participation in field research projects as well as extensive reading in the field of organization theory. Prereq: PS 577 or equivalent.

795 *Special Problems in Political Science.* (3) I, II, S

May be repeated once to a maximum of six credits.

PSYCHOLOGY

FACULTY

Robert Allen Baker, Jr., chairman

Professors

Robert Allen Baker, Jr.	Ph.D., Stanford, 1952
James S. Calvin	Ph.D., Yale, 1939
Charles F. Diehl	Ph.D., Penn State, 1949
Betsy Worth Estes	Ph.D., Kentucky, 1950
Jesse Graham Harris, Jr.	Ph.D., Duke, 1955
Melvin J. Lerner	Ph.D., New York, 1957
Frank Acklen Pattie	Ph.D., Princeton, 1925
Martin Marshall White	Ph.D., Chicago, 1930
Leonard Worell	Ph.D., Ohio State, 1954

Associate Professors

Ronald C. Dillehay	Ph.D., California, 1962
Charles Fowler Elton	Ph.D., Ohio State, 1951
Edward Engel	Ph.D., Princeton, 1955
Edward Lee Newbury	Ph.D., Princeton, 1961

Assistant Professors

Fred Altman	Ph.D., Michigan, 1969
Juris I. Berzins	Ph.D., Connecticut, 1966
John V. Haley	Ph.D., Loyola, 1963
Kenneth A. Jacobus	Ph.D., Ohio State, 1967
Donald F. McCoy, Jr.	Ph.D., Missouri, 1966
William Thomas McReynolds	Ph.D., Texas, 1969
John Sensenig	Ph.D., Duke, 1969
James E. Spivey	Ph.D., Texas, 1964
Richard Paul Stratton	Ph.D., Michigan State, 1969

The undergraduate curriculum in Psychology includes courses in the major content areas of Psychology. The program leading to a Bachelor of Arts degree provides course work emphasizing the fundamental concepts and techniques of this basic social science. In addition to course work, the program provides for student experience in conducting and analyzing laboratory experiments.

The graduate program in Psychology includes work leading to the master's degree in general psychology and to the Ph.D. degree in either clinical or general psychology, the latter with concentration in any of the various areas represented in the department. The graduate curriculum is designed primarily for students seeking the Ph.D. by providing a core curriculum during the first year. Students usually obtain financial support through teaching assistantships, research assistantships or fellowships. In addition, clinical students can normally expect to have practicum and part-time experience in one or more of the numerous community installations.

Both the undergraduate and graduate programs are designed to provide the student with broad comprehensive knowledge of Psychology and to permit the student to pursue topics of individual interest.

Departmental Requirements

For University and college requirements see page 6.

General Studies Requirements for Psychology Majors: Areas I, II, III, IV, V, and completion of one sequence in either VI or VII.

Pre-Major Requirements: PSY 104, 106, 201, 210, or equivalent.

Major Requirements: 18 credits in Psychology including PSY 336; two of the following courses: PSY 330, 505, 507, 509, 511; one of the following: PSY 501, 521, 535; one of the following: PSY 544, 545. Senior comprehensive examination.

Field of Concentration Requirements: See page 66.

Course Descriptions

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 104 and 106, or 210.

*104 *Basic Psychology I.* (3) I

An introduction to the study of human behavior. Among the topics covered are: biological foundations of behavior, the methods and procedures of psychology; simple conditioning, sensation, perception and learning. Lecture, two hours; lab, two hours.

*106 *Basic Psychology II.* (3) II

A continuation of Psychology 104. Among the topics covered are: psychological testing, personality, behavior pathology, social behavior, and applications of psychology to medicine, law, and engineering. Lecture, two hours; lab, two hours. Prereq: PSY 104.

200 *Psychology of the Child.* (3) I, II, S

An introduction to the scientific study of infancy, childhood, and adolescence. Prereq: PSY 104 and 106, or 210. (Same as HF 254.) *Estes.*

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 104 and 106, or 210. *Staff.*

*210 *General Psychology.* (3) I, II

A beginning course open to sophomores. The emphasis is on the psychological theories and generalizations in the fields of perception, learning, and motivation. Not open to students who have received credit for PSY 104 or 106. Prereq: Sophomore standing.

330 *Experimental Psychology.* (3) I

A study of the application of scientific methods to psychological research. Particular attention is focused on experimental design, psychophysical methods, conditioning, learning, motivation, memory, and problem solving. Prereq: PSY 104 and 106 or PSY 210. *Spivey.*

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 104 and 106, or 210. *Calvin.*

395 *Independent Work in Psychology.* (3) 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 12 credits. *Staff.*

---

* This course is prerequisite to a significant number of courses in this and related areas of study.

399 *Methodology for Behavioral Sciences.* (3)
A survey course in the methodology of behavioral sciences in the broad sense of both science and methodology. The achievements and limitations of the newer scientific disciplines and methodological problems within all of the behavioral sciences are surveyed. Prereq: PSY 104 and 106 or 210; or SOC 101, or PS 151 or equivalent introductory courses in the behavioral sciences areas. (Same as SOC 399).

501 *Personality.* (3) I, II
An examination of several prominent personality theories in terms of the contexts in which they were originated, their influence upon contemporary psychological thought, and their present applications. Prereq: PSY 104 and 106, or PSY 210; permission of instructor required for graduate students. *Worell.*

505 *Human Senses and Perception.* (4) I
A study of the stimulus, receptor and organism variables that underlie perceptual experience and perceptually based behavior with emphasis upon theory and experimental method. Prereq: PSY 104 and 106, or 210. *Engel.*

507 *Psychology of Learning.* (4) II
Fundamental principles and findings from laboratory investigations of classical, instrumental, and verbal learning. Prereq: PSY 104 and 106, or 210 and 336, or equivalent.

509 *Animal Behavior.* (4) I
Experimental techniques used in investigations of animal behavior. Topics include: heredity and environment, activity, instinct, motivation, learning, sensory discrimination, and personality in subhuman species. Prereq: PSY 104 and 106, or 210. *Newbury.*

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 104 and 106, or 210. Not open to students who have had CH 520.

521 *Abnormal Psychology.* (3) I, II, S
A study of the major mental disorders, especially the psychoneuroses and the psychoses, and the biological, psychological, and sociological factors which contribute to their causation. Prereq: PSY 104 and 106, or 210.

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.

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 104 and 106, or 210. *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 preferences. Prereq: PSY 104 and 106, or 210. *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, and interests. Prereq: PSY 104 and 106, or 210. *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 104 and 106, or 210, and 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 104 and 106, or 210.

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 104 and 106, or 210.

544 *Social Psychology.* (3) I, S
Theoretical and empirical analysis of individual behavior in the social setting with particular emphasis on social learning, motivation, and the measurement, formation, and changing of social attitudes. Prereq: PSY 104 and 106, or 210; SOC 101. (Same as SOC 544.) *Sensenig and Dillehay.*

545 *Small Group Behavior.* (3) I
Detailed theoretical and empirical analysis of small groups. The course systematically covers properties of groups and how these properties have been manipulated experimentally. Prereq: PSY 104 and 106, or 210, and one introductory course in Sociology. *Dillehay and Sensenig.*

570 *Verbal Behavior.* (3)
A broad coverage of several basic areas of human verbal behavior with particular emphasis on rote learning, memory and retention, associative processes, and psycholinguistics. Three class hours per week. Prereq: PSY 330 or 507.

579 *Stuttering.* (3)
The nature, causes and treatment of stuttering, with emphasis on therapeutic procedures. Prereq: EDS 577. (Same as EDS 579.)

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.* (3) I
A systematic presentation and critical analysis of the major theories of learning. Prereq: PSY 505, 507 or equivalent and 600.

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.* (3) II
An examination of the descriptive, theoretical, and research material relevant to the major classes of disturbed behavior. Special attention is devoted to the stylistic features of neurotic and psychotic communication and behavior. Prereq: Enrollment in the graduate program in psychology.

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 610.

616 *Research Design in Clinical Psychology.* (3)
Concentrates on current methodologies utilized in clinical research and on the application of sophisticated techniques to traditional research problems. Students are expected to master critical skills for the evaluation of research designs and are encouraged to explore creative approaches to research in important clinical areas. Prereq: Admission to graduate program.

617 *Experimental Approaches to Personality.* (3)
A critical evaluation of experimental studies in selected areas in personality. Each student is required to design and conduct an empirical investigation of a specific problem. Two hours lecture, three hours lab per week. Prereq: Completion of one year of graduate program in psychology or permission of instructor.

618 *Experimental Approaches to Psychopathology.* (3)
A critical evaluation of experimental studies in selected areas of psychopathology. Each student is required to design and conduct an empirical investigation of a specific problem. Two class hours, three lab hours. Prereq: Completion of one year of graduate program in psychology, or permission of instructor.

620 *Proseminar in Systematic Psychology.* (2)
An examination of some works of important theorists in psychology of the last 40 years. Prereq: PSY 507 or equivalent. *Staff.*

621 *Proseminar in Learning.* (2)
An intensive treatment of concepts, methodology, and current developments in the field of learning. Prereq: PSY 507 or equivalent. *Staff.*

622 *Proseminar in Personality.* (2)
An intensive treatment of theories, methods of investigation and current developments in the area of personality. Prereq: PSY 501 or its equivalent. *Staff.*

623 *Proseminar in Sensation and Perception.* (2)
An intensive examination of the facts, methods and concepts involved in the study of sensory and perceptual processes. Prereq: Consent of instructor. *Engel.*

624 *Proseminar in Social Psychology.* (2)
An intensive examination of the methods and data of social psychology with emphasis on social attitudes. Prereq: PSY 544 or its equivalent. *Lott.*

625 *Proseminar in Developmental Psychology.* (2)
An intensive treatment of theoretical and experimental literature, both classical and contemporary, in developmental psychology. Prereq: PSY 200 or equivalent. *Estes.*

629 *Introduction to Clinical Psychology.* (1)
Offered conjointly by the clinical faculty; covers the broad perspectives of clinical psychology, methods, history, ethics, and professional issues. Prereq: Enrollment in the graduate program in psychology.

630 *Clinical Methodology I.* (2)
An intensive survey and evaluation of tests of intelligence and objective methods of assessment of normal and abnormal personality. Special emphasis is given to major theoretical issues and relevant quantitative methods. Prereq: PSY 336, 501, 520, 535, or equivalent, and enrollment in graduate program in psychology.

631 *Practicum in Clinical Methodology I.* (2)
Clinical interviewing and practice in writing reports on behavioral observations, content of verbalization, and case history data. Practice in administration, scoring and interpretation of intelligence tests and objective personality tests. Four hours laboratory per week. Prereq: PSY 501, 521, and 535, or the equivalent, and enrollment in the graduate program in psychology. PSY 630 to be taken as co- or prerequisite.

632 *Clinical Methodology II.* (2)
Theoretical issues, quantitative methods and research findings on the projective methods of assessment of normal and abnormal personality. Prereq: PSY 630, and enrollment in graduate program in psychology.

633 *Practicum in Clinical Methodology II.* (2)
Practice in the administration and scoring of projective techniques and batteries of clinical tests. Four hours of laboratory per week. Prereq: PSY 630 and 631, and enrollment in graduate program in psychology. PSY 632 to be taken as co- or prerequisite.

634 *Practicum in Clinical Psychology III.* (3)
Administration, scoring, and interpretation of projective techniques and personality inventories, individually administered. Nine hours lab per week. Prereq: PSY 632 and 633, and enrollment in graduate program in clinical psychology.

635 *Practicum in Clinical Psychology IV.* (3)
Administration, scoring, and interpretation of batteries of clinical tests, with emphasis on organization of all relevant behavioral and test data, and professional report writing. Students will be assigned to local clinical installations. Nine hours lab per week. Prereq: PSY 634, and enrollment in graduate program in clinical Psychology.

636 *Systems of Psychotherapy.* (3)
An intensive examination of the major theoretical and research approaches to therapeutic behavior change. Prereq: PSY 632 and 633, and enrollment in graduate program in clinical psychology.

637 *Practicum in Psychotherapy and Behavior Change.* (1-3)
Supervised experience in the techniques of psychotherapy with adults, children and groups, and in community mental health approaches. Laboratory, 2 to 6 hours. Each clinical student must have a cumulative minimum of three different supervisors. May be repeated to a maximum of six credits. Prereq: PSY 636 and enrollment in graduate program in Clinical Psychology.

638 *Clinical Child Psychology.* (3)
Theory and research relevant to behavior problems of children; supervised experience in the diagnosis and therapy of children. Two hours lecture, two hours lab per week. Prereq: PSY 636 and 637 and enrollment in graduate program in Clinical Psychology.

640 *Practice in Testing: Intelligence Tests.* (4)
This course provides theoretical material and advanced laboratory practice in the measurement of intelligence by individual techniques. Lecture, 3 hours; lab, 2 hours. 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 PSY 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.

647 *Disorders of Language.* (3)
Emphasis on adult aphasia and developmental language disabilities, theories, research findings, assessment procedures, and therapy approaches. Three class hours per week. (Same as EDS 647.)

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.

662 *Practicum in Child Psychology.* (3) I, II
Nine hours of supervised work each week. May be repeated to a maximum of 12 credits. *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.

665 *Practicum in Counseling Psychology.* (3) I, II
Supervised experience in application of diagnostic and interviewing techniques in a counseling service. (Same as EDP 665.) May be repeated to a maximum of 12 credits. Prereq: PSY 522.

700 *Seminar in Behavior Modification.* (3)
Considers the general behavioristic orientation, history, theoretical foundations, research investigations and case study material related to clinical approaches to behavior modification. Prereq: Enrollment in the graduate program in clinical psychology and consent of instructor.

701 *Seminar in Clinical Child Psychology.* (3)
Theory and research relevant to behavior problems of children. Prereq: Enrollment in graduate program and consent of instructor.

702 *Seminar in Community Mental Health.* (3)
Considers psychological intervention and the application of psychological principles to community problems in terms of problem definition, program development, program funding, assessment and evaluation. Emphasis is on the application of research findings to community problems in ways which permit adequate evaluation of program's effectiveness. Prereq: Enrollment in the graduate program and consent of instructor.

703 *Seminar in Group Therapy.* (3)
An examination of the major theoretical and research approaches to individual behavior change within a group. Prereq: Enrollment in the graduate program in clinical psychology and consent of the instructor.

704 *Seminar in Hypnosis.* (3)
A survey of the facts, theories, and therapeutic applications of hypnosis. Prereq: Enrollment in the graduate program in clinical psychology and consent of the instructor.

705 *Research in Psychotherapy and Behavior Change.* (3)
A critical examination of experimental studies in selected areas of psychotherapy and behavior change. Prereq: Enrollment in the graduate program in clinical psychology and consent of the instructor.

710 *Seminar in Clinical Psychology.* (3)
A selected topics course designed to cover content areas which are not being met by the current faculty; may be taught by persons with special qualifications from the community or by existing faculty exploring new areas. The topics, which may be offered as the need arises, may include on a semester basis, mental retardation, intensive psychoanalytic theory, psycho-pharmacology, etc. Prereq: Enrollment in graduate program and consent of instructor.

768 *Residence Credit for the Master's Degree.* (1 to 6 credits equivalence) (0)
May be repeated once.

769 *Residence Credit for the Doctor's Degree.* (1 to 12 credits equivalence) (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.*

772 *Seminar in Learning.* (3) I
The study of selected topics in the learning area with emphasis on the recent experimental and theoretical literature. May be repeated to a maximum of 6 credits. Prereq: PSY 507 and consent of instructor. *Donahoe.*

774 *Seminar in Verbal Behavior.* (3)
The study of selected topics in the area of verbal behavior with emphasis on recent research and theory. May be repeated to a maximum of 6 credits. Prereq: Consent of instructor.

775 *Advanced Seminar in Perception.* (3)
A study of the major theoretical approaches to perception and an examination of critical experiments and well established phenomena in the field of perception from the vantagepoint of these theories. Prereq: PSY 623 or equivalent. *Engel.*

776 *Seminar in Animal Motivation.* (3)
A variety of topics in motivation and unlearned behavioral determinants in sub-human species will be treated intensively in comprehensive reports based on the research literature and related to such problems as instinct, drive theory, activation, stress, work decrement, and neural components. Human implications may also be considered. Prereq: Consent of instructor. *Newbury.*

777 *Seminar in Mathematical Psychology.* (3)
Topics in psychology which are receiving detailed mathematical analysis. Examples are mathematical learning theory, decision and judgment processes, advanced application of probability and statistics in psychological theory. Prereq: PSY 610. *Calvin.*

778 *Seminar in Child Psychology.* (3)
Topics in psychological development of the individual, e.g., learning, sex typing, identification, emotional problems, mental retardation, theories of infant care, achievement motivation, etc. Prereq: PSY 200 or equivalent. *Estes.*

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. Prereq: PSY 544; SOC 101.

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.*

781 *Research Participation.* (1)
Emphasis on the team approach to research. Designed primarily for first year graduate students, but may be repeated to a maximum of four credits. Laboratory, 2-4 hours per week. Prereq: Enrollment in the graduate program in psychology.

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.*

SLAVIC AND ORIENTAL LANGUAGES AND LITERATURES

FACULTY

Mischa Harry Fayer, chairman

Professors

Mischa H. Fayer — Ph.D., Columbia, 1945; Litt. D., Middlebury College, 1969

Leon Zolondek — Ph.D., Chicago, 1957

Associate Professor

Paul G. Forand — Ph.D., Princeton, 1962

Instructor

Mitchell Winthrop — M.A., Chicago, 1963

Lecturers

Victor Dechtiarenko — M.A., Syracuse, 1966

Mrs. Akiko McVarish — Educated in Japan

PROGRAM IN RUSSIAN FOR AN UNDERGRADUATE MAJOR

Majors planning to teach Russian are urged to take as many language and literature courses in other departments as possible. Those preparing for government service are urged to take courses in Political Science, History, or the Social Sciences.

Lower Division:

A. *English Composition:* ENG 101 and 102 are required of all students, unless proficiency can be demonstrated.*

B. *General Studies Requirements:*

1. Areas required of Russian majors: II, III, IV, V, and VI.

* Students who score in the 85th percentile or above on their classification tests may take 105 and 106. English 106 will be waived for students who receive a grade of B or above in English 105.

2. *Optional Areas:* the sixth sequence of courses may be chosen from any one of the following areas:

   I (students taking mathematics in this area may omit either Area II or III), VII, or VIII.

Upper Division:

A. *Pre-Major Requirements:*

1. SO 261 and 262
2. SO 263 or 264
3. Six hours in another language, or equivalent work in high school
4. HIS 285 and 286

B. *Major Requirements:*

1. Field of Concentration: 40 credits of non-freshman courses
   a. At least 18 of these credits must be in upper division courses in Russian
   b. At least 14 of these credits must be in 200 level and above courses in generically related areas outside the Department of Slavic and Oriental Languages. Courses to be selected with the help of the adviser in Anthropology, Art History, English, German and Classics, History, French, Geography, Philosophy, Spanish, Linguistics, and Theatre Arts would be appropriate. At least two courses should be in the same department. For majors planning to teach Russian, ENG 561 and 562, Comparative Literature I and II, are strongly recommended.

Course Descriptions

RUSSIAN

The following courses will be required for a major in Russian: 261 (3); 262 (3); 263 (3); 264 (3); 367 (3); 368 (3); 464 (3); 563 (3);

The following courses will be recommended: 395 (3); 461 (3); 462 (3); 463 (3);

011 *Russian for Scientists.* (0)
Designed for graduate students who wish to acquire a reading knowledge of scientific Russian in order to fulfill the foreign language requirement for an advanced degree. Three class hours per week. *Staff.*

161 *Elementary Russian.* (3)
The students are introduced to the language through oral practice. Subsequently, writing and the elements of grammar are gradually introduced. The emphasis is on the spoken language of everyday use, reading of graded Russian, texts, vocabulary building and accurate pronunciation. Extensive work with tape recordings.

162 *Elementary Russian.* (3) I, II
A continuation of SO 161. Prereq: SO 161 or the equivalent.

261 *Intermediate Russian.* (3)
Systematic study of grammar. Introduction through simplified texts to the life and culture of Tsarist and Soviet Russia. Dictation, composition, conversation, and extensive work with tape recordings. Prereq: SO 162 or the equivalent. *Winthrop.* (Required)

262 *Intermediate Russian.* (3) I, II
A continuation of SO 261. (Required). Prereq: SO 261 or equiv. *Staff.*

263 *Russian Literature of the 19th Century* (in English). (3)
Major literary trends in the 19th century with special emphasis on great literary figures: Pushkin, Gogol, Goncharov, Turgenev, Tolstoy, Dostoevsky, and Chekhov. No knowledge of Russian is required. *Fayer.* (Required of any major.)

264 *Russian Literature of the 20th Century* (in English). (3)
Major literary trends since 1880 in Russian drama and fiction, with special emphasis on Chekhov and 20th century writers: Gorky, Alexei, Tolstoy, Sholokov, Leonov, Simonov, and others. *Winthrop.* (Required.)

367,368 *Russian Conversation and Composition* (conducted in Russian). (3 ea.)
Prepared discussion on assigned topics with definite vocabulary preparation, oral and written reports and class discussions, based on reading selections from standard Russian authors. Prereq: SO 261, 262 or consent of instructor. *Dechtiarenko.* (Required.)

395 *Independent Work in Russian.* (3)
Students who have the proper qualifications may undertake a special problem in reading and research. May be repeated once for a total of six credits. (Recommended.)

461 *Advanced Readings in Russian Literature* (3)
Based on the reading of the 19th Century and 20th Century short stories and plays by Russian masters. Intended for students desiring to combine extensive reading with oral and written expression. Particular emphasis will be placed on advanced grammar and syntax. Prereq: SO 367, 368. *Dechtiarenko.* (Recommended.)

462 *Advanced Readings in Russian Literature.* (3)
A continuation of SO 461. Prereq: SO 461 or equivalent. *Dechtiarenko.* (Recommended.)

463 *Russian Drama* (in Russian). (3)
A survey of the growth and development of the Russian drama, with special emphasis on the outstanding dramatists of the 18th, 19th, and the beginning of the 20th centuries. Prereq: SO 367 or permission of instructor. *Dechtiarenko.* (Recommended.)

464 *Survey of Russian Literature to* 1800 (in Russian). (3)
An introduction to the literature of Russia from earliest times to Pushkin. The emphasis will be on 18th century authors. Prereq: SO 367, 368, or consent of instructor. *Dechtiarenko.* (Required.)

563 *Tolstoy and Dostoevsky* (in English). (3)
A study of the period, significant works, influence at home and abroad. Lectures, oral and written reports, class discussions. Required of majors in addition to 24 hours of courses in Russian. *Fayer.* (Open to non-majors.)

JAPANESE

181 *Elementary Japanese.* (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. *McVarish.*

182 *Elementary Japanese.* (4) I, II
A continuation of SO 181. *McVarish.*

281 *Intermediate Japanese.* (3) I, II
Reading of texts written in modern colloquial Japanese and continued practice in conversation. Prereq: SO 182. *McVarish.*

282 *Intermediate Japanese.* (3) I, II
A continuation of SO 281. *McVarish.*

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. *McVarish.*

285 *Comprehensive Readings in Japanese.* (3) I, II
A continuation of SO 284. This course will increase the student's reading vocabulary and introduce slightly more advanced grammatical forms. *McVarish.*

305 *Oriental Civilization I: From the Earliest Times to the 15th Century.* (3)
Survey of the major features of the civilizations of China and Japan, emphasizing the important cultural achievements of each area. Prereq: Sophomore standing or consent of instructor. *McVarish.*

306 *Oriental Civilization II: From the 15th Century to the Modern Era.* (3)
Survey of the major features of the civilizations of China and Japan, emphasizing the important cultural achievements of each area. Prereq: Sophomore standing or consent of instructor. *McVarish.*

HEBREW

171 *Elementary Hebrew.* (3) I, II
The students are introduced to the language through oral practice. Subsequently, writing and the elements of grammar are gradually introduced. The emphasis is on the spoken language of everyday use, reading of graded Hebrew texts, vocabulary building and accurate pronunciation. Extensive work with tape recordings. *Winthrop.*

172 *Elementary Hebrew.* (3)
The students are introduced to the language through oral practice. Subsequently, writing and the elements of grammar are gradually introduced. The emphasis is on the spoken language of everyday use, reading of graded Hebrew texts, vocabulary building and accurate pronunciation. Prereq: SO 171 or one year of high school Hebrew. *Winthrop.*

271 *Intermediate Hebrew.* (3)
Systematic study of grammar. Introduction through simplified texts to Hebrew life and culture. Dictation, composition, conversation, and extensive work with tape recordings. Prereq: SO 171, 172. *Zolondek.*

272 *Intermediate Hebrew.* (3)
Systematic study of grammar. Introduction through simplified texts to Hebrew life and culture. Dictation, composition, conversation and extensive work with tape recordings. Prereq: SO 271. *Zolondek.*

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.

371 *Hebrew Conversation and Composition.* (3)
Prepared discussion on assigned topics with definite vocabulary preparation; oral and written reports and class discussions, based on reading selections from standard Hebrew authors. Prereq: SO 272 or consent of instructor. *Staff.*

372 *Hebrew Conversation and Composition.* (3)
Prepared discussion on assigned topics with definite vocabulary preparation; oral and written reports and class discussions, based on reading selections from standard Hebrew authors. Prereq: SO 371 or consent of instructor. *Staff.*

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. Some attention to Islamic civilization. Open to freshmen.

141 *Elementary Arabic Reading.* (3) II
Grammar and reading exercises in Modern Written Arabic. Prereq: SO 140.

147 *Beginning Arabic Conversation.* (1) I
A course to improve pronunciation and comprehension of spoken Arabic. Two class hours per week.

148 *Beginning Arabic Conversation.* (1) II
A continuation of SO 147. Two class hours per week. Prereq: SO 147.

242,243 *Intermediate Arabic.* (3 ea.)
Selected readings from Arabic newspapers and modern Arabic authors. Prereq: SO 141.

248 *Intermediate Arabic Conservation.* (1)
A continuation of SO 148. Two class hours per week. Prereq: SO 148.

249 *Intermediate Arabic Conversation.* (1) II
A continuation of SO 248. Two class hours per week. Prereq: SO 248.

344 *Advanced Arabic Reading I.* (3)
Reading of selected modern Arabic texts. Prereq: SO 243.

345 *Advanced Arabic Reading II.* (3)
Reading of selected modern Arabic texts. Prereq: SO 344.

OTHER DEPARTMENTAL OFFERINGS

328 *Islamic Civilization I: The Rise of Islam to the Fall of the Abbasid Dynasty.* (3)
The rise of Islam and its classical development.

329 *Islamic Civilization II: Islam and the West, 1453-1798.* (3)
The Islamic community and its relation to Europe.

330 *Islamic Civilization III: Islam and the Modern World.* (3)
The Islamic community and its response to westernization.

SOCIOLOGY

FACULTY

Thomas R. Ford, chairman

Professors

James S. Brown	Ph.D., Harvard, 1953
A. Lee Coleman	Ph.D., Cornell, 1950
C. Milton Coughenour	Ph.D., Missouri, 1953
Thomas Robert Ford	Ph.D., Vanderbilt, 1951
James Walter Gladden	Ph.D., Pittsburgh, 1945
William F. Kenkel	Ph.D., Ohio State, 1952
Robert Straus	Ph.D., Yale, 1947
Willis A. Sutton, Jr.,	Ph.D., North Carolina, 1952
Harwin L. Voss	Ph.D., Wisconsin, 1961

Associate Professors

Eugene B. Gallagher	Ph.D., Harvard, 1958
John B. Stephenson	Ph.D., North Carolina, 1966

Assistant Professors

Henry M. Barlow	Ph.D., Ohio State, 1968
Rabel J. Burdge	Ph.D., Penn State, 1965
E. Susan Drysdale	Ph.D., Louisiana State, 1969
John P. Drysdale	Ph.D., Louisiana State, 1966
Alfred M. Mirande	Ph.D., Nebraska, 1967
Jon M. Shepard	Ph.D., Michigan State, 1967
Doris Y. Wilkinson	Ph.D., Case Western Reserve, 1968

Instructors

Walter Abbott	M.A., California, 1964
Karen Sue Johnson	M.A., Texas, 1966

(See also Sociology faculty in College of Agriculture.)

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 community and social organization, deviant behavior, family, medical sociology, population, social change and development, and social institutions.

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 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 other areas involving the application of social science principles.

Students may often secure social research experience through participation in departmental or faculty research projects. The department is closely related to the University's Center for Developmental Change and through this multidisciplinary agency students may get experience in research, application, and special training programs related to problems of social change and economic and social development.

Departmental Requirements

For University and college requirements see page 6.

General Studies Requirements: Same as College.

Pre-Major Requirements: Six hours of Freshman Sociology, three of which shall be in SOC 101 and 152, or their equivalents.

Major Requirements: 18 to 26 credits of Sociology including SOC 220 or 240, SOC 365 and SOC 551.

Field of Concentration Requirements: See page 66.

Course Descriptions

(For course descriptions of other Sociology courses see College of Agriculture, Department of Sociology.)

I. INTRODUCTORY AND GENERAL SOCIOLOGY

*101 *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.*

102 *Introduction to Sociological Analysis.* (3)
Use of conceptual tools in the analysis of significant sociological problems, such as relationships between individual and society, conformity, stratification, and conflict through readings and projects. Required for sociology majors. Prereq: SOC 101. *Stephenson.*

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. Prereq: SOC 101 or consent of instructor. *Mirande, Barlow, Staff.*

153 *Societies Around the World.* (3) I, II
Comparative study of the Eskimo, Navajo, and Baganda as preliterate, primitive societies in difficult environments. Prereq: SOC 101. (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. Prereq: SOC 101. (Same as GEO 154.) *Staff.*

365 *History of Sociology.* (3) II
A survey of the development of scientific theory in the science of human social interaction and society from Auguste Comte to recent times. Emphasis is on the growth of sociology as a discipline. Prereq: SOC 101 or consent of instructor. *Wilkinson.*

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; SOC 101.

399 *Methodology for Behavioral Sciences.* (3)
A survey course in the methodology of behavioral sciences in the broad sense of both science and methodology. The achievements and limitations of the newer scientific disciplines and methodological problems within all of the behavioral sciences are surveyed. Prereq: PSY 104 and 106 or 210; or SOC 101 or PS 151 or equivalent introductory courses in the behavioral sciences areas. (Same as PSY 399.)

517 *Rural Sociology.* (3)
Systematic study of the structure and function of family, informal and locality groups, social strata, religious, educational, political and occupational groups in rural society. (Same as SOC 517 in Agriculture.) Prereq: Either GEN 102 or SOC 101.

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. Prereq: SOC 101 or consent of instructor. *Abbott.*

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. Prereq: SOC 101 or consent of instructor.

565 *Special Problems in Sociology.* (1-3)
Supervised individual study in selected sub-fields of sociology, population, community, organizations, social attitudes, deviant behavior, and social change are among the fields available for investigation. (Same as SOC 565 in Agriculture.) Prereq: SOC 101. *Staff.*

671 *Seminar in Contemporary Sociology.* (0)
Each member of the Department of Sociology presents a summary of his past and present research and his current interests. The purpose is to acquaint the student with the wide range of interests, projects and personnel in his graduate department. One hour per week. Prereq: SOC 101.

768 *Residence Credit for the Master's Degree.* (0) I, II, S
May be repeated once. (1-6 credits equivalence.) *Staff.*

---

* This course is prerequisite to a significant number of courses in this and related areas of study.

769 *Residence Credit for the Doctor's Degree.* (0) I, II, S

May be repeated indefinitely. (1-12 credits equivalence.) *Staff.*

773 *Topical Seminar.* (3)

Analysis of topics of scientific interest in rural sociology, selected from such fields as the following: criticism of research; sociological factors in land use; migration; rural social ecology of the South; highland societies. May be repeated once for a maximum of 6 credits. Prereq: SOC 101. (Same as SOC 773 in Agriculture.)

II. THEORY AND METHODOLOGY

571 *Contemporary Sociology.* (3) I

A survey of the current state and organization of sociology as indicated by consideration of the main fields of sociology and developments in each. Most of the staff participate as special lecturers in their specialty. Prereq: Major or minor in SOC and 9 hours in SOC; SOC 101. *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: SOC 101 and an introductory course in statistics. *Coughenour.*

651 *Systematic Sociology.* (3) I

An intensive study of certain selected sociological theorists such as Weber. Durkheim, Simmel, Pareto, and others. Prereq: SOC 101. *Drysdale.*

670 *Seminar on Role Theory.* (3) I

An exploration of differences and similarities in the utilization of the concept of role in Sociology, Anthropology and Psychology. Emphasis is placed on the potentiality of role as a unifying concept in the behavioral sciences. (Same as BSC 670.) (Same as ANT 670.) Prereq: Consent of instructor; SOC 101.

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 equivalent; SOC 101. *Ford.*

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; SOC 101. *Staff.*

770 *Seminar in Sociological Theory.* (3) II

An intensive survey of contemporary general theorists from Comte to the present. The principal sociological concepts of each are considered and their role in the development of contemporary sociology is assessed. Prereq: SOC 101. *Drysdale.*

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 once to a maximum of 6 credits. Prereq: At least 9 hours in the social sciences, preferably in Sociology; SOC 101. *Staff.*

780 *Special Problems in Sociology.* (1-6) I, II, S

May be repeated to a maximum of 10 credits. Prereq: SOC 101. *Staff.*

790 *Research in Rural Sociology.* (1-3)

Individual graduate research with correlated study of rural social research types and methods. May be repeated for a maximum of 6 credits. Prereq: SOC 101. (Same as SOC 790 in Agriculture.)

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. Prereq: SOC 101.

III. SOCIAL ORGANIZATION AND PROCESS

220 *The Community.* (3) I, II, S

Social organization and process in modern communities; social techniques of community improvement. Prereq: SOC 101 or consent of instructor. *Sutton and Stephenson.*

413 *Community Analysis.* (3)

A study of communal structure and processes with special emphasis on strategies of field investigation of particular communities. Prereq: SOC 101 or equivalent or consent of instructor. (Same as HE 575; same as SOC 413 in Agriculture.) *Ford.*

501 *Population Analysis.* (3) II

Distribution and composition, fertility and mortality, migration, ecological relationships and growth of population. Prereq: SOC 101 or consent of instructor. *Abbott.*

502 *Methods of Demographic Analysis.* (3) 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. Prereq or concur: SOC 501 and one of the following introductory statistical courses: ECO 291, or AEC 530; SOC 101. *Abbott.*

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: SOC 101 or consent of instructor. *Staff.*

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: SOC 101 or consent of instructor. *Gladden, Kenkel.*

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; SOC 101. *Gladden, Kenkel, and Mirande.*

515 *Diffusion of Technology in Modern Society.* (3)

A study of the personality, social structure and change agent factors in the spread of new techniques among groups and individuals in modern society. (Same as SOC 515 in Agriculture.) Prereq: Either GEN 102 or SOC 101, 153.

518 *Social Change.* (3) II

A sociological analysis of the sources, processes, and consequences of social change. Prereq: SOC 101. *Stephenson.*

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: SOC 101 or consent of instructor. *Sutton.*

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. Prereq: SOC 101 or consent of instructor. *Shepard.*

522 *Sociology of Complex Organizations.* (3)

An intensive study of intra- and inter-organizational structures and processes. Special emphasis is given to emergence, maintenance, and change of bureaucratic and non-bureaucratic organizations and the impact of organizations on individuals. Prereq: 6 hrs. of Sociology, or consent of instructor; SOC 101. *Barlow.*

523 *Social Determinants of Economic Behavior.* (3) II

A study of the sociology of consumption, the effect of social values upon business and employee behavior, and the socio-economic implications of welfare legislation. Prereq: SOC 101 or consent of instructor. (Same as ECO 523.) *Staff.*

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. Prereq: SOC 101 or consent of instructor. *Gladden.*

527 *Society and Health.* (3) II

The study of human behavior in illness and of medicine as a complex form of social organization in perspective of historical, cross-cultural and contemporary analysis. This course is designed primarily for students preparing for careers in an allied health science or profession. Prereq: SOC 101. (Same as BSC 527.)

529 *Political Sociology.* (3) I
A study of the sociological aspects of political systems, movements, and ideologies. Special attention is given to comparative analysis of parties, pressure groups, voting patterns, elites, bureaucracy, political socialization, mass politics, and the role of intellectuals. Prereq: 6 hours of Sociology or consent of instructor; SOC 101. *Drysdale.*

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: SOC 101 or consent of instructor. *Brown.*

532 *Intergroup Relations.* (3) S, I
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 EDF 532.) May be repeated once to a maximum of 6 credits. Prereq: SOC 101. *Coleman.*

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: SOC 101 or consent of instructor.

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. Prereq: SOC 101 or consent of instructor. *Barlow and Voss.*

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. Prereq: SOC 101 or consent of instructor.

539 *Sociology of Corrections.* (3)
This course is a study of correctional practices, including the issues of punishment versus treatment of offenders, probation and parole as methods of treatment, the social structure of the institution and its impact on the offenders, and specific programs and experiments in institutional and community treatment. Prereq: SOC 101. Recommended SOC 537 or 538. *Staff.*

548 *The Sociology of Public Opinion.* (3)
Introduction to the study of public opinion, its role in the society and its functions for the individual. Propaganda and other mass persuasion techniques are examined as these relate to the formation, alteration or maintenance of public opinion. Prereq: SOC 101 or consent of instructor. *Staff.*

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. (Same as EDC 549.) Prereq: SOC 101 or consent of instructor. *Wilkinson.*

615 *Rural Urban Relations.* (3)
Interdependence of city and country; solidarity and antagonistic relationships of city and country; the process of urbanization; problems of rural adjustment to urban influences. Prereq: SOC 101. (Same as SOC 615 in College of Agriculture.)

625 *Sociology of Religion.* (3)
Critical study of reciprocal relation of religion and culture, the function of religion in society, social sources of religious concepts, religious differentiation and institutionalization, the problem of church and state. Prereq: SOC 101. *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. Prereq: SOC 101. *Coleman.*

661 *Educational Sociology.* (3) II, S
A course in the sociological foundations of education. Prereq: SOC 101. (Same as EDF 661.) *Staff.*

690 *Community Action Analysis.* (3) II
The structure and dynamics of complex, collective actions are analyzed in terms of their social and cultural characteristics and their temporal patterns. Lecture, 3 hours. Prereq: SOC 101. *Sutton.*

702 *Seminar in Social Demography.* (3) II
A seminar designed to explore the relations between sociology and demography. Emphasis is given to the influence of social factors on demographic behavior and to the utilization of population data and demographic techniques in the investigation of sociological problems. Prereq: SOC 501 or equivalent; SOC 101. *Ford.*

720 Seminar in Community Theories. (3) I
An intensive examination of selected theories and writings relevant to an understanding of territorial communities. Includes a study of the writings of Durkheim, Park, Redfield, Warner, and others. Prereq: SOC 101. *Staff.*

727 *Seminar on Socio-Cultural Change.* (3)
A seminar for advanced students. Emphasizes economic, religious, political, technological, psychological, etc., factors in change, and social and cultural patterns and processes of change. Same as ANT 727. Prereq: ANT 527 or SOC 518, or permission of instructor; SOC 101. *Coughenour.*

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. Prereq: SOC 101. (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. (Same as EDF 750.) Prereq: 12 semester hours of graduate work including EDF 661 or equivalent; SOC 101. *Staff.*

766 *Concepts in Medical Sociology.* (3)
A systematic review of sociological concepts and methods which have been applied to the study of health and medicine; the contributions of medical sociology to general sociological theory; the roles of sociology in education for the health professions and in research on health related problems of society. Two class hours and four laboratory hours per week. Prereq: Predoctoral status in one of the Social or Behavioral Sciences with a concentration or minor in Medical Behavioral Science; SOC 101. (Same as BSC 766.)

775 *Seminar in the Family.* (3)
A seminar for students with a professional interest in the family. Selected topics are intensively examined. Prereq: SOC 101. *Gladden and Kenkel.*

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. Prereq: SOC 101 or consent of instructor. *Wilkinson.*

441 *Group Organization and Leadership.* (3)
A study of the structure and dynamics of organized groups; leadership, membership participation, and the processes of problem-solving and group development. (Same as SOC 441 in Agriculture.) Prereq: SOC 101 or consent of instructor.

526 *Culture and Personality.* (3)
The cultural basis of personality. Personal character considered as the result of culturally fostered patterns. The ideal personality in several selected societies. Prereq: SOC 101. (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.) Prereq: SOC 101. *Pearsall.*

542 *Human Relations in Administration.* (3)
Analysis of the role of social structure, leadership, authority, power, and psychological stress in the administration of large-scale organizations in the United States. Prereq: SOC 101 or consent of instructor. *Youmans.*

544 *Social Psychology.* (3) I, II
Theoretical and empirical analysis of individual behavior in the social setting with particular emphasis on social learning, motivation, and the measurement, formation, and changing of social attitudes. Prereq: PSY 104 or 210; SOC 101. (Same as PSY 544.)

546 *Social Factors in Mental Health.* (3) II

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; SOC 101. Offered every other year. (Same as BSC 546.) *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. Prereq: SOC 101 or consent of instructor. *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. Prereq: SOC 101. *Staff.*

SPANISH AND ITALIAN LANGUAGES AND LITERATURES

FACULTY

W. C. McCrary, chairman

Professors

J. Eduardo Hernandez†	Ph.D., Kentucky, 1938
John E. Keller	Ph.D., North Carolina, 1946
John Lihani	Ph.D., Texas, 1954
William C. McCrary	Ph.D., Wisconsin, 1958

Associate Professors

Joseph R. Jones	Ph.D., Wisconsin, 1962
Daniel R. Reedy	Ph.D., Illinois, 1962
Gerardo Sáenz	Ph.D., Texas, 1959

Assistant Professor

Margaret E. W. Jones	Ph.D., Wisconsin, 1963

Instructors

Peter Broad	M.A., Johns Hopkins, 1969
Michael Impey	M.A., Oxford (England), 1961

† On special assignment, 1969-70.

Departmental Requirements

REQUIREMENTS FOR THE MAJOR IN SPANISH

Lower Division:

ENG 101 and 102;
Area II (any sequence)
Area III (either sequence)
Area IV (SPI 101, 102, 201, and 202)
Area V (any sequence)
Area VI (any sequence), plus one of the following:
Area I (students may elect Mathematics in Area I in lieu of either Area II or III)
Area VII (any sequence) or
Area VIII (either sequence)

Pre-Major Requirements:

1. One course of Spanish selected from each of the following groups:
   a. SPI 210 (Grammar-Composition)
   b. SPI 211 (Spanish Conversation); SPI 212 (Spanish Civilization); SPI 213 (Spanish American Civilization); SPI 214 (Mexican Civilization).
2. Six (6) credits in another foreign language

Major Requirements:

1. 18 credits in 300-500 level courses in Spanish. Not more than two (2) courses on the 300 level may be included as a part of the total 18 hours required.
2. 14 credits in 200 level and above courses outside the Department of Spanish, but within the field of concentration, preferably in a single field.
3. Electives of 8 credits, in 200 level and above courses. These may be taken in Spanish or in other departments within the field of concentration.

Requirements for Teacher Certification

Thirty (30) credits in Spanish, including elementary and intermediate Spanish; minor subject, 18-24 credits; EDP 202, EDV 301, EDC 344, EDC 564 and student teaching.

Course Descriptions

011 *Spanish Reading for Graduate Students.* (0)

Designed for those graduate students who wish to acquire a rapid reading knowledge of Spanish. Emphasis on rapid vocabulary building, the Spanish idiom, and the verb system. Three class hours per week.

101 *Elementary Spanish (Oral Approach).* (4)

The study of the basic principles of the language. Emphasis is laid on the oral-aural approach. Grammar is introduced through patterned drills. A short reader is introduced. Three hours per week in class; one hour per week in lab section limited to no more than 10 students; emphasis on pronunciation, Spanish intonation, and special syntactical problems in drill responses.

102 *Elementary Spanish (Oral Approach).* (4)

A continuation of SPI 101. More advanced readings are introduced. Prereq: SPI 101 or one year of high school Spanish.

103 *Elementary Spanish Review.* (3)

A remedial review course designed for the students who have not accomplished the objectives of Elementary Spanish. Prereq: Two years of high school Spanish, but place lower than 201.

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 SPI 141. Selected readings. Prereq: SPI 141 or one year of high school Spanish. *Staff.*

143 *Elementary Aural-Oral Practice in Spanish.* (1) I, II, S

A course to improve pronunciation and comprehension of spoken Spanish. Aural-oral drills, dictation and recordings. Two hours a week. *Staff.*

201 *Intermediate Spanish.* (3)
Readings of selected Spanish works and rapid review of principles of grammar. Prereq: Two semesters of college Spanish or two years of high school Spanish.

202 *Intermediate Spanish.* (3)
Continuation of SPI 201. Prereq: SPI 201 or three years of high school Spanish.

210 *Spanish Composition.* (3)
This course is designed for Spanish majors and those students who wish to perfect their knowledge of Spanish grammar. Concentration on more sophisticated structures of Spanish syntax, and further vocabulary expansion.

211 *Spanish Conversation.* (3)
Sections limited to no more than 15 students each. Oral-aural practice in the spoken language. Special emphasis placed on the acquisition of idioms and fundamental conversational vocabulary.

212 *Civilization of Spain.* (3)
This course is designed to give students a basic understanding of Spain's contribution to Western Civilization. Emphasis on Spanish thought, art, and Spain's role in the development of Western Europe and the New World. Conducted in Spanish. Prereq: SPI 202 or equivalent.

213 *Civilization of Spanish America.* (3)
This course is designed to introduce the student to the basic cultural patterns of Spanish America. Emphasis on thought, art and the other major contributions of Spanish American to Western Civilization. Conducted in Spanish. Prereq: SPI 202 or equivalent.

214 *Mexican Civilization.* (3)
A lecture course on the cultural development of Mexico designed to furnish a working basis for required trips to important centers of Mexican civilization. To be offered only during the summer session in Mexico.

315 *Masterpieces of Spanish Literature I.* (3)
An introduction to the literature of Spain with selected readings of complete works from the major Spanish authors of the Middle Ages to the end of the 17th Century. Lecture and discussion. A history of Spanish literature is used in conjunction with selected and representative readings. Conducted in Spanish. Prereq: SPI 202 or equivalent.

316 *Masterpieces of Spanish Literature II.* (3)
An introduction to the literature of Spain with selected readings of complete works from the major Spanish authors of the 18th Century to the contemporary period. Lecture and discussion. A history of Spanish literature is used in conjunction with selected and representative readings. Conducted in Spanish. Prereq: SPI 202 or equivalent.

318 *Survey of Spanish American Literature I.* (3)
An introduction to the principal literary figures and movements of Spanish America. Readings of complete works from the major Spanish American authors from the Colonial Period to Modernism. A history of Spanish American literature is used in conjunction with selected and representative readings. Conducted in Spanish. Prereq: SPI 202 or equivalent.

319 *Survey of Spanish American Literature II.* (3)
A basic introduction to the principal literature figures and movements of Spanish America. Readings of complete works from the major Spanish American authors from Modernism to the present. A history of Spanish American literature is used in connection with selected and representative works. Conducted in Spanish. Lecture and discussion. Prereq: SPI 202 or equivalent.

397 *Independent Work in Spanish.* (3) I, II, S
Prereq: Major and standing of 3.0 in the department. May be repeated once.

501 *Survey of the Spanish Language.* (3)
The development of the Spanish language from its Vulgar Latin stages to the modern period. Special emphasis is placed on the Spanish of the 12th through the 14th Centuries. Representative texts are analyzed.

502 *Spanish Phonetics and Pronunciation.* (3)
An introduction to phonetic peculiarities of the Spanish language as it is spoken in the major cultural areas of the Hispanic World. Prereq: SPI 202.

503 *Masterpieces of Medieval Spanish Literature.* (3)
A close reading and analysis of representative masterpieces from the Old Spanish Period, including the *Poema of the Cid*, the works of Gonzalo de Berceo, the *Libro de Buen Amor* and the *Conde Lucanor*.

509 *Spanish Literature of the 17th Century: Drama.* (3)
A careful study of the important works of the great Spanish dramatists of the 17th Century: Lope de Vega, Calderon, Tirso de Molina and their contemporaries. Prereq: SPI 315, 316.

510 *Spanish Literature of the 17th Century: Non-Dramatic Literature.* (3)
Representative masterpieces of the novel, poetry and theoretical writings of the 16th and 17th centuries. Prereq: SPI 315, 316.

515 *Masterpieces of Modern Spanish Poetry.* (3)
Study of the most significant movements from the 18th Century to the present. Prereq: SPI 315, 316.

516 *Masterpieces of Modern Spanish Drama.* (3)
A study of the most important plays of the Neoclassic, Romantic and Modern theatre. Prereq: SPI 315, 316.

517 *Masterpieces of Modern Novel.* (3)
Representative novelists from the 18th Century to the contemporary period are analyzed, with special emphasis on the period of the realistic novel through the post Civil War generation. Prereq: SPI 315, 316.

518 *Spanish Literature of the 20th Century.* (3) I, II, S
A study of the works of the Generation of 1898 and representative works of recent writers.

523 *Spanish American Prose Fiction.* (3)
A study of the novel in Spanish America, with emphasis on the principal authors and works from Lizardi to the present. Prereq: SPI 315, 316, or 318, 319.

524 *Spanish American Essay.* (3)
A comprehensive study of the principal currents of thoughts in the Spanish American essay, with special attention to the *americanistas*. Prereq: SPI 315, 316, or 318, 319.

525 *Spanish American Drama.* (3)
A study of dramatic production in Spanish America from the missionary theatre to the present, accentuating the work of later authors beginning with Florence Sanchez. Prereq: SPI 315, 316, or 318, 319.

526 *Spanish American Poetry.* (3)
A study of Spanish American poetry, stressing the outstanding poets since Sor Juana. Prereq: SPI 315, 316, or 318, 319.

527 *Spanish American Short Story.* (3)
A study of the Spanish American short story from Echeverria to the present with particular emphasis on Dario, Quiroga, Lillo and Borges. Prereq: SPI 319 or equivalent.

535, 536 *Advanced Spanish Grammar and Composition.* (3 ea.) I, II, S
A study of the finer points of Spanish grammar. Prereq: SPI 210.

551 *Tutorial Seminar for Majors in Spanish.* (1) I, II
Research in special topics of Spanish and Spanish American literature for majors during the senior year. May be repeated once for a total of two credits. *Staff.*

553 *The Teaching of Modern Foreign Languages.* (3)
A course for teachers and prospective teachers.

601 *Old Spanish: Phonology and Paleography.* (3)
An intensive study of the phonology of Spanish with emphasis on the various linguistic backgrounds that developed it. Examination and study of medieval texts with exercises in paleographical transcription of medieval manuscripts.

602 *Old Spanish: Morphology and Syntax.* (3)
An intensive study of the morphology and syntax of Spanish, with emphasis on the Latin and Vulgar Latin grammatical systems which were the background of Spanish. Further examination of medieval texts with exercises in paleographical transcription of medieval manuscripts. Prereq: SPI 601.

603 *Medieval Spanish Literature I.* (3) I
A survey of Medieval Spanish literature from the beginning to the end of the 13th Century. (SPI 604 is intended to cover the 14th and 15th centuries.)

604 *Medieval Spanish Literature II.* (3) II
A survey of medieval Spanish literature of the 14th and 15th centuries.

605 *The Spanish and Spanish American Ballad.* (3)
A study of the rise and development of the Spanish and Spanish American ballad from its origins to the present. Special emphasis on both the folkloristic and literary phases of the ballad, with comparison with the English ballad, since Spain and Great Britain produced the greatest score of ballads.

606 *Romance Philology.* (3)
Study of the historical development of the various Romance languages with reading of texts chiefly from the medieval period. Special attention will be given to historical phonology and morphology. Prereq: FR 603 or SPI 501 or equivalent. May be repeated once.

607 *Early Brief Narrative—13th, 14th, 15th Centuries.* (3)
The rise and development of the brief narrative in prose and rise of the oriental apologue, hagiographical tales and Greco-Roman fables.

608 *Spanish Epic.* (3)
Study of the Poem of the Cid and the important cycles of Spanish epicry with their sources, parallels in history and influences upon other genres.

609 *Spanish Poetry of the 13th, 14th, and 15th Centuries.* (3)
Development of lyric poetry from the earliest beginnings to the 15th century. The *harchas,* Galician-Portuguese, lyric, sacred lyric and the poets of the *concioneros,* exclusive of the ballad.

615 *The Spanish Novel to Cervantes.* (3)
The development of the novel from *El caballero Cifar* to *Guzmán de Alfarache,* including masterpieces of chivalresque, sentimental, pastoral and picaresque prose.

616 *Cervantes.* (3)
The works of Cervantes, with emphasis on *Don Quixote,* but including other works and major works of Cervantine criticism.

617 *The Spanish Novel from Cervantes to Romanticism.* (3)
The post-Cervantine novel, including works by Lope, Tirso, Quevedo, Gracián, Isla and lesser novelists and *novella*-writers of 17th and 18th centuries.

618 *Mystic and Ascetic Writers of the 16th and 17th Centuries.* (3)
A survey of ascetic and mystic writers including among others: Juan de Avila, Luis de Leon, Luis de Granada, Santa Teresa, San Juan de la Cruz.

619 *Lope de Vega.* (3)
The major dramatic and non-dramatic works of Lope de Vega.

620 *The Theatre of Tiros de Molina.* (3)
The dramatic works of Tirso de Molina.

621 *The Theatre of Calderon de la Barca.* (3)
The dramatic works and techniques of Calderon de la Barca.

622 *Minor Dramatists of the Golden Age.* (3)
The dramatic works of such playwrights as Guillen de Castro, Alarcon, Mira de Amescua and other contemporaries of Lope de Vega and Calderon.

623 *Spanish Poetry of the 16th and 17th Centuries.* (3)
An examination of several schools and forms of poetry, both lyric and narrative, in this period.

628 *Spanish Drama from the Neoclassic Period to the Generation of 1898.* (3)
Representative works and dramatic trends of the 18th and 19th centuries.

629 *Spanish Drama from the Generation of 1898 to the Present.* (3)
Representative works of the major dramatists and dramatic trends from Benavente and his contemporaries through Garcia Lorca, Casona and Buero Vallejo.

630 *Prose Fiction from the Romantic Period to the Generation of 1898.* (3)
The major schools of fiction from the Romantic Period through the Generation of 1898.

631 *Prose Fiction from the Generation of 1898 to the Present.* (3)
Studies in most important novels and short stories of the later part of the modern period, produced from 1930 to the present.

632 *The Spanish Essay from the 18th Century to the Present.* (3)
An examination of the intellectual preoccupation of Modern Spain as expressed in the essay from the 18th century to the present.

633 *Spanish Poetry from the 18th Century to the Present.* (3)
A study of the major poetic schools from the 18th Century throughout the Civil War.

641 *Spanish American Novel: Mexico, Central America, the Caribbean.* (3)
The works of the principal novelists in Mexico, Central America and the Caribbean with special emphasis on the novelists of the Mexican Revolution.

642 *Spanish American Novel: South America.* (3)
Representative works of the principal authors of South America with special emphasis on Peru, Argentina, Chile, Colombia, Venezuela.

643 *Spanish American Poetry: Colonial Period to 1888.* (3)
Representative works of the principal poets from the Colonial Period through the Romantic Movement with emphasis on Sor Juan Ines de la Cruz and the Romantics.

644 *Spanish American Poetry: Modernism to the Present.* (3)
Representative works of the principal poets of the Modernist Period to the present.

645 *Literary Currents in Contemporary Spanish American Fiction.* (3)
An examination of the outstanding works of Spanish American authors during the past ten years, with emphasis on literary innovations and new currents in the novel, short story, poetry and drama.

660 *Bibliography and Methods of Research.* (3)
Investigation of Spanish bibliography and modern methods of research designed to provide guidance to the graduate students leading to an understanding of research methods and publication. Taught by various members of the staff, with each member dealing with his own specialty.

701 *Seminar in Historical Linguistics.* (3)
Intensive study of specific problems in the medieval Spanish language. Prereq: SPI 601-602 or equivalent.

702 *Seminar in Medieval Spanish Literature.* (3)
Special and intensive study of a single problem in medieval Spanish literature. Prereq: SPI 601-602 or equivalent.

703 *Seminar in Golden Age Non-Dramatic Literature.* (3)
Special and intensive study of the work or works of a single Golden Age writer or of a movement in the non-dramatic literature of the Golden Age. Prereq: Two Spanish courses in 606-610 bracket.

704 *Seminar in Golden Age Theatre.* (3)
Special and intensive study of a specific area of the Golden Age theatre. Prereq: SPI 611-614 (any two courses).

705 *Seminar in Modern Spanish Literature.* (3)
Seminar in the recent Premio Nadal novels and other post-Civil War novelists.

706 *Seminar in Spanish American Literature.* (3)
Special and intensive study of particular areas of Spanish American literature. Prereq: SPI 624-627, 512 (any two courses).

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once. (1-6 credits equivalence.)

769 *Residence Credit for Doctor's Degree.* (0)
May be repeated indefinitely. (1-12 credits equivalence.)

772 *Seminar in Spanish Literature.* (3) I, II, S
A seminar designed to provide intensive study of a literary, scholarly, or intellectual problem of Spanish letters not covered as such in any of the above listed offerings. Prereq: 21 semester hours of college Spanish.

778 *Seminar: Main Currents of Romance and German Literature.* (3)
Studies of the principal works of the French, German and Spanish literature. Lecture, student reports.

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.

REQUIREMENTS FOR THE MAJOR IN ITALIAN

Lower Division: Freshman Composition, two semesters.

General Studies Requirements: Areas II, III, IV, V and VI; plus one of the following: I, VII, VIII. Students who take Mathematics in Area I may omit Area II or III and take one additional optional area.

Pre-Major Requirements: SPI 291, 292, 295, 296, and six hours in another foreign language.

Major Requirements: SPI 513, 514; 15 credits in 500-level courses in Italian in addition to 513 and 514; 22 credits in 200-level and above courses in the field of concentration. Eight of these credits may be elective Italian courses. Courses which may be used to satisfy the Field of Concentration requirements should be selected from among those offered in the Departments of Anthropology, Art History, English, German and Classics, History, French, Geography, Music, Philosophy, Slavic and Oriental Languages, Spanish courses within the Spanish and Italian Department, Linguistics, Political Science, and Theatre Arts. These specific courses from outside the Department must be related to the major in Italian, selected with the help of an adviser.

009 *Italian for Reading Knowledge.* (0)
This course is designed to meet the needs of upper division and graduate students who are preparing for the graduate reading examination or who need a reading knowledge of Italian in their minor (for example, in English or in French or Spanish).

191 *Elementary Italian.* (3) I, II
A study of the grammar and composition of Italian.

192 *Elementary Italian.* (3) I, II
A continuation of SPI 191. Prereq: SPI 191.

291 *Intermediate Italian.* (3) I, II
Review of grammatical principles and readings of selected Italian works. Prereq: SPI 192.

292 *Intermediate Italian.* (3) I, II
A continuation of SPI 291. Prereq: SPI 291.

295 *Italian Conversation and Composition.* (3) I
Italian Conversation and Composition. Three class hours per week. Prereq: SPI 292 or equivalent.

296 *Italian Civilization.* (3) II
A study of Italian civilization, with emphasis on historical and cultural developments. Prereq: SPI 292 or equivalent.

395 *Independent Studies.* (1-2)
Independent studies designed for the outstanding Italian major and, by permission, for students with related majors and adequate preparation in Italian. May be repeated once for a total of four credits. Class hours arranged. Prereq: Major and 3.0 standing in the department; or special permission; for outstanding non-majors.

543 *Survey of Italian Literature I.* (3) I
A survey of Italian literature from its beginnings to the 17th century. Prereq: SPI 292 or 009.

544 *Survey of Italian Literature II.* (3) II
A survey of Italian literature from the 17th century to the present. Prereq: SPI 292 or 009.

561 *Old Italian.* (3) I
An intensive study of the Old Italian language and its derivation, with mention of the development of the more important dialects along with the modern language. Examinations and study of medieval texts. Prereq: Adequate reading knowledge of modern Italian.

563 *Dante I.* (3) I
Dante, the Vita Nuova and the *Divina Commedia, Inferno.* Prereq: SPI 543 or 544 or consent of instructor.

564 *Dante II.* (3) II
Dante, the *Vita Nuova* and the *Divina Commedia, Inferno.* Prereq: SPI 563.

565 *Petrarch and Boccaccio.* (3) I
Study of the Italian works of Petrarch and Boccaccio. Prereq: SPI 543 or 544, or consent of instructor.

566 *Literature of the Italian Renaissance.* (3) II
A study of the major literary trends and figures of the Italian Renaissance, from the literary and humanistic successors of Petrarch and Boccaccio to the writers of the Cinquecento. Prereq: SPI 543 or 544 or consent of instructor.

571 *Modern Italian Novel.* (3)
A study of the origins and development of the modern Italian Novel, with emphasis on major nineteenth century trends as represented by the works of Foscolo, Manzoni, Verga, Fogazzaro, and D'Annunzio, and on Pirandello and selected contemporary novelists. Prereq: SPI 292 or consent of instructor.

572 *Modern Italian Drama.* (3) I
A study of the origins and development of modern Italian drama, from Goldoni and Alfieri in the Eighteenth Century, through Verga and D'Annunzio to Pirandello, Betti, Sem Benelli and other contemporary dramatists. Prereq: SPI 292 or consent of instructor.

573 *Modern Italian Poetry.* (3) II
A study of the development of Modern Italian Poetry, with emphasis on major figures and trends, and close reading of texts. Prereq: SPI 292 or consent of instructor.

591 *Dante in Translation.* (3)
A study of the works of Dante from the literary viewpoint. Emphasis given to his sources, his enormous impact upon subsequent Italian and European literatures. The Divine Comedy would be the focal point of the course, but the poet's lesser works would also be studied. Not open to graduate students in Italian.

592 *Italian Renaissance Masterpieces in Translation.* (3)
A study of the great authors of the Italian Renaissance and their works in English translation: Petrarch, Boccaccio, Poggio, Piccolomini, Bruni, Pontano, and others. Not open to graduate students in Italian.

593 *Modern Italian Literature in Translation.* (3) II
A study of the major trends and figures of nineteenth and twentieth century Italian literature.

SPEECH

(see page 86)

STATISTICS

FACULTY

Richard L. Anderson, chairman

Professors

Richard L. Anderson	Ph.D., Iowa State,	1941
Foster B. Cady, Jr.	Ph.D., North Carolina State,	1960
Zakkula Govindarajulu	Ph.D., Minnesota,	1961
Rupert T. Leslie	Ph.D., Melbourne, Australia,	1957

Associate Professor

Vasant P. Bhapkar	Ph.D., North Carolina State,	1959

Assistant Professors

David M. Allen	Ph.D., North Carolina State,	1968
David H. Culver	Ph.D., Michigan,	1970
Harry H. Hall	Ph.D., Iowa State,	1969
D. Dal Kratzer	Ph.D., Iowa State,	1965
William O. Thompson	Ph.D., V.P.I.,	1968

Experimentation is the distinctive tool of science, and statistics is essentially the application of the mathematical theory of probability to the study of variation in experimental and survey data. One might characterize statistics as the *servant* of the sciences. If we cannot completely describe the results of an experiment in terms of existing scientific formulations, such as physical or chemical laws, we regard it as a random phenomenon.

The experiment is usually repeated under more or less the same conditions or under controlled changes in the conditions. The description of the results of such experiments may be called *statistical description*. Probability is used to turn loose and indefinite statistical descriptions into rigorous ones.

Statistics is an essential feature of the scientific method: Formulate hypotheses; conduct an experiment or survey; test the hypotheses on the basis of the data collected; reformulate hypotheses and repeat the process.

Statistical methods have changed considerably from the times when they were used mainly to describe political states, in the form of vital and economic statistics. Although it is safe to assume that the vast majority of the public still associates statistics with census data, sports averages and stock market quotations, the use of probability concepts in election polls and weather forecasts is now recognized.

The concept of statistics as an essential research tool is a twentieth century product, and the first concise mathematical formulation did not come until the 1920's. Much attention was paid to the discovery of new methods of designing experiments, mainly for agriculture and biology, in the next two decades. Then came the Second World War with the rapid development of the use of quality control methods in industry and the realization that statistical methods could be of tremendous help in solving many military problems, even at the strategy level.

Since that time, statistics has become an important tool in much research in the engineering and physical sciences. We are now seeing similar developments in the operational field of modern industry and commerce. Along with this have come important changes in methods of conducting surveys and in analyzing survey data. Important developments are now taking place in social and economic statistics.

Some of the subject-areas which attract statisticians today are: biological processes; business problems such as production, management and inventory control; demographic problems; economics, including model building and measures of market behavior; educational procedures and tests; engineering performance and reliability; health and medicine; management and operations problems; military planning and space exploration; social behavior and measurement.

The Department of Statistics at the University of Kentucky is concerned with three essential aspects: teaching, research and consulting. Consultation on the design, analysis and interpretation of experiments is provided to research workers on and off the campus. Particular attention is paid to the consulting needs of graduate students.

Departmental Requirements

The Statistics Department does not offer an undergraduate degree at the present time, but requirements for an undergraduate major are presently under review.

The department offers the following graduate degrees: Master of Science, Master of Science in Statistics and Doctor of Philosophy. The Ph.D. student can major in either experimental or mathematical statistics.

Course Descriptions

370 *Introduction to Statistics.* (4)
Basic principles and applications of Statistics; elementary probability; populations, theoretical distributions and descriptive statistics; sampling, derived distributions and estimation; hypothesis testing; introduction to inference from categorical and metric data. Three class hours per week; two lab hours per week.

381 *Introduction to Engineering Statistics.* (3)
Probability; population and sample distributions; sampling; hypothesis testing; regression on one variable; quality control. Two class hours per week; two lab hours per week. Coreq: MA 214.

421 *Basic Statistical Theory I.* (3)
Discrete and continuous probability distributions; simple random sampling; point and interval estimation; hypothesis testing. Coreq: MA 214.

422 *Basic Statistical Theory II.* (3)
Theory of least squares; regression; analysis of variance and covariance; experimental design models; factorial experiments; variance component models. Prereq: STA 421.

423 *Introductory Probability.* (3)
Set theory; fundamental concepts of probability, including conditional and marginal probability; random variables and probability distributions (discrete and continuous); expected values and moments; moment-generating and characteristic functions; random experiments; distributions of random variables and functions of random variables; limit theorems. Prereq: MA 214. (Same as MA 423.)

511 *Statistical Analysis.* (3)
Procedures for collecting and summarizing population data; index members; measures of central tendency and dispersion; random sampling; empirical frequency distributions; point and interval estimators; control charts; hypothesis testing; goodness-of-fit; contingency tables; equality of means and variances; simple analysis of variance; multiple comparisons; simple regression and correlation. Coreq: STA 421 or STA 531.

524 *Discrete Probability.* (3)
Sample space; combinatorial methods; combination of events; laws of large numbers; normal approximation to the binomial; generating functions; convolutions; random walks; branching processes; recurrent events. Prereq: MA 432 or MA 471 or consent of instructor. (Same as MA 524).

531 *Theory of Statistical Inference I.* (4)
Sample space, concept of probability, conditional probability, random variables, density and distribution functions, mathematical expectation; moment generating functions; functions of random variables; limit laws; usual distributions, certain derived distributions; introduction to estimation and hypothesis testing. Prereq: MA 432 or MA 471 or consent of instructor. (Same as MA 531.)

601 *Theory of Statistical Inference II.* (3)
Elements of decision theory; properties of estimators; point and interval estimation; hypothesis-testing; sequential testing; inference from categorical data; linear regression as conditional expectation; multivariate normal distribution. Prereq: STA 531.

602 *Theory of the General Linear Model.* (3)
Distribution of quadratic forms, linear estimable functions and their best estimates; principle of conditional error; testing linear hypotheses; multiple and polynomial regression; regression estimation using prior information; estimation of error variance; complete and incomplete block designs; factorial experiments; covariance; variance components; mixed models. Prereq: STA 531 and MA 462.

612 *Selected Areas in Statistics.* (3)
Two or more of the following areas will be briefly surveyed: Nonparametric and distribution-free methods; sequential analysis; Bayesian inference; multivariate analysis. Prereq: STA 531.

614 *Design and Analysis of Experiments.* (4)
Multiple regression; curvilinear regression; experimental designs; randomized blocks and n-way classifications; Latin squares; hierarchial classifications; incomplete blocks and cross-overs; factorial and fractional factorial experiments; variance component estimation. Three class hours per week; two lab hours per week. Prereq: STA 422 or Coreq: STA 602.

616 *Design and Analysis of Sample Surveys.* (3)
Sampling from finite populations; estimation of sample size; stratification; ratio and regression estimators; systematic sampling; cluster sampling; multistage sampling (selection of sampling units with probability proportional to size); double sampling; response errors. Prereq: STA 421 or Coreq: STA 531.

624 *Advanced Probability I.* (3)
Markov chains, birth and death processes, renewal theory, central limit theorem, stochastic processes. Prereq: MA/STA 524 or STA 531; coreq: MA 433. (Same as MA 624.)

641 *Design and Analysis for Variance Component Models.* (3)
Expected values, variances and covariances; balanced and nonbalanced designs; comparison of estimators; reduction of product variability; compositing; sequential designs; Bayesian estimation; confidence limits; negative estimates; finite populations. Prereq: STA 602.

642 *Response Surface Techniques.* (3)
Analysis in vicinity of stationary points; canonical analysis; steepest ascent for locating optima; first order designs for fitting response surfaces; orthogonal designs; second order designs; rotatability; central composite designs; conditions for orthogonal blocking; designs to minimize bias and mean squared error; designs for sets of constrained variables. Prereq: STA 614.

643 *Advanced Experimental Design.* (3)
Advanced topics in analyses of incomplete block designs; confounding and change-over designs; data collected at several places and times; principles of design construction. Prereq: STA 614.

652 *Advanced Mathematical Programming.* (3)
A course for those desiring to study linear and non-linear programming from an advanced mathematical point of view. Theory of graphs; discrete linear programming; stochastic, non-linear and dynamic programming. Prereq: A course in Linear Programming.

661 *Multivariate Analysis I.* (3)
Characterization and properties of the multivariate normal distribution, random samples from this distribution; multivariate analysis of variance, related distribution theory; factor analysis. Prereq: STA 601, STA 602.

670 *Basic Statistical Analysis.* (4)
Primarily in biological, behavioral and social sciences. Introduction to methods of analyzing data from experiments and surveys; the role of Statistics in research; statistical concepts and models; probability and distribution functions; estimation; hypothesis testing; regression and correlation; analysis of single and multiple classification models; analysis of categorical data. Three class hours per week, two lab hours per week. Prereq: Previous statistical experience or consent of instructor.

674 *Statistical Analysis and Experimental Design.* (3)
Multiple comparisons; individual degrees of freedom; multiple regression; covariance; methods of constructing designs for experimental investigations; concepts of blocking, randomization and replication; experimental unit technique; complete and incomplete block designs; response surface methodology. Prereq: STA 670.

676 *Statistical Analysis and Survey Design.* (3)
Multiple regression; covariance; non-parametric methods; model construction; methods of constructing designs for survey investigation; simple random, stratified and multistage sampling designs; methods of estimation; questionnaire construction. Prereq: STA 670.

678 *Statistical Genetics.* (3)
Statistical approaches to the analysis of quantitative inheritance; definition and estimation of genetic parameters relating to selection; inbreeding theory; random-mating and inbred populations; testing and planning in genetic experiments. Prereq: STA 674 and BIO 620 or consent of instructor. (Same as AGR 678 and BIO 678.)

681 *Statistical Techniques for Engineers and Physical Scientists.* (3)
Primarily in the engineering and physical sciences. Random variables; distribution functions; hypothesis testing; simple and multiple regression; transformations; estimation of functional relationships from experimental data; full, fractional and central composite designs. Two lecture hours per week; two lab hours per week. Prereq: MA 214.

690 *Seminar in Statistics.* (1)
Seminar—May be taken a maximum of two times.

691 *Special Topics in the Planning and Analysis of Experiments.* (3)
Place of statistics in experimentation; topics in experimental design; response surfaces; departures from usual assumptions in analysis of variance; other selected topics. Prereq: STA 422 or STA 602 or STA 674.

695 *Special Topics in Statistical Theory.* (3)
To be selected by staff. Prereq: STA 601.

701 *Advanced Theory of Statistical Estimation.* (3)
General decision theory approach to estimation; method of maximum likelihood, BAN estimates; Cramer-Rao inequality and its extensions; sequential estimation; sufficiency and completeness in unbiased estimation; unbiased and minimax prediction; estimation by confidence sets; Stein's two-stage procedure. Prereq: STA 601. Coreq: MA 572 or equivalent.

702 *Advanced Theory of Hypothesis Testing.* (3)
Review of basic concepts of measure and integration; sufficiency and exponential family of distributions; most powerful and uniformly most powerful tests; likelihood ratio test procedures; sequential testing; unbiased and similar tests; permutation and invariant tests. Prereq: STA 701.

703 *Advanced Probability II.* (3)
Review of probability spaces; general stochastic processes; spectral analysis of stationary random processes; infinitely divisible distributions; theory of queues. Prereq: MA/STA 624; Coreq: MA 572. (Same as MA 703.)

721 *Nonparametric Inference.* (3)
Estimation and testing when the functional form of the population distribution is unknown; rank and sign tests; tests based on permutations of observations; power of nonparametric tests; optimum nonparametric tests and estimators. Prereq: STA 601; Coreq: MA 572.

722 *Topics in Nonparametric Inference.* (3)
Order statistics, estimation of density function, rank orders; rank order tests; sequential non-parametric procedures, asymptotic normality and efficiency. Prereq: STA 721.

762 *Multivariate Analysis II.* (3)
A more rigorous study of distribution theory than in STA 661; random and mixed effects models; multivariate non-normal analysis. Assorted other topics. Prereq: STA 661.

768 *Residence Credit for Master's Degree.* (0)
May be repeated. (One to six credits equivalence.)

769 *Residence Credit for Doctor's Degree.* (0)
May be repeated indefinitely. (One to 12 credits equivalence.)

TELECOMMUNICATIONS

(see page 85)

THEATRE ARTS

(see page 105)

ZOOLOGY

FACULTY

Thomas C. Barr, Jr., acting chairman

Professors

Roger W. Barbour	Ph.D., Cornell, 1949
Thomas C. Barr, Jr.	Ph.D., Vanderbilt, 1958
John Melvin Carpenter	Ph.D., Texas, 1946

Associate Professors

Wesley J. Birge	Ph.D., Oregon State, 1955
John C. Calkins	Ph.D., Texas, 1963
Eugene C. Crawford, Jr.	Ph.D., Duke, 1965
Wayne H. Davis	Ph.D., Illinois, 1957
Robert A. Kuehne	Ph.D., Michigan, 1958

Assistant Professors

Robert Arking	Ph.D., Temple, 1967
James M. Edney	M.S., Iowa, 1934
Stephen M. Gittleson	Ph.D., California, 1966

The Department of Zoology, as a unit of the School of Biological Sciences, bears as its primary responsibility teaching, research, and service in basic animal biology. Elementary, intermediate, and graduate course work is offered on animal structure, function, and development from the level of the cell to the level of the intact organism, on environmental relationships of animals, and on the diversity and evolution of the Animal Kingdom.

Courses are available for students who wish simply to obtain an understanding of life processes, for those who plan to become biology teachers, for those who plan careers in medicine, agriculture, or industry, as well as for those who plan to become professional biologists.

The Department offers the A.B., B.S., M.A., and M.S. degrees with zoology as a major, and participates in the Biological Sciences Ph.D. program.

Departmental Requirements

University Requirements: Two semesters of Freshman Composition. This requirement will be reduced to one semester for students who make a grade of B or better in English 105, the first semester of *Advanced Freshman Composition.*

General Studies Requirements:

Area 1: MA 113

Area II: PHY 211 and 213

Area III: BIO 200, 201, 202, 203

Area IV: German, French or Russian strongly recommended

Area V and Area VI or VII or VIII.

Pre-Major Requirements: PHY 211, 213; MA 113; CHE 110, 111, 112, 113, 230, 231, 232, 233; BIO 200, 201, 202, 203.

Major Requirements: Three courses chosen from ZOO 504, 506, 508, 530, 550, 554, 570, and 1 credit in ZOO 509 (Senior Seminar). Fifteen additional upper division credits from biological sciences or related areas.

Field of Concentration Requirements: Same as College requirements.

Additional requirement: The Graduate Record Examination must be taken prior to graduation.

Course Descriptions

BIO 100 *Biology.* (3)
This course will introduce non-biology majors to basic concepts and formulations in Biology, and will include information derived from animal, plant and microbial life systems. Emphasis will be on activities at the cellular level. Prereq: Not open to students who have taken MB 100, ZOO 100, or BOT 101.

BIO 101 *Biology.* (3)
This course will introduce non-biology majors to basic concepts and formulation in Biology, and will include information derived from animal, plant, microbial life systems. Emphasis is placed on multicellular systems. Prereq: BIO 100.

BIO 200 *General Biology I.* (3) I
An integrated study of organisms and life functions. Prereq: One year College Chemistry. Must be accompanied by BIO 201 (lab). *Staff.*

BIO 201 *General Biology Laboratory I.* (2)
Laboratory to accompany BIO 200. Four hours' laboratory per week. Prereq: Enrollment in BIO 200. Also open to students who have had BIO 101. One year college Chemistry (or concurrent). *Staff.*

BIO 202 *General Biology II.* (3) II
Continuation of BIO 200. Prereq: BIO 200-201. Must be accompanied by BIO 203 (lab). *Staff.*

BIO 203 *General Biology Laboratory II.* (2) II
Laboratory to accompany BIO 202. Four hours' laboratory per week. Prereq: Enrollment in BIO 202. Also open to students who have completed BIO 101 and 201. *Staff.*

BIO 620 *Genetic Structure of Populations.* (3)
A discussion of the development, theory and practice of experimental and theoretical population genetics, including the basic dynamics and integrating properties of populations, factors which produce changes in populations and their effects on population structure and evolution. Prereq: An introductory course in genetics and in statistics, and consent of instructor.

BIO 678 *Statistical Genetics.* (3)
Statistical approaches to the analysis of quantitative inheritance; definition and estimation of genetic parameters relating to selection; inbreeding theory; random-mating and inbred populations; testing and planning in genetic experiments. Prereq: STA 674 and BIO 620 or consent of instructor. (Same as STA 678 and AGR 678.)

BIO 760 *Developmental Genetics.* (3)
Discussion of metabolism, phenogenesis, immunogenicity, and molecular evolution as relates to gene action and its modification in basic development of physiological processes of higher organisms. Prereq: Adequate background in genetics and Biochemistry and/or consent of instructor.

BIO 768 *Residence Credit for Master's Degree.* (0)
(1 to 6 credits equivalence). May be repeated to a maximum of six credits equivalence.

BIO 769 *Residence Credit for Doctor's Degree.* (0)
(1 to 12 credits equivalence). May be repeated indefinitely. *Staff.*

BIO 770 *Seminar in Genetics.* (1)
Review of current literature in genetics; presentation of papers on research in progress or on assigned topics; reports on meetings of scientific societies. Required of all graduate students in Genetics. May be repeated to a maximum of 10 credits. Prereq: ASC 562 or BOT 532 or consent of instructor.

BIO 771 *Seminar in Plant Physiology.* (1)
Reports and discussions on various topics in Plant Physiology. May be repeated for a maximum of eight credits. *Staff.*

*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.

104 *Principles of Zoology.* (4)
Introductory zoology for non-majors to cover the major areas of interest in modern zoology. Credit is not permitted for both ZOO 100 and 104. Three hours lecture-recitation, two hours discussion —demonstration.

202 *Nature Study.* (4)
Get acquainted studies of animals and plants and their relationships to human culture. Elementary materials for use of schools, nature clubs, scouts, etc. Lecture; laboratory; field work.

220 *Comparative Anatomy.* (4) I
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, gnathostomes and the cat. Prereq: ZOO 104, or BIO 200-202. *Edney.*

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 104, or BIO 200-202; ZOO 513, 515.

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.*

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. (Same as BOT 402.) Prereq: Employment as high school teacher and consent of instructor. *Staff.*

502 *Principles of Physiology Lectures.* (3)
A comprehensive discussion of Physiology using advanced texts and library reading; includes function as related to major body systems. (Same as PGY 502.) Prereq: One year Physics and Organic Chemistry.

503 *Principles of Physiology.* (5)
A comprehensive discussion of physiology using advanced texts and library reading; includes function as related to major body systems and laboratory experience with major experimental techniques. Prereq: One year Physics and Organic Chemistry. (Same as PGY 503).

504 *Heredity.* (4) I, S
Lectures and recitations on principles of heredity, variation and eugenics. Prereq: ZOO 104, or BIO 200-202. *Carpenter.*

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 104, or BIO 200-202, CHE 112. *Birge.*

508 *Evolution.* (3) II, S
An advanced lecture course on some of the fundamental principles of organic evolution. Prereq: ZOO 104, or BIO 200-202. *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. *Staff.*

* Will be dropped effective 1970 Fall Semester.

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. Prereq: ZOO 104, or BIO 200-202; CHE 112. *Arking.*

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. Given alternate years. Prereq: ZOO 104, or BIO 200-202. *Barbour.*

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. Given alternate years. Prereq: ZOO 104, or BIO 200-202. *Barbour.*

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. Given alternate years. Prereq: ZOO 104, or BIO 200-202. *Barbour.*

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. Given alternate years. Prereq: ZOO 104, or BIO 200-202. *Kuehne.*

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: CHE 110, 112, PHY 211, 213; ZOO 104, or BIO 200-202; consent of instructor. *Kuehne.*

528 *General Entomology.* (4) I

Introduction to the Class Insecta. Morphology, physiology, development, systematics, and ecology of insects; procedures and techniques of insect identification; preparation of insect collections for research purposes. Lecture, 2 hrs. Prereq: 3 additional credits in ZOO 570 or 502; ZOO 104, or BIO 200-202. *Barr.*

530 *Vertebrate Zoology.* (4)

An intensive survey of the vertebrate classes, with emphasis on morphology, classification, phylogeny, trends in evolution, and adaptations. Two lectures and two lab periods per week. Prereq: ZOO 104, or BIO 200-202. *Barbour.*

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. (Same as ENT 532.) *Staff.*

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. (Same as ENT 534.) Prereq: ZOO 104, or BIO 200-202. *Edney.*

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. Prereq: ZOO 534 or consent of instructor. *Edney.*

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. Prereq: ZOO 534 or consent of instructor. *Edney.*

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, Calkins.*

542 *Insect Taxonomy.* (4) I

Methods and principles of systematic entomology and zoology; characterization of taxonomic categories; and international rules of zoological nomenclature. Collection, preparation and identification of insect specimens. Given alternate years. Lecture, 2 hours; lab, 4 hours. (Same as ENT 542.) Prereq: ENT 100, ZOO 104, or BIO 200-202. *Freytag.*

550 *Comparative Physiology.* (5) II

Physiological mechanisms by which animals cope with different environmental stresses. Osmoregulation, respiration, temperature regulation and tolerance, sensory reception, circulation, etc. Prereq: 1 year college chemistry, ZOO 570, 1 year college physics or consent of instructor. *Crawford.*

554 *Animal Ecology.* (4)

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 associates, adaptations. Lecture, 3 hours; lab, 1 hour. Prereq: ZOO 104, or BIO 200-202. *Kuehne.*

570 *Invertebrate Zoology.* (4) I, S

An intensive survey of the invertebrate phyla, including morphology, classification, phylogeny, general trends in the evolution of organ systems, and adaptations to varied modes of existence. Two lectures and two lab periods per week. Prereq: ZOO 104, or BIO 200-202. *Barr.*

598 *Protozoology.* (4) II

A comprehensive study of the Phylum Protozoa emphasizing current concepts of classification, phylogeny and evolution, ultrastructure, reproduction, nutrition, growth and motile behavior. The laboratory involves collection, identification, cultivation and physiology of Protozoa with extensive observation and analysis of cellular function. Lecture, 2 hours; lab, 4 hours. Prereq: ZOO 104, or BIO 200-202, CHE 230-232, MA 113, 211, PHY 231, 232, and at least 8 hours in Zoology. *Gittleson.*

602 *Insect Morphology.* (4) I

A study of internal and external insect structure, including function, and variation of form. Given alternate years. Prereq: ENT 100 and consent of instructor. (Same as ENT 602.) *Freytag.*

604 *Advanced Animal Ecology.* (3)

Selected topics from recent studies on the energy flow concept of ecology, population ecology and community ecology. Prereq: ZOO 554 or BOT 513, 1 year physics, organic chemistry, 1 year mathematics; calculus and statistics recommended. *Davis.*

610 *Insect Ecology and Behavior.* (3)

The biotic and physical factors influencing the distribution, abundance, and behavior of insects and insect populations. Two class hours and two laboratory hours per week. Prereq: Consent of instructor. (Same as ENT 610.)

611 *Speciation.* (3) I

Mechanisms of Evolution. A discussion of modern theories and problems concerning the formation of animal species. Prereq: ZOO 508. *Barr.*

615 *Seminar in Animal Navigation.* (2)

Discussions of the original literature on home range, homing ability and migration of animals. Prereq: Some reading knowledge of German. *Davis and Barbour.*

617 *Advanced Microtechnique.* (3) II

Special methods in histological technique for students of Zoology, Pathology or Anatomy. Prereq: ZOO 513, 515.

620 *General Acarology.* (4) II

Introduction to study of mites. Classification, morphology, physiology and ecology of mites important to the medical, veterinary and agricultural fields. Lecture, 2 hours; lab, 4 hours. Prereq: ZOO 104, or BIO 200-202. ENT 100 and consent of instructor. (Same as ENT 620.) *Rodriguez.*

630 *Insect Physiology.* (4) II

Principles of insect physiology, function of organs, circulation, reproduction, respiration, and digestion. Lecture, 2 hours; lab, 4 hours. Prereq: Consent of instructor. (Same as ENT 630.) *Dahlman.*

640 *Biological Effects of Radiation.* (3) I

A consideration of the action of ionizing radiation and ultraviolet light at progressively higher levels of organization. Recent experiments and current theoretical concepts will be emphasized. Prereq: ZOO 540, 541, or two years Chemistry, Physics and Biological Sciences and consent of instructor. *Calkins.*

642 *Vertebrate Natural History.* (4) I

Behavior of vertebrate animals in their natural habitats as related to shelter, food, reproduction, and other aspects of survival. Adaptations contributing to behavioral patterns will be considered. Two lectures and two laboratory periods per week. Given in alternate years. Prereq: ZOO 530, 502. *Barbour.*

660 *Special Topics in Endocrinology.* (2) I

A lecture-seminar course designed to explore in depth certain areas not covered in the introductory course. Usually invertebrate endocrinology, plant hormones, and physiology of reproduction will be covered. Prereq: ZOO 560 or equivalent.

709 *Graduate Seminar in Zoology.* (1) I, II

Discussions of current research in Zoology. Prereq: Graduate standing in biological sciences.

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

May be repeated once. (1-6 credits equivalence.) *Staff.*

769 *Residence Credit for the Doctor's Degree.* (0)

May be repeated indefinitely. (1-12 credits equivalence.)

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). Prereq: Undergraduate degree in biological sciences.



Agriculture

Charles E. Barnhart, Ph.D., is Dean of the College of Agriculture. John C. Robertson, Ph.D., is Associate Dean for Instruction in the College of Agriculture.

The extensive research, teaching, extension, and regulatory functions of the College of Agriculture are combined into a coordinated, mutually supporting program of undergraduate and graduate education. Teaching in this college is so related to the other functions that students have a unique opportunity to broaden their background in the areas of research and application of scientific findings in laboratories, greenhouses, field plots and feed lots.

The aim of the College is to assist its students in developing:

1. Appreciation of the scope of agriculture and the need for continuous achievement of the science, technology, and business of agriculture.
2. Understanding of the basic scientific principles applicable in the professions for which he is preparing.
3. Proficiency in one or more of the areas of agriculture—technology, science, or business.
4. Attitudes that will motivate continued intellectual development, effective service to society, and a satisfying way of life for the individual.

Graduates of the College of Agriculture fill important positions in the food and fiber production industry, in research, in teaching, in agri-business and in other segments of the expanding and vigorous agricultural industry.

Admission

All students planning to study in any phase of agriculture, including Forestry and Pre-Vet, are admitted directly into the College of Agriculture as soon as they arrive on the campus.

Scholarships and Financial Aid

Students entering the University of Kentucky to study agriculture are eligible for student financial aid in the form of loans, educational opportunity grants, college work study, student part-time employment and scholarships. Entering freshmen needing financial aid should apply to the Office of Student Financial Aid, University of Kentucky, between November 1 and January 15 to receive consideration for all types of aid administered through that office.

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

Student Advisers

The College of Agriculture has a selected group of faculty members who are dedicated to students and who are qualified to guide them in planning their academic programs. These faculty members are assigned to advising freshmen and transfer students. When a student becomes acquainted with the staff and decides upon his area of specialization and departmental major, he is encouraged to select an adviser in the area in which he plans to major.

Curricula and Majors in Agriculture

The curricula in the College of Agriculture provide for three general areas of specialization and for majors in nine departments. The general areas of specialization are: Agricultural Technology, Agricultural Science, and Agricultural Business.

In Forestry, the student must select either the forest science or forest technology options.

Faculty. To accomplish these aims, the College of Agriculture 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. Many have natural 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 is an important point to consider in the selection of a college.

Buildings and Land. The College of Agriculture is now housed in modern, well-equipped buildings. The first phase of the expansion of the College facilities was completed when the Agricultural Science Center was built in 1964. Plans are well underway for expanding the Center by building another unit to be used for teaching and for additional research in the Animal Sciences. As new buildings are added, they are being equipped with the most modern and efficient laboratory equipment and instruments available.

A new headhouse with growth chambers and a series of greenhouses has been added to the research facilities for the plant science departments. These facilities are available for research with horticultural and agronomic crops. They are used by the research and teaching staff and by students who engage in investigational work as part of their academic programs.

The College of Agriculture has experimental work on farms totaling more than 20,000 acres. Almost 4,000 acres of this land is near enough to the Lexington campus to be used regularly in the teaching program. In addition to this land, the college operates a 14,250 acre tract of forest land in Breathitt County. It has a 1,100 acre farm in Caldwell County, a 938 acre farm in Owen County, and leases farms for experimental work in Mercer and Woodford Counties.

Pre-Professional Component

All students planning to follow a program in agriculture are required to complete an option in each of the following:

Area I (Mathematics-Philosophy)
Area II (Physical Sciences)
(Sequence A not acceptable)
Area III (Biological Sciences)
Area VII (Social Sciences)

They must also complete an option in the following general studies areas:

Area IV (Foreign Language)
Area V (Humanities—Literature, Art, and Music)
Area VI (History)
Area VIII (Behavioral Sciences)

Students obtaining a degree in the College of Agriculture are also required to take six credit hours in the area of Communications. These may be selected from Speech 181, English 203 or 205, and Journalism 201 and 203.

Three pre-professional courses in agriculture are required of all students for the degree of B.S. in Agriculture. These are:

GEN 102—Agricultural Social Science
GEN 104—Agricultural Plant Science
GEN 106—Agricultural Animal Science

Professional Component

At the beginning of the junior year or before, a student is expected to select an area of specialization and a departmental major. The degree requirements for the three areas of specialization are as follows:

	Areas of Specialization		
Group Requirements	*Agricultural Technology*	*Agricultural Science*	*Agricultural Business*
Departmental Major (a)	18	18	18
Specialty Support	6	20 (b)	26 (c)
Mathematics	....	4	....
Ag. Plant Science	6	....	....
Ag. Animal Science	6	....	....
Ag. Economics and/or Sociology	9	3	3
Electives	19 (d)	21 (d)	19 (d)

(a) A maximum of 24 hours in a department may be offered by the student in fulfilling minimum requirements for a degree.
(b) To include courses in science considered to be appropriate background for the departmental area in which the student is majoring.
(c) To include courses in business, economics and agricultural economics.
(d) All electives are subject to the approval of the student's adviser.

Departments from which students in this college may select majors are: Agricultural Economics, Agricultural Education, Agronomy, Animal Sciences, Entomology, Horticulture, Plant Pathology, Rural Sociology and Forestry. In addition, a Pre-Veterinary Medicine curriculum is available. Students of Agricultural Engineering are registered in the College of Engineering.

Requirements for The B.S. Degree In Agriculture or Forestry

The College of Agriculture offers two B.S. degrees—Agriculture and Forestry. To receive the degree,

Bachelor of Science in Agriculture, or B.S. in Forestry, a student must complete 132 credit hours of approved course work with a grade-point average of 2.0 or better on the basis of A=4. He is also responsible for meeting all other departmental, college and university requirements.

AGRICULTURAL ENGINEERING CURRICULUM

The Agricultural Engineering curriculum, administered jointly by the College of Agriculture and the College of Engineering, provides engineering knowledge for the agricultural industry and closely related industries, such as the farm machinery industry.

The professional curriculum in Agricultural Engineering is basically the application of physical science to agriculture. It deals with the application of energy, materials and machines to agricultural processing and production operations. Graduates are prepared for *research, development, design* and *sales* in agricultural mechanization, soil and water conservation engineering, processing systems (such as grain drying and handling of milk processing plants) and farm structures including environmental control systems for animal and plant buildings.

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 113—Calculus	4
CHE 110—General College Chemistry I	3
CHE 111—General Chemistry Lab I	2
*General Studies	3
ME 105—Basic Engineering Graphics	2
	17

Second Semester	Crs.
ENG 102—Freshman Composition	3
MA 114—Calculus	4
CHE 112—General College Chemistry II	3
CHE 113—General Chemistry Lab II	2
PHY 231—General College Physics	3
PHY 241—General College Physics Lab	2
	17

Sophomore Year

First Semester	Crs.
MA 213—Analysis	4
PHY 232—General College Physics	3
PHY 242—General College Physics Lab	2
**Biological Science Sequence	3 or 4
*General Studies	3
	15 or 16

Second Semester	Crs.
MA 214—Analysis	3
EM 222—Solid Mechanics I	4
**Biological Science Sequence	3 or 4
*General Studies	3
*General Studies	3
	16 or 17

Junior Year

First Semester	Crs.
EM 313—Dynamics	3
EE 305—Elec. Circuits and Machinery	3
ME 220—Engineering Thermodynamics I	3
AGR 366—Fundamentals of Soil Science	4
AEN 405—Properties of Soils & Biological Materials as Related to Engineering	3
	16

Second Semester	Crs.
MET 301—Materials Science	3
ME 330—Fluid Mechanics	3
AEN 406—Environment for Plants and Animals as Related to Engineering	3
CS 220—Introduction to Algorithmic Processes	2
EE 306—Elec. & Electronic Circuits	3
*General Studies	3
	17

Senior Year

First Semester	Crs.
AEN 007—The Engineering Profession	0
AEN 417—Energy Sources & Mach. for Agr.	3
**Elective (Engr. Science)	3
*General Studies	3
AEN 437—Design of Engineering Systems for Soil and Water Management	4
**Elective	3
	16

Second Semester	Crs.
AEN 505—Engineering Analysis	3
SP 181—Basic Public Speaking	3
**Elective (Mathematics)	3
**Elective	3
AEN 427—Func. Design of Agr. Structures	3
AEN 447—Agr. Proc. & Electrification	3
	18

° Select from General Studies areas 4, 5, 6, 7 or 8 in consultation with academic adviser. It is suggested that one sequence be in Economics and one in Foreign Language, Humanities, or History.
°° To be selected in consultation with the academic adviser.

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 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 CURRICULUM

Students planning to become veterinarians may enter the College of Agriculture and take the courses required for admission to a college of veterinary medicine.

Kentucky is a participating member in the Southern Regional Education Board plan under which legal Kentucky residents may attend the Auburn University School of Veterinary Medicine. Each year fourteen students are chosen from Kentucky on a competitive basis to enter the Auburn Veterinary School. This selection is made by a committee composed of Auburn faculty members.

Applicants for admission to the School of Veterinary Medicine at Auburn must have a grade point average of 2.25 on all courses attempted, and also a 2.25 point 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. A minimum of 80 semester hours credit must be completed prior to admission. The Committee on Admissions of the Auburn 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.

Students who wish to obtain a Bachelor of Science degree in Agriculture before applying for admission to Veterinary School can do so in four years. They complete the pre-veterinary requirements as part of the degree requirements. Students following this plan should confer with an adviser in the Veterinary Science Department to be certain their plan of study meets all the pre-veterinary requirements.

PRE-VETERINARY CURRICULUM LEADING TO THE DEGREE BACHELOR OF SCIENCE IN AGRICULTURE

	Crs.
ENG 101—English Composition	3
ENG 102—English Composition	3
*CHE 110—General College Chemistry I	3
*CHE 111—General Chemistry Lab I	2
*CHE 112—General College Chemistry II	3
*CHE 113—General Chemistry Lab II	2
**MA 110—Algebra and Trigonometry	5
MA 113—Calculus	4
GEN 106—Agricultural Animal Science	4
History—Two 3-hour courses selected from Area VI of the general studies component of the University of Kentucky	6
***CLA 131—Medical Terminology	3
ASC 260—Genetics	3
ASC 280—Feeds & Feeding	4
PHY 211—General Elementary Physics	5
PHY 213—General Elementary Physics	5
CHE 230—Organic Chemistry	3
CHE 231—Lab for Organic Chemistry	2
CHE 232—Organic Chemistry	3
CHE 233—Lab for Organic Cheristry	2
BIO 200—General Biology I	3
BIO 201—Lab for General Biology I	2
BIO 202—General Biology II	3
BIO 203—Lab for General Biology II	2
****Electives	12
	87

* Students with an ACT acore below 50 percentile, who have not had high school chemistry, must substitute CHE 102, 104, 226, and 227 for a total of 13 hours of credit on approval of adviser.

** Qualified students may by-pass MA 110, and substitute restricted electives—consult adviser.

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

**** Students must complete a minimum of 12 additional hours of liberal education studies selected from the general studies area of Humanities (Area V), and Social Sciences (Area VII). Six college semester hours of Latin or a modern foreign language may be included as a portion of this requirement. No less than one course must be taken in both Areas V and VII.

Kentucky also has a similar program with Tuskegee Institute which provides a few additional openings for students from this state.

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 Veterinary Science and Forestry.
2. Doctor of Philosophy in the Departments of Agricultural Engineering, Animal Sciences, Agricultural Economics, Entomology, Plant Pathology, Plant Physiology, Sociology, and Soil Sciences.

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

Robert W. Rudd, chairman

Professors

John Harvey Bondurant	Ph.D., Cornell, 1943
George Boyd Byers	Ph.D., Iowa State, 1948
Fred Edward Justus, Jr.	Ph.D., Illinois, 1955
John C. Redman	Ph.D., Kentucky, 1951
John Bissell Roberts	M.S., Kansas State, 1935
Robert William Rudd	Ph.D., California, 1952

Dallas Milton Shuffett	Ph.D., Kentucky, 1956
Eldon D. Smith	Ph.D., Wisconsin, 1954

Associate Professors

Kurt Ramon Anschel	Ph.D., Michigan State, 1965
Robert L. Beck	Ph.D., Michigan State, 1963
Wendell Chester Binkley	M.S., Kentucky, 1940
Russell Herbert Brannon	Ph.D., Wisconsin, 1967
Carl McKinley Clark	M.S., Oklahoma State, 1929
John Guy Stovall	Ph.D., Kentucky, 1962

Assistant Professors

Bruce R. Beattie	Ph.D., Oregon State, 1969
Barry Wright Bobst	Ph.D., Washington State, 1966
Arthur Franklin Bordeaux, Jr.	Ph.D., Michigan State, 1968
Garnett Lowell Bradford	Ph.D., North Carolina State, 1968
Wilmer Browning	Ph.D., Kentucky, 1969
James Earnest Criswell	Ph.D., Minnesota, 1966
Ernest D. Gooch, Jr.	Ph.D., Illinois, 1962
Harry Hale Hall	Ph.D., Iowa State, 1968
W. Wilson Hourigan	Ph.D., Kentucky, 1969
Harold D. Love	Ph.D., Missouri, 1969
Loys LeRoy Mather	Ph.D., Wisconsin, 1968
Willard Hamilton Minton	M.S., Kentucky, 1951

Course Descriptions

AGRICULTURAL MARKETING

300 *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 260; GEN 102. *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 300. *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 300, or approval of instructor. *Clark.*

403 *Marketing Livestock and Livestock Products.* (2) II
Analysis of livestock and dairy markets; market organization, agencies, institutions, services; and public regulations. Prereq: AEC 300. *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. Prereq: AEC 300.

501 *Economics of Agricultural Marketing.* (3) I
Analysis of agricultural markets with major emphasis on use of the theoretical tools—pricing practices, product choice, advertising firm and industry growth, location and economic development. Prereq: AEC 300. *Mather.*

505 *Structure and Organization of Agricultural Businesses.* (3) II, S
Understanding of the structure and organization of agriculturally related businesses and industries, including cooperatives, and the influence of these on key management decisions by owners and managers of farms, as well as policy and decision-makers in such businesses. *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 and Mather.*

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 300. *Anschel.*

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 310 or consent of instructor. *Bondurant and 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

310 *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: GEN 102, ECO 260. *Criswell.*

409 *Decision-making in Agricultural Business Firms.* (3) II
Analysis of the major types of management problems commonly faced by agricultural business firms, formulation of alternative courses of action with emphasis on sound approaches to solutions and determination of business policy decisions. Prereq: Permission of instructor. *Binkley.*

415 *Farm Accounting and Record Analysis.* (3) II
Development and analysis of records to farming situations. Interpretation of essential records from a farm manager's viewpoint as a means of improving decision-making. Prereq: AEC 310. *Criswell.*

511 *Advanced Farm Management.* (3) II, S
An advanced analysis of management and managing farms. Prereq: AEC 310. *Justus.*

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 310 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 310. *Byers.*

PRODUCTION ECONOMICS

320 *Introduction to the Economics of Agricultural Production.* (3) II
Application of economic production principles to agricultural problems, resource and enterprise combinations and economic determination of optimum levels of output. Prereq: ECO 260. *Criswell and Stovall.*

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 310. *Redman.*

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. *Bradford.*

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. *Bradford.*

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 260, AEC 310.

550 *Agricultural Prices.* (3) II
Price behavior of agricultural products including supply-price relationships and their relation to the general price level. Prereq: ECO 260. *Bobst.*

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 and Bobst.*

ECONOMIC DEVELOPMENT

370 *International Agriculture, World Food Needs and U.S. Trade in Agricultural Products.* (3) I
Present and potential food needs by geographic areas, comparative advantages in food production in relation to world trade in agricultural products, impediments to food distribution on a world basis, and economic reprecussions to American agriculture. Prereq: GEN 102. *Anschel and Brannon.*

626 *Agriculture and Economic Development.* (3) I
Analytical consideration of role of agriculture in economic development in relation to over-all development strategy at various stages of growth. Theoretical and policy issues of particular relevance to the agricultural development in underdeveloped agrarian economies with various resource, social, political and economic systems. Prereq: ECO 475 or approval of instructor. (Same as ECO 674.) *Anschel and Brannon.*

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.

580 *Special Problems in Agricultural Economics.* (1-3) I, II, S
Directed independent study of a selected problem. Prereq: Approval of instructor and chairman of department. *Rudd 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: MA 114; ECO 361. (Same as ECO 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.*

661 *Programming Models in Agricultural Economics.* (3) I
A study of some programming models useful in Agricultural Economics; includes an examination of the structure of the models themselves, economic interpretation of their components and their use in research in agricultural economics. Prereq: Consent of instructor. *Bradford.*

690 *Mathematical Economics-Macro Theory.* (3) I
Selected aggregative models treated mathematically. Emphasis on maximization problems for linear systems. Leontief input-output models. Prereq: MA 113, ECO 360 or equiv. (Same as ECO 788.)

691 *Econometrics II.* (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 692 or equivalent. (Same as ECO 792.)

768 *Residence Credit for Master Degree.* (0)
May be repeated once. Prereq: Consent of advisor and chairman of department. (1-6 credits equivalence.) *Staff.*

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely. Prereq: Consent of advisor and chairman of department. (1-12 credits equivalence.) *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 chairman of department. May be repeated for a total of 9 credits. *Rudd and Staff.*

AGRICULTURAL ENGINEERING

FACULTY

Blaine Frank Parker, chairman

Professors

Blaine Frank Parker	Ph.D., Michigan State, 1954
John Neal Walker	Ph.D., Purdue, 1961

Associate Professors

Jesse Byron Brooks	M.S., Auburn, 1950
Joe Millard Bunn	Ph.D., Iowa State, 1960
Wiley Hix Henson, Jr.	Ph.D., North Carolina State, 1962
Ira Joseph Ross	Ph.D., Purdue, 1960
Edward Manson Smith	M.S., Kansas State, 1950
Earl Robert Young	M.S., Minnesota, 1938

Assistant Professors

Billy J. Barfield	Ph.D., Texas A&M, 1968
Charles Thomas Haan	Ph.D., Iowa State, 1967
Gerald Martin White	Ph.D., Purdue, 1960

Course Descriptions

001 *The Engineering Profession* (Freshman). (0) I, II

007 *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.)

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.*

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.*

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 and design. Structural and environmental design. Lecture, two hours; lab, two hours. Prereq: Junior standing or consent of instructor. *Walker and White.*

405 *Properties of Soils and Biological Materials as Related to Engineering.* (3)

A study of the properties of soil and biological materials which are needed in the engineering design of systems to produce, store, and process agricultural products. Lecture and recitation, two hours; lab, two hours. Prereq: Junior standing in Agricultural Engineering or consent of instructor. *Ross.*

406 *Environment for Plants and Animals as Related to Engineering.* (3)

A study of the thermal, moisture, light, and gaseous components of plant and animal environment with emphasis on interactions between these biological systems and their environment. Lecture and recitation, two hours; lab, two hours. Prereq: AEN 405 or consent of instructor. *Barfield.*

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.*

417 *Energy Sources and Machinery for Agriculture.* (3) I

The use of fundamental concepts of energy and materials in analytical and experimental approaches to the development and design of energy converters and machinery for agriculture. Lecture, two hours; lab, two hours. Prereq: Senior standing in engineering or consent of instructor. *E. Smith.*

427 *Functional Design of Agricultural Structures.* (3) II

Functional requirements of farm buildings and structures; planning for plant and process efficiency; selection and utilization of environmental control equipment and structural materials; preparation of plans and designs. Lecture, 2 hrs; lab, 2 hrs. Prereq: AEN 406, ME 220, MET 301. *Walker.*

430 *Farm Water Management.* (3) I, II

Elementary surveying, mapping, and determination of land areas; consideration of precipitation, runoff and soil erosion relationships; planning terraces, waterways, drainage systems, farm reservoirs, pond water treatment and irrigation systems. Lecture, two hours; lab two hours. *Brooks.*

437 *Design of Engineering Systems for Soil and Water Management.* (4) I

Application of engineering principles to the management of surface and soil water for agricultural production. Surveying and mapping for the layout of water control facilities. Design and construction of facilities for runoff and erosion control, water storage, drainage, and irrigation. Lecture, 2 hrs; lab, 4 hrs. Prereq: ME 330. *Haan.*

447 *Agricultural Processing and Electrification.* (3) II

Application of engineering principles to the processing and storage of agricultural products. The utilization of electricity in agriculture. Instrumentation and control of agricultural processes. Analysis of processing systems. Lecture, 2 hrs; lab, 2 hrs. Prereq: AEN 406, EE 305, ME 330. *White.*

450 *Special Problems.* (1-3) I, II, S

An intensive study of some phases of Agricultural Engineering in which the student is particularly interested. Approval of the instructor is required. May be repeated to a maximum of 6 credits. *Staff.*

505 *Engineering Analysis.* (3) II

A study of the professional method of dealing with engineering problems and the application of this method to problems encountered in the agricultural industry. Lecture, two hours; laboratory, two hours. Prereq: Senior standing or consent of instructor.

506 *Greenhouse Design, Management, and Environmental Control.* (3)

Functional requirements of a greenhouse and the physical laws influencing these requirements. The influence of structural, physical, and biological factors on the environmental conditions will be emphasized. Lecture, 2 hrs; lab, 2 hrs. Prereq: HOR 512 and consent of instructor. (Same as HOR 506.) *Walker.*

519 *Plant, Soil and Machinery Relationships.* (3) I, II

Advanced concepts in the use of biological and soil parameters in the design of machinery for agriculture and agriculturally related industries. Lecture, 2 hrs; lab, 2 hrs. *E. Smith.*

525 *Environmental Design for Biological Systems.* (3) II

The influence of environmental factors on biological efficiency, design and selection of equipment and controls for providing environmental requirements of biological systems. Lecture, 2 hrs; lab, 2 hrs. Prereq: AEN 427 or consent of instructor. *Walker.*

535 *Soil and Water Conservation Engineering.* (3) II

Consideration of elements of hydrology related to agriculture; functional analysis, economic analysis and design of more complex systems for soil and water control and management. Prereq: AEN 437 or consent of instructor. *Haan and Barfield.*

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. Lecture, 2 hrs; lab, 2 hrs. Prereq: AEN 447. *Ross and White.*

606 *Micrometeorology.* (3)

A study of the processes occurring at the earth-atmosphere boundary, including heat and energy balance, which are important to biological systems. Lecture, three class hours per week. Prereq: STA 521 or STA 523, one course in Thermodynamics, or consent of instructor.

618 *Advanced Plant, Soil, and Machinery Relationships.* (3) I, II

A consideration of fundamental concepts of energy and materials in the identification and mensuration of parameters needed in the development of new machines for agriculture. Lecture, 2 hrs; lab, 2 hrs. Prereq: AEN 417 and 505. *Smith.*

628 *Advanced Design of Structures for Biological Systems.* (3) I, II

The use of similitude, dimensional analysis, and statistical theory in the analysis of selected agricultural structural problems. The prediction of system performance as environmental conditions change; and the analysis of system reliability. Lecture, 2 hrs; lab, 2 hrs. Prereq: AEN 525 or consent of instructor. *Walker.*

635 *Advanced Soil and Water Conservation Engineering.* (3) I, II

A consideration of advanced techniques useful in research, analysis, and design related to soil and water conservation facilities. Mathematical and statistical techniques and theory of models are included. Lecture, 3 hrs. Prereq: AEN 535 or consent of instructor. *Haan and Barfield.*

645 *Electromagnetic Radiation in Agricultural Engineering.* (3)

An advanced study of the theory and engineering aspects of electromagnetic radiation as applied to the Agricultural Sciences. Consideration is given to the ultraviolet, visible, infrared and radiofrequency types of electromagnetic radiation. Prereq: AEN 548 or consent of instructor. *White.*

648 *Energy and Mass Transfer in Agricultural Processing.* (3)

A comprehensive and in depth study of the principles of energy and mass transfer as they apply to the processing of agricultural and biological materials. Prereq: AEN 548 or consent of instructor. *Ross and White.*

658 *Instrumentation in Agricultural Engineering Research.* (3) I, II

The principles and applications of measuring instruments and devices for obtaining experimental data. Lecture, 3 hrs. Prereq: Consent of instructor. *White and Ross.*

660 *Similitude in Engineering.* (3)

An advanced approach to engineering problems through the theory of similitude and its application to models. The use of geometrically similar, distorted, and dissimilar models will be discussed. Prereq: Graduate standing. *Smith.*

750 *Special Problems in Agricultural Engineering.* (1-3) I, II

Independent work on selected research problems in one of the various fields of Agricultural Engineering. Consultation and laboratory by appointment. Prereq: Approval of Chairman of Department. *Staff.*

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

May be repeated once. (1-6 credits equivalence.) *Staff.*

769 *Residence Credit for Doctor's Degree.* (0)

May be repeated indefinitely. (1-12 credits equivalence.) *Staff.*

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. May be repeated twice. One class hour. *Parker.*

795 *Thesis.* (0) I, II, S

May be repeated twice.

AGRICULTURE—GENERAL

001, 002, 003, 004 *Agricultural Colloquium.* (0 each)

A general analysis of the changes taking place in agriculture and their implications to a student of agriculture.

100 *Development of Agricultural Science.* (1) I, II

A survey of the nature and scope of modern agricultural science with emphasis on its significance to mankind. Two lab hours per week.

102 *Agricultural Social Science.* (4) I, II

A lecture and problems course involving the major concepts of the social sciences and their usefulness in agriculture. *Staff.*

104 *Agricultural Plant Science.* (4) I, II

To develop an appreciation of the plant sciences as they relate to agriculture and to develop an understanding of crop plant morphology, physiology, genetics and ecology and the relation of these to growth, management and utilization of crop plants. *Staff.*

106 *Agricultural Animal Science.* (4) I, II

The basic principles of animal nutrition, physiology, genetics, breeding, food processing and distribution as they apply to animal science. *Staff.*

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. *Staff.*

AGRONOMY

FACULTY

Andrew Jackson Hiatt, chairman

Professors

Charles Eugene Bortner — M.S., Kentucky, 1932
Robert Cecil Buckner — Ph.D., Minnesota, 1955
Foster Cady — Ph.D., North Carolina State, 1960
William Graham Duncan — Ph.D., Purdue, 1958
Verne Clifford Finkner — Ph.D., Iowa State, 1950
Robert Bell Griffith — Ph.D., California, 1953
James Watt Herron — Ph.D., Cornell, 1951
Andrew Jackson Hiatt — Ph.D., North Carolina State, 1960
William Anderson Kendall — Ph.D., Ohio State, 1954
Herbert Fane Massey, Jr. — Ph.D., Wisconsin, 1952
Ronald Edward Phillips — Ph.D., Iowa State, 1959
John Leonard Ragland — Ph.D., North Carolina State, 1959
Roy Edward Sigafus — Ph.D., Cornell, 1951
Granville Woolman Stokes — Ph.D., Wisconsin, 1953
William Gregory Survant — Ph.D., Ohio State, 1951
Norman Linn Taylor — Ph.D., Cornell, 1953
Timothy Henry Taylor — Ph.D., Penn State, 1955
William Chelcy Templeton, Jr. — Ph.D., Purdue, 1960
Grant Worthington Thomas — Ph.D., North Carolina State, 1958
Gilbert Theodore Webster — Ph.D., Iowa State, 1949

Associate Professors

Harry Hudson Bailey — Ph.D., Michigan State, 1956
John G. Green — Ph.D., Iowa State, 1961
Michael John Kasperbauer — Ph.D., Iowa State, 1961
Paul Davis Legg — Ph.D., North Carolina State, 1964
Richie Howard Lowe — Ph.D., Oregon State, 1963
Doyle Eugene Peaslee — Ph.D., Iowa State, 1960
Jones H. Smiley — Ph.D., Wisconsin, 1963

Assistant Professors

Roger Allen Andersen — Ph.D., Wisconsin, 1963
Melvern K. Anderson — Ph.D., N. Dakota State, 1969
Richard Irven Barnhisel — Ph.D., V.P.I., 1964
John Frederick Benner — Ph.D., Michigan State, 1962
Robert L. Blevins — Ph.H., Ohio State, 1967
Barry John Bloomfield — Ph.D., Rutgers, 1965
Harold Rhodes Burton — Ph.D., Louisville, 1964
Lowell Palmer Bush — Ph.D., Iowa State, 1964
Glenn Burton Collins — Ph.D., North Carolina State, 1966
Daniel Layton Davis — Ph.D., North Carolina State, 1967
Dennis B. Egli — Ph.D., Illinois, 1969
Claus Hans Grunwald — Ph.D., Missouri, 1965
Charles Gustav Poneleit — Ph.D., Purdue, 1967
Shuh-Ji Sheen — Ph.D., Minnesota, 1958
John Leonidas Sims — Ph.D., Iowa State, 1960
Dennis M. Tekrony — Ph.D., Oregon State, 1969
Lafayette Thompson, Jr. — Ph.D., Illinois, 1970
Kenneth Lincoln Wells — Ph.D., Iowa State, 1963
John Caswell Williams — Ph.D., Iowa State, 1960

Course Descriptions

GENERAL COURSES

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: AGR 261. (Same as ASC 260.) *Collins.*

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 AGR 260, at student's option. (Same as AGR 261.) *Collins.*

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. *Staff.*

399 *Special Problems in Agronomy.* (1-4) I, II, S
May be repeated for a maximum of 9 credits. Prereq: Consent of instructor. *Staff.*

599 *Special Problems in Agronomy.* (1-4) I, II, S
May be repeated for a maximum of 9 credits. Prereq: Consent of instructor. *Staff.*

678 *Statistical Genetics.* (3)
Statistical approaches to the analysis of quantitative inheritance; definition and estimation of genetic parameters relating to selection; inbreeding theory; random-mating and inbred populations; testing and planning in genetic experiments. Prereq: STA 674 and BIO 620 or consent of instructor. (Same as STA 678 and BIO 678). *Staff.*

768 *Residence Credit for Master's Degree.* (0) I, II, S
(1-6 credits equivalence.) May be repeated once. *Staff.*

769 *Residence Credit for the Doctor's Degree.* (0)
(1 to 12 credits equivalence.) May be repeated indefinitely.

770 *Agronomy Seminar.* (1) I, II
Reports and discussion of problems and research in soils, crops and plant pathology. May be repeated to a maximum of 4 credits. *Staff.*

799 *Research in Agronomy.* (1-4) I, II, S
May be repeated for a maximum of 12 credits. Prereq: Consent of instructor. *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. *Bush and Davis.*

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 101 and AGR 206, or consent of instructor. *Egli.*

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. *Thompson and Herron.*

506 *Introduction to Plant Breeding.* (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. *Poneleit.*

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. *Smiley.*

510 *Ecology and Utilization of Grasslands.* (4)
Critical study of grassland plants and the biological and physical factors operative in utilization of natural and cultivated grasslands by domestic animals. Lecture, three hours; laboratory, two hours. Prereq: BIO 201 and 203, or consent of instructor. *T. Taylor.*

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. *Staff.*

730 *Grassland Research.* (3) II
The conduct and interpretation of grassland experiments with emphasis on pasture research and the plant-animal complex. Prereq: Approval of instructor. *Templeton.*

732 *Mineral Nutrition of Plants.* (3) I
Discussion of accumulation, translocation, and utilization of mineral elements by higher plants. Emphasis will be placed on the relationships between these processes and plant metabolism. Lecture and discussion, 2 hours; lab, 3 hours. (Same as BOT 732.) (Same as HOR 732.) Prereq: BOT 701 or BCH 515 or consent of instructor. *Hiatt.*

734 *Physiology of Growth and Development.* (3) II
A critical evaluation of research in selected aspects of plant growth and development. Emphasis will be on effects of growth environment Lecture-discussion, 3 hours. (Same as BOT 734.) (Same as HOR 734.) Prereq: BOT 701 or consent of instructor. *Kasperbauer.*

736 *Phylogeny of Cultivated Plants.* (3)
Lecture and discussion of concepts and experimental techniques concerned with the origin and phylogeny of cultivated plant species. Lecture, two hours; lab, two hours per week. Prereq: AGR 506, BIO 620 or consent of instructor. (Same as HOR 736.) *N. Taylor.*

COURSES IN SOIL SCIENCE

366 *Fundamentals of Soil Science.* (4)
A study of the fundamental properties and processes of soils and their relation to plant growth. Lecture and discussion three hours; lab, two hours. Prereq: CHE 104 or equiv. or concurrent, or consent of instructor. *Survant.*

367 *Laboratory for AGR 366.* (0)
Staff.

562 *Forest Soils.* (3)
The physical, chemical and biological properties of soils as they relate to forest tree growth and the forest community. A study of the genesis, morphology, classification and utilization of soils for forestry. Prereq: AGR 366 and approval of instructor. (Same as FOR 562.) *Blevins.*

566 *Soil Biology.* (3) I
The nature and biochemical activities of the soil microflora; their significance in soil genesis and structure and their role in soil fertility. Lecture, two hours; lab, two hours. Prereq: AGR 366, MB 200. *Staff.*

568 *Soil Conservation and Management.* (3) II
A study of the principles of wise land use and effective soil management with experience in their application. Lecture and discussion two hours; lab, two hours. Prereq: AGR 366. *Survant.*

570 *Soil Fertility and Fertilizers.* (3) I
Sources and manufacture of fertilizer materials; soil reaction of elements essential for plant growth; effective use of fertilizers for various soil situations. Lecture and discussion, three hours. Prereq: AGR 366 or equivalent. *Sims.*

573 *Soil Morphology and Mapping.* (3) I
Study of concepts of soil horizons and soil profiles, and the chemical, physical and mineralogical parameters useful in characterizing them. Use of soil survey equipment, preparation of soil maps and development of a land use plan for an assigned area. Lecture and recitation, two hours; lab, three hours. Prereq: AGR 366 and GLY 100 or consent of instructor. *Bailey.*

575 *Soil Physics.* (4) II
Physical properties of soils with emphasis on soil water relations, and structure. Lecture and discussion, two hours; lab, four hours. Prereq: AGR 366 and approval of instructor. *Phillips.*

581 *Chemical Analysis of Soils and Plants.* (3) I
Laboratory emphasis on instrumental methods and techniques used in quantitative and qualitative chemical analysis of soil and plant materials and relation of these analyses to physical, chemical and biological systems. Lecture, one hour; lab, six hours. Prereq: AGR 366, CHE 226 or equiv., or approval of instructor. *Barnhisel.*

652 *Soil Classification and Geography.* (3) II (even years)
A critical evaluation of the concepts of soil classification, with particular reference to the current U.S. scheme. Study of geographic locations and nature of their soil associations as related to gross considerations of soil genesis. Lecture, two hours; lab, two hours. Prereq: AGR 573, 581 or consent of instructor. (Same as GEO 652.) *Bailey.*

660 *Advanced Soil Biology.* (2) II (even years)
A critical evaluation of the current research status in selected aspects of soil biology. Lecture, two hours. Prereq: AGR 566 or consent of instructor. *Staff.*

671 *Soil Chemistry.* (3) I (odd years)
A study of the chemical characteristics of the soil and of the more important chemical processes in the soil. Lecture and discussion, two hours; lab, three hours. Prereq: AGR 570, 581, CHE 442 or consent of instructor. *Staff.*

675 *Advanced Soil Physics.* (3)
Relation of physical properties of soil to transfer of water, air, plant nutrient ions, and heat in soil and factors affecting such movement. Prereq: AGR 575, 576, MA 214 and consent of instructor. *Phillips.*

681 *Mineralogical and Chemical Analysis of Soils.* (3) II (odd years)
Laboratory emphasis on instrumental methods and techniques used in quantitative and qualitative mineralogical and chemical analysis of soils and relation of these analyses to physical, chemical and biological systems. Lecture, one hour; lab, six hours. Prereq: CHE 226, AGR 366, 581 or equiv. or approval of instructor. *Barnhisel.*

712 *Advanced Soil Fertility.* (3) II (odd years)
An integration of the effects of soil, climatic and physiological factors on the nutrition and dry matter accumulation of plants. Lecture and discussion, two hours; lab, two hours. Prereq: Agronomy 570 or consent of instructor. *Peaslee.*

721 *Soil Genesis.* (3) II (odd years)
Critical study of theories and concepts in soil genesis and their relationships to soil morphology and classification. Analysis of soil properties and soil forming processes responsible for the development of unique soil pedons. Lecture, two hours; lab, two hours. Prereq: Consent of instructor. *Bailey.*

741 *Clay Mineralogy.* (3)
A comprehensive study of the crystal structures of clay minerals commonly found in soils and sediments. Lecture and discussion, two hours; lab, two hours. Prereq: GLY 212 and 213, AGR 581, 582, 681 or equiv. or consent of instructor. *Barnhisel.*

COURSES IN BOTANY

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

501 *Plant Physiology.* (3-5) I
See course description under Botany.

634 *Cytogenetics.* (4) II
See course description under Botany.

701 *Plant Metabolism.* (3)
See course description under Botany.

ANIMAL SCIENCES

FACULTY

Wesley Patterson Garrigus, chairman
P. G. Woolfolk, vice-chairman

Professors

Charles Elmer Barnhart	Ph.D., Iowa State, 1954
Neil Wright Bradley	Ph.D., Illinois, 1958
Charles Frank Buck	Ph.D., Cornell, 1953
Ray Horn Dutt	Ph.D., Wisconsin, 1948
Theodore Russell Freeman	Ph.D., Penn State, 1937
Wesley Patterson Garrigus	Ph.D., Illinois, 1935
Virgil W. Hays	Ph.D., Iowa State, 1958
W. M. Insko, Jr.	M.S., West Virginia, 1927
Don R. Jacobson	Ph.D., Maryland, 1956
J. D. Kemp	Ph.D., Illinois, 1952
C. Oran Little	Ph.D., Iowa State, 1960
D. W. MacLaury	Ph.D., Iowa State, 1955
George E. Mitchell, Jr.	Ph.D., Illinois, 1956
Durward Olds	Ph.D., Illinois, 1956
John C. Robertson	Ph.D., Kentucky, 1960
W. Y. Varney	Ph.D., Michigan State, 1960
M. D. Whiteker	Ph.D., Kentucky, 1961
P. G. Woolfolk	Ph.D., Cornell, 1950

Associate Professors

John J. Begin	Ph.D., Penn State, 1960
Darwin C. Braund	Ph.D., Michigan State, 1968
Benjamin T. Dean	Ph.D., Missouri, 1961
Roy C. Gray	Ph.D., Auburn, 1964
Bruce E. Langlois	Ph.D., Purdue, 1962
William G. Moody	Ph.D., Missouri, 1963
Arthur W. Rudnick, Jr.	Ph.D., Minnesota, 1954
H. H. Van Horn	Ph.D., Iowa State, 1962

Assistant Professors

Curtis Absher	Ph.D., Tennessee, 1969
John P. Baker	Ph.D., Illinois, 1960
James A. Boling	Ph.D., Wisconsin, 1967
G. L. M. Chappell	Ph.D., V.P.I., 1966
Gary Cromwell	Ph.D., Purdue, 1967
Donald G. Ely	Ph.D., Kentucky, 1966
J. D. Fox	Ph.D., L.S.U., 1968
Robert Goodwill	Ph.D., Minnesota, 1969
Richard H. Johnson	Ph.D., Iowa State, 1959
D. Dal Kratzer	Ph.D., Iowa State, 1966
C. B. Lane	Ph.D., Maryland, 1966
Dennis O. Liptrap	Ph.D., Michigan, 1969
John H. Nicolai	Ph.D., Maryland, 1965
Gary D. Potter	Ph.D., Kentucky, 1967
Kob Ryen	M.S., Winters College, Oslo, Norway, 1934
Frederick Thrift	Ph.D., Oklahoma, 1967
Ray E. Tucker	Ph.D., Kentucky, 1968
J. W. Tuttle	Ph.D., Michigan State, 1968
R. Douglas Wood	Ph.D., Kentucky, 1967

Instructor

Bill V. Able	M.S., Mississippi, 1964

Course Descriptions

202 *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.*

204 *Livestock Management.* (1) I
Intensive training in approved livestock management practices. Students may elect to work with meat animals or dairy animals. Lab, two hours. *Able.*

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. (Same as AGR 260.) Prereq: BOT 101 or ZOO 100. Concur: ASC 261. *Staff.*

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. (Same as AGR 261.) *Staff.*

280 *Feeds and Feeding.* (4) I, II

Digestion, absorption, assimilation and utilization of nutrients by domestic animals for economic production. Principal feeds and rations with practical application. Lecture, three hours; lab, two hours. Prereq: GEN 106, CHE 102 or 110. *Buck.*

300 *Live Animal and Carcass Evaluation.* (3) II

Correlation of live animal and carcass characteristics of beef cattle, hogs and sheep; relation of live animal and carcass traits to the economic value of the carcass; laboratory exercises in grading and evaluating meat animals; effects of environmental and genetic factors on carcass quality. Lecture, one hour; lab, four hours. Prereq: GEN 106. *Moody and Able.*

301 *Livestock Selection and Evaluation.* (3) II

Evaluation of purebred and commercial beef cattle, sheep, and swine; both market and breeding classes. Practice in writing reasons and giving reasons orally. Lab, six hours. Prereq: GEN 106. Not open to freshmen. *Able.*

302 *Food Processing Operations.* (3)

An intensive on-the-job study of food processing operations including product procurement, manufacturing procedures, labor relations, plant maintenance, merchandising and distribution. Prereq: Consent of instructor. *Rudnick and Kemp.*

303 *Evaluation and Grading of Meats* (2) I

A detailed consideration of the factors involved in the selection, grading and evaluation of carcasses and wholesale cuts of beef, pork and lamb. Specific emphasis will be given to cutability, shape, quality and maturity of cuts and carcasses as they relate to the palatability and acceptance of meat by the consumer. Lab, four hours. Prereq: ASC 304 or 306. *Moody.*

304 *Meats and Meats Processing.* (4) I, II

The relationship of production, slaughtering, processing and marketing of meat and meat products to the overall livestock and meat industry. Specific emphasis will be given to such topics as inspection, grading, cut-out, pricing, cooking, preserving, and composition as each relates to the wholesomeness, economy and palatability of meat. Anatomical study of the location and structure of muscles, organs and glands and physiological functions of organs and glands will be included in laboratory exercises. Lecture, two hours, lab, four hours. Prereq: GEN 106. *Kemp and Moody.*

306 *Selection, Evaluation, and Use of Animal Food Products.* (4) II

History and growth of dairy, meat and poultry processing; physical and chemical composition and nutritive value of dairy, meat and poultry products; identification, selection, evaluation and use of meat, poultry and dairy products; grading, processing and freezing methods; wholesale and retail sales methods. Lecture, three hours; lab, two hours. *Kemp and Rudnick.*

310 *Farrier's Principles and Practices.* (2) II

Anatomy and physiology of the legs and hooves of horses with emphasis on corrective trimming and proper shoeing. Lecture, one hour; lab, two hours.

312 *Advanced Livestock Selection and Evaluation.* (2) I

Evaluation of purebred and commercial beef cattle, sheep and swine; both market and breeding classes. Practice in writing reasons and giving reasons orally. Lab, six hours. *Able.*

321 *Dairy Cattle Evaluation.* (3) II

Selection of sires, cows, and heifers with due consideration for breed and dairy type. Application of principles involved in herd improvement. Lab, six hours. *VanHorn.*

323 *Advanced Dairy Cattle Evaluation.* (2) I

Open only to those who have consent of instructor. Lab, four hours. (Will not count for ASC major requirements.) *VanHorn.*

330 *Organoleptic Evaluation of Foods.* (2) II

An intensive study of methods of organoleptic evaluation of foods by feel, sight, taste and smell. Physiological and psychological factors involved in evaluating foods. Comparisons of evaluation methods. Lecture, one hour; lab, two hours. *Freeman.*

332 *Organoleptic Evaluation of Dairy Products.* (2) I

Practice in judging dairy products with special emphasis being given to commercial methods of scoring dairy products and to procedures followed in intercollegiate judging contests. Lecture, one hour; lab, two hours. Prereq: ASC 330 or consent of instructor. *Freeman.*

335 *Chemical Analysis of Animal Food Products.* (3) I

Purpose, principles, techniques and interpretations of chemical testing procedures essential to the control of animal food processing operations. Lab, six hours. Prereq: CHE 104. *Rudnick.*

342 *Poultry Evaluation.* (3) II

Basic concepts for evaluating poultry and its products, including eggs, meat, and live birds. Lecture, two hours; lab, two hours. Prereq: GEN 106. (Will not count for ASC major requirement.) *Johnson.*

346 *Incubation and Avian Embryology.* (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: GEN 106. Approval of instructor. *MacLaury.*

370 *Animal Science Seminar.* (1) II

Presentation and discussion of current topics by students, staff, and guests. Students may elect their specialization interest group to participate. May be repeated once for a maximum of two credits. *Staff.*

395 *Special Problems in Animal Science.* (2) I, II, S

Approval of instructor required. May be repeated for a maximum of four credits. *Staff.*

400 *Animal Breeding.* (4)

The application of genetic principles to the improvement of farm animals. Phenotypic and genetic relationships among economic traits as well as modes of inheritance and methods of measuring the traits. The role of inbreeding, outbreeding and selection methods in producing genetically superior population for dairy cattle, poultry, meat animals and horses. Lecture, four hours. (Equivalent of ASC 260 may be substituted.) Prereq: ASC 260. *Staff.*

404 *Sheep Science.* (3) II

History and importance of the sheep industry; selection, breeding, feeding, and management of sheep for lamb and wool production. Lecture, two hours; lab, two hours. Prereq: GEN 106, ASC 280. *Ely.*

406 *Beef Science.* (3) II

Scope and importance of the beef cattle industry; selection, breeding, feeding and management of beef cattle. Lecture, two hours; lab, two hours. Prereq: GEN 106, ASC 280. *Bradley.*

408 *Swine Science.* (3) II

History and importance of the swine industry; selection, breeding, feeding, and management of swine. Lecture, two hours; lab, two hours. Prereq: GEN 106, ASC 280. *Cromwell.*

410 *Light Horse Science.* (3) I, II

Breed history, development and pedigrees; a general study of the anatomy and physiology of the horse with emphasis on Management, Nutrition, Reproduction and Genetics. Diagnosis, prevention and cure of common diseases and ailments; parasite control. Driving, schooling and training. Lecture, two hours; lab, two hours. Prereq: ASC 202, GEN 106, ASC 280 or consent of instructor.

420 *Dairy Cattle Science.* (2-3) I

Feeding and management of dairy cattle contributing to profitable production of quality milk. Lecture, two hours; lab, two hours. Prereq: GEN 106 and ASC 280 or consent of instructor. *Jacobson.*

436 *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: ASC 335. *Rudnick.*

442 *Poultry Science.* (3) I

Studies of control measures in poultry diseases, nutrition, marketing; flock management and replacement. Lecture, two hours; lab and demonstration, two hours. Prereq: GEN 106. *Johnson.*

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: GEN 106, ASC 260, ZOO 100 or consent of instructor. *Olds.*

530 *Dairy Microbiology.* (4) 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.*

533 *Advanced Animal Food Microbiology.* (3) II
Bacteriological principles and problems relating to specific dairy products and process. Prereq: ASC 530. *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 113, CHE 236, ASC 335. *Freeman.*

548 *Poultry Nutrition.* (3) II
A study of nutrient utilization and requirements for growth, and reproduction in the Avian Species. Lecture, two hours; lab, two hours. Prereq: CHE 236 or equivalent and ASC 580. *Begin.*

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. *Staff.*

564 *Milk Secretion.* (3) II
Anatomy of the mammary gland, physiology and biochemistry of milk secretion and management factors affecting yield and composition of milk. Three class hours per week. Prereq: ASC 280, VS 350. *VanHorn.*

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.*

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. Prereq: Graduate standing and permission of major adviser. *Staff.*

630 *Advanced Meat Science.* (3) I
Advanced meat science with special reference to the histological, chemical, physical and microbiological properties as they relate to meat quality, organoleptic acceptability and processing procedures. Two class hours, two laboratory hours per week. Prereq: ASC 304, 306 or equivalent; one course in Histology or Biochemistry or consent of instructor. *Moody, Fox, Langlois, Kemp.*

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: VS 501, ASC 500. *Dutt.*

662 *Population Genetics.* (3) I
Introduction to principles of static and dynamic populations; statistical concepts and tools applied to quantitative inheritance. Prereq: One course each in statistics and genetics and consent of instructor. For graduate students only. *Thrift.*

664 *Advanced Animal Breeding.* (3)
Specialized phases of genetics, selection, mating systems and population parameters applicable to synthesis of breeding programs for animal improvement. Prereq: ASC 260, 500 and AEC 530 or equivalents. *Staff.*

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 and meats. Lecture and recitation, one hour; lab, 6 hours. Prereq: ASC 580. *Little.*

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. *Cromwell and Hays.*

688 *Equine Nutrition.* (2) II
Detailed study of anatomical, physiological and microbiological factors influencing the nutritive requirements of the equine for maintenance, growth, reproduction, lactation and work. Two class hours per week. Prereq: One course in Nutrition and Physiology or Biochemistry or consent of instructor. *Baker.*

768 *Residence Credit for the Master's Degree.* (0)
(1-6 credits equivalence.) May be repeated once. *Staff.*

769 *Residence Credit for the Doctor's Degree.* (0)
(1-12 credits equivalence.) May be repeated indefinitely. *Staff.*

771 *Animal Science Seminar.* (1) I, II
May be repeated twice for a total of three credits. *Mitchell.*

780 *Special Problems in Animal Derived Foods.* (1-4)
May be repeated for a maximum of 9 credits. Prereq: Consent of graduate adviser.

781 *Special Problems in Genetics or Physiology.* (1-4) I, II, S
May be repeated to a maximum of nine credits. Prereq: Consent of graduate adviser. *Staff.*

782 *Special Problems in Animal Nutrition.* (1-4) I, II, S
Prereq: Consent of graduate adviser. May be repeated to a maximum of 9 credits. *Staff.*

790 *Research in Animal Derived Foods.* (1-6) I, II, S
Problems involving original investigation. May be repeated for a total of 9 credits. Prereq: Consent of graduate adviser. *Kemp and Moody.*

791 *Research in Genetics or Physiology.* (1-6) I, II, S
Problems involving original investigation. May be repeated for a total of 9 credits. Prereq: Consent of graduate adviser. *Baker.*

792 *Research in Animal Nutrition.* (1-6) I, II, S
Problems involving original investigation. May be repeated for a total of 9 credits. Prereq: Consent of graduate adviser. *Ely.*

COOPERATIVE EXTENSION

FACULTY

Frank Santopolo, chairman

Professor

Frank A. Santopolo — Ph.D., Fordham, 1956

Assistant Professor

Alan Utz — Ph.D., Wisconsin, 1965

Course Descriptions

501 *Principles of Cooperative Extension.* (3) I, II
Philosophy, history and development of the Cooperative Extension Service; evaluation of instructional techniques; leadership training; and practices in use of Extension methods. Open to juniors, seniors and graduate students.

768 *Residence Credit for Master's Degree.* (0)
May be repeated once. (1-6 credits equivalence.)

790 *Special Problems in Cooperative 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 to a total of 12 credits.

ENTOMOLOGY

FACULTY

B. C. Pass, chairman

Professors

Juan Guadelupe Rodriguez	Ph.D., Ohio State, 1949
Richard Thurston	Ph.D., Rutgers, 1952
Lee Hill Townsend	Ph.D., Illinois, 1935

Associate Professors

H. Wyman Dorough	Ph.D., Wisconsin, 1963
Paul Harold Freytag	Ph.D., Ohio State, 1963
Fred William Knapp	Ph.D., Kansas State, 1961
Bobby Clifton Pass	Ph.D., Clemson, 1962
Rudolph A. Scheibner	Ph.D., Michigan State, 1963

Assistant Professors

Dougias Lee Dahlman	Ph.D., Iowa State, 1965
Wesley W. Gregory	Ph.D., Clemson, 1969

Course Descriptions

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. Lecture, two hours; lab, 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. Lecture, two hours; lab, two hours. Prereq: ENT 100. *Staff.*

530 *Applied Entomology.* (3) II
Principles of insect damage, populations and distributions. Various types of natural and applied control, including problems of insecticide toxicity, resistance, and residues. Lecture, two hours; lab, two hours. Prereq: ENT 100. *Rodriguez.*

532 *Medical Entomology.* (4) I, S
Study of arthropod vectors of disease. Structure, collection, identification, control measures and life history studies. Given alternate years. (Same as ZOO 532.) Prereq: ZOO 534 or consent of instructor. *Knapp.*

534 *Parasitology.* (4) I, S
Protozoan, helminth and arthropod parasites of man and domestic animals, emphasis on etiology, epidemiology, methods of diagnosis, control measure, and life histories. Techniques for host examination and preparation of material for study. (Same as ZOO 534.) Prereq: ZOO 100.

542 *Insect Taxonomy.* (4) I
Methods and principles of systematic entomology and zoology; characterization of taxonomic categories; and international rules of zoological nomenclature. Collection, preparation and identification of insect specimens. Given alternate years. Lecture, two hours; lab, four hours. (Same as ZOO 542.) Prereq: ENT 100 and ZOO 100 *Freytag.*

595 *Independent Work.* (2-3) I, II, S
Special problems for individual students who are capable of pursuing independent investigations in the various areas of entomology. Prereq: ENT 100 and any two of the following: ENT 530, 532, or 650. *Staff.*

602 *Insect Morphology.* (4) I
A study of internal and external insect structure, including function, and variation of form. Given alternate years. Lecture, two hours; lab, four hours. (Same as ZOO 602.) Prereq: ENT 100 and consent of instructor. *Freytag.*

606 *Insect Toxicology.* (3) II
Toxic action of insecticides: preparation, use, and analysis of insecticides; residues; analytical methods in insect toxicology. Lecture, two hours; lab, two hours. Prereq: Consent of instructor. *Dorough.*

610 *Insect Ecology and Behavior.* (3)
The biotic and physical factors influencing the distribution, abundance, and behavior of insects and insect populations. Two class hours and two laboratory hours per week. Prereq: Consent of instructor. (Same as ZOO 610.) *Thurston and Barr.*

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, ENT 100, and consent of instructor. (Same as ZOO 620). *Rodriguez.*

630 *Insect Physiology.* (4) II
Principles of insect physiology, function of organs, circulation, reproduction, respiration, and digestion. Lecture, 2 hours; lab, 4 hours. (Same as ZOO 630.) Prereq: Consent of instructor. *Dahlman.*

650 *Advanced Applied Entomology.* (3) II
Bionomics of insects; respresentative insecticides, their characteristics, formulation, scope of use, safety factors, and methods of application. Lecture, two hours; lab, two hours. Prereq: ENT 100 or 500. *Pass.*

660 *Immature Insects* (4)
Bionomics, structure, and classification of immature stages of insects; practice in their identification. Two class hours, four laboratory hours per week. Prereq: ZOO 570 or ENT 542, or consent of instructor. *Freytag.*

670 *Experimental Methods in Entomology.* (4)
The principles and techniques of instrumentation in entomological research with emphasis on problem selection and the collection, evaluation, and presentation of data. Two class hours, four lab hours per week. *Dahlman, Pass.*

680 *Biological Control of Insects.* (3) II
The history and principles of biological control and of integrated programs for insect control. The use of parasites, predators, pathogens, host resistance, electro-magnetic energy, pheromones, and their interactions with insecticide control programs will be discussed. Three class hours per week. Prereq: Consent of instructor. *Thurston.*

768 *Residence Credit for the Master's Degree.* (0)
(1-6 credits equivalence.) May be repeated once. *Staff.*

769 *Residence Credit for the Doctor's Degree.* (0) I, II, S
Residence credit for the doctor's degree. (1-12 credits equivalence.) May be repeated indefinitely.

780 *Entomological Problems.* (2-3) I, II
Investigations of chosen insect problems, including original work. Discussion and assignment of current insect subjects. Prereq: ENT 100, 768. May be repeated once for a maximum of 6 credits. *Staff.*

781 *Entomological Seminar.* (1) I, II
Discussion of current research problems in entomology. May be repeated five times for a total of six hours.

FORESTRY

FACULTY

William Gregory Survant, acting chairman

Professors

D. Boyd Richards	Ph.D., Syracuse, 1950
Oscar Malcolm Davenport	M.S., Purdue, 1940

Departmental Requirements

General Studies Requirements: Area I—Option A or B; Area II—Option B or C; Area III—Option A or B; Area VII—Option A or D. Elect an option in Area IV, V, VI or VIII.

General Agriculture: Two of the following: GEN 102, 104 and 106.

Professional Forestry Courses:

FOR 219—Dendrology	3
FOR 300—Forest Measurements	4
FOR 310—Forest Management	4
FOR 412—Forest Economics	3
FOR 350—Silvics and Silviculture	4
FOR 360—Forest Protection	3
FOR 425—Photogrammetry	3
Summer Camp—FOR 375, 376, 377	8
Specialty Support	
AGR 366—Fundamentals of Soil Science	4
CE 100—Plane Surveying	3
PHY 151 & 152 or PHY 211 & 213	6-10
STA 370—Introduction to Statistics	4

Electives: Highly recommended courses for most students:

FOR 400	3
FOR 460	
FOR 562	3
Other electives to total 132 credits	

Course Descriptions

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.*

219 *Dendrology.* (3)
Classification, nomenclature, identification and silvical characteristics of trees and other woody plants based on their morphological phylogenetic and ecological relationships. Nominally three one-hour lectures per week, but weekend field trips will be taken in lieu of some class hours. Prereq: BOT 101 or 125, or BIO 102 or 202. (Same as BOT 219.) *Meijer.*

300 *Forest Measurements.* (4) I
Basic forest surveying; units of measure and their application in determining volume in forest stands and products; statistical techniques and photogrammetry in volume estimate; site classification and growth determinations; continuous forest inventory and data processing techniques. Lecture, three hours; lab, two hours per week. Prereq: MA 122 or 113. *Davenport.*

305 *Logging.* (3)
Principles and practices in harvesting timber crops. Factors primary to harvesting, transportation of products, and organization of logging operations. New developments and trends. *Davenport.*

310 *Forest Management.* (4)
The principles of sustained yield forest management, organization of the forest area, management objectives, application of silvicultural systems, regulation of the cut, and forest management plans. Three class hours per week; lab, two hours per week. Prereq: MA 122 or 113. *Staff.*

350 *Silvics and Silviculture.* (4)
Forests and environment factors; site and type characteristics; principles and application of intermediate and regeneration cuttings. Three class hours; lab, two hours per week. Prereq: FOR 219. *Richards.*

355 *Reforestation.* (3) II
Principles and practices in forest tree seed collection and treatment and nursery operation. Reforestation practices by planting and direct seeding. Prereq: FOR 219. *Davenport.*

360 *Forest Protection.* (3)
Character and extent of damage to forests and/or forest products by fire, insects, disease, animals and other agencies. Control methods and procedures. *Staff.*

375 *Dendrology and Silviculture.* (3)
Field studies in tree identification with correlation of species with soil and ecological factors. The application of basic silvicultural systems, including intermediate and reproduction of cuttings. Emphasis to be placed on Appalachian hardwood species and stands. Prereq: FOR 219, 350. To be taken concurrently with FOR 376, 377. *Staff.*

376 *Mensuration and Surveying.* (3)
Correlation of basic surveying and mensurational techniques; field work in measuring forest land areas and elevations, tree and stand volumes and growth. Timber estimating and cruising; collection and evaluation of mensurational and surveying data; development of maps and volume and stand tables. Prereq: FOR 300 and CE 100. To be taken concurrently with FOR 375, 377. *Staff.*

377 *Forest Utilization.* (2)
Observation and study of equipment design and operation in University logging activities, sawmills, wood preservation plant, dry kiln and Wood Use Center. Visits to various primary and secondary wood using industries. To be taken concurrently with FOR 375, 376. *Staff.*

400 *Wood Identification and Properties.* (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, BIO 200; and approval of instructor. *Davenport.*

410 *Lumber.* (3) II
The production, processing and merchandizing of lumber. *Davenport.*

415 *Wood Seasoning and Preservation.* (3) I, S
Principles and methods involved in air and kiln drying of wood; kiln design and operation. Agencies causing disintegration of wood, factors affecting penetration and absorption of preservative solutions in wood, wood preservatives and processes, plant equipment design and operation and economic considerations. *Davenport.*

420 *Forest Products.* (3)
Sources, processing and utilization of forest products other than lumber. *Staff.*

425 *Forest Photogrammetry.* (3)
Use of aerial photographs in land and topographic mapping, forest type delineation. Lecture, two hours; lab, two hours per week. Prereq: FOR 300 and 310. *Staff.*

562 *Forest Soils.* (3)
The physical, chemical, and biological properties of soils as they relate to forest tree growth and the forest community. A study of the genesis, morphology, classification and utilization of soils for forestry. Prereq: AGR 366 and approval of instructor. (Same as AGR 562.) *Blevins.*

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 for a total of 9 credits. *Staff.*

HORTICULTURE

FACULTY

Hubert Charles Mohr, chairman

Professors

Hubert Charles Mohr	Ph.D., Texas A.&M., 1955
G. William Schneider	Ph.D., Rutgers, 1950

Associate Professors

Carl Edward Chaplin — M.S., Illinois, 1948
Dean Edgar Knavel — Ph.D., Michigan State, 1959
Aly M. Lasheen — Ph.D., Texas A.&M., 1954
Raymond G. Lockard — Ph.D., Univ. of London (England), 1954
Dudley Carl Martin — Ph.D., Michigan State, 1954
Clarence R. Roberts — Ph.D., Texas A.&M., 1964
Leonard P. Stoltz — Ph.D., Purdue, 1965

Assistant Professors

Darrel A. Apps — Ph.D., Wisconsin, 1968
Max E. Fogleman — Ph.D., Iowa State, 1966
Richard W. Henley — Ph.D., Ohio State, 1967
Daniel Milbocker — Ph.D., Penn State, 1969

Instructor

Horst Schach
Master of Landscape Architecture, California, 1967

Course Descriptions

203 *Recreational Horticulture.* (3) I, II
A basic course designed to familiarize students with the recreational aspects of the field of Horticulture. Lecture, 2 hours; lab, 2 hours.

300 *Principles of Horticultural Production.* (3) I, II
A course which deals with the various fundamental aspects of the production and harvesting of horticultural crops. Prereq: A course in Botany. Lecture, 2 hours; laboratory, 2 hours per week.

327 *Ornamental Plants I.* (3) 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. For ornamental majors. Offered alternate years. Lecture, 1 hour; lab, 4 hours. Prereq: An approved course in Biological Science and approval of instructor.

329 *Ornamental Plants II.* (2) II
A detailed study of evergreen and deciduous plants, their systematic identification, hardiness, growth habit, size, culture, adaptation to environmental conditions, uses, and outstanding horticultural characteristics. Lecture, one hour; lab, two hours. Prereq: HOR 327.

331 *Landscape Design.* (3)
The illustration of the principles of landscaping and its use in the coordination and location of structures with respect to their surroundings. Lecture, 2 hours; lab, 2 hours. Prereq: One course in ART.

335 *Floriculture I.* (3) I
The application of artistic values and scientific principles in the culture of cut flowers, pot plants, annual and perennial flowers and foliage plants, both indoors and out-of-doors. Lecture, 2 hours; lab, 2 hours. Prereq: A course in Botany and a course in soils.

340 *Floral Design.* (2) II
An adaptation of design principles to the art of floral decoration. Lecture, 4 hours. Prereq: Consent of instructor.

397 *Special Problems in Horticulture.* (1-4) I, II, S
This course is designed to meet the need for advanced work. Prereq: Approval of instructor. May be repeated to a maximum of 12 credits. *Staff.*

500 *Methods of Pest Control in Horticultural Crops.* (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: One semester of Entomology and consent of instructor. Offered in spring of even numbered years. *Chaplin.*

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. *Lockard.*

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. *Chaplin.*

506 *Greenhouse Design, Management, and Environmental Control.* (3)
Functional requirements of a greenhouse and the physical laws influencing these requirements. The influence of structural, physical, and biological factors on the environmental conditions will be emphasized. Prereq: HOR 512 and AEN 100 or consent of instructor. (Same as AEN 506.)

510 *Vegetable Crops.* (3) I
A study of the fundamental principles underlying commercial production of vegetables. Lectures, two hours; lab, two hours. Prereq: AGR 366. Offered in fall of odd numbered years. *Fogleman.*

512 *Greenhouse Vegetable Crops.* (3) II
Principles of vegetable crop production in environmentally controlled growing structures; methods for controlling the environment; vegetable crops adapted to greenhouse production. Lecture, two hours; lab, two hours. *Knavel.*

515 *Turf Management.* (3) I
Types of grasses used for turf; basic and applied principles of turf culture as they relate to the various phases of the turf industry, i.e., ornamental horticulture, landscaping, sod nurseries, golf courses and athletic fields, parks and highways. Lecture, 2 hours, lab, 2 hours. Prereq: One course in BOT and one course in Soil Science. *Stoltz.*

522 *Landscape Planting Design.* (3)
A detailed study of the use of various plant materials to express the principles of landscape design. Lecture, 2 hours; lab, 2 hours. Prereq: HOR 331, 527.

524 *Floriculture II.* (3) I
A detailed study of specific groups of florists' crops, with particular reference to methods of control of flowering and growth. Lecture, 2 hours; lab, 3 hours. Prereq: HOR 335.

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 331; BOT 101, 103. Offered alternate years. *Stoltz.*

732 *Mineral Nutrition of Plants.* (3)
Discussion of accumulation, translocation, and utilization of mineral elements by higher plants. Emphasis will be placed on the relationship between these processes and plant metabolism. (Same as BOT 732, AGR 732). Prereq: BOT 701 or BCH 515 or consent of instructor.

734 *Mineral Nutrition of Plants.* (3)
Discussion of accumulation, translocation, and utilization of mineral elements by higher plants. Emphasis will be placed on the relationship between these processes and plant metabolism. (Same as BOT 734, AGR 734). Prereq: BOT 701 or consent of instructor.

736 *Phylogeny of Cultivated Plants.* (3)
Lecture and discussion of concepts and experimental techniques concerned with the origin and phylogeny of cultivated plant species. Lecture, two hours; lab, two hours per week. Prereq: AGR 506, BIO 620 or consent of instructor. (Same as AGR 736).

768 *Residence Credit for Master's Degree.* (0) I, II, S
May be repeated once. (1-6 credits equivalence.) *Staff.*

770 *Seminar.* (1) I, II, S
May be repeated twice for a total of 3 credits. *Staff.*

782 *Special Problems in Horticulture.* (1-4) I, II, S
This course is designed to meet the need for advanced work. May be repeated for a total of 12 credits. Prereq: Approval of instructor. *Staff.*

790 *Research in Horticulture.* (1-4) I, II, S
May be repeated to a maximum of 9 credits. Prereq: Approval of instructor. *Staff.*

PLANT PATHOLOGY

FACULTY

Stephen Diachun, chairman

Emeritus Professors

Edward M. Johnson	Ph.D., Minnesota, 1930
William D. Valleau	Ph.D., Minnesota, 1917

Professors

Richard A. Chapman	Ph.D., Illinois, 1948
Stephen Diachun	Ph.D., Illinois, 1938
Granville W. Stokes	Ph.D., Wisconsin, 1953
Harry E. Wheeler	Ph.D., Louisiana, 1949
Albert S. Williams	Ph.D., North Carolina State, 1954

Associate Professors

Raymond E. Hampton	Ph.D., Wisconsin, 1960
Lawrence Henson	M.S., Kentucky, 1933
James W. Hendrix	Ph.D., North Carolina State, 1963
Thomas P. Pirone	Ph.D., Wisconsin, 1960
John G. Shaw	Ph.D., Wisconsin, 1960
Malcolm R. Siegel	Ph.D., Maryland, 1962
Jones H. Smiley	Ph.D., Wisconsin, 1963

Assistant Professors

William M. Brown	Ph.D., Oregon State, 1965
D. Donald Poole	Ph.D., Texas A.&M., 1957
Charles Y. Yang	Ph.D., Wisconsin, 1964

Course Descriptions

397 *Special Problems in Plant Pathology.* (1-4) I, II, S
May be repeated to a maximum of 9 credits. Prereq: Consent of instructor. *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. Prereq: BOT 101 or 125 or consent of instructor. (Same as BOT 541.) *Diachun, Chapman.*

543 *Diseases of Plants.* (3) II
Symptoms, causes, and control of some of the more common representative plant diseases. Students may select disease problems in their major field of interest. Discussion, one hour; lab, four hours. Prereq: PPA 541 or BOT 541, or consent of instructor. *Staff.*

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, or consent of instructor. *Diachun, Pirone and Shaw.*

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 and Williams.*

660 *Physiology of Plant Diseases.* (3) II
Lectures, discussions, and independent reading on biochemical and physiological aspects of plant disease and of disease resistance and immunity in plants. Lecture, three hours. Prereq: PPA 541, and BCH 511 or BOT 701. *Hampton.*

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once. 1-6 credits equivalence. *Staff.*

769 *Residence Credit for the Doctor's Degree in Biological Sciences.* (0)
1-12 credits equivalence. 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 for a maximum of four credits. *Staff.*

784 *Special Problems in Plant Pathology.* (1-3) I, II, S
May be repeated to a maximum of nine credits. Prereq: PPA 541 or BOT 541 or equivalent; consent of instructor. *Staff.*

794 *Research in Plant Pathology.* (1-4) I, II, S
Prereq: PPA 541 or BOT 541, or consent of instructor. May be repeated to a maximum of 12 credits. *Staff.*

SOCIOLOGY

(See also Sociology Department courses, College of Arts and Sciences.)

FACULTY

Thomas R. Ford, chairman

Professors

Howard Wayland Beers	Ph.D., Cornell, 1935
James Stephen Brown	Ph.D., Harvard, 1950
A. Lee Coleman	Ph.D., Cornell, 1950
Charles Milton Coughenour	Ph.D., Missouri, 1953
Thomas R. Ford	Ph.D., Vanderbilt, 1951
Frank Anthony Santopolo	Ph.D., Fordham, 1956
E. Grant Youmans	Ph.D., Michigan State, 1953

Associate Professors

Rabel J. Burdge	Ph.D., Penn State, 1965
Maurice E. Voland	Ph.D., Michigan State, 1968

Course Descriptions

413 *Community Analysis.* (3) I
A study of communal structure and processes with special emphasis on strategies of field investigation of particular communities. Prereq: SOC 101 or equivalent or consent of instructor. (Same as HE 575; Same as SOC 413 in Arts and Sciences.) *Ford.*

441 *Group Organization and Leadership.* (3) II
A study of the structure and dynamics of organized groups; leadership, membership participation, and the processes of problem-solving and group development. Lecture, 2 hours; lab, 2 hours. Prereq: SOC 101 or consent of instructor. (Same as SOC 541 in Arts and Sciences.)

515 *Diffusion of Technology in Modern Society.* (3) I
A study of the personality, social structure, and change agent factors in the spread of new techniques among groups and individuals in modern society. Prereq: Either GEN 102 or SOC 101, 153. (Same as SOC 515 in Arts and Sciences.) *Coughenour.*

517 *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. Prereq: Either GEN 102 or SOC 101. (Same as SOC 517 in Arts and Sciences.) *Burdge.*

565 *Special Problems in Sociology.* (1-3) I, II
Supervised individual study in selected sub-fields of sociology, population, community, organizations, social attitudes, deviant behavior, and social change are among the fields available for investigation. (Same as SOC 565 in Arts and Sciences.) May be repeated to a maximum of six credits. Prereq: SOC 101. *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. Prereq: SOC 101. (Same as SOC 615 in Arts and Sciences.)

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. Prereq: SOC 101. (Same as SOC 773 in Arts and Sciences.) *Staff.*

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 for a total of 6 credits. Prereq: SOC 101. (Same as SOC 790 in Arts and Sciences.) *Staff.*

VETERINARY SCIENCE

FACULTY

J. H. Drudge, chairman

Professors

John T. Bryans	Ph.D., Cornell, 1954
J. H. Drudge	Sc.D., Johns Hopkins, 1950
W. H. McCollum	Ph.D., Wisconsin, 1954

Associate Professor

R. G. Loy	Ph.D., Wisconsin, 1959

Assistant Professors

M. Ward Crowe	D.V.M., Auburn, 1957
Daniel D. Herrington	Ph.D., M.I.T., 1969
E. T. Lyons	Ph.D., Colorado State, 1963
Donald O. Morgan	Ph.D., Illinois, 1967
M. E. Prickett	D.V.M., Michigan State, 1954
Thomas W. Swerczek	Ph.D., Connecticut, 1969

Course Descriptions

350 *Introductory Anatomy, Physiology, and Animal Hygiene.* (3) I, II
A study of anatomy and physiology as related to courses in livestock production, judging, nutrition, meats and diseases, and introduction to the basic mechanism of animal disease and the relationship of animal hygiene. Lecture, three hours. *Prickett.*

351 *Principles of Animal Hygiene and Disease Control.* (3)
A continuation of VS 350. A study of the general nature, distribution, manner of dissemination and control of infectious reproductive, metabolic and parasitic diseases of animals. Prereq: VS 350. *Crowe.*

395 *Special Problems in Veterinary Science.* (3) I, II
Prereq: VS 251, 501, and approval of instructor. May be repeated once for a total of 6 credits.

769 *Residence Credit for Doctor's Degree.* (0) I, II, S
May be repeated indefinitely. (1-12 credits equivalence.) *Staff.*

770 *Veterinary Science Seminar.* (1) I, II
Required of graduate students in Veterinary Science. May be repeated to a maximum of six credits. Prereq: Permission of staff.

781 *Correlative Pathology.* (1-3) I, II, S
Supervised experience in the use of clinical, gross and histopathological technics in the differential and definitive diagnosis of diseases. May be repeated for a total of nine credits. Prereq: Pathology in D.V.M. curriculum or equivalent and permission of staff. *Staff.*

782 *Nutritional Pathology.* (3) II Alternate years
The pathogenesis and physiopathology of deficiency states in domestic and laboratory animals. Prereq: Pathology in D.V.M. curriculum or equivalent and approval of staff.

783 *Infectious Diseases of Domestic Animals.* (3) II Alternate years
Etiology, pathogenesis, epizootiology, prophylaxis and therapy of selected infectious diseases of domestic animals. Prereq: Microbiology and pathology in D.V.M. curriculum or equivalent and approval of staff. *Staff.*

784 *Advanced Veterinary Immunology.* (2) I Alternate years
Theory and practice of the development and standardization of vaccines, and the evaluation of their potency, safety and efficacy in the prophylaxis of infectious diseases of domestic animals. Prereq: Microbiology in D.V.M. curriculum or equivalent and approval of staff. *Bryans.*

785 *Advanced Veterinary Parasitology.* (3) I Alternate years
Experimental methodology and host parasite relationships of the protozoan and helminth parasites of domestic animals. Prereq: Parasitology in D.V.M. curriculum or equivalent and approval of staff. *Drudge.*

786 *Advanced Veterinary Pathology.* (3) I, II Alternate years
Specialized instruction in techniques and interpretations of pathology and pathologic anatomy. Emphasis will be upon evaluation of lesions for understanding the pathogenesis of disease processes in the living animal. Prereq: Pathology in D.V.M. curriculum or equivalent and approval of staff.

787 *Advanced Veterinary Pathology.* (3) I, II Alternate years
Specialized instruction in techniques and interpretations of pathology and pathologic anatomy. Emphasis will be upon evaluation of lesions for understanding the pathogenesis of disease processes in the living animal. Prereq: Pathology in D.V.M. curriculum or equivalent and approval of staff.

791 *Research in Veterinary Microbiology.* (1-9) I, II, S
Independent research in veterinary microbiology. May be repeated for a total of 24 credits. Prereq: Permission of staff. *McCollum, Bryans.*

792 *Research in General Veterinary Pathology.* (1-9) I, II, S
Independent research in veterinary pathology. May be repeated for a total of 24 credits. Prereq: Permission of staff.

793 *Research in Veterinary Parasitology.* (1-9) I, II, S
Independent research in veterinary parasitology. May be repeated for a total of 24 credits. Prereq: Permission of staff. *Drudge.*

794 *Research in Nutritional Pathology.* (1-9) I, II, S
Independent research in nutritional pathology. May be repeated for a total of 24 credits. Prereq: Permission of staff.



Home Economics

Betty J. Brannan, Ph.D., is Dean of the School of Home Economics.

Home Economics synthesizes knowledge drawn from its own research, from research in the physical, biological, and social sciences and the humanities. It applies this knowledge to improve the conditions of living for the individual, the family, the institutional household and the community. To this end home economics is concerned with a broad range of professions including:

family relations and child development,

personal, family and community health,

family economics—home management, money management and the use of resources so that the values and goals of the individual, the family and the society may be attained,

consumer and marketing economic aspects of the family and society,

nutrition and metabolism,

food science—chemical composition and preservation of foods and the bacteriological safety of consumer foods and food products,

hospital dietetics and business professions in food service and institutional management,

design, selection, construction, care and merchandising of clothing, and its psychological and social significance,

housing, equipment and furnishings for the family vocational, extension, and preschool education.

Lower division courses in home economics provide general knowledge in the subject matter areas of home economics. The student is required to specialize in a specific subject matter area during his junior and senior years. Graduate programs are also available for further specialization.

The fundamental aims of the resident teaching program of the School of Home Economics are to provide instruction of both scientific and practical character. This instruction is designed to develop women and men to be competent in home economics so they may be capable of assuming leadership in society. Instruction is also provided for students from the Arts and Sciences, Education and Nursing Colleges. Instruction is provided as electives for all students in the University.

Curricular programs in home economics prepare students for professions in vocational and preschool education; business marketing and industry; dietetics and institution administration, and in social service and research—all directed toward furthering community, national and world conditions favorable to family living.

Instruction in home economics was first offered at the University of Kentucky in 1905. The program grew as the demand for home economics instruction increased until a School of Home Economics was established. Since July 1, 1967, the School of Home Economics has been independent of, and coordinate with, other Colleges of the Division of Colleges of the University of Kentucky.

The School of Home Economics provides programs of resident teaching, research, and extension for the enrichment of family living. The School of Home Economics serves the entire state through these programs.

The resident teaching, research and extension programs in home economics are organized and administered primarily through the five departments of the School of Home Economics—Housing and Interior Design, Human Development and Family Relations, Management and Family Economics, Nutrition and Food Science, and Textiles, Clothing and Merchandising. Under the general administration of a chairman, each department plans, develops, and carries out all programs within its area of subject matter competence.

The principal resource of each department is its 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. An outstanding faculty is the key to quality in home economics programs.

Adequate, modern buildings and equipment are essential for good instruction in home economics. In addition to general University buildings, the School of Home Economics has several buildings devoted

specifically to work of various departments. Erikson Hall, the main home economics building, provides classrooms, offices and laboratories for foods, clothing, nutrition, dietetics, experimental cookery, textiles, costume and interior design.

THE CURRICULUM

To attain the objectives of professional home economics, curricula in the school are organized in two parts: Pre-Major Studies and Major Studies. The Pre-Major Studies are composed of courses in arts and sciences and from each of the subject matter areas of home economics. These courses provide a broad educational background and professional support for a chosen subject matter area of home economics.

Most Pre-Major Studies will be completed during the freshman and sophomore years in college. By the end of the sophomore year, the student will be expected to select a major field and area of specialization. The major and area of specialization selected by the student should be chosen on the basis of individual interests and occupational or professional objectives.

Major Studies, taken during the Junior and Senior years, are composed of courses that provide specialization in science, business, or the professions with subject matter competence in one of five fields of home economics: Housing and Interior Design, Human Development and Family Relations, Management and Family Economics, Nutrition and Food Science, or Textiles, Clothing and Merchandising.

A. Pre-Major Studies—All candidates for the B.S. degree in Home Economics are required to meet the general studies component of the University as follows:

Required:

Area II—Physical Sciences (options A and D will not be accepted), or Area III—Biological Sciences
Area V—Humanities
Area VII—Social Sciences

Elect two of:

Area I—Mathematics-Philosophy, or Area IV—Foreign Language
Area II—Physical, or Area III—Biological Sciences, whichever is not selected as a required area.
Area VI—History
Area VIII—Behavioral Sciences

In addition each student is required to complete the following:

	Sem. Hrs.
English Composition	6
Physical Education	2
Basic Design (A-S 180 or equivalent)	2-3
Communications— to be selected from SP 181, ENG 203, 205 Journalism 201, 203	6

All candidates for the B.S. degree in Home Economics are required to have the following:

	Sem. Hrs.
NFS 101 Food and Nutrition for Man	4
TC 120 Introduction to Textiles	3
HF 153 Family Development I	3
MFE 361 Management of Family Resources	3

A maximum of three additional courses in home economics may be selected from the course offerings in the lower division.

B. Major Studies—Upon entering the School of Home Economics (or earlier if the student has selected a professional goal) each student will select a subject matter major and an area of specialization. The subject matter major in Housing and Interior Design, Human Development and Family Relations, Management and Family Economics, Nutrition and Food Science, or Textiles, Clothing and Merchandising specifies the student's subject matter focus in home economics. The area of specialization in Science, Business, or Professions indicates the student's particular vocational orientation.

1. *Science*—The curricular program in Science is for the student interested in preparing for a vocation in which emphasis is placed on the application of science to a subject matter field. Some students, for example, may be interested in graduate work in their chosen subject matter field. In the science specialization, emphasis is placed on acquiring basic science courses in the early years in preparation for home economics courses during junior and senior years.
2. *Business*—The curricular program in Business and Home Economics provides training for those students interested in the wide range of jobs in the administrative, sales, and managerial aspects of those industries providing finished goods and services to individuals and families. Emphasis in the curricular program is given to broad training in liberal arts and humanities with special emphasis on communications, economics, commerce, and a subject matter area in home economics.
3. *Professions*—The curricular program in the Professions relating to home economics is primarily for students planning: (1) to become dietitions (for which certification by the American Dietetics Association is required), or to specialize in pre-school education for the purpose of teaching in nursery schools and day care centers, and (2) to teach vocational home economics.

General requirements for the junior and senior years for the programs in Science, Business, and Professions in Home Economics are:

Group Requirements	Science	Business	Professions I5	Professions II6
Subject Major[1]	18	18	21	
Specialty Support[2]	15		9	
Professional Support[3]		15	6	19
Foods and Nutrition				6
Textiles and Clothing				6
Housing and Design				9
Human Development and Family Relations				8
Management and Family Economics				5
Electives	18[4]	18[4]	18	6

1 A maximum of 30 hours in a subject matter area may be offered by the student in fulfilling minimum requirements of a degree.

2 To include courses in science considered to be appropriate background for the subject matter area in which the student is majoring.

3 To include courses in economics, business administration, account-

ing, social psychology, journalism, radio and TV, and/or education relating to the specific professional objective.

4 A minimum of nine credits must be chosen from three subject matter areas in home economics not including the subject matter major area.

5 Primarily for students majoring in dietetics or preschool education.

6 Primarily for students majoring in vocational home economics.

C. Electives—All electives are subject to the approval of the student's adviser.

More detailed information relative to course requirements for each of the major areas of study is available in the School of Home Economics' Student and Adviser Handbook. Copies of this Handbook may be secured by writing to the Dean, School of Home Economics, University of Kentucky.

GRADUATION REQUIREMENTS

To receive the degree Bachelor of Science in Home Economics a student is required to gain a total of 128 semester credits and 256 grade points (i.e., a C average). A minimum of 42 credits must be in home economics courses. These represent the minimum requirements for graduation. In all cases the student is responsible for meeting the requirements for graduation.

Transfer students are required by the University of Kentucky to complete a minimum of 30 of the last 36 credits submitted for the degree in residence. The candidate for the degree Bachelor of Science in Home Economics must complete a minimum of 15 credits in home economics in residence.

Changes in a curriculum to meet specific needs may be made if approved in accordance with the rules of the University Senate. The normal academic load is 16 credits per semester; the maximum load for a student in good standing is 22 credits; the minimum load for a full-time student is 12 credits.

ADMISSION AND ADVISING

Students may be admitted to the School of Home Economics when they have attained junior classification in the University.

Students admitted to the University directly from high school and those who transfer from other colleges and universities who indicate home economics (including home economics education) as their major field of study will be assigned an academic adviser from the home economics faculty. The faculty adviser helps the student in planning his 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 define goals in line with their capacities and interests. As soon as a student decides on his major area of study, he is assigned an adviser in that area.

SCHOLARSHIPS AND AWARDS

Several scholarships are presented each year to qualified incoming freshman who plan to major in the School of Home Economics. Each high school principal is supplied with a number of scholarship applications. The principal and/or guidance counselor is requested to distribute these applications to those students who are deemed most worthy in terms of scholastic ability and need for financial assistance. Information on scholarships and scholarship applications may be obtained by writing to the Director, Office of School Relations, University of Kentucky 40506.

In addition to scholarships awarded to incoming freshmen the School of Home Economics awards several scholarships each year to sophomore, junior, and senior students who plan to major or are majoring in home economics. These scholarships are awarded primarily on the basis of academic performance in college.

Information about these scholarships and scholarship applications may be obtained from the Dean, School of Home Economics, University of Kentucky 40506. Each year the Kentucky Home Economics Association awards scholarships to four outstanding junior and senior majors in home economics attending one of the four-year colleges and universities in Kentucky.

Home economics majors who compile outstanding academic and service records in the University may be eligible for one of the student awards made available through the School of Home Economics.

STUDENT ACTIVITIES

A student chapter of the American Home Economics Association has been chartered at the University of Kentucky. Each year this student professional society conducts an interesting and varied program of activities. These activities are planned in accordance with the aims and objectives of the student chapters of the American Home Economics Association. Iota Chapter of Phi Upsilon Omicron, the student honorary professional society for home economics majors, was chartered in 1922.

This student organization participates in many programs of the school and sponsors several events during the year, including the annual Phi U Convocation in the fall and the Phi U Banquet in the spring. The two organizations supplement each other in helping new students to become oriented to the University and the School of Home Economics. Through recognition given outstanding students, both the UK Chapter of the American Economics Association and Phi Upsilon Omicron contribute to the development of attitudes of respect for learning and pursuit of high ethical standards.

The Foods and Nutrition Club for students and faculty interested in the professional areas related to Nutrition and Food Science aims to develop and encourage professional interest in this area. It sponsors several meetings each year to encourage and increase contacts among students, faculty and people outside the University engaged in professions related to foods, nutrition, and food science.

GRADUATE WORK

The School of Home Economics offers graduate work leading to the degree of Master of Science in Home Economics with specialization in Nutrition and Food Science, Textiles, Clothing and Merchandising, Management and Family Economics, Human Development and Family Relations, and Housing and Interior Design. Some graduate assistantships are available for those who do well in research-oriented undergraduate pro-

HOUSING AND INTERIOR DESIGN

Betty Jean Brannan, Acting Chairman

Instructors

Anne E. Biedenkapp	M.S., Miami, Ohio, 1964
Donna Emerson	M.S., Tennessee, 1969

Extension Specialists

Marian Bartlett	M.S., Columbia, 1951
Gladys M. Lickert	M.S., George Peabody, 1950
Kathryn Sebree	M.S., Cornell, 1957
Florence Parker	M.S., Kentucky, 1962

Course Descriptions

261 *Socio-economics of Housing.* (3) I, II

A study of the relationships between family composition, social values, and the housing needs of families; the study of the economics of housing, including the purchasing, sale, and rental of houses, house financing, governmental programs and regulations for housing. Lecture, three hours. *Biedenkapp.*

330 *Interior Design I.* (3) I, II, S

Study of forms used in interior design with contemporary research on fabrics and color schemes. Practical and aesthetic basis of design in the home. Lecture, two hours; laboratory, two hours. Prereq: HID 261; A-S 180 or for non-majors, approval of instructor. *Niebauer.*

332 *Interior Design II.* (3) II

Three dimensional application of plan and elevation. Building in scale several selected interiors to observe function of furniture arrangement. One class hour per week; lecture and lab, four hours per week. Prereq: HID 330. *Niebauer.*

339 *Interior Design Degree Portfolio.* (0) I, II

Creative aspects of interior design and refinement of presentation portfolio material. *Mundy.*

363 *Household Equipment.* (3) I, II, S

Electrical and gas household equipment and small appliances, their selection, maintenance, operation and cost. Lecture, 2 hours; lab, 2 hours. Prereq: HID 261; prereq: or concurrent PHY 151 or 152. *Biedenkapp.*

520 *Textiles II.* (3) I, S

Consideration of recent textile developments with emphasis on man-made fibers, new construction techniques and finishes. Opportunity for individual investigation. Lecture, one hour; lab, four hours. Prereq: TC 120, CHE 104, or CHE 112. (Same as TC 520). *Bennett.*

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: HID 330. *Niebauer.*

532 *Retail Job Analysis.* (5) I

Supervised experience in apparel merchandising procedures through a cooperative program with a retail establishment. (One half semester of eight hour a day week.) Prereq: TC 523, 422, BA 330. (Same as TC 532). *Eastin.*

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: TC 120. (Same as TC 534). *Niebauer and Bennett.*

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: HID 330, or approval of instructor. *Carlisle, Bennett and Eastin.*

537 *History of Furniture.* (4) I

Study of historic styles of furnishings, textiles, and decorative accessories through contemporary design. Supplementary information through slides and field trips. Application of information through research project on selected topics. Lecture, four hours. Prereq: HIS 104 and 105. *Niebauer.*

538 *Materials and Methods in Interiors.* (3) I

Emphasis on lighting, built-in equipment, measurement, and cost specifications. Individual study of specific problems encountered in home design. One class hour per week; lecture and laboratory, four hours per week. Prereq: HID 332. *Niebauer.*

593 *Special Problems in Housing and 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. Prereq: Consent of instructor. *Staff.*

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. Prereq: Consent of instructor. (Same as TC 597). *Staff.*

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. (Same as TC 772). *Staff.*

783 *Special Problems in Interior Design.* (1-3) I, II, S

Independent advanced work on a specific problem. Graduate standing. May be repeated for a total of six credits. *Staff.*

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. (Same as TC 787). *Staff.*

HUMAN DEVELOPMENT AND FAMILY RELATIONS

Carol C. Deen, acting chairman

Associate Extension Professor

Burt E. Coody	Th.D., Iliff, Colorado, 1958

Associate Professor of Preschool Education

Susan Kelley Harbour	M.S., Illinois, 1959

Assistant Professor

Lisa Barclay	Ph.D., Stanford, 1969
E. Susan Hoecker Drysdale	Ph.D., Louisiana, 1969

Instructor

Carol C. Deen — M.S., Purdue, 1960

Extension Specialist

Mary D. Browder — M.S., Tennessee, 1950

Course Descriptions

153 *Family Development I.* (3) I, II, S

Consideration of the developmental tasks of family members through the various stages of the family life cycle. A basic course in preparation for marriage and parenthood. Lecture, two hours; discussion lab, two hours. *Staff.*

254 *Psychology of the Child.* (3) I, II, S

An introduction to the scientific study of infancy, childhood, and adolescence. Prereq: PSY 104 and 106 or 210. (Same as PSY 200). *Staff.*

255 *Child Development: I.* (3) I, II

The interrelation of physical, social, emotional and intellectual development and its effects upon the behavior and guidance of children to age six; with directed observation of children in the nursery school. Prereq: PSY 104, or equivalent, or concurrent. Lecture, three hours; lab, one hour. *Staff.*

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: HF 255. *Kelley.*

353 *Family Development II.* (3) I, II, S

Consideration of factors in marital adjustment and compatibility, problems of marriage, family living and management of resources during the expanding and contracting periods of the family life cycle. Two class hours; lab, two hours. Prereq: HF 153 and six hours in psychology and sociology or consent of instructor. *Staff.*

358 *Health and the Family.* (3) I, II

Stress is placed on planning and development of individual and family activities and programs to maintain good health. Attention is given to community, state and national programs having significance for the health of individuals and families. Lecture, three hours. *Staff.*

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: HF 350. *Staff.*

396 *Seminar in the Nursery School.* (1) I, II

Discussion and evaluation of teaching experiences, nursery school curriculum planning, and topics related to teaching of the young child. Lecture and discussion, one hour. Prereq: HF 555 or EDC 543, HF 397 and/or 398 concurrently. *Staff.*

397 *Supervised Teaching in the Nursery School: I.* (3) I, II

Supervised teaching experiences with preschool groups in a laboratory nursery school. Lab, seven hours. *Kelley and Cantrell.*

398 *Supervised Teaching in the Nursery School: II.* (3) II

Supervised teaching experiences with preschool groups in a laboratory nursery school. Lab, seven hours. Prereq: HF 350, 396 or concurrent. *Kelley and Cantrell.*

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: HF 350. *Kelley.*

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: HF 153, and six credits in sociology and/or psychology. *Staff.*

555 *Creative Experiences and Concept Development: Preschool Years.* (3) I, II

Techniques, methods and materials necessary for creative experiences in play, music, graphic and plastic arts, literature, language, and science, and concept development in time, space and numbers for the preschool child. Lecture, two hours; lab, two hours. Prereq: HF 350 or consent of instructor. *Kelley.*

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. *Staff.*

558 *Adolescence.* (3) I, II

The psychosexual development of the adolescent in relation to family, peers, and the adult world. Prereq: HF 153, and HF 254 or SOC 510. *Drysdale.*

595 *Special Problems in Child Development and Family Relationships.* (1-3) I, II, S

Intensive work on specific problems. May be repeated for a total of six credits. Prereq: Consent of instructor. *Staff.*

775 *Seminar in Child Development.* (2-6) I, II, S

Preparation and presentation of reports of current investigations in child development. Prereq: Graduate standing. *Staff.*

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. *Staff.*

MANAGEMENT AND FAMILY ECONOMICS

FACULTY

Helen M. Wilmore, acting chairman

Professor

John C. Redman — Ph.D., Kentucky, 1951

Assistant Professor

Helen M. Wilmore — M.S., Kansas State, 1937

Instructor

Anne E. Biedenkapp — M.S., Miami, Ohio, 1964

Extension Specialists

Ann Carson Howell — M.S., Tennessee, 1968

Florence J. Parker — M.S., Kentucky, 1962

Helen M. Stevens — M.S., Purdue, 1955

Course Descriptions

361 *Management of Family Resources.* (3) I, II

Fundamental principles and procedures of management of family resources with emphasis on time, energy and human resources. *Wilmore and Biedenkapp.*

362 *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 260, HID 261. *Biedenkapp.*

368 *Demonstration Techniques.* (3) II

Emphasis on planning and presenting food and equipment demonstrations. Lecture, one hour; lab, four hours. Prereq: HID 363. *Biedenkapp.*

462 *Personal and Family Finance.* (3) I, II

A study of individual and family financing as related to planning the use of credit, savings, investments, insurance, taxes, home ownership and estates. Prereq: ECO 260. *Redman.*

463 *Home Management and Family Relationships.* (3-4) 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: MFE 361 and NFS 206. *Wilmore and Staff.*

596 *Special Problems in Home Management.* (1-3) I, II

Intensive work on specific phases of home management. Senior or graduate standing. May be repeated for a total of six credits. Prereq: Consent of instructor. *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: MFE 463. *Wilmore.*

786 *Special Problems in Home Management.* (1-3) I, II

Independent advanced work. May be repeated for a total of six credits. Prereq: Graduate standing. *Wilmore.*

NUTRITION AND FOOD SCIENCE

FACULTY

Leonard V. Packett, chairman

Professor

Abby L. Marlatt	Ph.D., California, 1948

Associate Professor

Leonard V. Packett	Ph.D., Texas A.&M., 1958

Assistant Professors

Linda Huang Chen	Ph.D., Louisville, 1964
Jose M. Concon	Ph.D., Purdue, 1965
Joseph R. Fordham	Ph.D., Purdue, 1966

Instructor

Barbara A. Carlisle	M.S., Kentucky, 1960

Extension Specialists

Sue W. Burrier	M.S., Kentucky, 1953
Elizabeth Helton	M.S., Columbia, 1936
Evelyn H. Johnson (on leave)	M.A., Kentucky, 1950

The Department of Nutrition and Food Science was established in 1968. The department is comprised of residence teaching, research and extension. Courses given in this department are designed (a) to offer the University student opportunities to acquire cultural and scientific background in nutrition and foods, and (b) to give the student interested in specializing in this field the proper basic principles and training. Students will choose necessary professional support and specialty support courses from Arts and Sciences, Agriculture, Education and Business and Economics.

Courses are offered which lead to a major in nutrition and food science with emphasis in science, business, and professional careers. The proper combination of courses taught in the Department of Nutrition and Food Science coupled with specialty courses in other areas of the University enables a student to obtain a B.S. degree in Nutrition and Food Science. The undergraduate and graduate programs of the department are open both to women and men. There are a wide variety of job opportunities in public health service nutrition, food demonstrations with utility companies, food business communications; advertising, journalism, television; hospitals; administration, therapeutic or educational hospital dietetics; food service; institutional or restaurant management; nutrition and extension education; nursing care homes; food processors and hotels. Graduates of the science option are qualified as biological scientists in State or Federal Civil Service. The dietetics program is approved by the American Dietetics Association. An internship or post-graduate study is required for A.D.A. certification.

The teaching and research faculty of the Department of Nutrition and Food Science is at the service of those students interested in careers in the science, business and professional fields of Nutrition and Food Science. Students are urged to confer early with a faculty member in regard to training and opportunities for career objectives.

Departmental Requirements

The requirements of this department are presently described in the Home Economics Student and Faculty Handbook. A detailed statement of option and specific requirements may be obtained from the Chairman of the department.

Course Descriptions

101 *Food and Nutrition for Man.* (4) I, II

Food composition, preservation, digestion, absorption and metabolism as related to selection of nutrients essential for human life, health, growth, reproduction, lactation and physical activity. A physiological approach to nutrition. Lecture, four hours. *Staff.*

204 *Principles of Food Preparation.* (3) I, II

Basic physical and chemical principles involved in preparation of foods in the "Basic Four" food groups. Skills, sanitation, standards, and economics involved in preparation of foods of quality and maximum nutrient content. Lecture, one hour; lab, four hours.

206 *Meal Planning and Service.* (3) I, II

To give students experience in planning and buying foods within different economic levels. Stress work simplification and social, cultural and personal aspects of family meal planning and dining. Develop creative expression in preparation and service of meals for all occasions. Lecture, and lab, six hours.

302 *Applied Nutrition.* (3) I, II, S

Food nutrient composition in relation to meeting National Research Council recommended nutrient allowance during all stages of normal human development. The selection of food calculated to meet nutrient and energy requirements essential for individual and family needs. Lecture, two hours; lab, two hours. Prereq: NFS 101, CHE 104, PGY 206 or ZOO 100 or 104. *Wells.*

311 *Nutritional Biochemistry.* (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, NFS 302 and consent of instructor. *Chen.*

340 *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 260. *Brownlie.*

342 *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: NFS 204. *Brownlie.*

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: NFS 340; ECO 260. *Brownlie.*

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. Lecture, 2 hours; lab, 2 hours. Prereq: or concurrent: NFS 302. May be repeated for a total of six credits. *Staff.*

505 *Experimental Foods.* (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: NFS 204, 311. *Brownlie.*

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. *Staff.*

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. *Staff.*

512 *Normal and Therapeutic Nutrition.* (5) I, II

Application of elementary biochemistry to understanding the utilization and function of nutrients in the body. Correlating metabolic changes due to disease with diet therapy. Lecture, four hours; lab, two hours. Prereq: NFS 311, CHE 236. *Marlatt, Chen.*

514 *Food Preservation.* (3) I, S

Principles of home food preservation. Canning, dehydration, and freezing of fruits, vegetables and meats; pickling fruits and vegetables; making jams, jellies and preserves; brining. Lecture, two hours; lab, two hours. Prereq: MB 200, NFS 204.

516 *Food for Children.* (3) II, S

Experience in selection, preparation and serving of food to young children. Emphasis is placed on the pre-school age and the factors important to establishing good food habits. Prereq: NFS 206, 311, HF 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: NFS 204, 206. *Taylor.*

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: NFS 204, ECO 260. *Brownlie.*

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: NFS 342. *Brownlie.*

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 qualification of an institution manager. Prereq: NFS 340, 342. *Brownlie.*

548 *Institution Administration.* (3) S

Applications of scientific principles of institution management. Practical principles are developed in various aspects of food service management. Prereq: Approval of instructor. May be repeated twice for a total of nine credits. *Brownlie.*

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 three times for a maximum of four credits. Prereq: NFS 503, or approval of instructor. *Packett.*

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 for a maximum of six credits. Prereq: Consent of instructor. *Packett.*

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. Prereq: Consent of instructor. *Brownlie.*

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: NFS 503. May be repeated once for a total of six credits. *Staff.*

610 *Human Nutrition I.* (4) I, II

The application of biochemical, analytical and preparative analysis of blood, urine and tissues to the analysis of nutrient metabolism and human health status. Lecture, two hours; lab, six hours. Prereq: NFS 311, CHE 236, NFS 512. *Packett and Chen.*

771 *Seminar in Nutrition.* (2) II, S

May be repeated twice for a total of six credits.

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.

784 *Special Problems in Institution Management.* (1-3) I, II, S

Independent advanced work. May be repeated for a total of six credits. *Brownlie.*

TEXTILES, CLOTHING AND MERCHANDISING

Betty D. Eastin, Acting Chairman

Assistant Professors

Charlotte M. Bennett — M.S., Louisiana State, 1965
Betty D. Eastin — M.S., Alabama, 1951
Mary M. Runnels — Ph.D., Texas Woman's University, 1956

Instructor

Donna Emerson — M.S., Tennessee, 1969

Extension Specialists

Mary Helen Marshall — M.S., Alabama, 1966
Rachel R. Wallace — M.S., Ohio State, 1958

Area Extension Specialist

Janette Brown — B.S., Kentucky, 1964

Course Descriptions

120 *Introduction to Textiles.* (3) I, II

A study of textiles from fiber to finished fabric, analysis of the relationship between the properties and performance characteristics of fibers, yarns, weaves, fabrics, and finishes. Lecture, 2 hours; lab, two hours. *Bennett.*

227 *Principles of Clothing Construction and Selection.* (3) I, II

A study of the basic principles of clothing construction and selection as applied to individual needs. Opportunity is provided in laboratory for creative application through the modification of commercial patterns. Lecture, one hour; lab, four hours. Prereq: A-S 180, TC 120. *Bennett and Carlisle.*

325 *Draping.* (3) II, S

The media of draping used in the interpretation of dress design terminating in finished garments. Lecture, one hour; lab, four hours. Prereq: TC 227 or consent of instructor. *Eastin.*

327 *Family Apparel.* (2) II

Budgeting and related problems of clothing consumption experienced during the various stages of the family life cycle. Two class hours per week. *Eastin and Bennett.*

328 *Flat Pattern Design.* (3) I, II, S

The media of flat pattern used in the interpretation of dress design terminating in finished garments. Lecture, one hour; lab, four hours. Prereq: TC 227 or consent of instructor. *Eastin and Carlisle.*

420 *Tailoring.* (3) I, S

Analysis of tailoring techniques in the shop and in the home. Tailored garments are planned and constructed. Lecture, one hour; lab, four hours. Prereq: TC 227 or consent of instructor. *Eastin.*

422 *Economics of Clothing.* (3) I, S

The clothing industry, its influence and economy. Field trips, class projects, and individual semester reports. Projects involve merchandising display and fashion show. Lecture, two hours; lab, two hours. Prereq: Consent of instructor. *Eastin.*

520 *Textiles II.* (3) I, S

Consideration of recent textile developments with emphasis on man-made fibers, new construction techniques and finishes. Opportunity for individual investigation. Lecture, one hour; lab, four hours. Prereq: TC 120, CHE 104 or CHE 112. (Same as HID 520). *Bennett.*

523 *Socio-Psychological and Economic Aspects of Apparel.* (3) II, S

A study of the social, cultural, psychological and economic factors which influence apparel and apparel use with particular emphasis on present day apparel in America. Prereq: SOC 101 or ANT 121 and ECO 260. *Bennett.*

524 *History of Costume.* (3) I, S

Development of costume from ancient to modern times with consideration of historic, social, and economic setting. Lecture, two hours; lab, two hours. Prereq: A-S 180, TC 120, 227 or consent of instructor. *Eastin.*

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: HF 255. *Staff.*

532 *Retail Job Analysis.* (5) I

Supervised experience in apparel merchandising procedures through a cooperative program with a retail establishment. (One half semester of eight hour a day week.) Prereq: TC 523, 422, BA 330. (Same as HID 532). *Eastin.*

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: TC 120. (Same as HID 534.) *Niebauer and Bennett.*

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. Prereq: Consent of instructor. *Staff.*

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. Prereq: Consent of instructor. (Same as HID 597.) *Staff.*

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. (Same as HID 772.) *Staff.*

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. *Staff.*

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. (Same as HID 787.) *Staff.*

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.*

575 *Community Analysis.* (3) I

A study of communal structure and processes with special emphasis on strategies of field investigation of particular communities. Prereq: SOC 101 or equivalent or consent of instructor. (Same as SOC 413 in Colleges of Arts and Sciences and Agriculture). *Ford.*

768 *Residence Credit for the Master's Degree* (0) I, II, S

May be repeated once. (1-6 credits equivalence.)



Engineering

Robert M. Drake, Jr., Ph.D., is Dean of the College of Engineering. James E. Funk, Ph.D., is Associate Dean of the Graduate Program. David K. Blythe, M.S., is Associate Dean of Continuing Education and Extension. Warren W. Walton, M.S., is Assistant Dean of Undergraduate Studies.

The College of Engineering offers programs leading to the Bachelor of Science degree and graduate degrees in Departments of Agricultural, Chemical, Civil, Electrical, Mechanical and Metallurgical Engineering and Materials Science, and graduate degrees in the Department of Engineering Mechanics. Resting upon the conviction that creative accomplishment in the career of an engineer will most often be derived from an education that stresses major ideas and fundamental concepts of engineering rather than specific technologies, the academic programs in engineering provide for wide experience in the mathematical, physical and engineering sciences blended with the social sciences and humanities in such a way that makes it possible for the student to obtain both a thorough education in engineering and a liberal education. Such an approach provides the best preparation for the engineer who must envisage and develop the technologies of the future and deal with scientific advances at present unknown.

Engineers have the responsibility to translate the ever expanding reservoir of scientific knowledge into systems, devices and goods and to engage in the further expansion of knowledge and exploration. The future practice of engineering will demand increasingly higher levels of intellectual achievement and qualities of leadership not only in the world of technology, but in the world of men.

The visible achievements of engineering only reflect the intellectual achievements that made them possible. It is necessary to develop in intelligent young men and women the ability not only to master the ideas of others, but to generate new ideas of their own. Although the engineer deals extensively with facts and scientific fundamentals as a matter of course, he cannot rely on these alone. The engineer will inevitably face decisions which cannot be made on the basis of technical skill, but which require a broad and deep understanding of human values and behavior as developed by studies in the social sciences and humanities. He must also have the ability to meet situations where judgment and wisdom combined with scientific knowledge or technical skill can provide a solution.

The various curricula in the College of Engineering are broad, so that no student is limited to a narrow field of specialized knowledge, but receives sufficient technical depth to provide a sound preparation for a career in engineering.

The first engineering degree from the University of Kentucky was granted in 1890. Since that time some six thousand degrees have been awarded in the various fields of engineering. There are among these alumni of the College of Engineering those who have distinguished themselves in the major fields of industry, government and education.

The members of the faculty of the College of Engineering are teacher-scholars of talent and skill. They are also competent engineers with high professional qualifications. Most have significant records of professional practice and industrial experience. Many of the faculty are in frequent demand as consultants to government and industry and thus make extracurricular contributions to our industrial strength. This professional activity is stimulating to the student and conveys an understanding of engineering in all of its aspects.

Concern for the individual is a most important feature of education in the College of Engineering.

Close faculty-student relationships are necessarily a meaningful part of the educational process. The faculty, in addition to their duties related to instruction and research, serve as advisers to the student in the preparation of the academic program best matched to the student's needs and intellectual capabilities.

The College of Engineering is an integral part of the University of Kentucky, academically and physically. It is to the advantage of the student that in his studies in the sciences or in the humanities—in mathematics, in physics, in history, in English, in philosophy—he participates in the same courses, attends the same classes and meets in all respects the same standards as the students majoring in those fields. Every facility of the University is available to him.

The College of Engineering is housed in Anderson Hall, a building consisting of a two-story quadrangle and an eight-story modern addition completed in 1966. The complex contains offices, classrooms, lecture halls, laboratories and the College of Engineering Library. Anderson Hall is centrally located on the campus close to the Computing Center, the main library, and the libraries of the Departments of Mathematics, Physics, and Chemistry. In addition to the Anderson Hall complex, instruction and research are carried on in the Wenner-Gren Aeronautic Laboratory and the Highway Research Laboratory—both located on the main campus.

The laboratories of the College of Engineering are equipped with modern instructional and research equipment to which additional, modern equipment is being added at an increasing rate to provide facilities so students can participate in modern experimental engineering as a significant part of their educational experience.

The College is engaged in a number of research projects, and students interested in such investigations have ample opportunity to engage in work along the lines of their special fields of interest.

For Further Information, Address

THE DEAN
COLLEGE OF ENGINEERING
or
THE REGISTRAR
UNIVERSITY OF KENTUCKY
LEXINGTON 40506

Admission. Students who meet the admission requirements of the University may enroll and study in the College of Engineering simply by indicating one of the major areas of engineering as his choice of major. The College has no admission requirements different from those of the University that would prevent any student from enrolling in the College, either initially or as a change of major, from another college within the University. Since the welfare of each student as an individual is of primary concern to the College, each student will be assigned an engineering faculty member as his personal adviser who will be available to him for any problems that may arise.

The curriculum for each area of engineering is listed in the traditional four-year format under the appropriate department on the pages that follow. A student is encouraged to study the curriculum of the area of his choice. It is particularly important that the student who plans to transfer to the College with advance standing carefully study his chosen curriculum to determine those courses acceptable as meeting degree requirements. He should ask his school to assign him to a pre-engineering adviser knowledgeable in the area of engineering requirements. Most schools have faculty members so designated.

General Studies

The general studies component, required by the University of all students, stipulates a specified sequence of courses from at least five of eight areas listed, with a minimum of six semester credits in each sequence.

A student who expects to graduate from the College of Engineering also must meet a requirement of the Engineers' Council for Professional Development, (ECPD), the accrediting agency for engineering colleges. His program must include at least eighteen credits of humanistic-social studies.

The engineering student, in meeting the technical requirements of the department in which he wishes to earn a degree, will automatically complete two of the five required general studies sequences—Area I Mathematics-Philosophy and Area II Physical Sciences. This leaves a requirement of a sequence from three of the remaining six general study areas.

Courses listed in Areas IV through VIII of the General Studies meet the ECPD definition of humanistic-social studies, but courses listed in Area III do not meet that definition. Therefore, if the student restricts his remaining 18 credits from Areas IV through VIII, he will have completed both requirements. The student who wishes to elect courses in the Biological Sciences area, Area III, may do so. However, he cannot use those courses to meet degree requirements unless they are specified in the curriculum of his choice, as is shown under Agricultural Engineering, or unless they are used as "free electives" in a department whose curriculum includes such electives.

It should be noted that the foreign language requirement may be met by completing the *fourth* semester in one language. Freshman foreign language does not meet either of the requirements discussed herein. A student who meets this language requirement by demonstrating equivalent competence by examination for any of the sophomore level language courses will have satisfied one General Studies area requirement, but he cannot use the examination to satisfy the ECPD humanistic-social studies requirement. He will need

to take other courses in this or other acceptable areas of the General Studies courses.

Area I *Mathematics-Philosophy*

The engineering student will satisfy this area when he completes his first required mathematics course; Math 113, Calculus.

Area II *Physical Sciences*

The engineering student will satisfy this area when he completes either his freshman chemistry requirements or his sophomore physics requirements.

Area III *Biological Sciences*

Although these courses satisfy the General Studies requirements, they do *not* satisfy the ECPD requirements in the humanities-social studies.

Area IV *Foreign Language*

A student may satisfy the general studies requirement in the area of foreign language by passing the fourth semester courses in any one language, or by demonstrating equivalent competence by examination.

Area V *Humanities: Literature, Art, and Music*

The general studies requirement in the humanities may be satisfied by choosing one of the following options:

A. ENG 261—Survey of Western World Literature: from the Greeks through the Renaissance (3)
OR
ENG 262—Survey of Western World Literature: from 1660 to the Present (3)
plus one of the following:
A-H 200—Art History Survey: Primitive to Medieval Art (3)
A-H 201—Art History Survey: Renaissance to Modern Art (3)
MUS 200—Introduction to Music (3)
MUS 201—Music in Western Civilization (3)

B. Open only to students who have completed the MA 113 Option in Area I.
PHI 200—Introduction to Philosophy (3)
PHI 230—Ethics (3)

Area VI *History*

A student may satisfy the general studies requirement in history by any one of the following options:

A. HIS 104—A History of Europe to 1713 (3)
HIS 105—A History of Europe, 1713 to Present (3)

B. HIS 108—History of the U.S. through 1865 (3)
HIS 109—History of the U.S. since 1865 (3)

C. HIS 229—The Ancient Near East and Greece to the Death of Alexander the Great (3)
HIS 230—The Hellenistic World and Rome to the Death of Constantine (3)

D. HIS 295—The Far East to 1850 (3)
HIS 296—The Far East since 1850 (3)

Area VII *Social Sciences*

A student may satisfy the general studies requirement by completing one option:

A. ECO 260—Principles of Economics (3)
ECO 261—Principles of Economics (3)

B. SOC 101—Introductory Sociology (3)
plus one of the following:
SOC 152—Modern Social Problems (3)
SOC 220—The Community (3)

C. ANT 120—Human Ancestry (3)
ANT 121—Introduction to Cultural Anthropology (3)

D. Any two of the following:
ECO 260—Principles of Economics (3)
GEO 152—Regional Geography of the World (3)
PS 151—American Government (3)

Area VIII *Behavioral Sciences*

A student may satisfy the general studies requirement in the Behavioral Sciences by completing one of the following sequences:

A. PSY 104—Basic Psychology I (3)
PSY 106—Basic Psychology II (3)

B. PSY 210—General Psychology (3)
PS 201—Introduction to Political Behavior (3)

Undergraduate Degrees. The College of Engineering offers instruction leading to the following baccalaureate degrees:

Bachelor of Science in Agricultural Engineering
Bachelor of Science in Chemical Engineering
Bachelor of Science in Civil Engineering
Bachelor of Science in Electrical Engineering
Bachelor of Science in Mechanical Engineering
Bachelor of Science in Metallurgical Engineering

Regular Program of Continuous Study. While the curriculum for each of these degrees is listed under the appropriate department on the pages that follow in the traditional four-year format, the average student should realize that he will need nine semesters of study to complete the requirements for a degree.

Students who are required to complete courses not listed in the degree programs of their choice will find it increasingly difficult to complete these requirements in nine semesters as the number of non-degree courses increases. This is particularly true of the transfer student who attends an institution requiring basic R.O.T.C., one year of physical education, and additional courses such as health, Bible, etc. While these are excellent courses, most of which are offered by the University of Kentucky, such a group usually adds twelve or more credits of work which is approximately four-fifths of an average semester's load. For other than the exceptional student, this will add a tenth semester to the time required for the degree. Any of these times may be shortened by attending summer sessions, provided the desired courses are offered.

Combined Degree Program. The College of Engineering has a formal three-two combination Liberal Arts-Engineering Program with the Thomas More College of Fort Mitchell, Kentucky. Thomas More students enroll in a prescribed pre-engineering program for the first three years and then transfer to the College of Engineering for two years to complete the requirements for the B.S. degree in Engineering. Upon completion, they will receive the A.B. degree from Thomas More College.

Co-operative Program of Work-study. The College offers a formal program of co-operative education for those who wish to participate in such a program. This plan allows the student to work for a selected company for a maximum of two semesters in addition to the summers, generally in his sophomore and junior years. It will extend his time in college by one year beyond that required for the regular student. It is the student's responsibility to make sure that this program is understood and accepted by his Local Board for Selective Service before he leaves school for his first work semester.

Since the College does not require participation on the part of any student in this program, it cannot guarantee to supply a student to all companies wishing to participate. Consequently, since it cannot enter into a contract with any company, it likewise cannot guarantee placement for every student. However, past experience indicates there are usually more companies interested in students than there are students wishing to enter the program.

Minimum Requirements for Graduation. To be awarded the Bachelor of Science degree in any of the fields of engineering a student must meet the following requirements:

(a) Complete the University and College requirements relating to English and General Studies.

(b) Complete a minimum of 128 credits, exclusive of those earned in freshman college algebra, freshman college trigonometry, physical education and Basic Reserve Officer Training programs, with a cumulative standing of not less than 2.0 on a 4.0 scale.

(c) Complete the required curriculum for the engineering area of his choice of major.

Graduate Degrees. The College of Engineering of fers graduate work leading to the following advanced degrees:

Master of Science in Agricultural Engineering
Master of Science in Chemical Engineering
Master of Science in Civil Engineering
Master of Science in Electrical Engineering
Master of Science in Engineering Mechanics
Master of Science in Mechanical Engineering
Master of Science in Metallurgical Engineering
Master of Science in Nuclear Engineering
Doctor of Philosophy (Agricultural Engineering)
Doctor of Philosophy (Chemical Engineering)
Doctor of Philosophy (Civil Engineering)
Doctor of Philosophy (Electrical Engineering)
Doctor of Philosophy (Engineering Mechanics)
Doctor of Philosophy (Mechanical Engineering)
Doctor of Philosophy (Metallurgical Engineering)

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. The course descriptions are listed under Agriculture.

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 113—Calculus	4
CHE 110—General College Chemistry I	3
CHE 111—General Chemistry Lab I	2
ME 105—Basic Engineering Graphics	2
* —General Studies	3
	17

Second Semester	Crs.
ENG 102—Freshman Composition	3
MA 114—Calculus	4
CHE 112—General College Chemistry II	3
CHE 113—General Chemistry Lab II	2
PHY 231—General University Physics	3
PHY 241—General University Physics Lab	2
	17

Sophomore Year

First Semester	Crs.
MA 213—Analysis	4
PHY 232—General University Physics	3
PHY 242—General University Physics Lab	2
** —Biological Sc. Sequence	3 or 4
* —General Studies	3
	15 or 16

Second Semester	Crs.
MA 214—Analysis	4
EM 222—Solid Mechanics I	4
** —Biological Sci. Sequence	3 or 4
* —General Studies	3
* —General Studies	3
	16 or 17

Junior Year

First Semester	Crs.
EM 313—Dynamics	3
EE 305—Elec Circuits & Machinery	3
ME 220—Engineering Thermodynamics I	3
AGR 366—Fundamentals of Soil Science	4
AEN 405—Properties of Soils & Biological Materials as related to Engineering	3
	16

Second Semester	Crs.
MET 301—Materials Science	3
ME 330—Fluid Mechanics	3
AEN 406—Environment for Plants and Animals as related to Engineering	3
CS 220—Introduction to Algorithmic Processes	2
EE 306—Elec & Electronic Circuits	3
* —General Studies	3
	17

Senior Year

First Semester	Crs.
AEN 007—The Engineering Profession	0
AEN 417—Energy Sources & Machinery for Agriculture	3
** —Elective (Engr Science)	3
* —General Studies	3
AEN 437—Design of Engineering Systems for Soil and Water Management	4
** —Elective	3
	16

Second Semester	Crs.
AEN 505—Engineering Analysis	3
SP 181—Basic Public Speaking	3
** —Elective (Mathematics)	3
** —Elective	3
AEN 427—Func. Design in Agr. Structures	3
AEN 447—Agr. Processing & Electrification	3
	18

* Select from General Studies areas 4, 5, 6, 7, or 8 in consultation with academic adviser. It is suggested that one of these sequences be in Economics and one in Foreign Language, Humanities, or History.
** To be selected in consultation with the academic adviser.

CHEMICAL ENGINEERING

FACULTY

Robert Belanger Grieves, chairman

Professors

Robert Belanger Grieves	Ph.D., Northwestern, 1961
A. H. Peter Skelland	Ph.D., Birmingham, 1952

Associate Professors

George Franklin Crewe	Ch.E., W. Va., 1950
Charles E. Hamrin, Jr.	Ph.D., Northwestern, 1964
Richard Ira Kermode	Ph.D., Northwestern, 1962
Edward Darrell Moorhead	Ph.D., Ohio State, 1959

Assistant Professors

Robert W. J. Brett	Ph.D., Illinois Inst. of Technology, 1968
William Lawrence Conger	Ph.D., Pennsylvania, 1965
James Thomas Schrodt	Ph.D., Louisville, 1966

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING

Freshman Year

First Semester	Crs.
CME 001—The Engineering Profession	0
CHE 110—General College Chemistry I	3
CHE 111—General Chemistry Lab I	2
ENG 101—Freshman Composition	3
MA 113—Calculus	4
* —General Studies	3
	15

Second Semester	Crs.
CME 002—The Engineering Profession	0
CHE 112—General College Chemistry II	3
CHE 113—General Chemistry Lab II	2
ENG 102—Freshman Composition	3
MA 114—Calculus	4
PHY 231—General University Physics	3
PHY 241—General University Physics Lab	2
	17

Sophomore Year

First Semester	Crs.
CME 200—Process Principles	3
CHE 230—Organic Chemistry	3
MA 213—Analysis	4
PHY 232—General University Physics	3
* —General Studies	3
	16

Second Semester	Crs.
CME 220—Engineering Thermodynamics	3
CHE 231—Organic Chemistry Lab	1
CHE 232—Organic Chemistry	3
EM 222—Solid Mechanics I	4
MA 214—Analysis	3
* —General Studies	3
	17

Junior Year

First Semester	Crs.
CS 220—Introduction to Algorithmic Proc.	2
CHE 440—Physical Chemistry	3
ME 330—Fluid Mechanics	3
EE 305—Electrical Circuits & Mach.	3
—Elective (Mathematics)	3
* —General Studies	3
	17

Second Semester	Crs.
CME 006—The Engineering Profession	0
CME 422—Mass Transfer	3
CHE 442—Physical Chemistry	3
CHE 443—Physical Chemistry Lab	2
ME 325—Elements of Heat Transfer	3
MET 301—Materials Science	3
EE 306—Electrical & Electronic Circ.	3
	17

Senior Year

First Semester	Crs.
CME 007—The Engineering Profession	0
CME 371—Seminar	1
CME 430—Advanced Problems in CME	2
CME 431—Chemical Engr. Lab I	1
CME 550—Chemical Reactor Design	3
CME 562—Process Control	3
** Elective	3
* General Studies	3
	16

Second Semester	Crs.
CME 008—The Engineering Profession	0
CME 372—Seminar	1
CME 432—Chemical Engr. Lab II	2
CHE 455—Chemical Engr. Process Design	4
Elective (CME)	3
** Elective	3
* General Studies	3
	16

* Select from General Studies areas 4, 5, 6, 7 or 8 in consultation with academic adviser.
** To be selected in consultation with the academic adviser.

Course Descriptions

001 *The Engineering Profession* (Freshman). (0) I

002 *The Engineering Profession* (Freshman). (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. CME 001-008 may be repeated indefinitely. *Staff.*

200 *Process Principles.* (3) I
Material and energy balances using the first law of thermodynamics, thermophysics and thermochemistry. Physical and chemical process analysis. Prereq. or concur: MA 114, PHY 231. *Conger, Schrodt.*

220 *Engineering Thermodynamics.* (3) II
Fundamentals of thermodynamics, review of first law, second and third laws, phase equilibria and chemical equilibria. Prereq. or concur: MA 213, PHY 232. *Conger, Grieves, Schrodt.*

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. Prereq: CME 422, CHE 232, 442. *Staff.*

372 *Seminar.* (1) II
A continuation of CME 371 with a survey of the technology and economics of the chemicals industry. Prereq: CME 371. *Staff.*

395 *Special Problems in Chemical Engineering.* (1-3) I, II
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.*

422 *Mass Transfer.* (3) II
Fundamentals of diffusional and convective transport operations with applications to distillation, absorption, extraction and air-water contact operations. Prereq: ME 330 and/or concur: ME 325. *Grieves, Kermode, Hamrin.*

430 *Advanced Problems in Chemical Engineering.* (2) I
Lectures and problems presenting fundamental principles and design procedures for several selected operations from the broad areas of mass, momentum, and heat transfer. Two class hours per week. Prereq: CME 422. *Crewe.*

431 *Chemical Engineering Laboratory I.* (1) I
Quantitative study of fluid flow, heat transfer, evaporation, etc., comparing the operation of actual equipment with theory. Special consideration of instruments, measurement techniques, and report writing. Lab, 4 hours. Prereq: CME 422. *Staff.*

432 *Chemical Engineering Laboratory II.* (2) II
Continuation of CME 431, covering diffusional operations such as distillation, absorption, and drying. Lab, 6 hours. Prereq: CME 422, 431. *Staff.*

455 *Chemical Engineering Process Design.* (4) II
A lecture and problem course dealing with the application of engineering fundamentals and applied economics to the analysis and design of chemical process systems. Three class hours and three laboratory hours per week. Prereq: CHE 442, ME 325, CME 422. *Crewe.*

505 *Analysis of Chemical Engineering Problems.* (3) I, S
The application of numerical methods, differential equations, and transforms to complex chemical engineering problems. Prereq: MA 432 or consent of instructor.

515 *Air Pollution Control.* (3)
Kinetics and equilibria of photochemical and "dark" atmospheric reactions. Atmospheric statics and dynamics including lapse rates, inversions, and vertical and horizontal air motion. Single and area source diffusion. Stack meteorology. Prereq: CME 220 or ME 220.

520 *Equilibrium Thermodynamics.* (3) I
A detailed study of the criteria for physical and chemical equilibria, including: predictive equations, solution theory, chemical activity, and external constraints. Prereq: CHE 442, CME 220 or ME 321, or consent of instructor.

530 *Transport I.* (3) II
A unified study of physical rate processes in liquids and vapors, including: mass, energy, and momentum transport, transport in chemically reacting systems, and similarities.

550 *Chemical Reactor Design.* (3) I
A lecture and problem course dealing with interpretation of kinetic data and application in the design of chemical reactor systems. Prereq: CME 220 or ME 321.

562 *Process Control.* (3) I
The theory of automatic control devices and their application in industrial chemical plants. Lecture, 2 hours; lab, 3 hours. Prereq: Consent of instructor.

565 *Petroleum Refinery Engineering.* (3) II
Application of chemical engineering fundamentals to petroleum processing methods and equipment. Prereq: CME 422 or equivalent and consent of instructor.

Prerequisite for graduate work: Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics. For major work, a candidate must hold a bachelor's degree in Chemical Engineering or its equivalent.

615 *Advanced Air Pollution Control.* (3)
Principles and techniques of the control of atmospheric pollution, including process design for the removal of gaseous and particulate pollutants from air streams. Legal and administrative aspects of control. Prereq: CME 515 or consent of instructor.

617 *Air Sampling and Analysis.* (3)
Theory and techniques of air sampling, including aerosol sampling. Instrumental, gravimetric, and volumetric analysis of gaseous and particulate air pollutants with emphasis on the most modern methods of instrumental analysis. Two class hours per week; lab, three hours per week. Prereq: Concurrent with CME 515 or consent of instructor.

619 *Community Health Aspects of Air Pollution Control.* (3)
Effects of specific air pollutants such as sulfur dioxide, particulates, and "smog" constituents on humans, materials, and on the environment. Solid waste disposal by incineration. Air pollution control and water pollution control interrelationships. Prereq: CME 515 or consent of instructor.

621 *Nonequilibrium Thermodynamics.* (3)
An introductory course in the thermodynamics of irreversible processes, including: phenomenological equations relating flows and forces, Onsager's law, and entropy production in continuous processes. Prereq: CME 520, or ME 620, or consent of instructor.

625 *Properties of Gases and Liquids.* (3)
Development, discussion and application of intermolecular force laws as they apply to gases, liquids and mixtures: Chapman-Enskog kinetic theory, virial theorem, Buckingham (6-exp) potential, and theoretical and semi-theoretical predictive equations. Estimation of thermodynamic and transport properties. Prereq: CME 520 and CME 530, or consent of instructor.

631 *Transport II.* (3)
A continuation of Transport I. Interphase transport of mass, energy, and momentum is discussed. Boundary Layer theory is applied to combined transport and chemical reaction. Theories of turbulent transport are examined. Prereq: CME 530 or consent of instructor.

633 *Diffusional Mass Transfer Operations.* (3)
An advanced course in diffusional processes depending upon the current literature for much of its content. Multicomponent diffusional processes. Turbulent diffusion. The modelling of diffusion in biological systems. Prereq: CME 530 or consent of instructor.

635 *Staged Mass Transfer Operation I.* (3)
An advanced lecture and problem course dealing with staged mass transfer processes involving vapor-liquid systems. Binary, multicomponent, and azeotropic distillation. Design and performance of distillation systems. Prereq: CME 422, CME 520.

636 *Staged Mass Transfer Operations II.* (3)
Mass transfer between two liquid phases or between solid and liquid phases, including: extraction, leaching and adsorption, molecular and eddy diffusion. Application of finite difference calculus. Design of staged processes including: efficiences, pulsed columns and controlled cycling. Prereq: CME 422.

638 *Transport Phenomena in Packed and Fluidized Beds.* (3)
A course dealing specifically with the dynamics of heat, mass and momentum transport in packed and fluidized beds. Surrent experimental findings and transport theories, and bed characterizations are discussed. Analytic and difference methods are used to solve model problems. Prereq: CME 530 or consent of instructor.

642 *Advanced Process Control I.* (3)
Linear and nonlinear automatic control theory, dynamics of chemical process systems, design of systems. Prereq: CME 562.

643 *Advanced Process Control II.* (3)
A continuation of CME 642. Prereq: CME 642.

650 *Advanced Chemical Reactor Design.* (3)
Rate expressions for heterogeneous reaction kinetics; energy and mass transport within and external to reacting porous catalysts; design equations for fixed, -moving, -and fluidized-bed reactors. Prereq: CME 530 and CME 550 or consent of instructor.

680 *Biochemical Engineering.* (3)
The advanced technology of batch and continuous fermentation units, including microbial nutrition, energy considerations, heat and mass transfer, biochemical reaction kinetics, and process control. Prereq: CME 530 and CME 550; MB 400 or consent of instructor.

768 *Residence Credit for the Master's Degree.* (0)
(1-6 credits equivalence.)

769 *Residence Credit for the Doctor's Degree.* (0)
(1-12 credits equivalence.)

771 *Seminar.* (0)
Review of current literature in the field of chemical engineering, general discussion and presentation of papers on departmental research. One lecture per week. Required for all graduate students in chemical engineering.

780 *Special Problems in Chemical Engineering* (3)
Independent study, design, or research in chemical engineering topics. Six laboratory hours per week. May be repeated to a maximum of 12 credits. Prereq: Approval of the Departmental Director of Graduate Studies.

CIVIL ENGINEERING

FACULTY

Staley F. Adams, chairman

Professors

Staley F. Adams	Ph.D., Colorado, 1965
David K. Blythe	M.C.S., Cornell, 1950
Hans Gesund	D. Engr., Yale, 1958
Bobby Ott Hardin	Ph.D., Florida, 1961
John W. Hutchinson	Ph.D., Illinois, 1961
Robert A. Lauderdale	Ph.D., M.I.T., 1958
Frederick D. Wright	M.S., Columbia, 1942

Associate Professors

John Arthur Dearinger	M.S., Kentucky, 1948
Ted D. Haley	B.S., Kentucky, 1949
Yang Hsien Huang	D. Sc., Virginia, 1966
L. Douglas James	Ph.D., Stanford, 1964
George Land, Jr.	M.S., Kentucky, 1955
John R. Parker	M.S., Princeton, 1937
Laurence Chester Pendley	M.S., Purdue, 1949
Don J. Wood	Ph.D., Carnegie Inst. of Tech., 1961

Assistant Professors

John A. Deacon	D. Eng., California, Berkeley, 1965
Vincent Paul Drnevich	Ph.D., Michigan, 1967
Edward G. Foree	Ph.D., Stanford, 1968
David Teh-yu Kao	Ph.D., Duke, 1967
Shien T. Wang	Ph.D., Cornell, 1969

Lecturers

William Bright Drake	M.S., Kentucky, 1949
James Hobart Havens	A.B., Transylvania, 1942
James L. Leggett	Ph.D., Purdue, 1953
Richard C. Page	B.S., Kentucky, 1956

3-2 CO-OPERATIVE PROGRAM

The Civil Engineering Department has a 3-2 Cooperative Program with the "University of the Americas" of Mexico City, in which the student attends his University as a pre-engineer for three years and then transfers to Kentucky to complete the requirements for his B.S. in CE degree. The student also earns his A.B. 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
CHE 110—General College Chemistry I	3
CHE 111—General Chemistry Lab I	2
ENG 101—Freshman Composition	3
MA 113—Calculus	4
ME 105—Basic Engineering Graphics	2
* General Studies	3
	17

Second Semester	Crs.
CE 002—The Engineering Profession	0
CHE 112—General College Chemistry II	3
CHE 113—General Chemistry Lab II	2
ENG 102—Freshman Composition	3
MA 114—Calculus	4
MA 211—Analytics & Calculus II	4
PHY 231—General University Physics	3
PHY 241—General University Physics Lab	2
	17

Sophomore Year

First Semester	Crs.
CE 206—Descriptive Geometry	2
* General Studies	3
EM 222—Solid Mechanics I	4
MA 213—Analysis	4
PHY 232—General University Physics	3
PHY 242—General University Physics Lab	2
	18

Second Semester	Crs.
CE 100—Plane Surveying	3
* General Studies	3
EM 322—Solid Mechanics II	3
GLY 200—Elem Geology for Engineers	4
MA 214—Analysis	3
CS 220—Introduction to Algorithmic Processes	2
	18

POST SPRING SEMESTER SESSION

4 weeks (5 cr.)

CE 211—Route Surveying	2
CE 213—Control Surveys	1
CE 214—Topographic Surveys	2

Junior Year

First Semester	Crs.
CE 380—Structural Mechanics I	3
EM 313—Dynamics	3
** Elective (Mathematics)	3
ME 220—Engineering Thermodynamics I	3
* General Studies	3
	15

Second Semester	Crs.
EE 305—Electrical Circ. & Machinery	3
MET 301—Materials Science	3
ME 330—Fluid Mechanics	3
CE 425—Soil Mechanics	3
** Elective (Engr. Science)	3
* General Studies	3
	18

Senior Year

First Semester	Crs.
CE 008—The Engineering Profession	0
CE 301—Civil Engineering Materials	2
CE 351—Hydraulics Lab	1
†CE 355—Water Supply and Sewage	3
CE 387—Steel Structures I	3
** Elective	3
* General Studies	3
	15

Second Semester	Crs.
CE 008—The Engineering Profession	0
CE 305—Constr. Planning & Management	3
CE 340—Transportation Engineering	4
CE 371—Seminar	1
** Elective	3-4
** Elective (Design Course)	3
CE 392—Reinforced Concrete I	3
	17-18

Technical Electives are to be approved by the department chairman and may be selected in specific fields such as structures, transportation, water resources, mining engineering or other planned objectives.

° Select from General Studies areas 4, 5, 6, 7, or 8 in consultation with academic adviser.

°° To be selected in consultation with the academic adviser.

† CE 340 or CE 355 may be taken here, depending on student's program of courses.

Course Descriptions

001 *The Engineering Profession* (Freshman). (0) I, II
Blythe.

002 *The Engineering Profession* (Freshman). (0) I, II
Blythe.

008 *The Engineering Profession.* (Senior) (0) II
Guest lectures on technical and professional topics. Activities of the student chapter of ASCE. Required during the last two undergraduate semesters. 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. or concur: MA 113. *Dearinger and Staff.*

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 ME 105.) *Staff.*

206 *Descriptive Geometry.* (2)
The graphical solution of spatial problems. Drawing room 6 hours. Prereq: ME 105, MA 110. *Parker.*

211 *Route Surveying.* (2) S
Given at the Surveying Camp. Theory, field and office practice in route-surveys including the application of aerial photographs in this work. Prereq: CE 100, ME 105, PHY 231 and approval of the chairman of the department. *Dearinger and Staff.*

213 *Control Surveys.* (1) S
Given at the Surveying Camp. Theory, field and office practice in the precise measurement of angles, distances, elevations, true azimuth and geodetic position. Hydrographic surveys. Prereq: Approval of chairman of department. *Dearinger and Staff.*

214 *Topographic Surveys.* (2) S
Given at the Summer Camp. Theory, field and office practice in topographic and boundary surveys, including the preparation of large scale topographic maps and property survey plats. Prereq: CE 100, ME 105, PHY 231 and approval of chairman of department. *Dearinger and Staff.*

231 *Elements of Mining.* (3) I
Fundamental mining operations, prospecting and mine development. Lecture and recitation, three hours. Prereq: CHE 112, PHY 231, GLY 200. *Haley.*

301 *Civil Engineering Materials.* (2) I, II
A study of materials used in civil engineering construction and their basic physical and mechanical properties with emphasis on relation to fundamental structure of the material. Lecture, 1 hour; lab, 2 hours. Prereq: MET 301, EM 322. *Pendley.*

302 *Civil Engineering Materials II.* (2)
A continuation of CE 301 to study the major materials used in the construction of transportation facilities and systems. Lecture, one hour per week; lab, three hours per week. Prereq: CE 301. *Pendley.*

305 *Construction Planning and Management.* (3)
A study of the principles, methods and procedures involved in the administration of civil engineering construction including financial and legal fundamentals of contracts; specifications and critical path scheduling and quality control. Prereq. or concur: Senior classification. *Land.*

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 and Drnevich.*

340 *Transportation Engineering I.* (3)
An introduction to transportation engineering. Development of transportation systems in the United States. Route geometrics and design. Traffic flow characteristics and control. Planning financing and economic analysis of highway facilities. Lecture and recitation, three hours. Prereq: CE 211. *Deacon and Dearinger.*

342 *Transportation Engineering II.* (3)
Transportation in the urban environment including the relationship between transportation and urban development, urban planning, characteristics of urban travel, and transportation planning. Inter-urban corridor transport. Airtransport. Highway location analysis. Lecture and recitation, two hours per week; lab, three hours per week. Prereq: CE 340. *Deacon and Dearinger.*

351 *Hydraulics Laboratory.* (1) I, II, S
Experimental investigation and application of some of the more important principles covered in ME 330. Laboratory, three hours. Prereq: ME 330. *Kao.*

355 *Water Quality Engineering.* (3) I, II
Survey of water resources field with emphasis upon water, sewage and industrial waste treatment theory and practices. Lecture, three hours. Prereq: ME 330 or consent of instructor. *Foree.*

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 conference for two hours. Prereq: Senior classification. *Hutchinson and Wright.*

380 *Structural Mechanics I.* (3)
Analysis of statically determinate and statically indeterminate structures including beams, trusses, cables, arches and frames. Lecture and recitation, 3 hours. Prereq: EM 322. *Wang and 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
Behavior and design of individual members and connections. Instabilities of beams and columns. Plastic design and analysis of continuous structures. Lecture and recitation, three hours. Prereq: CE 380. *Wang and Staff.*

392 *Reinforced Concrete.* (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 380. *Gesund.*

395 *Independent Work in Civil Engineering.* (3) I, II S
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 department chairman and the instructor.

399 *Design of Structures.* (3) II
Consideration of the overall factors involved in planning of structures. Detailed structural design and analysis of complete buildings and bridges, including drawings of selected portions. Lecture, 2 hours; drawing room, 3 hours. Prereq: CE 387, 392. *Staff.*

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. Lecture and recitation, two hours a week; lab, three hours. Prereq: or concur: GLY 200, EM 322. *Hardin and Huang.*

435 *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: CE 231, or consent of instructor. *Wright.*

480 *Structural Mechanics II.* (3)
Continuation of CE 380 with emphasis on sophisticated methods of analyzing complex structures. Prereq: CE 380. *Wang and Staff.*

515 *Geometronics.* (3) II
Fundamental principles of geodesy, engineering astronomy and precise survey procedures; triangulation, trilateration and adjustment computations; theory of electronic distance measurement; applications to the horizontal and vertical control of engineering construction and photogrammetric mapping. Lecture, 2 hours; lab, 3 hours. Prereq: MA 214, CE 214. *Dearinger.*

523 *Photogrammetry.* (3)
Fundamentals of the photogrammetric method including: geometry of the single photographs and terrestrial photographs; planning the photographic mission and ground control for mapping and an introduction to analytic photogrammetry, stereo-photogrammetric plotting instruments, photo interpretation and remote sensing. Applications to problems in engineering. geography, geology and other disciplines are emphasized. Two class hours per week; lab, three hours per week. Prereq: MA 113 and consent of instructor. *Dearinger.*

531 *Coal Preparation I.* (3) I
Principles and practice of coal preparation and associated operations. Lecture and recitation, two hours; lab, three hours. Prereq: CE 231, or consent of instructor. *Haley.*

532 *Coal Preparation II.* (3) II
A continuation of CE 531. Lecture and recitation, two hours; lab, three hours. Prereq: CE 531. *Haley.*

533 *Rock Mechanics.* (3) I
An engineering science course leading to an understanding of the stresses in the earth, properties of the materials resisting these stresses and methods of determining these stresses. Stability of excavations. Lecture and recitation, three hours. Prereq: MET 301, EM 322, GLY 200, or consent of instructor. *Wright.*

540 *Pavement Analysis and Design.* (3) II
Pavement types and wheel loads; stresses in flexible and rigid pavements; effect of climate and subgrade soils on pavement performance; evaluation of strength and other properties of soils, base courses, and paving materials; structural design of flexible and rigid pavements; pavement performance. Lecture and recitation, three hours. Prereq: CE 302, 340. *Huang.*

543 *Development of Transportation Facilities.* (3) II
Analysis of factors affecting development of transportation facilities; history of transportation development; problems of highway geometrics, design standards and traffic estimates and assignment; basic planning and location principles; programming improvements, maintenance and new construction, concepts of highway management, finance and public relations. Lecture, 3 hours. Prereq: credit or registration in CE 342. *Hutchinson.*

550 *Engineering Hydraulics.* (3)
Analysis of flow in closed conduits and natural and artificial open channels. Design of hydraulic structures. Lecture, 3 hours. Prereq: ME 330. *Land.*

553 *Hydrology.* (3)
A study of the factors affecting the occurrence, movement and utilization of water including meteorological considerations, evaporation, transpiration, runoff relationships, hydrograph analysis, and ground water management. Lecture, 3 hours. Prereq: ME 330 or consent of instructor. *James and Foree.*

555 *Engineering Economy.* (3) I

Economic evaluation and financial analysis of engineering alternatives in which the goal of economic efficiency is applied to engineering design. Lecture, 3 hours. Prereq: ECO 261 or consent of instructor. *James.*

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.* (3) I

Lectures and laboratory practice in principles, application and interpretation of analytical tests used in sanitary engineering research and plant control. Lecture, two hours; lab, three hours. Prereq: Consent of instructor. *Lauderdale.*

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 214. *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 Civil Engineering or its equivalent.

621 *Engineering Aspects of Surfiicial Soils and Landforms.* (3) I

Techniques of terrain analysis for civil engineering purposes through the use of air photo interpretations (quantitative and qualitative) and other sources of pedologic, geologic and topographic information. Prereq: GLY 200.

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 Drnevich.*

626 *Advanced Soil Mechanics II.* (3) I

Study of seepage through soils and drainage methods for control of seepage. Study of the stress distribution in earth masses and detailed study of soil identification, classification and distribution for engineering planning and design. Lecture, three hours per week. Prereq: CE 425 or consent of instructor. *Hardin and Huang.*

627 *Soil Engineering for Transportation Facilities.* (3) I, II

Study of frost action and moisture movement in soils and of soil compaction and stabilization. Study of engineering analysis and design for the stability of earth slopes and embankments. Lecture, three hours per week. Prereq: CE 425 or consent of instructor. *Huang.*

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. *Hardin.*

629 *Soil Dynamics.* (3)

A study of the response of soils to dynamic loads including foundation vibration problems and the response of footings to impulse loads. Theories of wave propagation in granular and porous media and methods of measurement of the dynamic properties of soils in the laboratory are included. Lecture, 3 hours. *Hardin.*

631 *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. *Wright.*

632 *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 will be studied. Lecture and recitation, three hours. Prereq: B.S. degree in Engineering. *Wright.*

633 *Mine Organization.* (3) I, II

Detailed study of the structure and function of a mining enterprise from both the financial and the engineering standpoints. Lecture and recitation, three hours. *Wright.*

634 *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, three hours; drawing and mapping, six hours. May be repeated for a total of six credits. *Wright.*

639 *Air Transport Engineering.* (3)

Planning, location, and design of airports, STOL ports, and heliports. Air traffic operations, performance and control as related to facility requirements. Role of governmental agencies. Lecture, three hours. Prereq: CE 342 or consent of instructor. *Deacon.*

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 340. *Staff.*

641 *Highway Traffic Characteristics.* (3)

Vehicle operating characteristics; driver, pedestrian and roadway characteristics as they individually, and collectively as traffic stream characteristics, are related to the planning design and operation of highway facilities. Prereq: CE 340. *Hutchinson.*

642 *Highway Location Analysis.* (3) I, II

Optimization of highway location through a study of the effects of terrain, traffic, geometrics, standards and specifications, earthwork, structures, pavement, drainage, right of way acquisition, maintenance and road-user costs; application of computer-oriented methods of volumetric computations and economic analysis. Prereq: CE 340. *Dearinger.*

643 *Urban Transportation Planning.* (3) I

A detailed review of the transportation planning process; inventory methodologies; trip generation, distribution and assignment with associated mathematical models and theories; prediction of future travel; land and use models; modal split; developing and testing proposed systems; simulation. Three class hours per week. Prereq: CE 543 or equivalent and STA 381, or STA 681 or equivalent statistics course. (Same as GEO 643.) *Dearinger.*

644 *Operational Effects of Geometrics in Transportation.* (3) II

Operational effects of the geometry of transportation facilities includes capacity, safety, and economic considerations prompting current and impending changes in geometric design of intersections, interchanges, horizontal and vertical alignment, clearances, cross section elements and interfaces between elements of the transportation system. Three class hours per week. Prereq: CE 340; credit or registration in CE 641 or equivalent. *Hutchinson.*

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. *Staff.*

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 540 and CE 302 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 540 and CE 302 or consent of instructor. *Staff.*

652 *Open Channel Flow.* (3)

The hydraulics of free surface flow including such topics as uniform flow, varied flow, unsteady flow, the hydraulic jump flow transitions, spillways and channel delivery. Lecture, 3 hours. Prereq: CE 550. *Staff.*

653 *Advanced Hydrology.* (3) II
Advanced discussion of special topics relating to hydrology including sediment transport, flow through culverts and bridges, frequency analysis, waves, infiltration, and computer models. Lecture, 3 hours. Prereq: CE 553. *James.*

654 *Hydraulic Structures.* (3)
Structural and hydraulic analysis required for the design of concrete and earth dams and appurtenant structures. Lecture, 3 hours. Prereq: CE 550. *Land.*

655 *Water-Resources Planning.* (3) II
Presentation of techniques for evaluating water-resources projects to meet social objectives with specific reference to such purposes as flood control, drainage, water supply, hydropower, navigation and recreation. Lecture, 3 hours. Prereq: CE 555. *James.*

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 *Fundamentals of Water Quality Control I.* (3) I
Theory of water purification and waste water treatment with emphasis upon the physical and chemical process which are particularly applicable to municipal and industrial waste treatment. Prereq: CE 568. *Lauderdale.*

663 *Water Quality Control Laboratory.* (3) II
Laboratory studies of pollution control processes and techniques discussed in CE 662 and 664. One hour lecture, six hours lab per week. Prereq: CE 568 or consent of instructor. *Lauderdale.*

664 *Fundamentals of Water Quality Control II.* (3) II
Continuation of CE 662 with emphasis upon biological processes. Prereq: CE 568. *Foree.*

668 *Advanced Instrumentation for Water Resources Research.* (3)
The theory and application of advanced techniques of analysis to water resources research. *Lauderdale.*

669 *Water Quality in Surface Waters.* (3)
Water quality requirements for various beneficial uses. Analyses of dispersion, advection, evaporation, natural aeration, biological oxidation and photosynthesis; their effects on the physical, chemical and biological quality of waters in streams, lakes, reservoirs, estuaries and other surface waters. Eutrophication. Prereq: MA 214 and CE 355, or consent of instructor. *Foree.*

674 *Mechanics of Liquid Flow in Pipes.* (3)
Steady and unsteady one-dimensional pipe flow. Water hammer and surge tank analysis. Steady two-dimensional pipe flow. Digital and analog computer applications. Prereq: CE 550. Lecture, 3 hours. *Wood.*

678 *Fluid Dynamics of Multiphase Systems.* (3)
A study of the dynamics of multiphase systems consist of mixtures of solid particles, liquid droplets, or bubbles in fluids. Prereq: ME 330; MA 214. *Kao.*

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.*

682 *Experimental Structural Analysis.* (3)
Theory and practice of model analysis to facilitate the solution of unusual problems in structural engineering. Dimensional analysis, similitude requirements, materials, fabrication, loading and instrumentation of models, and interpretation of results. Lecture, 1 hour; lab, 6 hours. *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. *Wang.*

690 *Suspended Structures.* (3) I, II
Theory and application of stress analysis and design as applied to suspended structures and suspension systems. Lecture, 2 hours; lab, 2 hours. Prereq: Consent of instructor. *Gesund.*

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 480, EM 531, 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 classical methods for the solution of complex planar structural systems. Prereq: CE 480 or consent of instructor. *Wang.*

695 *Advanced Structural Analysis II.* (3) I, II
Theory and application of matrix methods of analysis to complex plane and space structures. Prereq: CE 694. *Wang.*

768 *Residence Credit for the Master's Degree.* (0) I, II, S
May be repeated once. (1-6 credits equivalence.) *Staff.*

769 *Residence Credit for the Doctor's Degree.* (0) I, II, S
May be repeated indefinitely. (1-12 credits equivalence.)

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 Design Problems in Civil Engineering.* (1-6)
Individual work on some selected design problems in one of the various fields of Civil Engineering. Laboratory, six hours. May be repeated to a maximum of nine credits. Prereq: Approval of the chairman of department. *Staff.*

790 *Special Research Problems in Civil Engineering.* (1-6)
Individual work on some selected research problems in one of the various fields of Civil Engineering. Laboratory, six hours. May be repeated to a maximum of nine credits. Prereq: Approval of the chairman of department. *Staff.*

ELECTRICAL ENGINEERING

FACULTY

Robert Lien Cosgriff, chairman

Professors

Robert Lien Cosgriff	Ph.D., Ohio State, 1953
Nathan B. Allison	Ph.D., Kentucky, 1948
Ben R. Gossick	Ph.D., Purdue, 1954
Prasad Krishna Kadaba	Ph.D., U.C.L.A., 1950

Harry Alex Romanowitz	Ph.D., Michigan, 1948
Earl L. Steele	Ph.D., Cornell, 1952

Associate Professors

Eugene Bradford Bradley	Ph.D., Vanderbilt, 1964
Raymond Jewel Distler	Ph.D., Kentucky, 1964
John Sterling Jackson, Jr.	M.S., California Institute of Technology, 1954
Syed Abu Nasar	Ph.D., California, Berkeley, 1963

Assistant Professors

Lyle Newton Back	M.S., Kentucky, 1962
Jerry C. Collins	Ph.D., Duke, 1970
Peter John Graham	Ph.D., Michigan, 1968
Martin C. Krimm	M.S., Kentucky, 1962
Hsi-Han Yeh	Ph.D., Ohio State, 1967

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

Freshman Year

First Semester	Crs.
EE 001—The Engineering Profession	0
MA 113—Calculus	4
CHE 110—General College Chemistry I	3
CHE 111—General Chemistry Lab I	2
ME 105—Basic Engineering Graphics	2
ENG 101—Freshman Composition	3
*General Studies	3
	17

Second Semester	Crs.
MA 114—Calculus	4
CHE 112—General College Chemistry II	3
CHE 113—General Chemistry Lab II	2
PHY 231—General University Physics	3
PHY 241—General University Physics Lab	2
ENG 102—Freshman Composition	3
	17

Sophomore Year

First Semester	Crs.
MA 213—Analysis	4
PHY 232—General University Physics	3
PHY 242—General University Physics Lab	2
EE 211—Circuits I	3
*General Studies	3
	15

Second Semester	Crs.
MA 214—Analysis	3
EM 222—Solid Mechanics I	4
EE 221—Circuits II	3
EE 222—Elec. Engr. Lab I	2
CS 220—Introduction to Algorithmic Processes	2
*General Studies	3
	17

Junior Year

First Semester	Crs.
EE 005—The Engineering Profession	0
EE 435—Circuits III	3
EE 461—Electronics & Communications	3
EE 462—Elec. Engr. Lab II	2
EE 467—Electric & Magnetic Fields	3
ME 220—Engr Thermodynamics I	3
*General Studies	3
	17

Second Semester	Crs.
EE 006—The Engineering Profession	0
EE 415—Electromechanics	3
EE 416—Elec. Engr. Lab III	2
EE 420—Engineering Analysis I	3
EM 313—Dynamics	3
SP 181—Basic Public Speaking	3
EE 468—Fields and Waves	3
	17

Senior Year

First Semester	Crs.
EE 007—The Engineering Profession	0
EE 371—Seminar	1
EE 507—Electrical Controls I	3
*General Studies	3
MET 532—Materials Science I	3
**Technical Elective	3
EE 401, 508, 565 or 569	2 or 3
	15 or 16

Second Semester	Crs.
EE 008—The Engineering Profession	0
**EE Technical Elective	3
**EE Technical Elective	3
**EE Technical Elective	3
**Free Elective	3
*General Studies	3
	15

* Select from General Studies areas 4, 5, 6, 7 or 8 in consultation with academic adviser.

** All electives to be selected in consultation with the academic adviser.

Technical Electives

EE 401, EE 511, EE 517, EE 520, EE 523, EE 537, EE 538, EE 562, EE 564, EE 566, EE 572, EE 580, EE 581, EE 585, EE 595, ME 330, ME 325. May use up to six hours of upper division Math, Statistics, Computer Science or Physics.

Course Descriptions

001 *The Engineering Profession* (Freshman). (0) I

002 *The Engineering Profession* (Freshmen). (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 *Circuits I.* (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 114. *Yeh.*

221 *Circuits II.* (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 114. 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.*

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 114, PHY 232. *Staff.*

306 Electrical and Electronic Circuits. (3) I, II

Study of electronic 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: SP 181. *Staff.*

372 *Seminar.* (1) I, II

Continuation of EE 371. Two class hours. Prereq: EE 371. *Staff.*

401 *Electronic Analog Computation.* (3) I

Analog computer components and their interconnection. Time and amplitude scaling. Simulation of linear and non-linear physical systems from all fields of engineering. Two class hours per week; laboratory, three hours per week. Prereq: MA 214 or consent of instructor.

415 *Electromechanics.* (3) I, II

A study of construction, operating characteristics (by mathematical analysis), and applications of electrical machines. Three class hours. Prereq: EE 221, EE 467. Concur: EE 416. *Nasar.*

416 *Electrical Engineering Laboratory III.* (2) I, II

Laboratory practice and experimental studies related to EE 415. Lecture, one hour; lab, three hours. Concur: EE 415. *Nasar.*

420 *Engineering Analysis I.* (3) I, II

A study of engineering analysis stressing fundamental mathematical and physical principles; electrical-mechanical analogs; time domain and frequency domain analysis; Fourier series and integral; series solutions of Bessel's and Legendre's equations. Lecture and recitation, three hours. Prereq: MA 214.

435 *Circuits III.* (3) I, II

Fundamentals of network theory in communications circuits; Laplace transforms and wave filters. Three class hours. Prereq: EE 221. *Romanowitz, Collins.*

461 *Electronics and Communications I.* (3) I, II

Transistor and vacuum-tube characteristics. Graphical and mathematical analysis of audio amplifiers; rectifiers and smoothing filters as power supplies. Recitation, three class hours. Prereq: EE 221. Concur: EE 462. *Distler.*

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. *Distler.*

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. Prereq: PHY 232, MA 213. *Romanowitz, Bradley.*

468 *Fields and Waves.* (3)

Maxwell's equations; vector and scalar wave equations; bounded solutions (transmission lines, waveguides); unbounded solutions (antennas); Poynting's theorem; fields in moving media. Prereq: EE 420 and 467. *Bradley, Steele.*

507 *Electrical Controls I.* (3) I, II

Block diagram and transfer function representation of linear control systems. Basic servo characteristics; stability and frequency response. Analysis and synthesis by Nyquist diagram, Bode diagram and root-locus method. Prereq: EE 435. *Yeh.*

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 or concur: EE 507. *Jackson.*

511 *Information Theory.* (3) I

Time and frequency domains; sampling theorems; review of AM-FM; pulse modulation; probability and random signal theory; autocorrelation; noise. Prereq: EE 420. *Collins.*

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. *Nasar.*

520 *Engineering Analysis II.* (3) I, II

Investigation of transient and steady-state conditions in electrical and mechanical systems, using Laplace transforms, vectors, complex variables: network analysis and synthesis. Feedback system stability criteria. Lecture and recitation, three hours. Prereq: EE 420. *Distler, Allison.*

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.

537 *Electric Power Systems I.* (3) I

Transmission line parameters, generalized circuit constants; analysis of line performance. Three class hours. Prereq: EE 415, 416. *Nasar.*

538 *Electric Power Systems II.* (3) II

Per-unit studies; symmetrical components; experimental studies on a-c network analyzer. Three class hours. Prereq: EE 537. *Nasar.*

562 *Electronics and Communications II.* (3) I, II

Feedback amplifiers, tuned and untuned amplifiers; oscillators, AM and U-H-F energy. Three class hours. Prereq: EE 461. *Distler, Collins.*

564 *Electronics and Communications III.* (3) I, II

Timing, scanning, trigger, logic and pulse circuits; video and broadband R-F amplifiers. Three class hours. Prereq: EE 461. *Bradley.*

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. *Bradley.*

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. *Distler.*

569 *Microwave and Coherent Optics Measurement.* (3)

Theory and practice of measurement of coherent microwave and optical radiation from waveguides, lasers, and antennas, including analysis of errors. Laboratory measurement of frequency, power, impedance, polarization and patterns of coherent waves. Two class hours, three lab hours per week. Prereq: EE 468.

572 *Electrical Controls II.* (3) I, II

Analysis and design of non-linear feedback control systems. Phase plane, describing function and piecewise linear techniques are developed. Stability of non-linear feedback systems is studied. Prereq: EE 507. *Yeh.*

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; prime implicate synthesis of iterative networks; sequential circuits, digital devices. Lecture and recitation, three hours. Prereq: EE 221. *Distler.*

581 *Advanced Logical Design.* (3)

Boolean Matrices; Boolean trees, design of sequential circuits. Design of digital and hybrid computers. Prereq: EE 580. *Cosgriff.*

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. Lecture, two hours; lab, three hours. Prereq: EE 420, 467. *Kadaba, Bradley.*

595 *Independent Problems.* (1-3) I, II
For electrical engineers. A problem, approved by the Chairman of the Department, provides an objective of study and research. May be repeated to a maximum of six credits. Prereq: 2.5 standing. *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 motion and energy transfer. Lecture and recitation, three hours. Prereq: Consent of instructor. *Nasar.*

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. *Nasar.*

606 *Electric Power Transmission.* (3)
The theory underlying the calculation and operation of long distance transmission circuits. Special attention to relay control. Recitation, 3 hours. Prereq: EE 538.

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.

612 *Linear Circuit Analysis II.* (3)
Continuation of EE 611 with an introduction to non-linear systems. Prereq: EE 611. *Distler.*

613 *Optimal Control Theory.* (3)
State-space modeling of control systems; variational techniques; system optimization by maximum principle, dynamic programming; Hamilton-Jacobi equations, design of linear optimal systems; computational methods for solving boundary value problems. Prereq: EE 611. *Yeh.*

614 *Sampled-Data Control Systems* (3) I
Z transforms, Nyquist criterion, Bode and root locus plots, error constants, finite settling-time design, sensitivity, state variables. Three class hours per week. Prereq: EE 520 or consent of instructor. *Distler, Yeh.*

615 *Stability Theory of Control Systems.* (3)
Stability theorems are studied with emphasis on application to closed-loop control systems. Three class hours per week. Prereq: EE 572. *Yeh.*

616 *Advanced Topics in Control.* (3)
Current research and design practices in control devices and systems. May be repeated twice. Three class hours per week. Prereq: EE 613, 614 or consent of instructor.

621 *Introduction to Antennas.* (3)
Fundamental Antenna concepts, Array Theory, Linear Radiators, Loops, Helices, Mutual Coupling, Reflectors, Measurement Theory. Three class hours per week. Prereq: EE 567.

622 *Advanced Antennas.* (3)
Traveling wave concepts, line sources, Huygen's Principle, Babinet's Principle, synthesis techniques, traveling wave antenna design, practical traveling wave antennas, non-uniform arrays, supergain, Brillouin Diagrams. Three class hours per week. Prereq: EE 621.

623 *Lines and Wave Guides.* (3)
Open-wire and coaxial lines, standing waves, stub matching; impedance transformation, rectangular and circular wave guides. Prereq: EE 435, 467, 564. *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. *Kadaba, Bradley.*

625 *Electromagnetic Propagation and Scattering.* (3)
Propagation in various media: Plasma, Magnetoplasmas, and Compressible Plasmas. Diffraction by spheres. Boundary Value Problems. Turbulence. Three class hours per week. Prereq: EE 468, 520.

626 *Microwave Engineering.* (3)
Generation, detection and measurement of microwave energy; vacuum tubes at ultra high frequencies, the klystron, the magnetron, travelling wave tubes and ferrite devices. Lecture, 2 hours; lab, 3 hours. Prereq or concurrent: EE 468. *Allison, Kadaba.*

627 *Electromagnetic Fields.* (3)
Advanced studies in electromagnetic fields; antennas, radiation and propagation of energy. Prereq: Consent of instructor. *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: Consent of instructor. *Distler.*

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.*

633 *Advanced Information Theory.* (3)
Shannon type information theory regarding channel capacity, entropy, band-limited systems for both memory and memoryless channels. Three class hours per week. Prereq: EE 511, STA 523 or consent of instructor.

635 *Pattern Recognition.* (3)
Introduction to the equivalence of approaches to pattern recognition, matched filtering, decision theoretic methods, sequential approach and learning machines. Three class hours per week. Prereq: 640. *Cosgriff.*

640 *Continuous Stochastic Processes I.* (3) I
Random variables, stochastic processes, stationary processes, correlation and power spectrum, mean-square estimation, filter design, decision theory, Markoff processes, simulation. Three hours lecture per week. Prereq: STA 523. *Distler.*

641 *Continuous Stochastic Processes II.* (3) II
Continuation of EE 640. Three class hours per week. Prereq: EE 640. *Distler.*

650 *Electro-Optical Properties of Materials.* (3)
The effects of electric fields upon light propagation in media. Lasers, electro-optic modulation, non-linear optics, laser noise, optical parametric oscillator, stimulated Raman emission, coherent scattering. Three class hours per week. Prereq: EE 670. *Bradley.*

653 *Optical Processing.* (3)
Emphasis on both the mathematical modeling and the use of optical equipment in the solution of diverse physical problems which lend themselves to a "photographic" type output. Two class hours; three lab hours per week. Prereq: PHY 508. *Cosgriff.*

660 *Electronic Device Design.* (3)
An integrated treatment of the theory and application of electronic devices with emphasis on methods of engineering analysis and design. Three class hours per week. Prereq: EE 585 or consent of instructor. *Steele.*

664 *Semiconductor Theory.* (3)
The electric, magnetic, optical and thermal properties of semiconductors. Three class hours per week. Prereq: PHY 598, 599, MA 214. *Steele.*

670 *Quantum Electronics.* (3)
The interaction of electromagnetic radiation fields and atomic systems and devices that make use of such interactions. Three class hours per week. Prereq: EE 624. *Bradley.*

683 *Automata Theory.* (3)
Decomposition of Sequential Machines, State Assignment, Finite Memory Machine, Shifting Operators as applied to Structural Machines, Turing Machines, Pattern Classification by State Machines. Three class hours per week. Prereq: EE 580, MA 561. *Cosgriff.*

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. *Staff.*

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. *Staff.*

768 *Residence Credit for the Master's Degree.* (0) I, II, S
(1-6 credits equivalence.) May be repeated once. *Romanowitz.*

769 *Residence Credit for Doctor's Degree.* (0) I, II, S
May be repeated indefinitely. (1 to 12 credits equivalence).

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.*

783 *Special Problems in Electrical Engineering.* (1-3)
Open to graduate students only. Individual work on an assignment approved by the Chairman of the Department. May be repeated to a maximum of nine credits. *Staff.*

ENGINEERING MECHANICS

FACULTY

Oscar W. Dillon, Jr., chairman

Professors

Oscar W. Dillon, Jr.	Sc.D., Columbia, 1959
Staley Fields Adams	Ph.D., Colorado, 1965
Donald C. Leigh	Ph.D., Cambridge, 1954

Associate Professors

Millard F. Beatty, Jr.	Ph.D., Johns Hopkins, 1964
T. Richard Robe	Ph.D., Stanford, 1966
David J. Shippy	Ph.D., Iowa State, 1963

Assistant Professors

Nelson N. Hsu	Ph.D., Johns Hopkins, 1969
Stanley E. Jones	Ph.D., Delaware, 1967
Frank J. Rizzo	Ph.D., Illinois, 1964
Stephen M. Vogel	Ph.D., Northwestern, 1967

Visiting Assistant Professor

Jan Krotochvil	Ph.D., Prague, 1963

The Department of Engineering Mechanics provides advanced formal training and an active research program leading to the M.S. and Ph.D. degrees. There is no baccalaureate degree program in Engineering Mechanics, although certain undergraduate courses are offered in the Department for the benefit of other programs in the College of Engineering.

Some modern engineering problms are so complex that many empirically based design techniques do not apply. Sometimes they do not even exist. Engineering Mechanics offers an excellent background for the linking together of mathematics, physics and the engineering sciences which is necessary for the successful treatment of such problems. Those students with an aptitude for mathematics and who are interested in applying mathematics and physics to fundamental problems, would do well to consider work in Engineering Mechanics.

Prerequisite for graduate work: Students desiring graduate work in Engineering Mechanics may come from all branches of Engineering as well as from programs in mathematics and physics. The program is flexible with certain core courses generally required. Typical optional areas of concentration for the remainder of the program are in: Continuum Mechanics, Dynamics and Space Mechanics. In addition to writing to the Graduate School, prospective students should contact the departmental director of graduate studies for information related to the various programs and financial assistance.

Course Descriptions

222 *Solid Mechanics I.* (4)
A study of equilibrium of solids by vector methods, forces, moments, equivalent force systems, equilibrium of solids, stress and strain, axial and biaxial systems, analysis of beams, torsion, strain energy, indeterminate systems. Lecture and recitation, 4 hours. Prereq: PHY 231. Prereq. or concur: MA 213. *Staff.*

313 *Dynamics.* (3) I, II, S
Motion of a particle, dynamics of moving bodies, impulse and momentum, work and energy, balancing, gyroscopy, advanced dynamics of rigid bodies. Prereq: EM 222. *Staff.*

322 *Solid Mechanics II.* (3)
Continuation of EM 222. Biaxial stress and strain, indeterminate beams and frames, columns, strain energy, plastic limit analysis, frames, experimental verification of Strength of Materials Theory, bending, tension, fatigue and limit loads. Lecture and recitation, two hours; lab, 3 hours. Prereq: EM 222. *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 313. *Staff.*

503 *Introduction to Continuum Mechanics.* (3)
An introduction to the mathematical description and continuum concepts of deformable materials. Review of linear algebra and Cartesian tensor analysis. Finite deformation and rate of deformation. Balance principles. Principle of material indifference. Study of constitutive equations of linear elasticity, Newtonian fluids, linear viscoelasticity, hyperelastic materials and special non-Newtonian fluids. Sample problems. Prereq: MA 433 or consent of instructor. *Beatty, Leigh, Vogel.*

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 313. *Shippy, Jones.*

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 322. *Adams.*

532 *Experimental Stress Analysis.* (3)
Experimental stress analysis from an engineering viewpoint. Preliminary optics; stress-optic law; isoclinics and stress trajectories; strain gauges; rosettes; miscellaneous experimental techniques. Prereq: EM 531. *Hsu, Adams.*

533 *Aircraft and Missile Structural Analysis.* (3) II
Analysis of semi-monocoque structures in bending and torsion. Energy and approximate method; shear lag; and thermal effects. Introduction to creep and plasticity. Three class hours per week. Prereq: EM 313. *Dillon, Vogel.*

585 *Fourier Series and Boundary Value Problems.* (3)
An introductory treatment of Fourier series and its application to the solution of boundary value problems in the partial differential equations of physics and engineering. Orthogonal sets of functions, Fourier series and integrals, solution of boundary value problems, theory and application of Bessel functions and Legendre polynomials. Prereq: MA 432 or equivalent. (Same as MA 485.)

603 *Theoretical Plasticity I.* (3)
An introductory mathematical treatment of the perfectly plastic solid. Real and idealized materials; yield criteria; flow rules; experimental basis of the theory; contained plastic flow; some two-dimensional problems. Prereq: MA 433 or consent of instructor. *Dillon.*

604 *Theoretical Plasticity II.* (3)
Continuation of EM 603. Limit analysis; plastic bending and torsion; structures and shells; thermoelasticity; plastic wave propagation. Prereq: EM 603. *Dillon.*

605 *Foundations of Inelasticity.* (3)
A critical and constructive discussion of the assumptions and experimental evidence for inelastic material response from a viewpoint of the mechanist. Lecture, 3 hours. Prereq: EM 604 and 662. *Dillon.*

606 *Theoretical Elasticity.* (3)
A mathematical account of the linear elastic solid as special continuum. Solution of boundary value problems; two-dimensional examples; torsion and bending; stress concentrations; strain energy; thermoelasticity. Some direct methods of solution for difficult problems, and introduction to dynamic elasticity. Lecture and recitation, three hours. Prereq: EM 503 or consent of instructor. *Rizzo, Dillon.*

607 *Advanced Inelasticity.* (3)
A continuation of EM 605 with a study of the latest research results in the area inelasticity. Lecture, 3 hours. Prereq: EM 605. *Dillon.*

613 *Nonlinear Oscillations.* (3) I
Analysis of various nonlinear oscillatory mechanical systems. Solutions of the differential equations of motion; response curves for forced oscillations; determination of stability criteria. Three class hours per week. Prereq: EM/ME 646 or permission of instructor. *Shippy, Jones.*

614 *Mechanics of Space Vehicles.* (3) II
Description of rigid body orientation, angular velocity, and angular acceleration in terms of Euler angles, Euler parameters, and direction cosines. Gravitational forces and torques and their effect on the attitude motions of symmetrical and unsymmetrical near-earth satellites. Effects of gyroscopic devices, energy dissipation, and elastic flexibility on the stability of space vehicles. Three class hours per week. Prereq: EM 613 or consent of instructor. *Robe, Shippy.*

632 *Theory of Elastic Stability.* (3)
Buckling of centrally compressed bars. Detailed consideration of elastic and plastic buckling of prismatic bars under simultaneous action of axial and lateral loads. Buckling of frames, lateral buckling of beams, shear effect, energy methods. Lecture, 3 hours. Prereq: EM 531. *Adams, Beatty.*

644 *Advanced Dynamics I.* (3)
Generalized rigid body kinematics, concept of reference frames, generalized forces for holonomic and non-holonomic systems, inertia properties of rigid bodies, and energy functions. LaGrange's form of D'Alembert's principle for holonomic and non-holonomic systems. Prereq: Consent of instructor. EM 313, MA 432. (Same as ME 644.) *Robe, Shippy.*

646 *Advanced Dynamics II.* (3)
Continuation of EM/ME 644. Application of LaGrange's equations in deriving equations of motion; first integrals and conservation theorems; Hamiltonian formalism. Applications to engineering systems. Prereq: EM or ME 644. (Same as ME 646.) *Shippy, Robe.*

651 *Numerical Methods in Potential Theory.* (3)
A modern numerical treatment of some classical problems in potential theory. Prereq: MA 433. *Staff.*

652 *Numerical Methods in Elasticity.* (3)
Continuation of EM 651. A modern numerical treatment of some difficult problems in classical elasticity. Prereq: EM 651. *Staff.*

653 *Methods of Applied Differential Equations.* (3)
Integrals of nonlinear partial differential equations; similarity variables and other transformations; perturbation methods; weighted residual methods; numerical methods; selected topics. Prereq: MA 432 or consent of instructor.

661 *Nonlinear Continuum Mechanics I.* (3) I
An introduction to the continuum physics and mathematical theory of the nonlinear mechanical behavior of materials. Review mathematical background. Principles of continuum mechanics. Principles of constitutive equations. Lecture and recitation, 3 hours. Prereq: EM 503 or MA 462 or consent of instructor. *Leigh, Beatty.*

662 *Nonlinear Continuum Mechanics II.* (3) II
Continuation of EM 661. Classes of materials. Finite elasticity and hyper-elasticity. Nonlinear fluids with memory. Approximation theory for memory functionals. Approximations to memory materials. Thermodynamics of memory materials. Lecture and recitation, 3 hours. Prereq: EM 661. *Leigh, Beatty.*

768 *Residence Credit for the Master's Degree* (0) I, II, S
(1-6 credits equivalence.) May be repeated. *Staff.*

769 *Residence Credit for the Doctor's Degree.* (0) I, II, S
(1-12 credits equivalence.) May be repeated indefinitely. *Staff.*

780 *Special Problems in Engineering Mechanics.* (3) I, II
A forum for the presentation and discussion of a wide range of timely topics of interest to Engineering Mechanics. Three class hours per week. May be repeated to a maximum of nine credits. Prereq: Approval of Director of graduate study. *Staff.*

MECHANICAL ENGINEERING

FACULTY

Roger Eichhorn, chairman

Professors

Willis Merle Carter	Ph.D., Michigan, 1953
Robert M. Drake, Jr.	Ph.D., California, Berkeley, 1950
Roger Eichhorn	Ph.D., Minnesota, 1959
James E. Funk	Ph.D., Pittsburgh, 1960
Karl O. Lange	Dr. Ing, Darnstadt Institute of Technology, 1930
John H. Lienhard	Ph.D., California, Berkeley, 1961
Orville Watson Stewart	M.S., Kentucky, 1955

Associate Professors

Richard C. Birkebak	Ph.D., Minnesota, 1962
Clifford John Cremers	Ph.D., Minnesota, 1964
Oliver William Gard	M.S., Georgia Institute of Technology, 1952
James Francis Lafferty	Ph.D., Michigan, 1967
Maurice Keith Marshall	M.S., Kentucky, 1956
Warren Ware Walton	M.S., Kentucky, 1953

Assistant Professors

Ronald D. Bonnell	M.S., Kentucky, 1962
Roy Donald Burberry	M.A., Kentucky, 1958

James McClelland Elliott	M.S., Kentucky,	1959
Uri Gat	Dr. Ing., Technische Hoschschule,	1968
Ottfried J. Hahn	Ph.D., Princeton,	1964
Charles E. Knapp	Ph.D., Notre Dame,	1968
Harry Louis Mason	M.S., Kentucky,	1959

Instructor

James E. Green	M.S., Eastern Kentucky,	1969

Lecturers

Deh Chang Tao	Ph.D., Purdue,	1951
Clement C. Wilson	Ph.D., Purdue,	1964

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

Freshman Year

First Semester	Crs.
ME 001—The Engineering Profession	0
CHE 110—General College Chemistry I	3
CHE 111—General Chemistry Lab I	2
ENG 101—Freshman Composition	3
MA 113—Calculus	4
ME 105—Basic Engineering Graphics	2
*General Studies	3
	17

Second Semester	Crs.
ME 002—The Engineering Profession	0
CHE 112—General College Chemistry II	3
CHE 113—General Chemistry Lab II	2
ENG 102—Freshman Composition	3
MA 114—Calculus	4
PHY 231—General University Physics	3
PHY 241—General University Physics Lab	2
	17

Sophomore Year

First Semester	Crs.
ECO 260—Principles of Economics	3
MA 213—Analysis	4
PHY 232—General University Physics	3
PHY 242—General University Physics Lab	2
*General Studies	3
	15

Second Semester	Crs.
EM 222—Solid Mechanics I	4
MA 214—Analysis	3
ME 220—Engineering Thermodynamics I	3
*General Studies	3
*General Studies	3
	16

Junior Year

First Semester	Crs.
CS 220—Intro to Algorithmic Processes	2
EE 305—Elec Circuits & Machinery	3
EM 313—Dynamics	3
ME 321—Engineering Thermodynamics II	3
ME 330—Fluid Mechanics	3
MET 301—Materials Science	3
	17

Second Semester	Crs.
EE 306—Elec & Electronic Circuits	3
Elective (Mathematics)	3
ME 310—Engineering Experimentation I	3
ME 351—Manufacturing Engineering	3
ME 371—Seminar	1
Elective	3
	16

Senior Year

First Semester	Crs.
ME 007—The Engineering Profession	0
ME 311—Engr Experimentation II	3
ME 325—Elements of Heat Transfer	3
ME 343—Control Theory	3
*General Studies	3
**Technical Elective	3
	15

Second Semester	Crs.
ME 008—The Engineering Profession	0
ME 312—Engr Experimentation III	3
ME 344—Mechanical Design	3
*General Studies	3
**Technical Elective	3
**Technical Elective	3
	15

° Select from General Studies areas 4, 5, 6, 7, or 8 in consultation with academic adviser.

°° To be selected in consultation with the academic adviser.

Course Descriptions

001 *The Engineering Profession* (Freshman). (0) I
Staff.

002 *The Engineering Profession* (Freshman). (0) II
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. May be repeated. *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.*

220 *Engineering Thermodynamics I.* (3) I, II
Fundamental principles of thermodynamics. Lecture and recitation, three hours. Prereq: PHY 232. Concur: MA 214. *Staff.*

310 *Engineering Experimentation I.* (3)
An instrumentation laboratory to provide the student with an understanding of the characteristics and application of modern instrumentation related to physical property determinations in Mechanical Engineering. Lecture, one hour; lab, four hours. Prereq: ME 220. *Stewart and Staff.*

311 *Engineering Experimentation II.* (3)
A laboratory course to instruct the student in the performance of basic Mechanical Engineering components and systems and in the writing of reports on the results obtained. Lecture, one hour; lab, four hours. Prereq: ME 310, 321, 330. *Stewart and Staff.*

312 *Engineering Experimentation III.* (3)
An experimental laboratory concerned with the analysis and/or synthesis of complex mechanical systems with emphasis on original work by the student. Lecture, one hour; lab, four hours. Prereq: ME 311, 325. *Stewart and Staff.*

321 *Engineering Thermodynamics II.* (3) I, II
Continuation of ME 220. Lecture and recitation, three hours. Prereq: ME 220 and MA 214. *Staff.*

325 *Elements of Heat Transfer.* (3) I, II
Fundamental principles of heat transfer. Lecture and recitation, three hours. Prereq: ME 321, MA 214. *Cremers, Birkebak.*

330 *Fluid Mechanics.* (3) I, II
Fundamental principles of fluid flow. Lecture and recitation, four hours. Prereq: ME 220. *Lafferty and Staff.*

341 *Machine Design.* (3) I, II
Design of complete mechanical devices emphasizing the reduction to practice by working drawings, design layouts and mechanical sketching. Lecture, one hour; lab, six hours. *Mason, Carter.*

343 *Control Theory.* (3)
Fundamentals of automatic control theory; describing differential equations; LaPlace transformation and overall transfer functions; frequency response and stability in terms of Boder and Nyquist diagrams; Root-Locus procedures and non-linearities. Lecture and recitation, three hours. Prereq: MA 214. *Funk, Bonnell.*

344 *Mechanical Design.* (3)
Fundamentals of design with methods of approximation. Introduction to optimum design considerations. Synthesis and problems on the design of various mechanical elements. Lecture and recitation, three hours. Prereq: Senior classification. *Mason, Carter.*

346 *Mechanical Systems Design.* (3)
A course using a modified case method to teach the principles involved in designing complete mechanical systems. A unique problem is chosen each semester. The system to be designed is usually one not presently in existence, but for which a need exists. The student is required to synthesize a general solution to a problem, apply analytical techniques to arrive at a more detailed solution, and finally prepare a report presenting by freehand sketches and written descriptions his solution to the problem. One class hour per week; lab, six hours per week. Prereq: ME 344.

347 *Dynamic Analysis of Design Problems.* (3)
A course emphasizing the role of analysis in design. Actual design objectives are met through the use of mathematical modeling techniques and the application of the principles of dynamics, kinematics and vibrations. Prereq: EM 313.

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 351.

351 *Manufacturing Engineering.* (3) I, II
A background course in the area of manufacturing processes and systems. Includes a study of machining operations, foundry mechanization, forging, sheet metal work, powder metal products, plastic molding and production machines and processes. Some laboratory work in machining and plant visitations. Lecture, three hours; lab, three hours. Prereq: Consent of instructor.

352 *Plant Layout.* (3) I
Selection of processes and machines, material handling systems, and plant requirements. Lecture, two hours; drawing room, three hours. Prereq: ME 356. *Gard.*

356 *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 351. *Gard.*

360 *Internal Combustion Engines.* (4) II
A study of internal combustion engine cycles and the characteristics and performance of actual engines, valves, gears, and materials of construction. Lecture and recitation, three hours; lab, two hours. Prereq: ME 321. *Stewart.*

364 *Direct Energy Conversion.* (3)
Energy sources; basic science of direct conversion of heat to electricity; thermo-electric, thermionic, and photovoltaic systems; magnetohydrodynamic and fuel cell systems. Prereq: ME 325 concurrent registration.

366 *Thermal Power Systems.* (3) II
Application of basic thermodynamics, fluid mechanics and heat transfer to the analysis of thermal systems. Internal and external combustion power plant systems and non-combustion thermal systems are analyzed. Commercial aspects of thermal systems are studied. Prereq: ME 321. *Stewart.*

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. *Marshall, Carter.*

395 *Independent Work in Mechanical Engineering.* (1-6)
Special research and problems for individual students who wish to pursue independent investigations. May be repeated for a maximum of six credits. Prereq: Consent of departmental chairman. *Staff.*

475 *Introduction to Nuclear Engineering.* (3) II
Introduction to basic topics of nuclear science. Interaction of radiation with matter. Design and operation of nuclear reactors, shielding, instrumentation, health physics, fuel cycles, use of radioisotopes. Three lecture hours per week. Prereq: PHY 232; MA 214.

480 *Thermal Environmental Engineering.* (3)
An introductory course emphasizing the engineering systems aspects of thermal environmental design. A case study approach treats measurement problems, modeling, and equipment specification for design of environmental systems. Examples drawn from terrestial, space and marine environments. Lecture, three hours per week. Prereq: Consent of instructor.

514 *Nuclear Reactor Analysis I.* (3)
Neutron cross-sections, the fission process. Infinite medium criticality calculations, the four factor formula. Neutron diffusion and slowing down theory. Age theory, criticality calculations for the homogeneous reactor, elementary reactor kinetics. Reflected reactors multigroup methods. Control rod theory, heterogeneous reactors. Prereq: PHY 554, MA 432.

517 *Instrumentation for Research.* (3) I
An exploration of modern instrumentation techniques and problems; transducer principles; analysis of dynamic response of instrumentation systems; theory of measurements; random processes; pressure; temperature, strain gages and inertial measurement techniques; magnetic, optical, electrostatic and other recording systems; automatic data reduction; measurement of errors. Prereq: Consent of instructor. *Staff.*

530 *Gas Dynamics.* (3)
Consideration of the mass, energy and force balances applied to compressible fluids. Isentropic flow, diabatic flow, flow with friction, wave phenomena, and generalized one-dimensional gas dynamics. Lecture and recitation, three hours. Prereq: ME 321. *Marshall.*

532 *Fluid Transients and Power Control.* (3) II
A course in the analysis of fluid transients and the theory and design of fluid power controls and their application in engineering systems. Lecture, three hours. Prereq: ME 330. *Funk, Bonnell.*

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. Prereq: ME 530. *Marshall.*

567 *Air Pollution Engineering and Economics.* (3) I
The Mechanical Engineering aspects of Air Pollution resulting from Combustion processes. Two class hours per week; lab, three hours per week. Prereq: MA 214, ME 321 or equivalent, ME 330 or equivalent.

583 *Biotechnology.* (3)
The human body as a mechanical system responding to sustained and transient forces and pressures, such as occur in flight, space flight and industrial environments. The physical and behavioral reaction of organisms to dynamic, thermal, radiative and gravitational stresses. Mechanical, hydraulic and pneumatic performance of body subsystems. Use of the human parameters in the design of protective and prosthetic devices and life support systems. Prereq: Consent of instructor. *Lange.*

590 *Elements of Aero-Space Technology.* (4) I

Flight performance of airborne and ballistic vehicles. Space vehicle propulsion and structures. The space environment. Man in space. Lecture, three hours. Prereq: ME 321 and 330. *Lange.*

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. Prereq: ME 590. *Lange.*

Prerequisite for graduate work: Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics.

611 *Nuclear Reactor Analysis II.* (3) II

Advanced topics in reactor analysis. The Boltzman equation, spherical harmonic methods and other approximate solutions of the Boltzman equation. Perturbation theory, neutron importance. Introduction to neutron thermalization. Special topics. Three class hours per week Prereq: ME 514, PHY 555 or concurrent.

615 *Plasma Dynamics.* (3)

Discussion of the properties of ionized gases in magnetic and electric fields. Topics covered include motion of charged particles, statistical behavior of plasmas, conduction and diffusion in ionized gases, ionization phenomena, electromagnetic waves and radiation in plasmas, and derivation of the fundamental magnetogasdynamic equations: continuity, momentum and energy. Lecture, three hours. Prerequisite: ME 620. *Cremers.*

620 *Advanced Engineering Thermodynamics I.* (3) I

Critical treatment of the laws of thermodynamics, relations among thermodynamic properties; stability of systems; thermodynamic processes; selected special topics. Lecture, three hours. Prerequisite: ME 321. *Birkebak, Lienhard.*

621 *Advanced Engineering Thermodynamics II.* (3) II

Broad coverage of statistical mechanics, kinetic theory and theory of fluctuations. Relations between quantum and classical statistics; Boltzmann integro-differential equation and its consequences; applications to reaction equilibrium, property evaluation, and other topics. Prereq: ME 620. *Lienhard.*

622 *Dynamics and Thermodynamics of the Atmosphere.* (3) II

The thermodynamics of air and the dynamics of gaseous, liquid and solid diffusion and subsequent movement in the atmosphere. Three class hours per week. Prereq: MA 214, ME 321 or equivalent, ME 330 or equivalent.

625 *Advanced Heat Conduction.* (3) I

Comprehensive study of heat condition; derivation of governing equations; discussion of the various boundary conditions; review of classical heat condition solutions; discussion of current problems, methods of solution and engineering applications of heat conduction. Lecture, three hours. Prereq: MA 432. *Eichhorn.*

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; turbulent convection; analogies between momentum and energy. Lecture, three hours. Prereq: ME 625. *Eichhorn, Cremers.*

627 *Radiation Heat Transfer.* (3)

Principles of thermal radiation, the determination of radiation properties, and the analysis of radiation heat transfer. Results of recent radiation researches are included in the discussions. Prereq: ME 325 or equivalent. *Birkebak.*

628 *Convective Mass Transfer.* (3) II

A unified treatment of convective mass transfer; theory of mass transfer; Reynolds flow; calculation procedures; application to systems; simultaneous heat and mass transfer. Prereq: ME 325, 530. *Drake.*

630 *Fluid Dynamics I.* (3)

Stress at a point (introduced as a tensor of rank two). Equation of conservation of mass, rate of strain tensor, derivation of Navier-Stokes equation, source-sink flows, motion due to a doublet, vortex flow, two and three dimensional irrotational flow due to a moving cylinder with circulation, two-dimensional airfoils. Prereq: ME 330, MA 432.

631 *Fluid Dynamics II.* (3)

A continuation of ME 630 with emphasis on viscous flow. Exact and approximate solutions, boundary layer theory. Jets, wakes, rotating systems, compressible boundary layer and hydrodynamic stability. Prereq: ME 630 or consent of instructor.

632 *Compressible Fluid Flow.* (3)

Review and extension of one dimensional gas dynamics. Subsonic flow, Hodograph method. Supersonic flow, perturbation method, method of characteristics, oblique shocks. Unsteady wave motion and shock waves. Compressible boundary layers and interacting wave motion and shock waves. Prereq: ME 330, MA 432. *Eichhorn.*

633 *Rarefied Gas Dynamics.* (3)

Dynamics of Rarefied Gases: Solution of Boltzmann and Krook equations moment methods, integral iteration, boundary layer in hypersonic flow of a slightly rarefied gas, shock wave structure, Fokker-Planck and Vlasov equations. Lecture, three hours. Prereq: ME 621 and ME 630 concurrent. (Offered every other year).

634 *Turbulent Flows.* (3)

Physical and analytical description of turbulent flows, isotropic turbulence, boundary layers and shear flows, free turbulence in jets and wakes. Measurement techniques. Lecture, three hours. Prereq: ME 631 or consent of instructor. (Offered every other year).

642 *Advanced Kinematics of Machinery I.* (3)

Fundamentals in the analysis and synthesis of mechanisms including coupler 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. Lecture and recitation, three hours per week. Prereq: ME 642. *Tao.*

644 *Advanced Dynamics I.* (3)

Generalized rigid body kinematics, concept of reference frames, generalized forces for holonomic and non-holonomic systems, inertia properties of rigid bodies, and energy functions. Lagrange's form of D'Alembert's principle for holonomic and non-holonomic systems. Prereq: EM 313, MA 432 and consent of instructor. (Same as EM 644.)

645 *Systems Concepts and Analysis.* (3) I

Conceptual development and study of complex systems; their synthesis and design; analysis and optimization of system parameters. Input-output relationships; formulation of mathematical models, parameters and constraints on physical systems. Prereq: Consent of instructor. *Funk.*

646 *Advanced Dynamics II.* (3)

Continuation of EM/ME 644. Application of Lagrange's equations in deriving equations of motion; first integrals and conservation theorems; Hamiltonian formalism. Applications to engineering systems. Prereq: EM or ME 644. (Same as EM 646.)

647 *System Optimization.* (3) II

A course in the theory and application of optimization techniques with emphasis on large engineering systems. Prereq: MA 433 or CS 220. *Funk, Carter.*

648 *Automatic Guidance and Control.* (3) II

Theory of the automatic control of machines and vehicles. Mathematical models of sensors, computers and actuators. Transfer functions of various vehicles and machines. Effects of nonlinearities and noise. Problems of reliability; pneumatic, hydraulic, and electrical systems. Prereq: Consent of instructor.

649 *Dynamic Analysis of Mechanical Systems and Components.* (3) I

The analysis of actual dynamic devices with emphasis on the selection of valid and meaningful engineering techniques and prediction of performance for reliable operation of these mechanical systems. Three class hours per week. Prereq: MA 432. *Wilson, Carter.*

650 *Fluidic Systems.* (3) II

Introduction to combinational, threshhold and sequential logic design; digital fluidic devices and sensors, proportional fluid amplifiers, fluidic digital control system design. Three class hours per week. Prereq: ME 532 or consent of instructor.

651 *System Optimization II.* (3) II
Introduction to optimal control and its applications, calculus of variations, dynamic programming, maximum principle, differential game theory, adaptive control systems, learning systems. Three class hours per week. Prereq: ME 647.

662 *Propulsion Systems.* (3)
Theory of propulsion by jet; efficiencies, specific consumption; specific thrust, specific impulse. Primary jet devices; turbojet, ducted fan, ramjet, rocket, ram rocket, nuclear power plants. Secondary jet devices for space propulsion; solar propulsion, arc heating devices, ion drive, electro-magnetic drive. Prereq: ME 530. *Marshall.*

663 *Energy Conversion Processes.* (3)
Basic considerations of direct conversion of thermal to electrical energy. Thermodynamic and performance characteristics of solid state conversion devices including thermoelectric, thermionic, and photovoltaic systems. Thermodynamic principles and operating characteristics of fuel cells. Analysis of MHD generators and accelerators. Space application of direct energy conversion devices and sources of power. Prereq: ME 325. *Funk, Cremers.*

664 *Experimental Methods in Nuclear Engineering.* (3) I
A lecture and laboratory course covering the utilization of radiation in engineering, measurement and analysis of parameters pertient to reactor design and operation, and radiation shielding; reactor response and control studies using analog computer. Prereq or concur: ME 514. *Lafferty, Hahn.*

665 *Nuclear Reactor Dynamics.* (3) II
Analysis of dynamic behavior of nuclear reactor systems; transfer function methods applied to nuclear reactor operation and control, stability and analysis from Nyquist and Bode plots, effects of feedback and compensation; instrumentation for reactor start-up and operate conditions. Prereq: ME 343, ME 514. *Staff.*

666 *Radiation Damage and Shielding.* (3) II
A study of the effects of radiation on reactor materials and instrumentation. Macroscopic study of radiation absorption applied to radiation shielding and heat generation in reactors. Prereq: PHY 554. *Hahn.*

667 *Nuclear Reactor Design.* (4)
The development of a reactor design from a set of specifications. The synthesis of reactor theory, heat transfer, properties of materials and economics. Prereq: ME 514.

685 *Biofluid Mechanics.* (3)
Rheology of biological fluids with special emphasis on blood; hemodynamics and related blood trauma; biological flow instrumentation; fundamental investigation of circulatory processes; and engineering implication of biological flow processes. Lecture, two hours; lab, three hours. Prereq: ME 330.

768 *Residence Credit for the Master's Degree.* (0) I, II, S
May be repeated once. (1-6 credits equivalence.)

769 *Residence Credit for Doctor's Degree.* (0) I, II
May be repeated indefinitely. (1-12 credits equivalence.)

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.*

772 *Bio-Mechanics Seminar.* (1)
A weekly meeting of the staff and graduate students in Engineering, Physiology Science, Biophysics, Psychology, etc. for the discussion of research and recent developments in Biomedical Engineering such as Biodynamics. May be repeated two times. Prereq: Consent of instructor. *Lafferty, Knapp.*

780 *Special Problems in Mechanical Engineering.* (3)
This 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.*

781 *Special Problems in Bioengineering.* (3)
Discussion of advanced and current topics in Bioengineering. Individual work on research problems of current interest. May be repeated to a maximum of 9 credits. Lecture, three hours.

782 *Advanced Topics in Heat Transfer.* (3)
Contemporary topics in heat transfer will be discussed using the current literature. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

783 *Topics in Advanced Systems Theory.* (3)
A survey and evaluation of current research results in systems theory. A course designed to permit full utilization of specialized abilities of individual and visiting faculty. May be repeated to a maximum of nine credits. Lecture, three hours. Prereq: Consent of instructor.

METALLURGICAL ENGINEERING AND MATERIALS SCIENCE

FACULTY

Hans Conrad, chairman

Professors

Hans Conrad	D.Engr., Yale, 1956
Richard Shelby Mateer	Ph.D., Pittsburgh, 1950
Roy Erwin Swift	D.Engr., Yale, 1949

Associate Professors

Robert J. DeAngelis	Ph.D., Northwestern, 1964
Peter Paul Gillis	Ph.D., Brown, 1964
Martin H. Leipold	Ph.D., Ohio State, 1958
James Graham Morris	Ph.D., Purdue, 1956
Philip J. Reucroft	Ph.D., Imperial College, University of London, 1959

Assistant Professors

Robert Carlisle Duncan	M.S., Kentucky, 1957
Gordon A. Sargent	Ph.D., London, 1964

Instructor

Carl Phillip Hinesley	M.S., Kentucky, 1970

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 113—Calculus	4
CHE 110—General College Chemistry I	3
CHE 111—General Chemistry Lab I	2
*General Studies	3
	15

Second Semester	Crs.
ENG 102—Freshman Composition	3
MA 114—Calculus	4
CHE 112—General College Chemistry II	3
CHE 113—General Chemistry Lab II	2
PHY 231—General University Physics	3
PHY 241—General University Physics Lab	2
	17

Sophomore Year

First Semester	Crs.
MET 003—The Engineering Profession	0
MA 213—Analysis	4
PHY 232—General University Physics	3
PHY 242—General University Physics Lab	2
ECO 260—Principles of Economics	3
*General Studies	3
	15

Second Semester	Crs.
MA 214—Analysis	3
CME 220—Engineering Thermodynamics	3
ECO 261—Principles of Economics	3
CHE 236—Organic Chemistry	4
MET 301—Materials Science	3
	16

Junior Year

First Semester	Crs.
MET 261—Elem. of Physical Metallurgy	3
MET 361—Physical Metallurgy I	3
MET 321—Melting, Fabrication and Testing Metals	3
CHE 440—Physical Chemistry	3
EE 305—Elec Circuits & Machinery	3
**Elective (Mathematics)	3
	18

Second Semester	Crs.
MET 363—Structure of Alloys I	3
MET 453—Metallurgical Kinetics	3
CHE 442—Physical Chemistry	3
CHE 443—Physical Chemistry Lab	2
EM 222—Solid Mechanics I	4
*General Studies	3
	18

Senior Year

First Semester	Crs.
MET 451—Metallurgical Thermodynamics	3
MET 463—Structure of Alloys II	3
MET 535—Advanced Mechanical Metallurgy I	3
MET 341—Extractive Metallurgy	3
MET 371—Seminar	1
**Technical Elective	3
**Elective	3
	19

Second Semester	Crs.
MET 461—Physical Metallurgy II	3
MET 521—The Casting of Metals	3
MET 372—Seminar	1
Technical Elective	3
*General Studies	3
**Elective	3
	16

* Select from General Studies areas 4, 5, 6, or 8 in consultation with academic adviser.

** To be selected in consultation with the academic adviser.

Course Descriptions

001 *The Engineering Profession* (Freshman). (0) I
Staff.

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 branches of the corresponding professional societies. May be repeated indefinitely. *Staff.*

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. *Staff.*

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. *Staff.*

301 *Materials Science.* (3)
Microscopic and macroscopic structure as related to the properties of materials with engineering applications. Lecture and recitation, three hours. Prereq: CHE 112, PHY 231. *Staff.*

303 *General Elementary Metallurgy.* (2) I, II
Basic principles of metallurgical property control; study of common structural alloys and relation to Civil Engineering design and service requirements. Lecture, two hours. Concur: EM 222 and CE 301. *Staff.*

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. *Staff.*

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. Concur: 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 442. *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. Concur: CHE 442. *Reucroft.*

361 *Physical Metallurgy I.* (3) II
Crystal structure, bonding in metal crystals, x-ray diffraction and pole figures. Lecture, two hours; lab, three hours. Prereq: PHY 232. *Mateer.*

363 *Structure of Alloys I.* (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. *Mateer.*

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. *Staff.*

372 *Seminar.* (1) II
A continuation of MET 371. Prereq: Permission of instructor. *Staff.*

395 *Independent Work in Metallurgical Engineering.* (1-3) I, II, S
Research for undergraduate departmental students. Prereq: Major and approval of departmental chairman. May be repeated for a total of 6 credits. *Staff.*

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: CME 220. *Reucroft.*

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: CME 220. *Reucroft.*

461 *Physical Metallurgy II.* (3) I, II
High purity metals, nuclear alloys, powder metallurgy techniques. Lecture, 2 hours; lab, 3 hours. Prereq. or concur: MET 361. *Staff.*

463 *Structure 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. *Staff.*

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. *Duncan.*

531 *Powder Metallurgy.* (3)
Study of the principles of powder metallurgy relating to alloys of unusual compositions, metal and non-metal combinations, porous and laminated products, composite metals, and high-melting alloys. Lecture and recitation, three hours. Prereq: Consent of instructor. *Swift.*

532 *Materials Science I.* (3) I
Modern ideas on the engineering properties of solids. Crystallography; properties; relations of properties to structure; thermodynamics; solid state reactions. Prereq: Consent of instructor. *Sargent.*

535 *Advanced Mechanical Metallurgy I.* (3)
Elastic and plastic deformation of metallic crystalline solids; crystallographic nature of slip and twinning; work hardening, fracture and recovery. Lecture and recitation, three hours. Prereq: Consent of instructor. *Gillis, Conrad.*

536 *Ceramic Engineering.* (3)
The nature of ceramic materials. The forming and thermal treatment of ceramic products. Consideration of the various properties usually encountered and required of ceramic materials inclusive of cements. Lecture and recitation, three hours. Prereq: Consent of instructor. *Leipold.*

539 *Nuclear Metallurgy.* (3)
The metallurgy of such materials as are used in the various components of nuclear reactors with special emphasis on their physical metallurgy. Scientific principles in their broadest sense are emphasized. Material applicable to nuclear-reactor components in the ceramics, metal-ceramics, and other fields. Prereq: B.S. in Metallurgical Engineering or permission of instructor. *Staff.*

550 *Corrosion.* (3)
The fundamental principles of corrosion control and the basic mechanisms related to a better understanding of the causes of corrosion. The application of principles to practical situations. Lecture and recitation, three hours. Prereq: Consent of instructor. *Staff.*

551 *Advanced Chemical Metallurgy I.* (3)
Study of reactions occurring during refining, based on principles of thermodynamics and kinetics. Examples from both ferrous and nonferrous metallurgy. Lecture and recitation, three hours. Prereq: Consent of instructor. *Reucroft.*

566 *Crystallography and X-ray Metallography.* (4)
Elements of crystallography, nature of x-rays, diffraction by crystal lattice, the structure factor and crystal structure determinations in metallic lattices, x-ray camera and diffractometer techniques and application of these to determination of phase diagrams, preferred orientation and residual stresses. Lecture, three hours; lab, three hours. Prerequisite: MET 361. *DeAngelis.*

Prerequisite for graduate work: Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics. Degrees offered are a Master of Science in Metallurgical Engineering and a Doctor of Philosophy in Physical Metallurgy.

632 *Materials Science II.* (3) II
Continuation of MET 532. Classification of solids; atomic structure and bonding; relation of structure to properties; deformation behavior and failure. Prereq: MET 532. *Staff.*

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. Prereq: Consent of instructor. *Swift.*

635 *Advanced Mechanical Metallurgy II.* (3)
Theory of dislocations in crystals and their role in strength, plasticity, work hardening and fracture of crystalline solids. Lecture and recitation, three hours. Prereq: MET 535. *Conrad, Gillis.*

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. Prereq: Consent of instructor. *Staff.*

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. Prereq: Consent of instructor. *Swift.*

650 *Advanced Chemical Metallurgy II.* (3)
Study of reactions of materials with chemical environments. Introduction to irreversible thermodynamics. Emphasis on current literature. Prereq: MET 551. *Reucroft.*

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: MET 451 or equivalent. *Staff.*

661 *Advanced Physical Metallurgy I.* (3)
Study of the theory of phase transformations in metallic systems. Analysis of rate controlling processes for nucleation and growth controlled phase changes and for order-disorder reactions. Lecture and recitation, three hours. Prereq: MET 463 or permission of instructor. *Morris.*

662 *Advanced Physical Metallurgy II.* (3)
Solidification theory and mechanisms. Diffusion in solids. Prereq: MET 661 or permission of instructor. *Morris.*

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. Prereq: MET 461. *Staff.*

666 *Diffraction Methods in Metallurgy.* (4) II
Application of thin foil electron transmission methods to the study of the defect structure of metals, theory of electron diffraction contrast phenomena, sample preparation, X-ray theory and methods applied to the study of deformation characteristics of metals, order-disorder transformations, and crystal structure analysis. Prereq: MET 566. *DeAngelis.*

768 *Residence Credit for the Master's Degree.* (0) I, II, S
(1-6 credits equivalence.) May be repeated once.

769 *Residence Credit for the Doctor's Degree.* (0)
(1-12 credits equivalence.) May be repeated indefinitely.

771 *Seminar.* (0) I, II
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 every semester. *Conrad.*

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 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.



Law

William Lewis Matthews, Jr., S.J.D., Dean of the College of Law; Robert Marshall Viles, LL.M., Assistant Dean of the College of 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 authorities 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 J.D. 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 demand, 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 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 21 instructors and 18 library and secretarial personnel. They are assisted by some part-time teaching associates and research associates 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.

The Library

The College maintains an excellent and carefully selected law library collection of 100,000 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 13,000 treatises and textbooks, all major legal reference works, and over 450 legal periodicals received annually, as well as special collections in jurisprudence and international law. The law library is growing at about 4,000 volumes per year.

The Law Building

The College of Law occupies a handsome new building of contemporary design constructed in 1965. Located on the central campus on South Limestone Street just south of Memorial Hall, this new Law Building was planned and designed to provide all of the special physical facilities required for a modern program of legal education. These facilities include

a model Court Room-Auditorium; the Law Library; five classrooms; three seminar-conference rooms; faculty and staff offices; and offices for the Kentucky Law Journal, the Moot Court Board, the Legal Aid program, the Student Bar Association, the Journal of Legal Education, and visiting attorneys and others who come to the Law School for research and study.

The Journal of Legal Education

Since 1966, the Journal of Legal Education, the official organ of the Association of American Law Schools, has been edited at the University of Kentucky College of Law, with faculty members serving as editor and associate editors. It is a quarterly publication.

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 50 of the 147 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 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 proven ability to write and conduct research. The Journal publishes articles, notes, and comments written by legal scholars, attorneys, and students, and is subscribed to by members of the bar as well as all leading domestic and foreign 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 very soon after the College itself was created and the latter is provided through 12 student-managed Law Clubs. Teams representing these clubs compete annually to qualify as the College representative in the National Moot Court Competition. A program of training in legal research and writing is provided for every student through regular course work (described in the course offerings in this section, and through extracurricular prize projects. The College of Law has a modest scholarship fund maintained by contributions from alumni and members of the bar. 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 to the Dean of the College of Law.

The Summer Session

A number of courses in law are offered in the summer session at the University. Credit in the summer session is counted toward a degree and one-half semester of credit (maximum load: 7 semester hours) and residence may be acquired in each summer session. No beginning students are accepted for the summer session.

Requirements for Admission

In addition to the general requirements for admission to the University, an application for admission to the College of Law must meet the following requirements:

(1) The applicant must have received a bachelor's degree from an accredited institution or be on a combined-degree program which will entitle him to the bachelor's degree before he completes requirements for the J.D. degree.

(2) The applicant must have taken the Law School Admission Test.

(3) The applicant must have achieved a prelaw grade point average (on *all* college work attempted) and a Law School Admission Test score according to the following criteria:

(a) Those applicants having at least a 2.75 average and at least a 550 LSAT score will be admitted;

(b) Those applicants not having the combination of grade point average and LSAT score stated above will be considered for admission by the Admissions Committee on the basis of their individual applications and may be admitted at the discretion of the Admissions Committee.

The Admissions Committee considers the prelaw grade record, the LSAT score, the academic improvement shown in the prelaw grade record, and the applicant's aptitude for law study. Applicants with a grade point average of less than 2.0 on all college work attempted will not be considered. Ordinarily the Admissions Committee will not admit an applicant who has less than a 2.5 average and a 500 LSAT score. However, the Committee will examine with particular care the grade average for the last three semesters of prelaw study, recommendations of faculty, and the nature of difficulty of the course work attempted in prelaw study.

Procedure for Application

The Dean of Admissions and Registrar of the University of Kentucky is the designated admitting officer for the College of Law. Application for admission is made by submitting to his office a completed application form supported by transcripts of all previous academic work. Although a standard University application form is used for College of Law application,

the College has established deadline dates for receipt of applications and transcripts which are different from the deadline dates for general University admission. These Law School dates are as stated below. 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, transcripts of all completed prelaw college work furnished directly by each institution attended, and LSAT scores should be submitted before March 1 in the year when admission is sought. If the applicant's transcripts of completed work are received by this date and meet admission requirements, he will be granted provisional admission for the following fall term, subject only to satisfactory completion of his remaining prelaw work.

Applications, all transcripts and LSAT scores submitted after March 1 must be received prior to June 15. If not received by that date, the application for admission may not be considered unless the standards for assured admission (2.75 grade average, and a 550 LSAT score) are met.

Law School Admission Test

The LSAT is prepared, administered and scored by the Educational Testing Service. 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 LSAT is also given in some foreign country locations. The University of Kentucky in Lexington is a testing center for all scheduled dates of the test.

Applications for taking the LSAT may be secured directly from Law School Admission Test, Educational Testing Service, Box 944, Princeton, New Jersey 08540, or from the Dean's Office of the College of Law or the Admissions Office of the University of Kentucky. The completed application should be returned directly to the Educational Testing Service and received there at least three weeks prior to the next testing date.

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 Programs

A. For Prelaw Students at the University of Kentucky

An Arts-Law combined-degree program, in which both the A.B. and J.D. degrees can be earned in six academic years, is available at the University of Kentucky in the College of Arts and Sciences. In this program the first year of law work (28 semester hours) is credited both to the A.B. degree earned in the College of Arts and Sciences and the J.D. degree earned in the College of Law. If the prelaw student during his first three years in the College of Arts and Sciences earns 100 semester hours (excluding physical education) and satisfies all course requirements 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 from the College of Arts and Sciences at the end of that year. He then continues in the College of Law for two more years and receives the J.D. degree.

Requirements for the A.B. degree in the College of Arts and Sciences are described elsewhere in this catalog. Detailed information about the first three years in this combined degree program can be obtained from the Dean of the College of Arts and Sciences.

B. For Prelaw Students at Other Institutions

A combined-degree program which awards an undergraduate degree (A.B. or B.S.) and the law degree (J.D.) in six years frequently can be worked out by a student who does not take his prelaw work at the University of Kentucky. If the undergraduate college concerned is willing, the College of Law 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 conferred by the undergraduate college and not by the College of Law, prelaw students should consult their college deans or prelaw advisers about arranging this program. The Dean of the College of Law will, upon request furnish additional information about this program.

Special Note: Rules for admission by examination to the bar in Ohio, Kansas, and Tennessee provide that one must have earned his undergraduate degree through four years of prelaw study prior to entering a law school. Combined-degree programs do not satisfy this rule, and prelaw students who may desire to seek bar

admission in the states mentioned, or in any other state having a similar rule, should plan to earn an undergraduate degree before entering a law school.

The Degree Of Juris Doctor

Students admitted to the College of Law as regular students will be eligible for the degree of Juris Doctor (J.D.) 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 a numerical average of 60 or better.

FACULTY

William Lewis Matthews, Jr., Dean

Professors

John Randolph Batt	LL.M., Yale, 1960
W. Garrett Flickinger	J.D., Michigan, 1953
Richard Davenport Gilliam, Jr., *Emeritus*	LL.B., Virginia, 1924
Willburt Dunn Ham	LL.M., Harvard, 1941
William Lewis Matthews, Jr.	S.J.D., Michigan, 1950
Eugene French Mooney, Jr.	LL.M., Yale, 1963
Roy Mitchell Moreland, *Emeritus*	S.J.D., Harvard, 1942
Paul Oberst	LL.M., Michigan, 1942
James R. Richardson	LL.M., Yale, 1955
Robert Allen Sedler	LL.B., Pittsburgh, 1959
Frederick William Whiteside, Jr.	LL.B., Cornell, 1936

Associate Professors

Alvin Lee Goldman	LL.B., N.Y.U., 1962
John E. Kennedy	LL.M., Yale, 1964
Robert Gene Lawson	LL.B., Kentucky, 1963
Robert Marshall Viles	LL.M., Yale, 1965

Assistant Professors

Raymond Ellinwood, Jr.	J.D., Chicago, 1965
William Hifner Fortune	LL.B., Kentucky, 1964
Kenneth J. Guido, Jr.	LL.M., Yale, 1967
Henry W. Seney	LL.M., Yale, 1967
Stephen James Vasek	LL.M., Harvard, 1969
Charles Gurley Williamson, Jr.	LL.M., Georgetown, 1961
Paul Allen Willis	J.D., Kentucky, 1969

Adjunct Instructors

Susan Dischka Csaky	M.S.L.S., North Carolina, 1964
Calvert Theodore Roszell	LL.B., Kentucky, 1948
Joe Christian Savage	LL.M., Harvard, 1965
Alvin Buckner Trigg	LL.B., Virginia, 1948

The 83 semester hours for the J.D. degree include certain required courses, courses in legal research and writing, seminars, various professional experience courses, and certain elective courses. The total number of hours taken in six semesters by the degree candidate can vary from 83 to 89.

All courses (including seminars, professional experience, 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 two semesters are required courses. In the third, fourth, fifth, and sixth semesters, the courses are elective. In general the courses should be taken in the sequence created by their classification as first-year, second-year, or third-year courses.

Course Descriptions

(All courses are lecture and recitation unless otherwise noted.)

FIRST-YEAR SUBJECTS

802 *Legal Bibliography.* (1) I

Practical problems in the use of statutes, reports, digests, encyclopedias, annotated cases, citation books, periodicals, reference tables, and indices.

804 *Law and Legal Institutions.* (3) II

A perspectives course for first-year law students treating the function of law and the legal system in society rather than particular areas of substantive or adjective law. The court system and the legislative and administrative systems are studied and evaluated as to function and role with the purpose of understanding how the institutional parts relate and how the lawyer perceives their operation with particular emphasis on law as an instrument of social change.

805 *Torts.* (4) I, II

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.

807 *Property.* (4)

Basic course in property: possession, gifts, bona fide purchasers of personalty. Estates, uses, easements, and rights incident to ownership.

810 *Criminal Law.* (3) I

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.

811 *Criminal Procedure.* (2) II

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.

812 *Contracts.* (4) I, II

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.

815 *Practice and Procedure I.* (3)

Common law forms, theory of the case, composition of pleadings, demurrer, aider, duplicity, traverses, pleas, motions; code and federal rule pleading, claims, answers, objections and correction of pleadings, parties and joinders of actions.

818 *Remedies.* (3) I

Nature of damages; nature of specific relief; personal interests; contractual interests; property interests; specific relief and the government.

820 *Constitutional Law.* (4) 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.

822 *Economic Legislation.* (3) II

An introduction to modern economic materials of importance to the lawyer, especially the economic background of social welfare legislation, governmental control of business and fiscal and tax laws. Sample legislative materials will be used to cover the conflicting economic and social interests surrounding the birth of legislation, the legislative process, and statutory interpretation.

824 *Legal Research Tutorial.* (1) II

A conference course for tutorial instruction in legal research and writing, in fundamentals of legal analysis, and in the solution of selected legal problems.

SECOND-YEAR SUBJECTS

817 *Practice and Procedure II.* (2-3) I

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.

819 *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.

825 *Legislation.* (2-3) II

Nature and scope of legislative power; organization of legislative bodies; legislative process; legislation and the courts; interpretation of statutes.

835 *The Legal Profession.* (2) II

A study of professional problems including: ethics, discipline, unauthorized practice, duty to court and client, bar admission and organization, fees and office procedure.

850 *Business Associations I.* (3) I

A study of traditional agency concepts (including the vicarious liability relationship in tort and contract); informal organizational relationships (joint enterprise, joint venture, voluntary unincorporated associations); organization, dissolution, and liquidation of partnerships; special problems pertaining to partnership property; limited partnerships.

852 *Business Associations II.* (3) 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.

860 *Taxation I.* (3) II

Problems in federal and state income taxation.

870 *Oil and Gas.* (2) I

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.

876 *Trusts and Estates.* (4)

An elective course for second-year law students. Examination of rules governing intestate distribution of property; formal requirements governing execution, alteration and revocation of wills; requisite elements of express trusts and requirements for their creation, special rules relating to charitable trusts and spendthrift trusts; rules concerning construction of wills and trusts and general rules governing administration of decedents' estates and trusts.

880 *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.

885 *Creditors' Rights.* (2-3) II

Enforcement of judgments; fraudulent conveyances; general assignments; creditors' agreements; receiverships; bankruptcy, assets, and distribution.

887 *Insurance.* (2) II

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.

890 *Evidence.* (4) II

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.

891 *Damages.* (2-3) S

Nature of damages, voidable consequences, counsel fees, certainty, compensation, damage for nonpecuniary injuries, interest, damages for death, and eminent domain.

930 *Government Regulation of Business.* (2-3) II

The body of law structuring economic organization and activities in a free enterprise national system. Major matters considered in the course are government creation and regulation of the legal monopolies, controls over collaborative conduct of competing economic entities, and legal controls over the vertical distributive relationship of suppliers, dealers, and customers.

935 *Unfair Trade.* (2-3) II

Analysis of the various common law unfair competition areas; examination of statutory relief in areas of trade marks, copyright, and misleading advertising; survey and analysis of various portions of Federal Trade Commission Act and Robinson-Patman Act.

THIRD-YEAR SUBJECTS

827 *Social Legislation (Social Provisions for Individual Welfare).* (2-3) I

This course will cover the law of state and federal programs for individual welfare and economic security (such as Social Security and Unemployment Compensation), emphasizing the securing of rights of recipients under the programs and the complying with corresponding liabilities of employers and others. To be scheduled as a third-year course.

828 *Workmen's Compensation.* (2-3) II

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.

855 *Corporation Finance Law.* (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).

865 *Tax Planning.* (3) I

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.

868 *Taxation III—Advanced.* (2) II

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.

872 *Land Use Planning.* (2-3)

A comprehensive survey of the basic legal devices to control the use of land, theories of land use planning, nuisance, private agreements, zoning and zoning procedure, the role of the federal government in land planning, exercise of eminent domain, and selected Kentucky problems, such as rural zoning and proposed New Towns for Appalachia.

878 *Trusts.* (3) I

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.

892 *State and Local Government Law.* (3) II

An advanced course in the legal problems caused by the great variety of functions performed by state and local governments; including historical development of traditional functions, configuration of contemporary intergovernmental relations, examination of areas of conflict, and in-depth consideration of lawyer roles in dealing with special problems of financing, borrowing money, and furnishing services as to health, education, natural resources, transportation, and welfare.

905 *Conflict of Laws.* (3) I

Nature of the subject, penal laws, procedure, judgments, domicile, capacity, form, particular subjects, litigation, family law, inheritance, foreign administrators.

908 *Comparative Law.* (2-3) I

Foreign legal materials are analyzed to determine how the normative ordering concepts and procedures of other cultures might aid in the solving of certain American legal dilemmas. Materials from the Scandinavian, Soviet, and Japanese systems of jurisprudence are those most closely scrutinized.

910 *Labor Law.* (3) I

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.

914 *Relational Torts.* (3) II

An advanced study of relational interests and their injury as contrasted with injuries to personalty and property; including examples of this in modern society relative to relations of trade, employment, family, neighbors, and citizens; treating also the equitable remedies and new theories of liability being used in litigation to enlarge the legal protection of relational interests.

915 *Family Law.* (2-3) I

Contracts to marry; the marriage status; annulment, divorce and separation; parent and child; infants and incompetent persons.

920 *Administrative Law.* (3) II

Establishment of administrative tribunals, limits on discretion. Notice and hearing, orders, methods of judicial relief, scope of judicial review.

950 *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 for a total of ten credits.)

960 *Practice Court.* (1) I, II

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.

961 *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 for a total of six credits.)

962 *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 for a total of four credits.)



Education

George Denemark, Ed.D., is Dean of the College of Education, Lyman V. Ginger, Associate Dean.

Objectives

The College of Education is responsible for designing, developing, and implementing programs concerned with the professional preparation of personnel in educational roles in many types and levels of schools, colleges, and other social agencies.

Within this context the college:

—serves as the agency within the University for the administration and coordination of all teacher education programs and for liaison with the Kentucky State Department of Education;

—provides instruction at both undergraduate and graduate levels focusing upon the professional dimensions of teaching, administration, and the work of educational specialists;

—engages in educational research and development designed to contribute to man's understanding of the educative process and to the improvement of education in Kentucky;

—cooperates with school systems and social agencies having educational functions on such matters as program planning, evaluation, and the continuing education of staff members.

Degrees

The following degrees can be obtained as a result of specific study concentrations in the College of Education:

Bachelor of Arts in Education

Master of Arts (Health, Physical Education & Recreation)

Master of Arts in Education

Master of Science (Health, Physical Education & Recreation)

Master of Science in Education

Specialist in Education

Doctor of Education (Ed.D.)

Doctor of Philosophy (Ph.D.)

Accreditation

The University of Kentucky is accredited by the National Council for Accreditation of Teacher Education for the preparation of elementary and secondary teachers and school service personnel with the doctor's degree as the highest degree approved.

Special Facilities and Services

Facilities and services are provided by the College for the purpose of supplementing and enriching the students' programs; for improving the instructional effectiveness of the faculty; and for making available consulting services, special materials, and programs for schools and other agencies around the state.

The Bureau of School Services coordinates research programs, publications, and other services to schools; a variety of research projects is conducted on a contract basis.

The Curriculum Laboratory serves as a repository of syllabi, courses of study, teaching units, and other instructional aids useful to elementary and secondary teachers; consulting services are provided to faculty and school systems.

The Diagnostic Center for Speech and Hearing serves as a training facility for students; services include free hearing and speech evaluation and therapy for all University students, speech and hearing evaluation on a limited scale, fee basis, for Central Kentucky, and some out-patient speech and hearing therapy.

The Education Library contains more than 12,000 volumes, over 250 periodicals, and approximately 35,000 pieces of microfiche; a complete microfiche collection of all ERIC documents is on file; the facilities

and resources of the other libraries on campus are also available to all students.

The Educational Media Laboratory contains audio-visual equipment and resources used in conjunction with courses in educational media; includes a materials-preparation laboratory, a demonstration classroom, and an equipment operation laboratory; media consulting services are provided to University faculty.

The Instructional Materials Laboratory for Vocational Education renders ancillary service in the preparation of instructional materials for teachers in the state's vocational programs in high schools and area vocational schools.

The Kentucky Research Coordinating Unit for Vocational and Technical Education stimulates, facilitates, and coordinates vocational education research and training programs, and experimental or "pilot" programs in the State Department of Education, local school districts, colleges and universities, and other non-profit agencies.

The Lincoln School, supervised by the College of Education, provides a residential high school program for academically talented, but culturally and economically disadvantaged students; programs are evaluated in terms of broad implications for educating the gifted; the school also serves as a resource for research and experimental opportunities for faculty and students from various departments at the University.

The Program on Educational Change was established as an effort to study the directions and processes of educational change; its activities have included: conducting two major national studies of ESEA Title III, publishing a monthly periodical (PACE report) focusing on innovative programs in ESEA Title III, occasional papers related to educational change, cooperating with various other state and national institutions and programs on educational change, and institutionalizing the change thrust within the University.

The Reading Center maintains a special collection of books, pamphlets and other materials relative to reading curricula.

The Regional Special Education Instructional Materials Center serves as a depository and lending distribution point for instructional materials in special education throughout the states of Kentucky, North Carolina, Tennessee, and West Virginia; it disseminates information, provides consultation, develops new instructional materials, conducts research, offers institutes and workshops, and serves as a demonstration agency for the region.

Admission to the College

Requirements for admission to the College of Education are the same as those outlined on the preceding pages for admission to the University. In order to continue in the college, students pursuing certificate programs must obtain admission to the Teacher Education Program.

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 EDP 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 a satisfactory standing (2.0 grade-point average on a 4.0 scale) in all of his college work as well as in his major teaching field, his minor teaching field and in professional education. 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 advisers 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 examinations that 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.

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 three-fourths of the semester hours required in the field in which the student teaching is to be done, has completed a minor, 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. a minimum of 75% of the required hours in the area of concentration, 75% of the major, or all of the minor must be completed with a standing of 2.0 or above;
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 or not more than 15 hours of college work to be carried during student teaching with no college classes scheduled to interfere with the teaching assignment;
7. has presented evidence of having had a thorough physical examination.

The student teacher is expected to follow the calendar of the school where he will 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 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 three hours in techniques of teaching home economics.

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 2.0 or above in the following areas: in professional education, in majors, minors, or area of concentration; and over-all. 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, 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.

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, the Provisional Junior 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 Teacher Education and Certificate Office. Students desiring to teach agriculture or home economics should enroll in the College of Agriculture or the School of Home Economics and pursue curricula leading to these certificates.

General Information

Students expecting to receive teaching certificates, regardless of the college from which they graduate, must follow the General Studies Component required by the College of Education in addition to the requirements in their own college.

Students expecting to receive teaching certificates must apply for and be admitted to the Teacher Education Program before upper division courses in the required Professional Education sequence may be taken. No more than two required courses in the Professional sequence may be taken at the same time.

Students expecting to receive teaching certificates and a degree from the College of Education must complete all requirements for the certificate before the degree is granted.

Students must be prepared to accept a student teaching assignment in any available location. Some schools in which student teaching is done are away from the Lexington campus and out of the Central Kentucky area.

Students expecting to receive certificates as elementary or junior high school teachers are required to be enrolled in the College of Education and to have an adviser in the College of Education.

Students expecting to become teachers in senior high schools may be enrolled either in the College of Education or in the College of Arts and Sciences, the College of Business and Economics, the College of Agriculture, or the School of Home Economics.

Curricula

General Studies Component Areas: Five general studies component areas are required for graduation from the College of Education and for a teaching certificate if the student graduates from another college:

Area II—Physical Sciences

Area III—Biological Sciences

Area IV—Foreign Languages

or

Area V—Humanities: Literature, Art, and Music

Area VI—History

Area VII—Social Sciences

In addition to these five areas, all students are urged to take at least two courses listed in Area VIII, Behavioral Sciences. Students preparing to be teachers in junior high school or senior high school may substitute Section A, Psychology, from Area VIII, Behavioral Sciences, for Area III, Biological Sciences. Students in elementary education may not make this substitution.

Students who offer mathematics as a teaching major or minor may substitute Area I, Mathematics-Philosophy, for Area II, Physical Sciences.

Requirements for Teaching in Elementary Schools

The requirements for preparation to teach in the elementary schools are outlined below:

	Semester Hours
PROFESSIONAL EDUCATION REQUIREMENTS—Total hours required	30
*EDP 202—Human Development and the Curriculum	4
EDF 301—Education in American Culture	3
EDC 324—Teaching Science and Social Learnings in Elementary School	4
EDC 329—Teaching Communicative Skills in the Elementary Schools	4
EDC 331—Teaching Arithmetic in the Elementary School	3
EDC 333—Student Teaching in the Elementary School	12
EDC 543—Teaching in the Kindergarten (Required of Kindergarten Majors)	3
Electives in Professional Education (May be taken upon recommendation of adviser)	
EDC 120—Arts and Crafts in the Elementary School	3
EDC 325—Teaching in the Elementary School	3
EDC 544—Utilization of Educational Media	3
EDP 548—Educational Psychology	3

* Prerequisite to ALL other required Professional Education courses. Students must apply and be admitted to the Teacher Education Program while enrolled in EDP 202.

In addition to the requirements in the General Studies Components, the following Special Studies requirements must be met:

SPECIAL STUDIES COMPONENT REQUIREMENTS	55-59
BIO 110—Introduction to Human Biology and Health	3
HPR Activity Courses	2
ENG 101, 102—Freshman Composition	6
ENG (This 6 hours is in addition to Area IV or Area V)	6
(If Area IV is taken, then 3 hours of Literature must be included in this 6 hours. This 6 hours must also include Speech, 3 hours, unless a speech proficiency test has been passed. If the test has been passed, this 6 hours may be any electives in English.)	
PSY 104—Basic Phychology I and Lab OR	3
PSY 210—General Psychology	
A-E 170, 172—Public School Art	6
MUS 260—Music Fundamentals and Skills for Classroom Teachers	3
MUS 261—Methods and Materials for Teaching Music in Elementary Grades	3
GEO 151—Elements of Geography	3
**GEO 152—Regional Geography of the World	3
LS 510—Children's Literature and Related Materials OR	3
EDC 542—Children's Literature	
MA 201, 202—Fundamentals of Elementary Mathematics	6
HPR 360—Physical Education in the Elementary School	2
**Social Science elective in Sociology, Geography, History, etc.	3-6
General Studies Component Requirements	30-37
Needed to Graduate (including all elective and required courses)	130

** A total of 21 hours is required in the Social Science area. If GEO 152 is used to meet both the Geography requirement and in Area VII, an additional 3-hour course will be needed in order to meet the 21-hour requirement.

Requirements for Teaching in Junior High Schools

The special certificate for junior high school teachers became effective in September, 1966. The junior high school certificate is valid in grades 5 through 9 and may be endorsed for teaching at the high school level for any subject assignment in which the teacher holds a regular high school teaching major or minor.

Teachers or 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.

	Semester Hours
PROFESSIONAL EDUCATION REQUIREMENTS—Total hours required	29
*EDP 202—Human Development and the Curriculum	4
EDF 301—Education in American Culture	3
EDC 340—Teaching in the Junior High School	4
EDP 520—The Secondary School Pupil (adolescent psychology)	3

EDC 533—Teaching Reading in the Secondary School	3
Student Teaching	9
EDC 564—Modern Educational Problems	3

° Prerequisite to ALL other required Professional Education courses. Students must apply and be admitted to the Teacher Education Program while enrolled in EDP 202. A student may, however, take EDP 202 and EDF 301 concurrently if he has only four academic periods for the completion of his work. EDC 340 and EDP 320 are taken concurrently the semester immediately preceding student teaching.

In addition to the requirements in the General Studies Components, the following Special Studies requirements must be met.

SPECIAL STUDIES COMPONENT REQUIREMENTS—Total hours required	20
BIO 110—Introduction to Human Biology and Health	3
HPR Activity Courses	2
ENG 101, 102—Freshman Composition	6
ENG (This 6 hours is in addition to Area IV or Area V)	6
(If Area IV is taken, then 3 hours of Literature must be included in this 6 hours. This 6 hours must also include Speech, 3 hours, unless a speech proficiency test has been passed. If the test has been passed, this 3 hours may be any elective in English.)	
PSY 104—Basic Phychology and Lab OR PSY 210—General Psychology	3
General Studies Component Requirements—Total hours required	30-37
(See section on General Studies Component Requirements)	
For best use of elective hours, consult adviser.	
Needed to graduate (including all electives and required courses)	130

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)
1*English and Communications
French
Geography
German
History
*History (18 hours, including 6 hours of American History) and Political Science (6 hours)
2*Humanities and Fine Arts
3*Languages
Latin
4*Mathematics
Physics
Political Science
5*Science
6*Social Science
Spanish

° These are majors developed for the junior high school preparation-certification and apply *only* to that certificate.

1. *English and Communications:* 24-30 semester hours to be made up of composition, 6 semester hours; linguistics, advanced composition or phonetics, 3 semester hours; books and literature for young adolescents, 3 semester hours; literature, 9 semester hours (American Literature to be included); speech, 3 semester hours.

2. *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.

3. *Languages:* 24 semester hours made up of any two languages with 12 semester hours or two full years of study each.

4. *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.

5. *Sciences:* 24-30 semester hours with a minimum of 6 semester hours in each of three fields chosen from the following: Physics, Chemistry, Biological Sciences, and Earth Science. The student will be required to have at least 6 semester hours in Physical Science (Physics or Chemistry) and 6 semester hours in Biological Sciences.

6 *Social Sciences:* 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
French
Geography
German
History
Latin
Mathematics (6 semester hours in newer concepts of math)
Physics
Sociology
Spanish
Speech

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:

	Semester Hours
Professional Education Requirements—Total hours required	22-23

Students majoring in regular subject matter areas (excluding such special areas as Business Education, Vocational Agriculture and Home Economics, and Special Education) must pursue the following plans:

	Hours
*EDP 202—Human Development and the Curriculum	4
EDF 301—Education in American Culture	3
EDC 344—Teaching in the Senior High School	3-4
Student Teaching	9
EDC 564—Modern Educational Problems (Student Teaching Seminar)	3

* Prerequisite to ALL other required Professional Education courses. Students must apply and be admitted to the Teacher Education Program while enrolled in EDP 202.

EDC 344 should be taken the last semester prior to student teaching. No course from the required sequence can be taken with EDC 344 or with student teaching.

	Hours
EDP 522—Educational Tests and Measurements	3
EDC 544—Utilization of Educational Media	3
EDP 548—Educational Psychology	3

PROFESSIONAL COURSES FOR BUSINESS EDUCATION MAJORS

The following courses should be taken in sequence:

	Hours
EDV 210—Introduction to Vocational Education	3
EDP 202—Human Development and the Curriculum	4
EDV 512—Teaching Bookkeeping and Accounting	3
EDV 514—Teaching General Business Subjects in the Secondary Schools	3
EDC 393—Student Teaching in Business Education	9
EDC 564—Student Teaching Seminar	3
EDV 511—Teaching Secretarial Subjects (Elective)	3
EDV 513—Teaching Typewriting and Clerical Practice (Elective)	3

PROFESSIONAL COURSES FOR DISTRIBUTIVE EDUCATION MAJORS

The following courses should be taken in sequence listed:

	Hours
EDV 210—Introduction to Vocational Education	3
EDP 202—Human Development and the Curriculum	4
EDV 516—Problems of the Coordinator in Industrial and Distributive Education	2
EDV 528—Techniques of Teaching Distributive Education	2
EDC 393—Student Teaching in Business Education	9
EDV 517—Determining Teaching Content in Distributive Education	2
EDV 515—Problems in Distributive Education	2
Total	24

Twelve-grade Certificate in Music, Art, or Physical Education

Students seeking a twelve-grade certificate in Music, Art, or Physical Education must take EDC 325, *Teaching in the Elementary School*, after they have earned junior classification. This means that EDC 325 may be taken concurrently with other courses in the pro-

fessional 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 twelve-grade level. Half of the student teaching *must be done* in an elementary school and half in a secondary school.

In addition to the requirements in the General Studies Components, the following Special Studies requirements must be met:

	Semester Hours
Special Studies Component Requirements—	
Total hours required	20
	Hours
BIO 110—Introduction to Human Biology and Health	3
HPR Activity Courses	2
ENG 101 and 102—Freshman Composition	6
ENG—(This 6 hours is in addition to Area IV or Area V)	6
(If Area IV is taken, then 3 hours of Literature must be included in this 6 hours. This 6 hours must also include Speech, 3 hours, unless a speech proficiency test has been passed. If the test has been passed, this 3 hours may be any elevtice in English.)	
PSY 104—Basic Psychology I OR PSY 210—General Psychology	3
General Studies Components—Total hours required (See section on General Studies Component requirements)	30-37
For best use of electives, consult adviser.	
Needed to graduate (including all electives and required courses)	130

Requirements for Majors, Minors, and Areas of Concentration

Senior High School Curriculum majors must prepare themselves by intensive study in selected areas. All students who were not admitted to the Teacher Education program prior to September 1, 1968 will be expected to meet one of the following options in the choice of a curriculum leading to certificates for teaching in specific subject fields: (1) An area of concentration with a minimum of 48 semester hours; or (2) two majors (30 hours minimum each); or (3) one major (30 hours minimum) and two minors (21 hours minimum each; or (4) one major (30 hours minimum) and one minor (21 minimum).

An *area of concentration* from an approved subject field shall consist of 48 semester hours unless otherwise specified.

A *major* from an approved single subject field shall consist of 30 semester hours with the following exception:

English (36 hours) One course in linguistics or equivalent required.

A *major* from an approved combination of subjects shall consist of 36 semester hours with a minimum of 12 semester hours in a single field within the major.

A *minor* from an approved single subject field shall consist of 21 semester hours with the following exceptions:

1) English (24 hours) One course in linguistics or equivalent required.
2) Spanish, French or German (24 hours in one language). *The Teaching of German* (553) is recommended as one of the courses.

MINORS with a combination of subjects have been eliminated.

Even though some institutions offer a certificate program with a major in a single subject and no minor, the College of Education of the University of Kentucky continues to require two teaching fields—an approved major and an approved minor. The only exception is an area of concentration of 48 semester hours from certain approved fields.

STUDENTS WHO OFFER EARTH SCIENCE, ECONOMICS, GEOGRAPHY, JOURNALISM, POLITICAL SCIENCE, PSYCHOLOGY, SOCIOLOGY, SPECIAL EDUCATION, OR SPEECH AS A MAJOR OR MINOR MUST HAVE ANOTHER MAJOR OR MINOR IN WHICH STUDENT TEACHING MAY BE DONE.

SUBJECT FIELDS FROM WHICH AREAS OF CONCENTRATION MAY BE CHOSEN

Art
Business Education
English
Health, Physical Education and Recreation
Languages
Mathematics & Physical Science
Music
Sciences
Social Studies

SUBJECT FIELDS FROM WHICH MAJORS MAY BE CHOSEN

In a combination of subjects for majors, not less than 12 semester hours shall be in each subject within the major. No subjects may be combined except as listed below.

Agriculture (60 hours)
Art
Biological Sciences
Business Education
  Accounting (30 hours)
  General Business (30 hours)
  Secretarial (30 hours)
Chemistry
Distributive Education
Earth Science
Economics and Sociology (36 hours)
English (36 hours)
French
Geography
German
Health and Physical Education (36 hours)
History
History and Political Science (36 hours)
Home Economics
Latin
Mathematics
Physical Education
Physics
Political Science
Sociology
Spanish
Special Education
Speech
Speech and Dramatics (36 hours)

SUBJECT FIELDS FROM WHICH MINORS MAY BE CHOSEN

No subject may be chosen except those listed below:

Agriculture
Any Foreign Language (24 hours)
Art
Biological Sciences
Business Education
  Accounting
  General Business
  Secretarial Practice
Chemistry
Earth Science
Economics
English (24 hours)
Geography
History
Journalism
Latin
*Library Science
Mathematics
Physical Education (Men only)
Physics
Political Science
Psychology
Sociology
Special Education
Speech

* 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

See Education adviser for information concerning the proper courses. 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 the other two languages, and 6 semester hours of electives chosen from any of the three.

A teaching area in mathematics and physical sciences may consist of 48 semester hours which includes chemistry, mathematics, and physics, with no fewer than 15 semester hours in each.

A teaching area in sciences may consist of at least 48 semester hours, 15 (or more) of which shall be in biology, chemistry, or 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 may be selected from any of these fields.

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 in American History and 6 in European History; 30 semester hours selected from political science, economics sociology, and geography (cultural anthropology may be included in this group) with a maximum of 12 semester hours and a minimum of 6 semester hours in each of these subjects.

Requirements for Special Education

The College of Education offers programs designed to prepare teachers to work with the educable and trainable mentally retarded, the orthopedically and neurologically handicapped, and in speech and hearing.

All prospective special education teachers, with the exception of those in speech and hearing, are required to meet the General and Special Studies Component Areas and the Professional Education requirements of the elementary, junior high, or senior high school programs. Thus, within the framework of the undergraduate program the student can earn certification in elementary, junior high, or senior high school *plus* certification in a special field.

Those students in speech and hearing must meet only the General and Special Studies Component Areas and are certified *only* in that field.

Requirements for Major in Recreation (Non-certificate)

The College of Education, Department of Health, Physical Education and Recreation, offers programs designed to prepare supervisory and administrative personnel to work in a variety of recreation and park systems in the public, private, voluntary, or commercial sectors of the growing leisure-services industry. All prospective recreation graduates are required to meet the General and Special Studies Component areas of the University.

MAJORS AND MINORS

There are many combinations of majors and minors which 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. For information concerning the exact courses, the student must consult his College of Education adviser.

Requirements for Teaching Vocational Agriculture (Summary)

College of Agriculture	*Semester Hours*
General component	42-29
Pre-professional component (ag)	12-21
Department major	18-18
Specialty Support	6-6
Other technical agriculture	23-23
Health and physical education	3-3
Electives	28-12
Total required for graduation	132

a) EDV 580-581 and 672 are required for certification.

   EDV 580 and 581 may be taken as an undergraduate or as a graduate.

b) When EDV 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 a minimum of 50 semester hours in technical agriculture, with at least 6 credits in each of the following areas:

animal science, plant and horticulture science, soil science, agricultural economics, and agricultural mechanics.

d) Additional requirements for certification include: 6 credits in education, 6 credits in English composition, 3 credits in English literature, 3 credits in speech and 3 credits in health and physical education as an undergraduate.

Requirements for Teaching Home Economics (Summary)

School of Home Economics Effective entering freshmen, 1960	Sem. Hrs.
General requirements in core	42-48
Core in home economics	42
Prescribed additional courses in home economics	12-13
*TC 227—Principles of Clothing Construction and Selection	
TC 328—Flat Pattern Design	
HF 350—Child Guidance	
HID 536—Interior Decoration Projects	
or	
HID 363—Household Equipment	
General requirements beyond general requirements in core	12
Literature, humanities, foreign languages, philosophy, religion	5
Anthropology, geography, government, history	3
Bacteriology, botany, zoology	4
Professional Education	18-19
EDP 202—Human Development and the Curriculum	
or	
EDF 301—Education in American Culture	
EDV 586—Techniques of Teaching Home Economics	
*EDV 362—Student Teaching in Home Economics	
*EDV 588—Adult Education in Home Economics	
General electives	2-10
Total required for graduation	136

* May be omitted by passing test.

* 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. 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. 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.

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.

Persons in each area of specialization have been designated to guide graduate students in their work toward the master's degree in education.

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 (With Thesis)

1. A minimum of 24 semester hours of graduate work must be completed and a thesis must be presented.
2. At least 12 semester hours of graduate work must be in education.
3. At least 12 semester hours of graduate work must be in courses numbered 600 or higher.
4. At least 12 semester hours must be outside the field of education, except for majors in Educational Administration, Counseling and Guidance, Vocational Education, other than Home Economics Education. It is expected that students in Educational Administration, Counseling and Guidance, and Vocational Education will have six hours outside education.
5. 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.
6. The total number of semester hours presented in education, undergraduate and graduate, must be at least 30.
7. A standing of 3.0 (an average of B) or better must be made on all graduate work.
8. Six semester hours (if approved by the graduate adviser) may be completed in off-campus study (that is, extension work).
9. 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 adviser 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.

10. 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. Exceptions may be made for persons not planning to teach in public schools.

PLAN II (Without Thesis)

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, Counseling and Guidance, and Vocational Education, other than Home Economics Education. It is expected that students in Educational Administration, Counseling and Guidance, and Vocational Education will have six hours outside education.
5. 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.
6. The total number of semester hours presented in education, undergraduate and graduate, must be at least 30.
7. A standing of 3.0 (an average of B) or better must be made on all graduate work.
8. Six semester hours may be done in extension classes, off-campus study, or independent work courses with the permission of the student's adviser and the Dean of the Graduate School.
9. 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 adviser 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.
10. 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. Exceptions may be made for persons not planning to teach in public schools.

Consult your College Education adviser for your final course plan.

Master of Arts Degree in Education

Beginning with the graduates of 1970, Provisional certificates will be renewed only upon completion within ten years of a planned fifth year of work. Effective June, 1967, all beginning Master's degree candidates were enrolled in the new program. Currently enrolled Master's degree candidates who do not complete their work before 1970 will be required to meet the new requirements. Persons who expect to qualify for certificates in administration and/or supervision must first complete the Master's degree for teachers and then take a minimum of 15 additional hours of planned work in administration and/or supervision.

Summary of General Requirements for the Master of Arts Degree for Teachers

A. 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 adviser.

B. By the time the M.A. degree is completed, the student must:
   1. Be eligible for a teaching certificate.
   2. Have a total of 30 semester hours in Education at both the graduate and undergraduate levels.
   3. Have 15 hours of graduate work in courses numbered 600 or higher.
   4. Have at least 12 hours of graduate work in Education.
   5. Have at least 12 hours outside the field of Education.

Master of Arts Degree in Elementary Education

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

Area I: A General Study of Curriculum Development
- EDC 712—The Elementary School
- EDC 732—Principles of Curriculum Construction

Area II: Research Methodology
- EDP 522—Educational Tests and Measurements
- EDP 656—Methodology of Educational Research
- EDP 657—Educational Statistics

Area III: Advanced Study in Human Growth and Development
- EDP 739—A Survey of Research in Human Development and Education
- EDP 755—Human Development and Behavior
- EDP 759—Identifying and Providing for Individual Student Needs

Area IV: Advanced Study in Reading (Required unless waived on basis of previous advanced study in reading)
- EDC 540—The Analysis and Correction of Reading Problems in the classroom
- EDC 641—A Study of Research and Theory in Teaching Reading in the Elementary School
- EDC 642—A Study of Research and Theory in Teaching Language Arts in the Elementary School

Area V: The Psychology of Learning
- EDP 548—Educational Psychology
- EDP 658—Problems in Educational Psychology

Area VI: A Seminar in Introduction Devoted to the Method of Teaching
- Any general course in methods or any specific course in methods in subject matter areas may be taken to meet this requirement.

Area VII: Foundations in Education
- EDP 548—Educational Psychology
- EDF 640—Philosophy of Education
- EDF 645—Foundations in Education
- EDF 650—History of Western Education
- EDF 651—History of Education in the United States
- EDP 658—Problems in Educational Psychology
- EDF 661—Educational Sociology

Master of Arts Degree in Secondary Education

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

Area I: A General Study of Curriculum Development
- EDC 714—The Secondary School (for secondary school teachers only)
- EDC 717—The Junior High School (for junior high school teachers only)
- EDC 732—Principles of Curriculum Construction
- EDC 735—The Core Program in the Secondary Schools

Area II: Research Methodology
- EDP 522—Educational Tests and Measurements
- EDP 656—Methodology of Educational Research
- EDP 657—Educational Statistics

Area III: Advanced Study in Human Growth and Development
- EDP 520—The Secondary School Pupil
- EDP 755—Human Development and Behavior
- EDP 759—Identifying and Providing for Individual Student Needs

Area IV: The Psychology of Learning
- EDP 548—Educational Psychology
- EDP 658—Problems in Educational Psychology

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

Area VI: Foundations in Education
- EDF 640—Philosophy of Education
- EDF 645—Foundations in Education
- EDF 650—History of Western Education
- EDF 651—History of Education in the U.S.
- EDF 661—Educational Sociology
- EDP 548—Educational Psychology
- EDP 658—Problems in Educational Psychology

Master of Arts & Master of Science Degrees in Vocational Education

For a Masters degree in Vocational Education (Agricultural Education, Business and Office Education, Home Economics Education), a minimum of 12 semester hours of graduate work must be taken in professional education. One course shall be taken from each of these areas listed below. This program qualifies the teacher for a Standard Certificate if he has completed the four-year undergraduate curriculum.

Master of Science Degree in Agricultural Education

Area I: Curriculum Development
- EDV 672—Determining Content in Vocational Agriculture
- EDV 678—Selecting Teaching Materials
- EDC 732—Principles of Curriculum Construction

Area II: Research
EDP 656—Methodology of Educational Research
EDP 657—Educational Statistics (consumer research)
EDV 695—Special Problems in Vocational Education
EDV 794—Research in Vocational Education
EDV 795—Research Problems in Agricultural Education

Area III: Advanced Study in Human Development
EDP 755—Human Development and Behavior
EDP 759—Identifying and Providing for Individual Student Needs

Area IV: Psychology of Learning
EDP 548—Educational Psychology
EDP 658—Problems in Educational Psychology

Area V: Seminar in Instruction Devoted to Methods of Teaching
EDV 585—Farm Practice Supervision
EDV 670—Method in Teaching Vocational Education
EDV 671—Teaching Prevocational Agriculture
EDV 675—Modern Problems in Agricultural Education
EDV 677—Advanced Problems in Agricultural Education
EDV 679—Adult-Farmer Schools
EDV 680—Directing Farm Practice
EDV 681—Teaching Farm Shop
EDV 682—Young-Farmer School
EDV 687—Home Economics Supervision
EDV 776—Seminar in Vocational Education

Area VI: Foundations in Education
EDF 640—Philosophy of Education
EDF 645—Foundations in Education

Master of Arts Degree in Business Education

Area I: A General Study of Curriculum Development
EDV 615—Problems in Business Education
EDV 621—The Commerce Curriculum
EDV 622—Business Education in Colleges and Universities
EDV 626—Classification and Possible Use of Community Resources in Business Education
EDC 714—The Secondary School
EDC 732—Principles of Curriculum Construction

Area II: Research Methodology
EDP 656—Methodology of Educational Research
EDP 657—Educational Statistics
EDV 786—Independent Work in Business Education
EDV 794—Research in Vocational Education

Area III: Advanced Study in Human Development
EDP 755—Human Development and Behavior
EDP 759—Identifying and Providing for Individual Student Needs

Area IV: Psychology of Learning
EDP 548—Educational Psychology
EDP 658—Problems in Educational Psychology

Area V: A Seminar in Instruction Devoted to Methods of Teaching
EDV 511—Teaching Secretarial Subjects
EDV 512—Teaching Bookkeeping and Accounting
EDV 513—Teaching Typewriting and Clerical Practice
EDV 514—Teaching General Business Subjects in the Secondary Schools
EDV 605—Teaching Consumer Courses in High School
EDV 615—Problems in Business Education
EDV 618—The Social Business Subjects in High School
EDV 622—Business Education in Colleges and Universities
EDV 687—Home Economics Supervision
EDV 774—Seminar in Business Education
EDV 776—Seminar in Vocational Education

Area VI: Foundations in Education
EDF 640—Philosophy of Education
EDF 645—Foundations in Education
EDF 650—History of Western Education
EDF 651—History of Education in U.S.
EDF 661—Educational Sociology

Master of Science Degree in Home Economics Education

Area I: Curriculum Development
EDC 714—The Secondary School
EDC 732—Principles of Curriculum Construction
EDV 685—Home Economics Curriculum Construction

Area II: Research
EDP 656—Methodology of Educational Research
EDP 657—Educational Statistics
EDV 787—Independent Work in Home Economics Education
EDV 794—Research in Vocational Education

Area III: Advanced Study in Human Development
EDP 739—Survey of Research in Human Development and Education
EDP 755—Human Development and Behavior
EDP 759—Identifying and Providing for Individual Student Needs

Area IV: Psychology of Learning
EDP 548—Educational Psychology
EDP 658—Problems in Educational Psychology

Area V: Seminar in Instruction Devoted to Methods of Teaching
EDV 683— Current Problems in Home Economics Education
EDV 684—Modern Trends in Home Economics Education
EDV 686—Evaluation in Home Economics Education
EDV 687—Home Economics Supervision
EDV 693—Supervision in Vocational Education
EDV 775—Seminar in Home Economics Education

Area VI: Foundations in Education
EDF 640—Philosophy of Education
EDF 645—Foundations in Education
EDF 650—History of Western Education
EDF 651—History of Education in the U.S.
EDF 661—Educational Sociology

Master of Arts Degree in Industrial Education

Area I: Curriculum Development
EDC 714—The Secondary School
EDC 732—Principles of Curriculum Construction
EDV 678—Selecting Teaching Materials

Area II: Research
- EDP 656—Methodology of Educational Research
- EDP 657—Educational Statistics
- EDV 536—Survey in Industrial Education
- EDV 695—Special Problems in Vocational Education
- EDV 794—Research in Vocational Education

Area III: Advance Study in Human Development
- EDV 523—Vocational Guidance
- EDP 755—Human Development and Behavior
- EDP 759—Identifying and Providing for Individual Student Needs

Area IV: Psychology of Learning
- EDP 548—Educational Psychology
- EDP 658—Problems in Educational Psychology

Area V: Seminar in Instruction Devoted to Methods in Teaching
- EDV 518—Methods in Industrial Education (4 hours)
- EDV 529—Evaluation in Industrial and Distributive Education
- EDV 534—Organization and Operation of Part-time and Evening Classes
- EDV 537—Special Problems in Industrial Education
- EDV 670—Methods in Teaching Vocational Education
- EDV 776—Seminar in Vocational Education
- EDV 687—Home Economics Supervision

Area VI: Foundations in Education
- EDF 645—Foundations in Education
- EDF 661—Educational Sociology
- EDV 524—Modern Industrial Analysis
- EDV 535—Principles and Philosophies of Industrial Education (4 hours)

Master of Arts Degree in Education—Special Education

The completion of 30 semester hours of course work under Plan II or 24 hours of course work and a thesis under Plan I within the framework of the general regulations of the Graduate School and the College of Education is required for the master's degree in Special Education. A student without a teaching certificate must meet deficiencies including certification requirements outlined by his adviser in addition to completing the 30 semester hours.

Students may emphasize one of the following specialties within the framework of the Master's degree in Special Education:

1. Teachers of the Mentally Retarded
2. Teachers of the Orthopedically and Neurologically Handicapped
3. Teachers of the Emotionally Disturbed
4. Speech Pathology and Audiology

MINIMUM REQUIREMENTS FOR TEACHERS OF HANDICAPPED CHILDREN

Special Education	12 hours
Educational Psychology and Counseling	3 hours
Social and Philosophical Studies in Education	3 hours
Graduate level coursework outside the College of Education	12 hours

At least 15 semester hours must be earned in courses at the 600 and 700 levels.

Special requirements for speech pathology: Candidates for the M.A. degree in Education with concentration in speech pathology are encouraged to meet the academic and clinical requirements for the Certificate of Clinical Competence from the American Speech and Hearing Association. Briefly, these requirements include: (a) 18 semester hours in courses that provide fundamental information applicable to the normal development and use of speech, hearing and language, (b) 42 semester hours in courses that provide information about and training in the management of speech, hearing, and language disorders and that provide information supplementary to these fields, and (c) completion of 275 clock hours of supervised, direct clinical experience with individuals presenting a variety of disorders of communication. All or part of requirements (a) and (c) may be fulfilled on the undergraduate level. However, 30 of the 42 hours of requirements (b) must be in courses acceptable toward a graduate degree. M.A. candidates in speech pathology must complete at least 12 hours from the 600-700 level courses in speech pathology listed under Special Education.

Master of Arts Degree in Education—Guidance and Counseling

The introductory statement pertaining to the Master of Arts degree for teachers does not apply in Guidance and Counseling. However, any person who has the Master's degree in Guidance and Counseling and who wishes to qualify as a school administrator must first meet all requirements for the Master of Arts for teachers.

The curriculum for the master's degree requires 30 semester hours of course work under Plan II or 24 hours of course work and a thesis under Plan I. It includes courses in the areas of human development and behavior testing, individual group counseling, guidance, education sociology and includes a supervised practicum in counseling of from 3-9 hours. Students typically select 9 hours from related sociology and psychology courses.

For further information contact the director of graduate students in the Department of Educational Psychology and Counseling.

Students specializing in Rehabilitation Counseling are required to take the following: (does not qualify for school counselor certificate.)

ANA 206—Elementary Anatomy	3
EDP 521—Introduction to Vocational Rehabilitation	3
EDP 522—Educational Tests and Measurements or	3
PSY 535—Psychological Testing	
EDS 527—Survey of Physical and Neurological Defects	3

EDP 657—Educational Statistics	3
EDP 664—Studies in Vocational Rehabilitation	3
EDP 760—Counseling Theory and Practice	3
*EDP 761-2—Supervised Practice in Counseling	3
EDP 763—Res. and Eval. in Guidance	3
EDP 764—Using Occupational and Educational Information in Counseling and Guidance	3
EDP 777-2—Seminar in Counseling and Guidance	3
PSY 521—Abnormal Psychology	3
PSY 544—Social Psychology	3
SOC 527—Health and Society	3
Nine additional hours in Supervised Clinical practice.	

* Courses designated by the suffix–2 are specifically adapted to the Rehabilitation Counseling program.

Programs in Educational Administration and Supervision

Beginning in September, 1970, all persons entering the program in Administration and Supervision previously must have completed a Master's degree in teaching.

REQUIREMENTS FOR THE PROFESSIONAL CERTIFICATE

The Professional Certificate for administrators and supervisors is endorsed for specific positions and the requirements for each position are different. Rank I is a classification for salary purposes.

The requirements for certificate and Rank I programs for each specific administrative position are listed below:

SUPERINTENDENT

I. *Prerequisites*

Master's degree with graduate courses in the following areas:

a. General Curriculum Construction
b. Curriculum Construction in a Specific School Level
c. Statistics
d. Social and Philosophical Studies
e. Advanced Reading
   or
   Advanced Teaching Methods
f. Human Growth and Development
   or
   Psychology of Learning
g. 12 hours outside of education of which a minimum of 6 shall be in the behavioral sciences

II. *Professional Certificate and Rank I Program*

EDA 601—Administration of Educational Organizations	3
EDA 602—Organization & Administration of American Education	3
EDA 603—Constitutional & Legal Basis of Public School Administration	3
EDA 604—School Buildings and Equipment	3
EDA 628—Field Studies in Educational Administration & Supervision	3
EDA 633—Administration & Supervision of Instructional Programs	3
EDA 634—Administration of Educational Personnel	3
EDA 635—Business Adm. and Finance of Public Education	3
EDA 792—Research in Educational Administration & Supervision	3
Electives	6
Total	30

SUPERVISOR

I. *Prerequisites*

Master's degree with graduate courses in the following areas:

a. General Curriculum Construction
b. Curriculum Construction in a Specific School Level
c. Statistics
d. Social and Philosophical Studies
e. Advanced Reading
f. Human Growth and Development
   or
   Psychology of Learning
g. 12 hours outside of education of which a minimum of 6 shall be in the behavioral sciences

II. *Professional Certificate Program*

EDA 602—Organization and Administration of American Education	3
EDA 633—Administration and Supervision of Instructional Programs	3
EDA 639—The Supervisor	3
Selected Courses to Strengthen Program Development Knowledge	6
Total	15

III. *Rank I Program*

Certificate Program plus the following:	15
EDA 601—Administration of Educational Organizations	3
EDA 628—Field Studies in Educational Administration & Supervision	3
EDA 634—Administration of Educational Personnel	3
EDA 792—Research in Educational Administration & Supervision	3
Electives	3
Total	30

ELEMENTARY PRINCIPAL

I. *Prerequisites*

Master's degree with graduate courses in the following areas:

a. General Curriculum Construction
b. Curriculum Construction in the Elementary School
c. Statistics
d. Social and Philosophical Studies
e. Advanced Reading
f. Human Growth and Development
   or
   Psychology of Learning
g. 12 hours outside of education of which a minimum of 6 shall be in the behavioral sciences

II. *Professional Certificate Program*

EDA 601—Administration of Educational Organizations	3
EDA 602—Organization and Administration of American Education	3
EDA 629—The Principal	3
EDA 633—Administration and Supervision of Instructional Programs	3
EDA 634—Administration of Educational Personnel	3
Total	15

III. *Rank I Program*

Certificate Program plus the following:	15
EDA 628—Field Studies in Educational Administration & Supervision	3
EDA 792—Research in Educational Administration and Supervision	3
Electives	9
Total	30

SECONDARY PRINCIPAL

I. *Prerequisites*

Master's degree with graduate courses in the following areas:

a. General Curriculum Construction
b. Curriculum Construction in the Secondary School
c. Statistics
d. Social and Philosophical Studies
e. Advanced Teaching Methods
f. Human Growth and Development
   or
   Psychology of Learning
g. 12 hours outside of education of which a minimum of 6 shall be in the behavioral sciences

II. *Professional Certificate Program*

EDA 601—Administration of Educational Organizations	3
EDA 602—Organization and Administration of American Education	3
EDA 629—The Principal	3
EDA 633—Administration and Supervision of Instructional Programs	3
EDA 634—Administration of Educational Personnel	3
Total	15

III. *Rank I Program*

Certificate Program plus the following:	15
EDA 628—Field Studies in Educational Administration & Supervision	3
EDA 792—Research in Educational Administration and Supervision	3
Electives	9
Total	30

DIRECTOR OF PUPIL PERSONNEL

I. *Prerequisites*

Master's degree with graduate courses in the following areas:

a. General Curriculum Construction
b. Guidance and Counseling
c. Statistics
d. Social and Philosophical Studies
e. Advanced Teaching Methods
   or
   Advanced Reading
f. Human Growth and Development
g. 12 hours outside of education of which a minimum of 6 shall be in the behavioral sciences

II. *Professional Certificate Program*

EDA 601—Administration of Educational Organizations	3
EDA 602—Organization and Administration of American Education	3
EDA 634—Administration of Educational Personnel	3
EDA 502—Administration of Pupil Personnel	3
BOE 519—Records Management	3
Total	15

III. *Rank I Program*

Certificate Program plus the following:	15
EDA 628—Field Studies in Educational Administration & Supervision	3
EDA 633—Administration and Supervision of Educational Programs	3
EDA 792—Research in Educational Administration and Supervision	3
Electives	6
Total	30

Master of Arts or Master of Science with a Major in Physical Education or Recreation

The Department of Health, Physical Education and Recreation offers Master of Arts or Master of Science degrees with a major in Physical Education or Recreation. The Department offers specialization in the following areas: administration of physical education and athletics, elementary and secondary physical education teaching and dance in education. Students interested in recreation may choose one of the following options: therapeutic recreation; recreation and park administration; recreation for older Americans, or professional recreation in higher education. The Department is currently planning a proposed new master's program in health and safety education.

The Department utilizes two plans similar to plans I and II previously described under the heading, Graduate Programs Leading to the Master's Degree. For specific information contact the Director of Graduate Studies, Department of Health, Physical Education and Recreation.

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 Coordinator of Graduate Studies in the College of Education.

ADMINISTRATION & SUPERVISION

FACULTY

James Benjamin Kincheloe, interim chairman

Professors

Fred Edmonds	Ed.D., Kentucky, 1961
Lyman V. Ginger	Ed.D., Kentucky, 1950
James Benjamin Kincheloe	Ph.D., Peabody, 1954
James Robert Ogletree	Ed.D., Columbia, 1956
W. Paul Street	Ph.D., Northwestern, 1947

Assistant Professors

George Madden	Ed.D., Illinois, 1968
Roy Nasstrom, Jr.	M.A., California, 1964

The Department of Administration and Supervision seeks to improve the quality of American education through improved training and competence of its administrators. The department is particularly mindful of its obligation to supply the needs of the State of Kentucky for high quality administrators in its public schools and in a variety of educational agencies. The department also seeks to improve the field of educational administration through the research and other activities of its members and by supplying top quality professors of educational administration.

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.

601 *Administration of Educational Organizations.* (3)
A study of the historical development of educational administration, administrative processes, the application of theory and values in decision making and an introduction to modern management methods applied to education.

602 *Organization and Administration of American Education.* (3) I, II, S
An analysis of the administration of local, state and federal educational agencies and their relationships. A study of the administrative tasks in these agencies.

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: Admission to program in Administration and Supervision.

604 *School Buildings and Equipment.* (3)
Measurement and evaluation of existing school building facilities, planning new buildings, determining suitable equipment, and financing the building program. Prereq: Admission to program in Administration and Supervision.

608 *Internship in Educational Administration and Supervision.* (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.) Prereq: Admission to program in Administration and Supervision.

628 *Field Studies in Educational Administration and Supervision.* (3) I, II
Study and evaluation of the major areas of school operation in actual field situations. Emphasis upon the synthesis of knowledge through surveying, evaluating and developing recommendations for the improvement of the school operation. Prereq: Consent of instructor.

629 *The Principal.* (3) I, S
An analysis of the building unit as a sub-system within a larger complex organization. Special emphasis on the changes in the role of the principal as a result of changes in society and in the schools. Prereq: Admission to Department program or consent of instructor.

633 *Administration and Supervision of Instructional Programs.* (3)
A study of the role of organizational leadership in the development of instructional goals, instructional programs, evaluation procedures and the procedures for educational changes.

634 *Administration of Educational Personnel.* (3)
Consideration of the motivation and management of educational personnel with special emphasis on the professional in complex organizations. Attention is given to the theory and practice of collective bargaining in education.

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.

639 *The Supervisor.* (3) II, S
A study of the role of the supervisor of instruction as part of administrative leadership in improving instructional programs with special emphasis on in-service education of staff. Prereq: Admission to program or consent of instructor.

768 *Residence Credit for the Master's Degree.* (0) I, II, S
May be repeated once. (One to six credits equivalence.) *Staff.*

769 *Residence Credit for the Doctoral Degree.* (0) I, II, S
May be repeated indefinitely. (One to 12 credits equivalence.) *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: Admission to program in Administration and Supervision. (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 in Educational Administration and Supervision.* (3) I, II, S

Critical examination of representative research studies in administration and related fields. Emphasis upon the students' defining and delimiting an appropriate problem in Educational Administration and Supervision, generating a design appropriate to the problem and selecting appropriate techniques of analysis. Prereq: Admission to program.

CURRICULUM & INSTRUCTION

FACULTY

Harry Barnard, chairman

Professors

James T. Moore	Ph.D., Stanford, 1949
Earl Rankin	Ph.D., Michigan, 1958
Denver Sloan	Ed.D., Kentucky, 1966

Associate Professors

Harry Bernard	Ed.D., Alabama, 1959
John Dettre	Ph.D., Ohio State, 1964
Jess Gardner	Ed.D., Kentucky, 1964
C. Leland Smith	Ed.D., Kentucky, 1962
Martha Sudduth	Ed.D., Indiana, 1962

Assistant Professors

Naomi Armstrong	M.M., Kentucky, 1967
Daniel Arnold	Ed.D., Tennessee, 1968
Ronald Atwood	Ed.D., Florida State, 1966
Olive Barrett	M.A., Kentucky, 1949
Charles Billings	Ph.D., Michigan, 1969
Ollie E. Bissmeyer, Jr.	Ed.D., Indiana, 1964
Alma Carl	M.A., Kentucky, 1953
Cornelius Hager	M.A., Kentucky, 1941
Herbert Heger	Ph.D., Ohio State, 1959
Ruth Haines	M.A., Columbia, 1931
Frank Howard	M.A., Eastern Kentucky, 1967
Sue Lail	Ed.D., Kentucky, 1965
Catherine Lytle	M.A., Kentucky, 1949
Fannie Miller	M.A., Kentucky, 1937
Vivian Moore	M.A., Kentucky, 1950
Nancy McClure	M.A., Kentucky, 1954
William Peters	Ph.D., Virginia, 1968
E. Leon Porter	Ed.D., Kentucky, 1960
Opal Reynolds	M.A., Kentucky, 1952
Virginia Rogers	Ph.D., Texas, 1968
Elizabeth Taylor	M.A., Kentucky, 1963
Barbara Tea	Ed.D., Kentucky, 1967
Sara Thomas	M.A., Kentucky, 1950
Ayleene Whitehead	M.A., Kentucky, 1961
Jane White	M.S.L.S., Kentucky, 1965

Instructors

Hyla Cartwright	Ed.S., Indiana, 1967
J. D. Gammell	M.A., Murray State, 1967
Dorothy Jones	M.A., Kentucky, 1953
Elsie Kennedy	M.A., Kentucky, 1957
Loris Points	M.A., Kentucky, 1968

Lecturer

Elmer Wagner	Ed.S., Indiana, 1964

The Department of Curriculum and Instruction has three basic undergraduate programs: One for elementary and kindergarten teachers, one for junior high school teachers, and one for senior high school teachers. In the senior high program subject area majors may be chosen in twenty-one fields. The department is responsible for the courses in methods of teaching each specific field and the supervision of laboratory experiences.

Master's degree programs in this department are designed to prepare specialists for teaching at the elementary, junior high and senior high levels. Doctoral programs prepare educational leaders who will assume roles as Curriculum and Instruction specialists in both public schools and institutions of higher learning. Graduate specialization areas are available in a wide-range of academic subject matter fields as well as in educational media and reading.

Course Descriptions

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.

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.

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.

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.

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.

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.

344 *Teaching in the Senior High School.* (2-4) I, II, S

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.

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 conference with the supervising teacher.

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.*

533 *Teaching Reading in the Secondary School.* (3)

A study of current methods and materials useful in teaching reading in secondary schools with particular emphasis on the improvement of reading in the content areas.

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 *Analysis and Correction of Reading Problems in the Classroom.* (3)

A study of current methods and materials useful in the analysis and treatment of reading problems in the classroom. Students will observe and participate in the diagnosis and treatment of corrective reading problems. Prereq: EDC 329 or 533.

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 *Utilization of Educational Media.* (3) I, II, S

Surveys the broad area of educational media with an emphasis on utilization and the advantages and disadvantages of the various media. Provides experience in relating educational technology to productive learning activity. (Same as LS 586.)

545 *Preparation of Instructional Materials.* (3) II

Develops a basic pattern for the preparation of a wide variety of instructional materials. Laboratory practice is provided for the production of materials for projected and non-projected use. Sources of free and inexpensive materials will be identified and evaluated. Lecture, two hours; lab, two hours.

546 *Introduction to Early Childhood Education.* (3) I, II, S

Survey of early childhood educational programs with emphasis on principles, purposes, values and contemporary problems. A study of current literature and research related to these aspects for developing programs for young children. Lecture, three hours. Prereq: Permission of instructor.

549 *Sociological Aspects of Mass Communication.* (3)

The relationship between the organization of modern society and its communication media: Special emphasis is given the way in which cultural processes and social change have an impact upon the mass media, and upon the way in which the mass media influence cultural processes and social change. The social-psychological bases of communication are studied within a context of theory and research. Prereq: Six hours of Sociology; SOC 101. (Same as SOC 549.)

552-557 *Modern Educational Problems.* (3 ea.)

A brief survey of some of the problems in modern education.

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.

600 *Workshop in Reading.* (1-3)
An intensive workshop dealing with materials and techniques in teaching reading. Study of new techniques, examination of materials; lectures by specialists. Class hours per week 1-3 weeks, 8 hours per day. May be repeated for a maximum of three hours. Prereq: Undergraduate degree.

606 *Instructional Television in the Classroom.* (3) I
Emphasizes the classroom utilization of instructional television. Includes the psychology of listening; problems of evaluation; the writing, producing, and scheduling of school telecasts; and the sources of telecasting for school use. Research studies in the area will be investigated. Three class hours per week.

607 *Programmed Instruction in the Classroom.* (3) II
Investigates aspects of programmed instruction in its various levels of complexity. Studies programmed books, "teaching machines", computerized instruction, and the systems approach to instruction. Emphasis is placed upon research in the area. Three class hours per week.

619 *Diagnosis of Reading Disabilities.* (3)
Clinical techniques for the diagnosis of reading disabilities. A course designed to develop both theoretical understandings and operational skills in clinical diagnosis of reading problems. Lecture, two hours, lab, two hours. Prereq: EDC 540 or permission of instructor.

620 *Reading Remediation.* (3)
Clinical techniques used in the remediation of reading problems. A course designed to develop individualized remedial procedures related to diagnosis. Lecture, two hours, lab, two hours. Prereq: EDC 619, or permission of instructor.

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: EDC 329; 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. Prereq: EDC 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. Prereq: EDC 541 and work in linguistics.

646 *Organizing Reading Programs.* (3)
Procedures in establishing and administering reading programs in elementary and secondary schools. Lecture, two hours; laboratory, two hours. Prereq: Nine hours of graduate reading courses.

680 *Internship in Teacher Education.* (6)
A required component of the special Five Year Program for elementary, junior high and senior high teachers, this course is an on-the-job laboratory experience in which a teacher with a Provisional Certificate works under the direct supervision of a coordinator from the Department of Curriculum and Instruction. May be repeated once to a maximum of 12 credits. Prereq: Graduate student; admission to a specially designed program in Teacher Education.

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.

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.

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 remedial work. Requires six hours per week in practicum with individual children or groups, plus two hours per week in seminar. May be repeated once to a maximum of six credits. Prereq: EDC 619 and 620.

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. (Same as MUS 742.)

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.* (3)
A historical survey of thought concerning the place and significance of music in the education of the individual and the group. (Same as MUS 744.)

745 *Administration of Educational Media Programs.* (3) I, II, S
Stresses the operation of educational media programs considering budgeting, training of personnel, duties of staff, sources of materials, and the purchase of equipment. Previews are made of many educational media and attention is given to the special needs of the Instructional Materials Center.

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.

747 *Seminar in Reading.* (3)
A seminar for advanced graduate students. Critical discussion of theory and research under investigation by graduate students and faculty. Prereq: Twelve hours of graduate reading courses. May be repeated once.

748 *Psychology of Reading.* (3)
A systematic examination of the psychological basis of the reading process. A study of psychological theory and research related to reading. Prereq: Twelve hours of graduate reading courses.

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.

757 *College and Adult Reading.* (3)
The study of the reading process as it pertains to college students and adults. Emphasis will be placed on principles and procedures for teaching reading to this age group. Prereq: Permission of instructor.

768 *Residence Credit for the Master's Degree.* (0) I, II, S
May be repeated once. (One to six credits equivalence.)

769 *Residence Credit for the Doctoral Degree.* (0) I, II, S
May be repeated indefinitely (One to 12 credits equivalence.)

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 EDC 712 or EDA 629. (May be repeated once to a maximum of 4 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 EDC 714; EDA 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.)

EDUCATIONAL PSYCHOLOGY & COUNSELING

FACULTY

James Barclay, chairman

Professors

James Barclay	Ph.D., Michigan, 1959
Lyman V. Ginger	Ed.D., Kentucky, 1950
Gordon Liddle	Ph.D., Chicago, 1959
Leslie L. Martin	Ph.D., Indiana, 1952

Associate Professors

Charles D. Auvenshine	Ph.D., Missouri, 1962
Joseph Finney	Ph.D., Stanford, 1959
Louis Karmel	Ph.D., North Carolina, 1961
Leonard Ravitz	Ed.D., Maryland, 1957
Timothy Smith	Ph.D., North Carolina, 1963
Carl D. Tatum	Ed.D., Maryland, 1956
Raymond A. Wilkie	Ph.D., Kentucky, 1960

Assistant Professors

John Anglin	Ed.D., Indiana, 1966
William Bramble	M.A., Chicago, 1968
Robert Harman	Ed.D., Nebraska, 1969
David Larimore	M.S., North Carolina, 1966
Bill Richardson	Ph.D., Iowa, 1969
David Santoro	Ph.D., Ohio State, 1969
William Stilwell	Ph.D., Stanford, 1969
Judith Worell	Ph.D., Ohio State, 1956

Instructor

Betty Murad	M.A., Kentucky, 1965

The Department of Educational Psychology and Counseling at the University of Kentucky is concerned with human learning in the educational process. This includes both the systematic study of human motor, social and cognitive behavior and the dissemination of a body of principles, techniques and strategies for evaluating and accelerating growth in personal and interpersonal skills.

Undergraduate emphases in the department center on basic understandings of the learning process through a consideration of human growth and development, alternate approaches to learning and classroom management techniques, and the acquisition of needed teacher skills in fostering a positive learning climate.

Graduate emphases in the department center on the development of skills in the counseling role, an understanding of methods and techniques of assessment of human skills, and the implementation of alternate strategies for curriculum or behavioral interventions. Specific areas of concentration include research design, statistics, testing, school psychology, and counseling.

Course Descriptions

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.

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.

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.

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.

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.

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.

659 *Advanced Educational Measurement.* (3) II, S

Theory and application in educational measurement with emphasis on the appropriate selection, administration, and interpretation of standardized tests used in educational assessment. Three class hours per week. Prereq: EDP 522 or equivalent.

660 *Research Design and Analysis in Education.* (3)

A study of the research methodologies applicable in the several aspects of education. Emphasis is on the design of research and analysis of accumulated data. Three class hours per week. Prereq: EDP 657.

664 *Studies 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. Two hours lecture; 3 hours, lab. Prereq: EDP 521.

665 *Practicum in Counseling Psychology.* (3) I, II, S

Supervised experience in application of diagnostic and interviewing techniques in a counseling service. (Same as PSY 665.) (May be repeated three times to a maximum of 12 credits.) *Staff.*

707 *Multivariate Analysis in Educational Research.* (3)

A study of several techniques for the analysis of educational outcomes utilizing multiple variables. Three class hours per week. Prereq: EDP 660 or equivalent.

739 *A Survey of Research in Human Development and Education.* (3) 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: Master's degree or by permission.

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. Concur: EDP 755.

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: EDP 755, 756.

761 *Supervised Practice in Counseling.* (3) I, II, S

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. (May be repeated twice to a maximum of 9 credits.) Prereq: EDP 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. Concur: PSY 641.

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 EDP 755 (or PSY 610) and approval of instructor. May be repeated once to a maximum of four credits.

768 *Residence Credit for the Master's Degrees.* (0) I, II, S

May be repeated once. (One to six credits equivalence.)

769 *Residence Credit for the Doctoral Degree.* (0) I, II, S

May be repeated indefinitely. (One to 12 credits equivalence.)

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 (EDP 761 or PSY 665), approval of adviser and staff.

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 EDP 522, 520 or 658. (May be repeated once to a maximum of 6 credits.)

HEALTH, PHYSICAL EDUCATION & RECREATION

FACULTY

Joseph J. Gruber, chairman

Professors

Joseph J. Gruber	Ph.D., Purdue, 1959
Charles W. Hackensmith	Ph.D., Ohio State, 1948
Ernst Jokl	M.D., Breslau, 1931
Earl Kauffman	Ed.D., New York University, 1949
Don Cash Seaton	Ed.D., New York University, 1947

Associate Professors

Maurice A. Clay	Ed.D., Kentucky, 1955
Pentti Teraslinna	Ph.D., Purdue, 1966

Assistant Professors

Eugene Huff	M.A., Tennessee, 1964
Ada Mary Jobert	M.A., Kentucky, 1959
Bernard M. Johnson	M.A., Kentucky, 1949
Don R. Kirkendall	Ph.D., Purdue, 1968
Judith McCall	B.A., Butler, 1964
Martha Peters	Ph.D., Illinois, 1969
Alfred M. Reece	P. E. D., Indiana, 1969
Abdelmonem Rizk	Ed.D., Kentucky, 1968
Phyllis Sandidge	H.S.D., Indiana, 1969
Sue C. Tussey	M.A., Tennessee, 1966

Instructors

Shirlee Mooney	B.A., Eastern Washington State, 1964
James Nance	M.A., Middle Tennessee State, 1965
Linda Scott	M.A., Eastern Kentucky, 1968
Peter Verhoven	M.S., Indiana, 1965

SERVICE COURSES (for Men and Women)

All students are encouraged to take two years of physical education for one hour credit of each semester successfully completed. They may choose from a large variety of activities including fitness classes, 18 different sports, the various dance forms and aquatics. (See Schedule of Classes for each semester.)

Some colleges require physical education for graduation and others grant credit for graduation. The student should consult with a physical education adviser regarding the requirement and types of activity best suited to his needs.

The 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 activities.

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 $2.00 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 and swimming pool of the Department during non-class periods. Students must furnish their own swim suits.

Although neither locker nor uniform is required in golf or bowling, students enrolling in these activities must pay small additional fees since the facilities are not available in the physical education department.

ACTIVITIES

(Practically all classes are co-educational.)

Aquatics
beginning swimming
diving
intermediate swimming
life saving—instructors (W.S.I.)
skin and scuba diving
synchronized swimming

Physical Fitness
figure improvement
weight training

Dance
ballroom
ballet
folk and square
modern

Equestrian
horseback riding
horsemanship
polo
dressage

Individual and Dual Sports
archery
badminton
bowling
fencing
golf
handball
judo
recreation and outing
tennis
wrestling

Team Sports
basketball
field hockey
soccer
softball
touch football
track and field
volleyball

Gymnastics
apparatus
trampoline
tumbling

SPECIAL PROGRAMS

A phase of the Office of Student Affairs' campus recreation programs is administration of special programs for men and women students and the Women's Athletics Association for women students. Through these programs and such organizations as the U.K. Troupers, Tau Sigma (Modern Dance), and Blue Marlin (Swim Club), numerous activities are being 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. The general requirements for physical education majors are the same as for all other students in the College of Education.

Course Descriptions

COURSES FOR MEN AND WOMEN

100-125 *Physical Education.* (1 ea.)
May be repeated for a maximum of six credits.

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.

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.

185 *Jumping (Horseback.)* (1)
Practice in jumping over different obstacles for show and hunting. Prereq: Horsemanship or consent of instructor.

191 *Modern Dance I.* (2)
An introduction to the basic techniques of creative dance. Emphasis upon the attainment of flexibility, strength, control and coordination. Movement exploration leading to a kinetic awareness will be stressed. Movement sequences leading to individual and group studies in initial compositional elements. Lab, four hours per week.

192 *Modern Dance II.* (2)
Advanced techniques for creative dance. Special emphasis on the development of movement themes as motivated by specific content. Lab, four hours per week. Prereq: HPR 191.

241 *Basketball Coaching Fundamentals.* (2) I
Theory and practice in coaching fundamentals involved in basketball. Four hours lab per week.

242 *Football Coaching Fundamentals.* (2) II
Theory and practice in coaching fundamentals of football.

243 *Track and Field Coaching Fundamentals.* (2) II
The theory and practice of coaching. Four hours lab per week.

244 *Baseball and Softball Coaching Fundamentals.* (2) II, S
Theory and practice in coaching fundamentals involved in baseball and softball. Six hours lab per week.

246 *Coaching Sports for Women.* (2)
Theories and practice in coaching fundamentals of women's sports including tennis, field hockey. Lecture, one hour per week; lab, two hours per week. Prereq: Skills competence and/or consent of instructor.

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.

286 *Equestrian Dressage.* (2)
The technique of training dressage. One hour lecture and two hours laboratory. Prereq: Horsemanship or consent of instructor.

290 *History and Philosophy 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.

291 *Folk Dance.* (2)
American and European Folk Dances will be studied with special attention to the Longways, Circles, Squares and Couple Dance Forms. The English Country Dances will be stressed as well as the Appalachian region traditional forms. Lecture, one hour per week; lab, two hours per week.

292 *Ethnic Dance.* (2)
A study of dance forms peculiar to varied cultures such as India, Japan, China, Africa, Spain, Greece, Indonesia. May be modified with special interests of students. Lecture, one hour per week; lab, two hours per week.

293 *Ballet I.* (2)
The basic techniques of traditional classic dance. A discipline toward precision of line. Included are barre exercises, port de bras, center practice in adagio, and jumping, beats and turns. Lecture, one hour per week; lab, two hours per week.

294 *Ballet II.* (2)
The basic technique of recognized classical dance. A discipline toward exactness and precision line. Included are barre exercises, port de bras, center practice in adagio and jumping, beats and turns. Lecture, one hour per week; lab, two hours. Prereq: HPR 293.

340 *Athletic Training.* (2)
Consideration is given to the prevention, treatment and rehabilitation of injuries. Films and other visuals, visiting physicians and team trainers will be used to supplement instruction. The student will have an opportunity to gain practical experience. Lecture, one hour; laboratory, three hours.

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.

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. Prereq: HPR 343 or consent of instructor.

355 *The Coaching of Swimming.* (2)

Theory and practice of coaching competitive events in swimming, springboard diving, and synchronized swimming. Also includes direction of championship meets, water shows, demonstrations, and experience in leadership responsibilities in these areas. Lecture, two hours per week; lab, two hours. Prereq: HPR 252 or consent of instructor.

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.

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.

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 credits in HPR or consent of instructor.

361, 362 *Field Experiences in Physical Education.* (1 ea.)

Supervised experiences in school, agency, and recreation department programs of sports and physical education. Required of all Juniors majoring in Physical Education. Includes field trip, inspection or programs and professional organizations. Prereq: HPR 150, 151, or equivalent experience and consent of field experiences director.

363 *Sports Activities in the Elementary School.* (2)

Philosophy and practice in directing and teaching sports activities in the elementary school. Lecture, one hour per week; lab, two hours per week. Prereq: HPR 360, or consent of instructor.

386 *Applied Dressage.* (1)

The principles and practice of dressage movements in training for position and collection. Two hours lab. Prereq: HPR 286.

388 *Equitation Teaching.* (3)

The techniques of horsmanship and methods of instruction. Two hours lecture and two hours lab. Prereq: Horsemanship and ASC 202.

390 *Dance Activities in the Elementary School.* (2)

Designed for teachers of elementary children to give depth in significant phases of physical education of the elementary child. Special emphasis is given to acquisition of skills and understandings of the total dance program. Lecture, one hour per week; lab, two hours per week. Prereq: HPR 360 or consent of instructor.

391 *Theater Dance I.* (2)

Theory and practice of techniques for dance evolving from primitive Jazz and The Blues. Lecture, one hour per week; lab, two hours per week. Prereq: HPR 191, 192.

392 *Theater Dance II.* (2)

Dance techniques from modern Jazz, dance for television, musical comedy and stage plays. Lecture, one hour per week; lab, two hours per week. Prereq: HPR 391.

393 *Rhythmical Forms and Analysis.* (3)

A study of rhythmical forms of movement with an analysis of music and other forms of accompaniment media. Lecture, three hours per week. Prereq: HPR 191, 192.

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.

482 *Administration of Intramural Activities.* (2)

To teach the conduct of sports related programs such as intramurals, extramurals, sports clubs and comparable activities: lecture, recitation, and practice in methods of organizing and administering intramurals and other activities. Three class hours per week. Lecture, one hour per week; lab, two hours.

486 *Advanced Dressage.* (2)

Advanced techniques in equestrian dressage leading up to the fundamentals of haute l'ecole (high school) riding. One hour lecture, two hours lab. Prereq: HPR 386.

491 *Dance in Education.* (3) 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. Prereq: PGY 206, HPR 572, and a beginning course in dance, or consent of instructor.

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 or equivalent, and consent of instructor.

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. Prereq: HPR 344 or equivalent.

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: HPR 141 or consent of instructor.

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. Prereq: HPR 142 or consent of instructor.

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.

546 *Physical Education Workshop.* (2)

A concentrated study in a specific sport or activity or field of emphasis in physical education. May be repeated for a maximum of six credits. Lecture, one hour per week; lab, two hours per week.

547 *Psychology of Sport and Physical Activity.* (3)

Prerequisite: Undergraduate Psychology course and accompanied by basic statistics. Lecture, three hours per week.

572 *Kinesiology and Its Application.* (3) 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.

579 *Adapted Physical Education.* (3)

A study of programs of physical education for atypical students, with emphasis upon specific postural faults and other abnormalities commonly found in a school population. To include training and experience in procedures, adapting the physical education program to accommodate these students. Lecture, two hours per week; lab, two hours per week. Prereq: HPR 343, PE 572.

592 *Choreography for Groups.* (2)
The building of dances for groups in Ballet, Modern, and Theater dance forms. Lecture, one hour per week; lab, two hours per week. Prereq: HPR 491.

593 *Dance Production.* (3)
A consideration of the problems of the dance production for audience appreciation. Theory and practical experience in costuming, building scenery, lighting, and make-up. Financial and publicity aspects will be studied. Lecture, two hours per week; lab, four hours per week. Prereq: HPR 191, 192, 291, 292, 390, 391, 392, 393, 592.

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.

645 *Advanced Measurement and Evaluation in Health, Physical Education and Recreation.* (3) I
Procedures in developing criteria for the validation of tests in health, physical education, and recreation. Laboratory experiences in the administration of tests of metabolic function, biomechanics, motor performance, and health and safety knowledge. Two class hours, two lab hours per week. Must be accompanied or preceded by basic statistics and introduction to tests and measures. *Gruber.*

646 *Integrated Development.* (3) II
An analysis of the literature in the area of integrated development. Emphasis on development of skills in the use of research techniques, materials and resources in investigating potential problems in this area in depth. Three class hours per week. Prereq: HPR 546 and 643. *Gruber, Kirkendall.*

650 *Curriculum and Program Development.* (3) I, S (even years)
A study of fundamental principles basic to the development of the over-all curriculum in phsyical education with special emphasis upon the proper selection and organization of physical education activities to meet the educational and recreational needs of all students. Prereq: HPR 343, 344, 540.

651 *Facilities, Construction, and Equipment.* (2) S
Principles and standards for maintaining facilities, and planning construction; purchase and care of equipment. Prereq: HPR 540.

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: HPR 580 or consent of instructor.

690 *Organization and Administration of Dance in Education.* (3) II, S (odd years)
Special emphasis is 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: HPR 290, 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.

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.

768 *Residence Credit for Master's Degree.* (0)
(One to six credits equivalence.)

770 *Seminar.* (2) I, II, S
A review of current literature in the field. Guidance in thesis writing. Two hours 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. Prereq: HPR 583 or 545 or SOC 581.

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.

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.

RECREATION

170 *Introduction to Recreation Services.* (3)
Designed to give the student an understanding of the principles and practices by which recreation agencies function, and acquaint him with the foundation upon which the profession is built. Lecture, three hours per week.

272 *Recreational Interpretation of Nature.* (3)
A course designed to prepare leaders to teach others how to study and interpret nature. Some of the topics to be studied are: reading and landscape, the ecology of an area, the interrelatedness of nature and conservation of an area. Lecture, one hour per week; lab, four hours per week.

273 *Family Camping Workshop.* (2)
Principles of initiating, developing and carrying out camping trips by families. Includes review of sites, equipment, regulations and agencies providing services. This course to be offered in the summer to operators of camping facilities, families and individuals planning camping vacations. Lecture, one hour per week; lab, two hours.

275 *Recreation Program: Art, Dance, and Music.* (2)
Principles, practices, and teaching techniques for program development through the media of Art, Dance, and Music will be studied. Students will actively participate in planned programs in Art, Dance, and Music.

276 *Recreation Program: Nature Study and Dramatics.* (2)
Principles, practices, and teaching techniques for program development through the media of informal dramatics, puppetry, choral reading, etc., and nature will be studied. Students will actively participate in planned programs in the areas of drama and nature.

277 *Recreation Program: Informal Sports and Games.* (2)
Principles, practices, and teaching techniques for program development through informal sports and games will be studied and their contribution to goals and objectives of the recreation program. Students will actively participate in planned programs of informal sports and games for all ages for any seasons.

370 *Fundamentals of Camping.* (2)
An introduction to camping as an educational program. Qualifying for the American Camping Association's Camp Crafts Award is required.

377 *Practicum in Recreation.* (3-9)
This is similar to the course for practice teaching in the academic field. The same number of hours will be required for Recreation majors as for student teachers. This course is the practical application of the principles of the philosophy of recreation, and the skills necessary to perform management, supervisory or leadership roles in Recreation. Lecture 9 to 36 hours per week. Prereq: For Recreation Majors only. To be concurrent with HPR 576.

379 *Field Studies in Recreation.* (2)
This course provides opportunities to study the objectives, programs and methods of agencies providing recreation services. Supervised observations will be supplemented by short-term volunteer service in several agencies. May be repeated once. Lecture, one hour per week; lab, two hours per week.

471 *Outdoor Education Through Camping.* (2)
The theory and practice of the use of camping as an adjunct to the classroom in achieving educational objectives. Prereq: HPR 281 or consent of instructor.

570 *Space and Structures for Recreation.* (3)
A survey of standards, legislation regulations, finances for facilities and equipment for recreation. Space and structures required to meet program objectives will be studied. Lecture, three hours per week.

571 *Therapeutic Recreation.* (4)
A study of the principles and practices involved in recreation in a hospital or institutional setting. This would include types of therapeutic situations, program planning, financing of program opportunities, execution and evaluation. Lecture, three hours per week; lab, two hours per week.

573 *Administration and Organization of Recreation.* (3) II, S
This course is designed to equip students and community leaders with procedures for developing and operating recreation programs in communities of various sizes and with varying political and social structures.

574 *Principles of Camp Counseling.* (2)
A study of the roles of the camp staff in relation to the growth and development of the camper, including normal and handicapped children, adults, and older persons. Lecture, one hour per week; lab, two hours per week. Prereq: HPR 370.

575 *Interpretations of Leisure and Recreation.* (3)
Designed to provide students interested in recreation as a profession, as an adjunct to other work, or as informed citizens with a basic understanding of the significance of leisure and the objectives of recreation.

576 *Problems of Leadership in Recreation.* (3)
This is similar to the seminar used for students doing practice teaching. The principles of leaders will be analyzed and applied to the functions of recreation leaders. Emphasis will be placed on techniques of communication and decision making as applied to leisure situations. Lecture, three hours per week. Prereq: HPR 170, HPR 380 *or* HPR 381 *or* HPR 382, and HPR 583. (Concurrent with HPR 377.) For REC Majors only.

578 *Seminar in Recreation.* (3)
May be repeated once.

HEALTH AND SAFETY

130 *First Aid and Emergency Care.* (2)
A study of first aid subject matter and orientation in the various first aid teaching methods. Lectures and demonstrations on first aid measures with skill training. American Red Cross Certificate made available. Lecture, one hour per week; lab, two hours per week.

307 *Introduction to Safety Education.* (2)
The history and philosophy of the accident prevention movement designed to acquaint the student with the underlying factors and theories of accident correction and prevention. Special emphasis is given to the administration and supervision of physical education, athletic, and recreation programs. Lecture, two hours per week.

330 *School Health Education.* (3)
A study of personal health problems with emphasis upon student-teacher relationships. Lecture, three hours per week.

430 *Methods of Teaching Health Education.* (3)
Basic organization and planning of elementary and secondary school health and safety programs for the classroom teacher. Major emphasis on curriculum development and teaching techniques. Three class hours per week. Prereq: HPR 330.

507 *Driver and Traffic Safety Education.* (3)
Analysis of traffic accidents, attitude factors, essential knowledge of automobile operation and traffic laws and regulations. Laboratory experience is devoted to improvement of the students' driving skill and an understanding of how to structure laboratory lessons in the dual control automobile.

509 *Workshop in Health and Safety.* (2)
Designed as a short course in current aspects of school health or safety education with emphasis upon the needs of teachers. Lecture, two hours per week.

530 *Administration of Health and Safety Education.* (3)
Consideration is given to the administration, organization and function of the total school health and safety program. Textbook evaluations and materials suitable for school health and safety instruction will be stressed. The role of school in public health will be defined. Lecture, three hours per week.

609 *Seminar in Health and Safety Education.* (3)
Overview of the problems confronting persons in these fields and selected research findings applicable to these areas. Emphasis is given to gaining a better understanding of research data and to a greater utilization of research findings in both school and community health and safety endeavors. Prereq: HPR 508, or 530.

HIGHER & ADULT EDUCATION

FACULTY

Collins Burnett, chairman

Professors

A. D. Albright	Ph.D., New York University, 1950
Lawrence Allen	Ph.D., Chicago, 1961
Collins Burnett	Ph.D., Ohio State, 1948
Morris Cierley	Ed.D., Illinois, 1953
George W. Denemark	Ed.D., Illinois, 1956
Charles Elton	Ph.D., Ohio State, 1951
Ellis Hartford	Ed.D., Harvard, 1942
Leslie Martin	Ph.D., Indiana, 1952
Doris Seward	Ph.D., Syracuse, 1953

Assistant Professor

Edgar L. Sagan	Ph.D., Ohio State, 1969

These programs which are at the graduate level only are designed for those students who are planning careers in college and university administration and the general field of adult education. Both two-year and four-year institutions serve as laboratories.

Due to the fact that these graduate programs do not involve certification, they are available to qualified students with backgrounds in the various university disciplines. Three types of clients are served:

(1) Those who want a concentration in Higher Education (including Adult Education) with a minor area, for example, in English, history or psychology.

(2) Those who want a minor area in Higher Education with a major in one of the university disciplines.

(3) Those who want to complement their disciplines by scheduling one or more courses in college teaching, college administration, the junior college, or college student personnel.

Course Descriptions

99 *Orientation Seminar for Graduate Students.* (0)
An orientation course for students who are entering the Graduate School for the first time.

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 all phases of instruction at the college level. The course will include methods and principles of teaching, utilization of materials in teaching, a consideration of the teaching-learning process as it relates to the individual student, and the evaluation of student progress. A comprehensive course for prospective college teachers.

722 *College Student Personnel.* (3)
A study of college student behavior, relationship of student personnel to total college program, organization and administration, evaluation, and research of college student personnel. Lecture, two hours; lab, three hours.

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 and Admission Officers. (May be repeated once to a maximum of 6 credits.)

734 *The Junior College.* (3)
History, philosophy, programs, and teaching-learning climate at the junior college; patterns of control and support; a consideration of the private as well as the community junior college.

768 *Residence Credit for the Master's Degrees.* (0) I, II, S
May be repeated once. (One to six credits equivalence.)

769 *Residence Credit for the Doctoral Degree.* (0) I, II, S
May be repeated indefinitely. (One to 12 credits equivalence.)

798 *Seminar in Higher Education.* (3)
A critical study of selected problems in higher education. The seminar topic will be varied from one semester to another. Prereq: EDH 718 and 733.

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.)

SOCIAL & PHILOSOPHICAL STUDIES IN EDUCATION

FACULTY

David E. Denton, acting chairman

Associate Professors

David E. Denton	Ed.D., Tennessee, 1963
Willis Griffin	Ed.D., Columbia, 1952

Assistant Professors

Clinton Collins	B.S., Wisconsin, 1955
Charles Martin	Ed.D., Kentucky, 1967
Fritz Mengert	Ph.D., Ohio State, 1969

The faculty of the department is engaged in the systematic analysis and interpretation of education, using appropriate knowledge and methodologies of the humanities and social sciences, directed to: (1) the development of teachers and researchers with special competencies in social and philosophical studies; (2) assistance in the preparation of educational personnel; (3) contributions of research based on special competence of this faculty; (4) change and improvement in education through active participation in redirection and reform. The Department seeks to develop certain competencies which assist the student in approaching education more rationally, critically, responsibly—and enthusiastically. These competencies are directed toward the problem of education and society based on knowledge and methods of inquiry and upon understanding that competence is not necessarily defined in terms of conventional course structure.

The department regards learning to think critically as the most important form of learning, serving to energize interest in continual learning.

Undergraduate students may expect to learn the above competencies through an interdisciplinary analysis of education based on certain questions regarding man, value, knowledge, and society.

Graduate students may expect to develop special competence through college course offerings, independent studies, and other experiences in the following areas: sociological studies, philosophical studies, historical studies, international and comparative studies, and educational change.

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.

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. (Offered only in the Community College System.)

301 *Education in American Culture.* (3)
An introduction to education based on the analysis of certain questions regarding society, man, knowledge and values.

317 *History of Education.* (3)
(Correspondence only)
A survey of historical foundations of education to and in modern times.

395 *Independent Work for Students in Education.* (3)
An independent study course open only to undergraduate students in the Honors Program. May be repeated once for a total of 6 hours.

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.) Prereq: SOC 101.

533 *Introduction to the Philosophic Study of Education.* (3)
An introduction to the philosophic analysis of major concepts in education. The course is designed primarily as an elective for students in teacher-education and students in other colleges. Does not apply toward teacher certification. Prereq: Junior or senior status, not on academic probation.

599 *International Studies in American Education.* (3)
Place and purpose of study of other cultures, world problems and relations between nations, in American schools, colleges and universities. Implications of this study for curriculum planning, teaching, and administration of schools, colleges, and universities, and organization of intercultural experiences.

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 education. (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.)

646 *Analysis of Thinking.* (3)
An interdisciplinary analysis of thinking, the central process of education. Topics studied include psychological, logical and semantic aspects of thought. Prereq: EDP 548 and EDF 640, or permission of instructor.

650 *History of Western Education.* (3)
A study of the development of the "institution" of education in relation to social and political reality, ideas, and ideals of successive periods in Western culture.

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 *Education in Other Nations.* (3) II
Analytical and comparative study of contemporary education in selected countries, with emphasis on the historical development and total cultural context of educational programs. Informal as well as formal agencies and programs will be studied with particular attention to recent reforms and innovations.

656 *International Development Education.* (3)
Critical study of the role of education in the social, cultural, political and economic development of countries in Asia, Latin America, and Africa with particular emphasis on interdisciplinary-interprofessional planning. Problems of change in education and international cooperation for educational development.

661 *Educational Sociology.* (3) II, S
A course in sociological foundations of education. Prereq: SOC 101. (Same as SOC 661.)

662 *Analysis of Educational Change.* (3)
The history, nature, processes, and problems related to educational change, drawing upon the literature in several disciplines.

663 *Field Research in Educational Change.* (3)
A field study of a particular problem relating to educational change will be made, using appropriate conceptual strategies and procedures. Prereq: EDF 662.

724 *Epistemological Problems in Education.* (3)
A study of knowledge and inquiry as they relate to problems of formulating educational policy and curriculum design. Prereq: EDF 640.

725 *Analysis of Value Questions in Education.* (3)
A study of the nature of value as it relates to formulating and justifying aims and policies, curriculum design and the teaching-learning process. Materials in ethics, value theory, and aesthetics are used in the appraisal of educational theory. Prereq: EDF 640 or equivalent.

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 EDF 661 or equivalent; SOC 101. (Same as SOC 750.)

768 *Residence Credit for the Master's Degrees.* (0) I, II, S
May be repeated once. (One to six credits equivalence.)

769 *Residence Credit for the Doctoral Degree.* (0) I, II, S
May be repeated indefinitely. (One to 12 credits equivalence.)

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.

785 *Independent Study in Social and Philosophical Problems in Education.* (3)
This course will allow advanced students to study, in depth, individualized problems and issues related to social and philosophical foundations. May be repeated to a maximum of nine hours. Prereq: EDF 661 or its equivalent.

SPECIAL EDUCATION

FACULTY

A. Edward Blackhurst, acting chairman

Professor

Charles F. Diehl	Ph.D., Penn State, 1949

Associate Professors

A. Edward Blackhurst	Ph.D., Pittsburgh, 1966
Marvin Gold (vis.)	Ph.D., Peabody, 1963
Albert S. Levy	Ed.D., Portia, 1953

Assistant Professors

Jo Ann Berryman	M.A., Kentucky, 1963
Julian Cohen	M.A., Kentucky, 1961
Donald Cross	Ed.D., Kansas, 1967
Charles Nelson	Ed.D., Kansas, 1969
Beverly Stanley	M.A., Kentucky, 1959
James Tawney	Ph.D., Illinois, 1969
John Tringo	Ph.D., Connecticut, 1969
Robert Valyo	Ph.D., Case Western Reserve, 1969
Judith Worell	Ph.D., Ohio State, 1956

The Department of Special Education is vitally concerned with meeting the critical need for well prepared Special Education teachers in the United States. Particular emphasis is directed toward meeting the need of the Commonwealth of Kentucky.

The undergraduate program prepares teachers of (1) the mentally retarded, (2) the orthopedically and neurologically impaired, (3) speech and hearing correctionists. The graduate program includes the preparation of teachers of the emotionally disturbed and speech pathologists and audiologists.

The Department regards Special Education teacher preparation programs as being an integral part of the total structure of American elementary and secondary education. Specific curricular objectives, however, are geared toward the particular educational needs of handicapped children.

Course Descriptions

285 *Applied Phonetics.* (3)
Study of the phonetic structure of the English language with requirement of mastery of international Phonetic Alphabet. Emphasis will be placed on phonetic transcription, and application will be made for students interested in general speech, speech correction, radio, television, and theatre. (Same as SP 285.)

335 *Methods and Materials for Speech Evaluation and Therapy.* (3) II
Procedures of examination for articulation and voice disorder; interviewing for information; therapy materials for children and adults. Prereq: Speech Pathology: A Survey.

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.

500 *Speech Analysis and Perception.* (3) I
Physics of sound; acoustic and structural properties of speech and their relationship to speech perception; analysis of speech intensity, fundamental frequency, wave composition, and time (rate, duration, and transitional change). (Same as SP 500.)

501 *Speech and Language Development.* (3) II
The normative aspects of speech and language acquisition; application of linguistic and learning theory concepts; communication in lower animals; language and cognition.

505 *Education of the Trainable Mentally Retarded.* (3) II, S
A study of modern classroom techniques for working with the trainable, or severely mentally retarded. Private and public day and residential school programs are considered. Attention is given to educational significance of multiple disabilities of retarded children.

525 *Education of the Orthopedically and Neurologically Handicapped.* (3)
A study of educational techniques, materials, and equipment used in teaching crippled, brain-injured and chronically ill children. Curriculum for both classroom and individual clinical teaching is included.

526 *Education of the Educable Mentally Retarded.* (3)
A study of modern classroom techniques for working with the educable, or mildly mentally retarded. Major emphasis is on curriculum development and teaching techniques.

527 *Survey of Physical and Neurological Defects.* (3)
A survey of causes, treatment, and educational implications of physical and neurological disabilities in school age children. Attention given to rehabilitation and life adjustment problems of individuals with single and multiple handicaps.

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.

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.

570 *Characteristics of Emotionally Disturbed Children.* (3)
The problems of emotionally disturbed school children are considered in the context of normal child development with emphasis on psychological factors correlated with behavior deviations. A survey of the major diagnostic categories include identification, description, and etiology, with material drawn from clinical, theoretical and research sources. Approaches to remediation cover both community resources and the roles of various professional personnel. Lecture, two hours, laboratory, two hours. Prereq: EDS 375, or permission of instructor.

577 *Speech Pathology: A Survey.* (3) I, S
An introduction to the nature, causes, and treatment of the major disorders of speech: articulation, voice, cleft palate, hearing, cerebral palsy and aphasia.

578 *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: EDS 577.

579 *Stuttering.* (3) II
The nature, causes, and treatment of stuttering, with emphasis on therapeutic procedures. Prereq: EDS 577. (Same as PSY 579.)

583 *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: EDS 577.

584 *Introduction to Clinical Audiology.* (3) I
Topics covered are the auditory stimulus, air and bone conduction thresholds, masking, speech audiometry and auditory rehabilitation. Prereq: EDS 577.

587 *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: EDS 577 or consent of instructor.

591 *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: EDS 584.

592 *Introduction to Hearing Disorders.* (3) I
Types of hearing loss. Classification of organic hearing disorders. Nonorganic hearing disorders. Psychological effects of impaired hearing. Differential diagnosis. Prereq: EDS 584.

601 *Behavioral Management of Exceptional Children.* (3)
Principles of behavioral management are reviewed. Techniques of observation, recording, and implementation of management programs with exceptional children are stressed through case work with individuals and groups of children. Lecture, two hours; lab, two hours. Prereq: Consent of instructor.

610 *Educational Evaluation of Exceptional Children.* (3) I
An intensive study of, and laboratory experience in, the assessment of educational problems of exceptional children. Special emphasis is given to the relationship of physical, intellectual, emotional and social handicaps to performance in the individual or group setting. Class hours per week, 2; lab hours per week, 2. Prereq: EDP 522 and consent of instructor.

611 *Educational Remediation of Learning Disabilities of Exceptional Children.* (3) II
The study of, and laboratory experience in, the remediation of educational problems of exceptional children. Attention is given to the amelioration of learning disabilities in individual cases. Class hours per week, 2; lab hours per week, 2. Prereq: EDS 610 or consent of instructor.

613 *Articulation and Articulation Disorders.* (3) II
Research and clinical findings on articulation and articulation disorders. Topics include articulation testing and prediction, variables related to articulation performance and articulation programming (therapy).

614 *Voice and Voice Disorders.* (3) I
Research on voice and voice disorders. Topics include a review of voice physiology and organic and functional voice disorders.

617 *Cleft Palate and Cerebral Palsy.* (3) I
Description, assessment and interdisciplinary management of organic speech disorders, particularly those associated with orofacial anomalies and dysarthria. Review of relevant research.

627 *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: EDS 577, 578. May be repeated once.

647 *Disorders of Language.* (3) II
Emphasis on adult aphasia and developmental language disabilities, theories, research findings, assessment procedures, and therapy approaches. (Same as PSY 647).

671 *Education of Emotionally Disturbed Children.* (3)
A study of educational techniques, materials, and equipment used in teaching emotionally disturbed children. Curriculum for both classroom and individual clinical teaching is included. Lecture, two hours; laboratory, two hours. Prereq: EDS 570.

672 *Theories of Educating Emotionally Disturbed Children.* (3)
A systematic review of various teaching philosophies related to the education of emotionally disturbed children. Observation and participation in educational settings reflecting these philosophies will be provided. Lecture, two hours; laboratory, two hours. Prereq: Consent of instructor.

702 *Seminar in Speech Pathology.* (3)
Advanced coverage of the clinical and research literature on the etiology, description, assessment, and management of specific speech and language disabilities. The semester topic will be rotated. Topics will include stuttering, developmental language disabilities, cleft palate, cerebral palsy, etc. May be repeated twice for a maximum of 9 hours.

768 *Residence Credit for the Master's Degrees.* (0) I, II, S
May be repeated once. (One to six credits equivalence.)

769 *Residence Credit for the Doctoral Degree.* (0) I, II, S
May be repeated indefinitely. (One to 12 credits equivalence.)

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 the exceptional child.

VOCATIONAL EDUCATION

FACULTY

Harold R. Binkley, chairman

Professors

Harold R. Binkley	Ed.D., Kentucky, 1955
Carl F. Lamar	Ph.D., Kentucky, 1956
Vernon Armor Musselman	Ed.D., Oklahoma, 1946

Associate Professors

Walter Maurice Baker	M.A., Kentucky, 1931
Herbert H. Bruce, Jr.	Ed.D., Kentucky, 1965
Floyd Cox	M.S., Kentucky, 1942
Leonard C. McDowell	Ed.D., Kentucky, 1964
Curtis Phipps	Ed.D., Kentucky, 1955

Assistant Professors

Robert Driska	Ed.D., Arizona, 1967
Steve Gyuro	Ph.D., Ohio State, 1969
Inez H. Hill	M.S., Kentucky, 1952
Margaret Bell Humphreys	M.S., Kentucky, 1943
Evangeline S. Kelsay	M.A., Kentucky, 1948
Alfred Mannebach	Ed.D., Illinois, 1969
Floyd McKinney	Ed.D., Michigan, 1969
David C. McMurtry	Ed.D., Indiana, 1966
Clayton Omvig	Ph.D., Iowa State, 1968
Devert Owens	M.S., Kentucky, 1958
Clayton Riley	M.S., Murray, 1967
Marjorie Stewart	Ph.D., Ohio State, 1968
Helene Zimmerman	Ph.D., North Dakota, 1969

Instructors

Charles Byers	M.S., Kentucky, 1966
LeRoy Cantrel	M.A., Kentucky, 1967
Wilson Collins	M.S., Kentucky, 1966
Bernard T. Fagan	Ed.S., Kentucky, 1960
Anne Hayes	M.S., Kentucky, 1969
Joy Hill	B.A., Southwestern College, 1952
Lela Hullette (on leave)	M.A., Kentucky, 1954
William Jeffrey	M.A., Kentucky, 1968
Jack McElroy	M.A., Western Michigan, 1966
Kenneth Noah (vis.)	M.A., Kentucky, 1969
Ralph O'Brien	M.Ed., Kent State, 1960
Judith Parsley	M.A., Eastern Kentucky, 1967
Robert Spillman (vis.)	M.S., Kentucky, 1969
Doyle Stewart	M.S., Kansas State, 1964
Billy Vice	M.A., Kentucky, 1964

The Federal Vocational Education Act provides for the education of teachers of agriculture, business, distributive, home economics, trades and industry, and emerging occupations and the preparation of coordinators and directors of local and area programs of vocational education. The Department of Vocational Education provides teacher education programs in all service areas of vocational education. In addition, the department offers graduate programs at the Master's, Specialist and Doctoral levels.

Course Descriptions

AGRICULTURAL EDUCATION

580 *Teaching Vocational Agriculture.* (15) I, II
Preparation for teaching of agriculture. About one-half of the course is practice. *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. *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.) *Binkley and Lamar.*

585 *Farm Practice Supervision.* (1) I, II, S
Practice and directed study in supervising farming programs in vocational agriculture.

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.

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.)

677 *Advanced Problems in Agricultural Education.* (3) I, II, S
Specific problems selected according to the needs of the individual. *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.*

795 *Research Problems in Agricultural Education.* (3) I, II, S
A continuation of EDV 794. (May be repeated twice to a maximum of 9 credits.) *Staff.*

BUSINESS EDUCATION

511 *Teaching Secretarial Subjects.* (3) II, S
A study of effective teaching in shorthand, transcription, business communication, and secretarial office practice.

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 Typewriting and Clerical Practice.* (3) I, II, S
A study of effective teaching in typewriting and clerical office practice including the machines commonly used in business offices.

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 Business 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.*

BUSINESS AND OFFICE EDUCATION

(BOE is the abbreviation for these courses.)

112 *Theory and Principles of Shorthand.* (3)
A study of the theory and principles of shorthand (Gregg) with emphasis upon development in reading, in writing, and in establishing basic foundations for transcription. Credit for this course will be validated upon completion of BOE 113. Prereq. or concur: ENG 101.

113 *Intermediate Shorthand and Transcription.* (3)
A continuation of the study of theory and principles of shorthand; development of dictation and transcription, with introduction of associated secretarial procedures and personnel relationships. Prereq: BOE 112, 117 or their equivalents.

117 *Typewriting.* (3)
Principles and techniques of typewriting are integrated with a thorough study of form, style, and arrangement of typewritten materials. Prereq. or concurrent: ENG 101.

118 *Advanced Typewriting.* (3)
A study of advanced principles and techniques of typewriting with emphasis upon planning and organizing a wide range of business communications media and upon meeting production standards essential to the operation of modern offices. Prereq: BOE 117 or its equivalent.

209 *Secretarial Applications of Accounting.* (4)
A study of accounting systems for the professions, small businesses, and institutions in which the secretary is responsible for the financial records, with special application and practice sets. Prereq: Consent of instructor.

214 *Secretarial Procedures.* (3)
Further development of dictation and transcription proficiency with increasing emphasis upon a wide range of secretarial responsibilities and human relations. Open to freshmen with prerequisites. Prereq: BOE 113, 118 or their equivalents.

215 *Advanced Secretarial Procedures.* (3)
Development of high-level secretarial proficiency with special attention to the refinements of business communications and to the solution of office problems. Prereq: BOE 214 or its equivalent. Open to freshmen with prerequisites.

219 *Office Machines.* (3)
A study of office machines processes, application, and integration and administration of office services. Prereq: BOE 117 or equivalent.

301 *Office Internship.* (1)
Laboratory and office experience for advanced students in business and office education. Prereq: BOE 215 or consent of instructor.

302 *Office Internship.* (1)
Laboratory and office experience for advanced students in business and office education. Prereq: BOE 215 or consent of instructor.

303 *Office Internship.* (1)
Laboratory and office experience for advanced students in business and office education. Prereq: BOE 215 or consent of instructor.

395 *Individual Work in Business and Office Education.* (1-6)
Individually supervised study in one or more specialized topics or problems in business and office education not covered in regular courses. Independently designed projects may also be selected. Open to seniors in business education. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

445 *Office Administration and Services.* (3)
A study of the theory, principles, and techniques of modern office administration and services with emphasis on data processing systems and information handling.

519 *Records Management.* (3)
The underlying principles and procedures of records management; information storage and retrieval systems; integration and control of records systems and programs. Lecture, three class hours per week. Prereq: BOE 219, or consent of instructor.

556 *Business Research Reports.* (3)
Current problems in selected interest areas investigated by various research procedures with major emphasis placed upon sources of data, compilation and arrangement of data, documentation, bibliography, and effective presentation. Prereq: BOE 117 or its equivalent.

DISTRIBUTIVE EDUCATION

515 *Problems in Distributive Education.* (2) 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. (May be repeated to a maximum of 6 credits.)

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 4 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: EDV 586.

586 *Technique of Teaching Home Economics.* (3) I, II
A study of methods of teaching as applied to home economics. Prereq: TC 227, HID 261; EDP 202.

588 *Adult Education in Home Economics.* (3) I, II, S
Problems in teaching vocational homemaking in day, part-time, and evening schools. Prereq: EDV 586; Concur: EDV 362.

590 *Problems in Home Economics Education.* (3) S
Problems in teaching home economics for high school students and adults. (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: EDV 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: EDV 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. Prereq: Teaching experience.

687 *Home Economics Supervision.* (3) I, S
A course planned primarily to help prepare teacher-trainers and supervisors of home economics education. Prereq: EDV 586 and 362; experience in teaching; approval of instructor.

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: EDV 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.* (3-12) 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.)

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

210 *Introduction to Vocational Education.* (2-3)
The history, status, philosophy, and objectives of vocational education in relation to general education.

523 *Vocational Guidance.* (2-3) I, II, S
A study of the philosophy of guidance, aims and purposes of vocational guidance, individual student inventory (as revealed by tests, surveys, records, case studies, interviews, and observations), and counseling techniques. Emphasis is given to securing and using occupational information, student guidance, placement, evaluation of occupational performance, and organizing and administering vocational guidance programs.

670 *Method in Teaching Vocational Education.* (3) I, II, S
The principles of method applied to teaching in the field of vocational education. Prereq: Experience in teaching vocational education.

693 *Supervision in Vocational Education.* (3) I, II, S
This course includes practice in teaching for observation by others, student teaching, and school visiting. Prereq: Two years of teaching experience and EDV 687.

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.

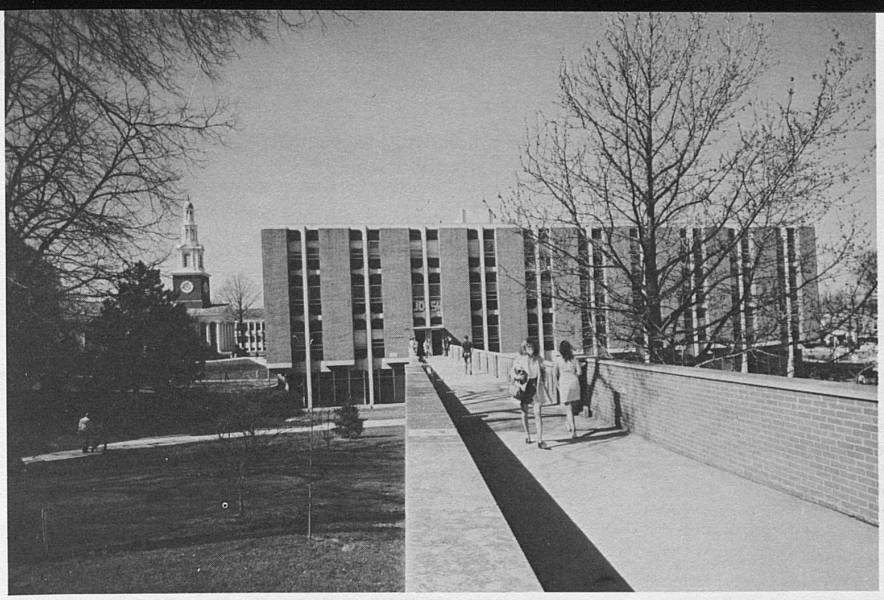
695 *Special Problems in Vocational Education.* (3) I, II, S
An independent work course for students interested in vocational education. Students make individual investigations and report on special problems. *Hammonds and Staff.*

768 *Residence Credit for the Master's Degrees.* (0) I, II, S
May be repeated once. (One to six credits equivalence.)

769 *Residence Credit for the Doctoral Degree.* (0) I, II, S
May be repeated indefinitely. (One to 12 credits equivalence.)

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.)

794 *Research in Vocational Education.* (3) I, II, S
Individual problems of importance to vocational education.



Business & Economics

Charles F. Haywood, Ph.D., Dean of the College of Business and Economics (on leave); Joseph L. Massie, Ph.D., Acting Dean; Clyde L. Irwin, D.B.A., Associate Dean for Administration; and H. K. Charlesworth, Ph.D., Associate Dean for Extension.

The College of Business and Economics offers three programs of study leading to the degrees of Bachelor of Business Administration, Bachelor of Science in Accounting, and Bachelor of Science in Business and Economics. The Department of Economics also offers a program of study leading to the degree, Bachelor of Arts in Economics, through the College of Arts and Sciences.

The College of Business and Economics was established at the University of Kentucky in 1925 as the College of Commerce. The name was changed to College of Business and Economics in 1966. The college includes the Department of Accounting, Department of Business Administration, Department of Economics, and Office of Development Services and Business Research. These departments are housed in the Commerce Building, which was completed in 1964 and provides modern teaching and research facilities for students and faculty.

The College of Business and Economics is a member of the American Association of Collegiate Schools of Business which accredits undergraduate and master's programs in business administration. The programs of the college enjoy the Association's full accreditation.

The objective of the instructional program is to prepare the student for a life-long career in business, government, or research and teaching. The program is structured to provide the student with an opportunity to acquire a background in the basic areas of the arts and sciences, to obtain a broad knowledge of business and economics, and to study in depth one or more fields of special interest.

Admission

Requirements for admission to the College of Business and Economics as a freshman, or with advanced standing, or as a special student are the same as those outlined on preceding pages for the University.

To be admitted to upper division work in the College of Business and Economics, the student must have completed sixty (60) semester hours of course work, including:

ENG 101 and 102 Freshman Composition
ENG 203 Composition for Technical Students
ACC 201 and 202 Principles of Accounting
ECO 260 and 261 Principles of Economics
ECO 291 Statistical Method
One course in each of five of the eight General Studies Areas (two of the areas must be Area I, option A or option B, and either Area II or Area III).

Requirements for Graduation

The baccalaureate degree programs of the College of Business and Economics require that the student present a total of 130 semester hours, including the courses required for admission to upper division work and the courses indicated below in the several curricula of the college. At least 54 semester hours must be in courses above the sophomore level, i.e., in courses numbered 300 and above, and at least 40 per cent of the total of 130 semester hours must be in courses other than accounting and business administration. The student must also meet the University's requirements for completion of five of the eight General Studies Areas, two of which must be Area I, option A or option B and either Area II or Area III. A grade-point average of 2.0 on all residence work in College Core and Departmental Major and a minimum of 24 hours in residence in the College Core and Departmental Major are required for graduation.

Curricula

The College of Business and Economics offers three degree programs: Bachelor of Business Administration,

Bachelor of Science in Accounting, and Bachelor of Science in Business and Economics. Students may also obtain a Bachelor of Arts in economics through a major in the College of Arts and Sciences.

The curriculum of each of the three degree programs has two parts: the College Core and the Departmental Major. The College Core is the same for all three degree programs, i.e., all students must complete the following courses:

College Core courses	*Sem. Hrs.*
BA 330 Marketing Management	3
BA 335 Business Management	3
BA 341 Business Law I	3
BA 345 Corporation Finance	3
ECO 391 Economic and Business Statistics	3
ECO 360 Intermediate Macroeconomic Theory	3
ECO 361 Intermediate Microeconomic Theory	3
	21

In addition to the College Core, the student must complete a Departmental Major consisting of 18 semester hours in one of the three departments in the college. The Bachelor of Business Administration is awarded to students who complete their Departmental Major courses in the Department of Business Administration. The Bachelor of Science in Accounting is awarded to students who complete their Departmental Major courses in the Department of Accounting. The Bachelor of Science in Business and Economics is awarded to students who complete their Departmental Major courses in the Department of Economics.

Departmental Major	*Sem. Hrs.*
Department of Accounting:	
ACC 301 Intermediate Accounting	3
ACC 302 Advanced Accounting	3
ACC 408 Cost Accounting	3
ACC 401 Accounting Theory	3
ACC 417 Income Taxation	3
ACC 503 Auditing	3
	18
Department of Business Administration:	
BA 435 Analysis of Organizational Behavior	3
BA 439 Business Policy	3
BA 450 Quantitative Analysis in Management	3
Departmental electives	9
	18
Department of Economics:	
ECO 485 Money and Banking	3
Two of the following:	
ECO 476 Labor Economics	
ECO 479 Public Finance	
ECO 471 International Economics	6
Departmental electives	9
	18

The curricula of the college afford the student considerable opportunity and freedom of choice to take elective courses outside the college. Preparation for a career in business can be combined with study in some depth in agriculture, engineering, and the various fields in the arts and sciences.

Graduate Programs

The College of Business and Economics offers the following graduate degrees through the Graduate School of the University: (1) Master of Science in Accounting, (2) Master of Business Administration, (3) Doctor of Business Administration, (4) Master of Science in Economics, (5) Master of Arts in Economics, and (6) Ph.D. in Economics. Additional information may be obtained from the Director of Graduate Studies, College of Business and Economics and from the *Graduate School Bulletin*.

Office of Development Services

The Office of Development Services and Business Research administers, in cooperation with the Kentucky Department of Commerce, the University's extension program of technical assistance to small business firms in Kentucky. Assistance to business is also provided through an Information and Analysis Center, which collects and disseminates information on new development in technology. The Office of Development Services and Business Research also conducts a research program which monitors economic development in the state, provides basic information for forecasting the state's economic progress, and seeks to support state and local development activities.

Student Organizations

A chapter of Beta Gamma Sigma, the national honorary scholarship fraternity in commerce, was organized at the University of Kentucky in 1928. Seniors must rank in the upper 10 percent of the class in scholarship to be admitted to this recognition society. The Society for Advancement of Management, a national professional commerce fraternity, is organized to encourage scholarship and research and to promote closer affiliations between the business world and students of commerce.

Beta Alpha Psi, the national professional fraternity in accounting, established a chapter in the College of Business and Economics in 1952. In addition to high attainment in scholarship, eligibility for membership requires character, leadership and high personal standards. Omicron Delta Epsilon, national honorary fraternity in economics, accepts as members those students and faculty who have distinguished themselves in the study of economics. The University of Kentucky chapter was established in 1967.

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 Ken-

tucky chapter was established during the spring semester of 1962 and welcomes any and all students interested in marketing or advertising that have attained a sophomore standing.

Business and Economics students also are eligible for many other general campus organizations and activities.

Employment

From 1933 through 1968 the College operated its own placement service to assist graduates in finding suitable career opportunities. This service was administered through the College's Commerce Employment Association and included an annual publication, *Bargains in Brains,* containing biographical information on new graduates. The advantages afforded by the centralization of placement activities and the interest of the University Placement Service in placing *Bargains in Brains* on a university-wide basis argued for the termination of the activities of the Commerce Employment Association at the end of the 1968-69 academic year.

Graduates of the College can count upon the fullest possible cooperation of the University Placement Service and the faculty of the College in finding suitable career opportunities. Several hundred major corporations conduct on-campus interviews with interested students each year. Graduates of the College are in much demand, and a student may receive offers from several corporations. Students who feel a need for career counseling are encouraged to contact the Associate Dean for Administration.

ACCOUNTING

FACULTY

William W. Ecton, chairman

Professors

Wendell Everett Beals	M.B.A., Northwestern, 1931
Robert D. Haun	J.D., Michigan, 1939
Albert W. Patrick	Ph.D., Michigan, 1955

Associate Professors

William W. Ecton	Ph.D., Missouri, 1966
James A. Knoblett	D.B.A., Washington, 1963
William A. Tolman	M.A., Kentucky, 1932

Assistant Professors

Paul M. Davis	Ph.D., Illinois, 1969
Donald L. Madden	Ph.D., Texas, 1967
Levis D. McCullers	Ph.D., Florida, 1969
A. Clifford Wilson	M.A., Kentucky, 1963

Instructor

Harold Latham	M.B.A., Kentucky, 1956

Course Descriptions

201 *Principles of Accounting.* (3)
An introduction to accounting concepts and principles involved in the preparation of financial reports for internal and external use. Prereq: Sophomore standing.

202 *Principles of Accounting.* (3)
An introduction to the analysis and interpretation of accounting data and its use in management planning and control. Prereq: ACC 201.

301 *Intermediate Accounting.* (3)
An in depth study of the valuation theory for balance sheet accounts and related effects on income determination. Prereq: ACC 202.

302 *Advanced Accounting.* (3)
A comprehensive treatment of selected accounting problems, including statements from incomplete data, cash and funds flow, price level adjustments, partnership accounting, consignments, installment sales, and home office-branch accounting. Prereq: ACC 301.

395 *Individual Work in Accounting.* (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits. Class hours and laboratory hours by appointment. Prereq: Consent of instructor.

401 *Accounting Theory.* (3)
An investigation into earlier attempts to develop a coordinated statement of accounting theory; a critical examination of selected current accounting practices; and discussion of recent developments in accounting research. Prereq: ACC 302.

408 *Cost Accounting.* (3)
Concepts of costs in developing information for management use in the determination of income, the selections of activities (or projects) and the measurement of performance. Prereq: ACC 202.

410 *Accounting for Institutions and Regulated Industries.* (3)
The requirements of adequate accounting systems for various governmental units, including the recording of usual transactions and the form and content of reports. Prereq: ACC 202.

414 *Data Processing in Accounting Systems.* (3)
Fundamentals of data processing for business organizations, including manual and automated applications, with emphasis on unit records, flow charts, and control procedures, in relation to both financial and non-financial data. Prereq: ACC 202.

416 *Accounting for Business Combinations.* (3)
Accounting records for consolidations and mergers, preparation of consolidated statements. Insolvency and receivership records and statements. Accounting for estates and trusts. Prereq: ACC 302 and senior standing.

417 *Income Taxation.* (3)
A comprehensive study of the federal income tax structure with emphasis on its application to individuals. Prereq: ACC 302 and senior standing.

418 *Controllership.* (3)
The organizational position of the comptroller, his functions and objectives; his methods and procedures.

419 *Internship in Accounting.* (3)
Students are placed with cooperating firms for on-the-job training in accounting. Written reports to be submitted by the firm and the student to the instructor. Prereq: ACC 302 and consent of instructor.

422 *Functions of Accounting.* (3) I
Introduction to the basic concepts and uses of accounting data. Three class hours per week. Prereq: Consent of instructor. (Not open to students who have ACC 202 or its equivalent.)

503 *Auditing.* (3)
The attest function of accounting with both internal and independent application. Emphasis is placed on the ethics, standards, and objectives of auditing and management's responsibilities in implementing internal control. Prereq: ACC 302 and senior standing.

515 *C.P.A. Problems.* (3)
The application of generally accepted principles to representative problems from C.P.A. examinations. Prereq: ACC 302 and senior standing.

517 *Tax Accounting Problems.* (3)
A comprehensive study of corporation, partnership and fiduciary income tax problems. Consideration given to gift and estate taxes. Prereq: ACC 507 or consent of instructor.

524 *Analysis of Accounting Systems.* (3)
A study of the techniques and methods available to measure and evaluate the response of sub-systems to stimuli within the total systems concept. Both the analytical and computer simulation approaches are used to displace uncertainty associated with typical business problems in which the data are generated by the accounting system. Prereq: ACC 202; ECO 391.

601 *Research in Accounting Theory.* (3)
Critical examination of accounting concepts and standards. Study of current problems and contemporary developments reflected in accounting literature and reports. Prereq: ACC 302 or consent of instructor.

603 *Attest Function.* (3) I
A critical examination of contemporary professional attestation theory and practice including a comprehensive review of AICPA audit case studies, statements on audit procedure, and their application in simulated business situations. Three class hours per week. Prereq: ACC 503 or consent of instructor.

608 *Advanced Managerial Accounting.* (3) II
Accounting procedures for the evaluation of performance in business, including the analysis of revenues and costs by projects and responsibilities and the use of budget cost studies and rates of return. Three class hours per week. Prereq: ACC 408.

615 *Advanced Professional Problems.* (3) II
The application of generally accepted principles to advanced problems of a professional level, including an analysis and study in depth of problems from professional examinations. Three class hours per week. Prereq: Consent of instructor.

617 *Income Tax Development.* (3)
A theoretical and historical approach to the study of federal income taxation with emphasis upon the public finance, legal and accounting aspects of its development. Consideration will be given to tax research and planning as well as to the critical appraisal of the current law and proposals for its revision. Prereq: ACC 417 or consent of instructor.

619 *Independent Study in Accounting.* (1-3)
Designed for students undertaking special studies to be conducted in regular consultation with the instructor. Prereq: Consent of instructor.

628 *Accounting for Control and Planning.* (3)
A study of the application of accounting information and services in the recognition or solution of management problems in business. Prereq: ACC 202 or equivalent.

701 *Seminar in Accounting.* (3)
A study of accounting history and contemporary problems. Prereq: Consent of instructor.

795 *Independent Study in Accounting.* (1-6)
Designed for students undertaking special studies to be conducted in regular consultation with instructor. Class hours by appointment. Prereq: Consent of instructor.

BUSINESS ADMINISTRATION

FACULTY

James L. Gibson, chairman

Professors

John Douglas	Ph.D., Cornell, 1960
Joseph L. Massie	Ph.D., Chicago, 1955
Lawrence X. Tarpey (on leave)	Ph.D., Cornell, 1964

Associate Professors

Herman A. Ellis	D.B.A., Indiana, 1954
James L. Gibson	Ph.D., Kentucky, 1962
Andrew Grimes	Ph.D., Minnesota, 1964
Stuart M. Klein	Ph.D., Cornell, 1963
Jan B. Luytjes (Extension)	Ph.D., Pennsylvania, 1962
Martin B. Solomon	Ph.D., Kentucky, 1967

Assistant Professors

Philip K. Berger	Ph.D., Texas Christian, 1969
James Donnelly	D.B.A., Maryland, 1968
Michael J. Etzel	D.B.A. Cand., Colorado
Clyde L. Irwin	D.B.A., Illinois, 1966
John M. Ivancevich	D.B.A., Maryland, 1968
Keith H. Johnson	Ph.D. Cand., Illinois
Herbert Lyon	Ph.D., Illinois, 1968
William L. Sartoris	Ph.D. Cand., Purdue
Donald S. Shannon	Ph.D. Cand., North Carolina
Lynn Spruill	Ph.D. Cand., Michigan
William F. Starr	M.B.A., Harvard, 1950

Instructor

David Victor (Extension)	A.B., Kentucky, 1940

Course Descriptions

330 *Marketing Management.* (3)
The literature and problems in the retail distribution of consumers' goods, wholesale distribution of consumers' goods, industrial goods, sales organizations, sales promotion and advertising, and price policies. Prereq: ECO 261 or consent of the instructor.

331 *Product Planning.* (3)
An analysis of the means of product and price competition which a business firm has at its disposal. Emphasis will be placed upon the theories and principles which will assist marketing managers in planning to meet competition via product offerings. Prereq: BA 330.

332 *Marketing Communication Systems.* (3)
The design, development and management of marketing communications programs, including symbol systems, salesmen's presentations, advertising, publicity, and sales promotion with emphasis on the competitive and strategic value of communication in the marketplace. Prereq: BA 330.

335 *Business Management.* (3)
A study of planning, organizing and controlling; an interdisciplinary approach; actual decision-making cases. Prereq: ECO 260, 261, 291 and ACC 202, or consent of instructor.

336 *Industrial Relations.* (3)
Historical development of industrial relations; labor organizations; analysis of labor management relationships from social, economic and political perspectives; manpower; supervision and leadership; introduction to recruitment selection, job evaluation, training; wages, hours, promotion, health policies; current problems. Prereq: BA 335 or consent of instructor.

341 *Business Law I.* (3)
A survey of the principles of contracts, sales, bills, notes, and that portion of the law of torts applicable to business practices. Prereq: Junior standing or consent of instructor.

345 *Corporation Finance.* (3)
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 261, ACC 202.

395 *Individual Work in Business Administration.* (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits. Class hours and laboratory hours by appointment. Prereq: Consent of instructor.

430 *Marketing Distribution Systems.* (3)
The design and management of complex marketing organizations and systems, including home-office marketing organizations, field sales forces, channel structures, and the logistics of microdistribution systems. Prereq: BA 330.

431 *Contemporary Marketing Problems.* (3)
A capstone course with emphasis on the contemporary problems in the field of marketing. Consideration will also be given to the development of marketing programs including the integration of product planning, marketing communications, and marketing systems. Prereq: BA 330 plus two other marketing courses.

434 *Market Research.* (3)
Training in the application of scientific method to research in fields of marketing. A major marketing investigation will be conducted by the class. Prereq: ECO 391 or equivalent.

435 *Analysis of Organizational Behavior.* (3)
The behavior of business organizations and their participants is analyzed in the contemporary language of social psychology, systems, and models. Various theories of the firm are reviewed and evaluated. The interdependence of economic, social and behavioral factors is stressed. Prereq: BA 335 or consent of instructor.

439 *Business Policy.* (3)
Analysis of management problems, formulation of alternative courses of action, determination of policy decisions. Prereq: Senior standing, BA 435 or 450, or consent of instructor.

441 *Business Law II.* (3)
A continuation of BA 341. Prereq: BA 341 or consent of instructor.

446 *Investments.* (3)
Analysis of corporation statements for investment purposes; the security market, market influences on security prices; effect of interest changes on security prices; and the development of investment programs. Prereq: ACC 202.

447 *Life Insurance.* (3)
Economics of life insurance; organization and control; special forms of life insurance; and fundamental principles of rate-making. Prereq: ECO 261.

448 *Property and Casualty Insurance.* (3)
Public control; nature of contracts; analysis of reserve functions, and rate-making processes. Prereq: ECO 261.

450 *Quantitative Analysis in Management.* (3)
An introduction to quantitative techniques in management decisions. Includes basic linear programming, Monte Carlo, and waiting line theory. Prereq: BA 335 and ECO 391 or consent of instructor.

456 *World Business.* (3)
Examines the impact of international business upon society from a political, cultural and economic point of view. Particular stress will be given to U.S. business in international operations; its past involvement, present position, and future direction. Prereq: ECO 260-261.

536 *Applied Personnel Management.* (3)
Analysis of the problems, theories and techniques used in recruitment, job analysis, selection decisions, interviewing, performance evaluation, and training in organizations. Prereq: BA 335, ECO 391, or consent of instructor.

537 *Contemporary Problems in Industrial Relations.* (3)
An examination of selected areas in the field of Industrial Relations with a focus on contemporary problems. Emphasis will be placed on individual work by the students. Prereq: BA 536 and ECO 578 or consent of instructor.

556 *International Commercial Policy.* (3)
America's position in the world economy and its international accounts; United States tariff policies, war debts, financial cooperation and investment policy. Prereq: ECO 471. (Same as ECO 571.)

573 *Automatic Data Processing.* (3)
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.

584 *Financial Markets and Institutions.* (3)
Analysis of securities markets, savings and loan associations, insurance companies, pension funds, credit unions, broker-dealer operations and government agencies with particular attention to their role in the flow of funds in the American economy. Prereq: ECO 485.

585 *Bank Management.* (3)
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 485 or consent of instructor.

630 *Advanced Marketing Management.* (3)
A critical study of significant trends, controversial issues and advanced techniques in the fields of marketing. Prereq: A course in marketing or consent of instructor.

635 *Managerial Economics.* (3)
Analysis of applications of economic theory to management decision-making. Such problems as demand and cost determination, pricing, and capital budgeting are treated.

636 *Research and Report Writing.* (3)
An introduction to business research and formal report writing. Emphasis is placed on methodology, research design, techniques of analysis, and data sources. The actual writing of research reports is stressed.

637 *Administrative Behavior.* (3)
A critical examination of the principles, methods, policies and procedures related to the effective utilization of human resources in business concerns, consideration being given to mutual relationships.

638 *Comparative International Management.* (3)
A comparison of management concepts and practices in different countries and the role of management in economic development; an interdisciplinary approach emphasizing the impact of sociological-cultural factors, legal-political factors and education on management development. Prereq: BA 335 or consent of instructor.

639 *Advanced Business Management.* (3)
A functional study of business management. Control devices and procedures for carrying out and testing policies.

645 *Corporate Financial Policy.* (3)
A study of financial management from the viewpoint of the corporate financial officer. Problems of planning the capital structure, issuing securities, the management of working capital, and policies with reference to reserves, surplus and dividends. Prereq: A course in Business Finance or consent of instructor.

646 *Investment Management.* (3)
Evaluation of sources of information and advice concerning securities, methods of analysis and policies of individuals and institutions in the management of investment funds. Prereq: Appropriate undergraduate courses in accounting and finance.

650 *Quantitative Methods in Business Decisions.* (3)
Application of mathematical analysis in business decision-making. Includes linear programming, total value analysis, incremental analysis, and other phases of operations research. Prereq: MA 211 and ECO 291.

652 *Production Management.* (3)
A study of procedures and techniques employed in manufacturing plants. An analysis of actual cases in production planning and control, time and motion study, quality control, plant layout, and budgetary control. Visits to industrial plants.

656 *International Marketing.* (3)
A comparative approach to marketing systems with emphasis on the adaptability of U.S. marketing policies in overseas areas. The nature of the foreign markets, their growth, distribution systems and government policies. The U.S. firm and its overseas activities, organization structure, management, finance, product policies, physical distribution, promotion and research. Prereq: Consent of instructor.

730 *Seminar in Marketing Theory.* (3)
A survey, analysis and evaluation of the current research in marketing theory. Detailed attention is given to problems of determining the meaning and boundaries of marketing theory. Emphasis is placed on introducing the student to the substantive content of marketing theories and their methodologies. Prereq: BA 630 or consent of instructor.

735 *Administrative Science I.* (3)
Primary emphasis upon the identification and investigation of the schools of thought concerning the field of administration. Analysis of various theory bases for purposes of integration and generalization will also make up a major portion of the course. Prereq: BA 335 or consent of instructor.

736 *Administrative Science II.* (3)
Examination of empirical research on organizational behavior, structure and dynamics. Integration of research and theory and development of modified theoretical approaches. Design of research to test some of the theory. Prereq: BA 735.

750 *Statistics in Business Decisions.* (3)
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 291.

761 *Seminar in Managerial Economics.* (3) II
Each semester some topic in managerial economics such as cost analysis, capital budgeting, production management, demand analysis, forecasting will be studied intensively. Prereq: BA 635.

762 *Research Methodology.* (3) I
This course will deal with the philosophy of science, problems of scientific logic, induction and deduction and the role of theory construction in the behavioral and social sciences. It will emphasize the nature of scientific method and problems in research design.

763 *Research, Design and Analysis.* (3) II
Course deals with the design and analysis of business research. Emphasizes the practical application of analysis of variance and correlational techniques to problems in business research. Focus will be on design, implementation, and interpretation of research. Prereq: BA 762.

768 *Residence Credit for the Master's Degree.* (0)
May be repeated. (1-6 credits equivalence.)

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely. (1-12 credits equivalence.)

771 *Seminar in Business Administration.* (3)
Each semester some topic currently discussed in scholarly journals in business administration will be studied intensively. May be repeated to maximum of 9 credits. Prereq: Consent of instructor.

781 *Independent Work in Business Administration.* (1-6)
Designed for advanced students who undertake research problems to be conducted in regular consultation with the instructor. May be repeated to maximum of 6 credits. Prereq: Consent of instructor.

ECONOMICS

FACULTY

Charles W. Hultman, chairman

Professors

Carl Cabe	Ph.D., Illinois, 1952
H. K. Charlesworth (Extension)	Ph.D., Wisconsin, 1950
H. W. Hargreaves	Ph.D., Duke, 1941
Charles F. Haywood	Ph.D., California, 1955
Charles W. Hultman	Ph.D., Iowa, 1960
Joseph Krislov	Ph.D., Wisconsin, 1954
Adam Pepelasis	Ph.D., California, 1954
Donald M. Soule	Ph.D., Wisconsin, 1953
Robert H. Stroup	Ph.D., Iowa, 1953

Associate Professors

Virgil L. Christian, Jr.	Ph.D., Kentucky, 1956
Carlos C. Erwin	Ph.D., Illinois, 1952
Richard E. Gift	Ph.D., Duke, 1965
Stuart I. Greenbaum	Ph.D., Johns Hopkins, 1963
Curtis E. Harvey	Ph.D., Southern California, 1963
Charles R. Lockyer (Adjunct)	Ph.D., Kentucky, 1953
L. Randolph McGee	Ph.D., Tulane, 1963
David R. Ross	Ph.D., Harvard, 1956
William R. Russell	Ph.D., Washington, 1964
William J. Stober	Ph.D., Duke, 1965
Alan R. Winger	Ph.D., Michigan, 1961

Lecturers

Lawrence R. Klein	A.B., Michigan, 1930
Walter H. Pearce	M.A., Michigan, 1947

Assistant Professors

M. Mukhtar Ali	Ph.D., Wisconsin, 1969
Phillip D. Brooks	Ph.D. Cand., Kansas State
Jack Hopper (Adjunct)	Ph.D., Texas, 1966
Philip J. Karst	Ph.D. Cand., Washington
Lawrence K. Lynch (Adjunct)	Ph.D., Kentucky, 1966
John L. Madden	Ph.D., Kansas State, 1968
Hugh M. Pitcher	Ph.D., Cand., Northwestern
Stuart A. Schweitzer	Ph.D. Cand., Minnesota

Instructors

Elaine Greenbaum	Ph.D. Cand., Maryland
Judith M. Pitcher	Ph.D. Cand., Northwestern

Course Descriptions

260 *Principles of Economics.* (3)
An introductory course. The Theory of Income and Employment and Value Theory. Not open to freshmen.

261 *Principles of Economics.* (3)
The major emphasis is on distribution theory and public policy. Prereq: ECO 260.

291 *Statistical Method.* (3)
Introduction to principles of statistics. Statistical description of sample data including frequency distributions, measures of central tendency, and measures of dispersion. Theoretical distributions, statistical estimation, and hypothesis testing. Introduction to simple linear regression and correlation. Prereq: MA 113 or MA 122 or equivalent.

360 *Intermediate Macroeconomic Theory.* (3)
National income concepts, the determination of aggregate income and employment, the theory of money and inflation and problems of economic growth. Prereq: ECO 260-261.

361 *Intermediate Microeconomic Theory.* (3)
An analysis of the behavior of consumers and firms, price determination, various market structures, and income distribution. Prereq: ECO 260-261.

391 *Economic and Business Statistics.* (3)
Distributions of means, proportions, and variances. Introduction to non-parametric tests, analysis of variance, non-linear regression and correlation, multiple regression, statistical decision theory, and time series and index numbers. Emphasis on application of Economic and Business problems. Prereq: ECO 291 or equivalent.

395 *Individual Work in Economics.* (1-6)
Students confer individually with the instructor. May be repeated to a maximum of 6 credits.

396 *Tutorial Work in Economics.* (1)
Open only to Arts and Sciences majors.

460 *Analysis of Business Conditions.* (3)
A study of economic factors causing fluctuations in aggregate economic activity and the methods of forecasting business activity. Prereq: ECO 360 and 391, or equivalent.

464 *Topics in Economic Analysis.* (3)
An advanced undergraduate seminar in economic theory, including micro and macro. Each semester one or two topics will be selected for intensive study. May be repeated twice for a maximum of six credits. Prereq: ECO 360 and 361, and senior level standing.

467 *The Economic Evolution of the North Atlantic Community.* (3)
The related development of the European and American economies will be examined within the general framework of economic theory. Major emphasis will be given to the long-run process of economic growth with the period of analysis being from the 16th to the beginning of the 19th century. Prereq: ECO 260 and 261.

471 *International Economics.* (3)
An analysis of the determinants of the pattern of international trade and the behavior of the international financial system, with careful attention to the problems of government policy in both the highly developed and the less developed countries.

475 *Economic Development.* (3)
A comparative study of economic progress in selected countries; growth patterns, theories of development and capital formation, interaction of social and economic change. Prereq: ECO 261.

476 *Labor Economics.* (3)
Insecurity, wages and income, substandard workers, industrial conflict; wage theories; the economics of collective bargaining; unionism in its structural and functional aspects; recent developments. Prereq: ECO 261.

479 *Public Finance.* (3)
A study of public receipts; public expenditures, the principles of taxation with special reference to their application to the tax systems, federal and state. Prereq: ECO 261.

482 *Regional Economics.* (3)
A survey of the major tools, measurements, and theories utilized in studying the regional economy. The topics covered include the basic elements of location theory, regional growth theory, and such economic models as economic base, input-output, and shift-share. Prereq: ECO 360 and 361.

485 *Money and Banking.* (3)
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 360 or consent of instructor.

495 *Comparative Economic Systems.* (3)
A study of capitalism, socialism, fascism, communism, and cooperation, with attention to current experiments in economic planning. Prereq: ECO 261.

523 *Social Determinants of Economic Behavior.* (3)
A study of the sociology of consumption, the effect of social values upon business and employee behavior, and the socioeconomic implications of welfare legislation. Prereq: SOC 101. (Same as SOC 523.)

560 *Business Combinations and Public Policy.* (2)
Forms of combination; the problem of monopoly and the regulations of competition; federal and state anti-trust legislation and court decisions.

570 *International Finance and Investment.* (3) I
An intensive study of the international financial system, with special attention to its relationship to the balance of payments and economic development. Prereq: ECO 471.

571 *International Commercial Policy.* (3)
America's position in the world economy and its international accounts; United States tariff policies; war debts, financial cooperation and investment policy. Three class hours per week. Prereq: ECO 471. (Same as BA 556.)

573 *Topics of Economics in Developing Areas.* (3)
The process of economic development in various developing countries; impediments to development and programs for the promotion of development. Prereq: ECO 475 or consent of the instructor. May be repeated for a maximum of 6 credits.

576 *Manpower Economics.* (3) I
The impact of technology, the level of economic activity, and market imperfections on the labor market; evaluates manpower and other economic policies to provide jobs, improve labor market information and provide better preparation of people for jobs. Prereq: ECO 260 and 261.

577 *Labor Legislation.* (3)
The status of labor law, mediation, conciliation, arbitration, and minimum wage, the eight-hour day, unemployment relief, safety and health legislation, and social insurance. Prereq: ECO 261.

578 *Collective Bargaining.* (3)
The principles and procedures of bargaining and dispute settlement studied in detail. Includes a review of the content of labor contracts and provisions for administration. Union and management techniques are considered. Prereq: ECO 476 or consent of instructor.

580 *Theory of the Public Economy.* (3)
Application of economic and public finance theories to the income distribution, resource allocation, and economic stabilization problems associated with public sector use of resources. Prereq: ECO 360 and 361.

590 *Introduction to Mathematical Economics.* (3)
A review of mathematical approaches to economic theory. Models applicable to production, marketing and pricing problems. Prereq: MA 114; ECO 361. (Same as AEC 590.)

591 *Survey Sampling Design.* (3)
Sampling theory applied to research design and data collection in economics. Covers simple random, stratified random, systematic, and cluster sampling. Prereq: ECO 391 or consent of instructor.

592 *Advanced Business and Economic Statistics.* (3)
Advanced time series analysis, multiple and partial correlation, elementary analysis of variance and experimental design. Prereq: ECO 291 or consent of instructor.

594 *Transportation.* (3)
Railways, waterways, highways and airways. Rates services, management and regulation. Prereq: ECO 261.

595 *Economic Planning.* (3)
Creation of development plans for the underdeveloped economies. Topics include the internal content, administrative structures and procedures for implementation, and economic policies. Prereq: ECO 360 or equivalent.

596 *Soviet Area Economics.* (3)
The course is designed to provide an intensive study of economic principles, institutions, and policies which provide direction and coordination for the economic processes in the Soviet Union and Eastern European countries. Prereq: ECO 261 or consent of instructor.

660 *Advanced Microeconomic Theory.* (3)
An intensive course covering microeconomic theory and its various methodological and analytical techniques. Prereq: ECO 361 or consent of instructor.

661 *Advanced Macroeconomic Theory.* (3)
National income and employment theory, theories of inflation, and problems of economic growth. Prereq: ECO 360 or consent of instructor.

662 *Research Methods and Procedures in Economics.* (3)
The basic procedures and methods of research in economics are considered from the standpoint of their applicability to problem solving and discovery of new scientific facts and generalizations in economics. Definition of the problem, statement of hypothesis, research design, data collection methods, and data analysis constitute the major topics. Attention is given to proper style and preparation of research reports in economics. Prereq: 2nd semester standing as a graduate student in Economics.

665 *History of Economic Thought I.* (3)
The background and development of English political economy up to 1848.

666 *History of Economic Thought II.* (3)
Main lines of controversy, reconstruction and development in economics since 1848 with an emphasis on the bibliography.

667 *Seminar in Historical Studies in Economic Change.* (3)
Growth and development hypotheses will be tested on a wide range of historical materials drawn from the experience of Western Europe and America as bases for comparative studies in the newer developing regions.

668 *American Economic Change in Historical Perspective.* (3)
A wide range of statistical and historical studies will be used as bases to test various hypotheses concerning economic growth and development in the United States since the Revolution. Prereq: ECO 360 and 361, or consent of instructor.

671 *International Economics Seminar I.* (3)
History and analysis of theories of international trade; theories of international equilibrium and mechanisms of equilibrium adjustments; theory of economic integration. Prereq: ECO 471.

672 *International Conflict and Conflict Resolution.* (3)
A study of the interrelationships of commerce and violence in the world economy; static and dynamic theories of conflict; the institutional analysis of war; war and trade as policy alternatives. Prereq: ECO 360 and 361 or consent of instructor.

673 *Seminar in Economic Development I.* (3)
An intensive study of growth models, with special attention to problems associated with capital accumulation, balanced growth, and low-level equilibrium. Prereq: ECO 475 or equivalent.

674 *Agriculture and Economic Development.* (3)
Analytical consideration of role of agriculture in economic development in relation to overall development strategy at various stages of growth. Theoretical and policy issues of particular relevance to the agricultural development in underedeveloped agrarian economies with various resource, social, political and economic systems. Prereq: ECO 475 or consent of instructor. (Same as AEC 626)

676 *Labor Markets and Wage Determination.* (3)
Economic and social forces determining labor supply and demand, labor force, unemployment, labor mobility; economic and institutional forces determining wages, wage theories and impact of collective bargaining. Prereq: ECO 360 and 361 or consent of instructor.

679 *Seminar in Public Finance I.* (3)
Reading and discussion of current and standard literature on public finance problems and the theory of the public economy. Individual research reports. Prereq: ECO 479, 580 or consent of instructor.

682 *The Economics of Spatial Relations.* (3)
A study of the spatial aspects of the economy with emphasis on location theory in a static equilibrium and dynamic framework. Empirical evidence and public policy considerations are also included. Prereq: ECO 361 or equivalent.

683 *Economics of Growth and Development in Regions and Urban Areas.* (3)
A macroeconomic study of regional-urban growth and development with primary emphasis on the construction of income determination and growth models for an open economy. Prereq: ECO 360 or equivalent.

686 *Advanced Money and Banking.* (3)
A theoretical study of contemporary money and banking institutions with emphasis on central bank functions. Prereq: ECO 485 or equivalent.

687 *History and Theory of Money and Prices.* (3)
The evolution of money, the rise of banking processes, and the causes of fluctuations in the general price level. Prereq: ECO 485.

688 *Mathematical Economics—Micro Theory.* (3)
Consumer behavior and demand, theory of the firm, market equilibrium, optimality criteria and welfare maximization. Selected topics in dynamics. Prereq: ECO 361, MA 113 or equivalent.

692 *Econometrics I.* (3)
Foundations of econometrics. Analysis of linear regression models, including inferences involving linear transformations of random variables, individual degrees of freedom and the analysis of covariance. Statistical forecasting of economic magnitudes. Prereq: ECO 391 and 592 or equivalent.

696 *Soviet Area Economics Seminar.* (3)
Theory and implementation of central planning in Soviet Union and other socialist economies. Special emphasis on East European reform models of socialist planning. Prereq: ECO 360 and 361, or consent of instructor (completion of ECO 596 or equivalent desirable).

760 *Seminar in Microeconomic Theory.* (3)
Recent developments and major issues in contemporary microeconomic theory. Prereq: ECO 660 or consent of instructor.

761 *Seminar in Macroeconomic Theory.* (3)
Recent developments and major issues in contemporary macroeconomic theory. Prereq: ECO 661 or consent of instructor.

768 *Residence Credit for the Master's Degree.* (0)
May be repeated. (1-6 credits equivalence.)

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely. (1-12 credits equivalence.)

771 *International Economics Seminar II.* (3)
Trade and economic development; determination of international payments equilibrium; econometric studies in world trade; computation of terms of trade; new developments in trade theory. Prereq: ECO 471.

773 *Seminar in Economic Development II.* (3)
Comprehensive survey of literature on specific aspects of economic development, including industrialization, foreign trade policy, foreign aid, foreign investment, demographic problems, and stimulation and mobilization of savings. Prereq: ECO 475.

776 *Economics of Trade Unionism and Labor Law.* (3)
Origin and growth of labor organizations; trade union philosophy, organization and administration. Foreign labor movements. A detailed analysis of industrial relations and economic security legislation. Prereq: ECO 676 or consent of instructor.

779 *Seminar in Public Finance II.* (3)
Essentially a continuation of ECO 679. Individual research reports. Prereq: ECO 580, 479, or consent of instructor.

783 *Seminar in Regional Economics.* (3) II
A critical study of recent extensions in regional economic analysis and regional policy programs. Individual research paper is required. Prereq: ECO 682 and 683.

786 *Seminar in Monetary Theory and Policy.* (3)
A comprehensive and critical analysis of contemporary monetary theory and policy. Prereq: ECO 686.

788 *Mathematical Economics-Macro Theory.* (3)
Selected aggregative models treated mathematically. Emphasis on maximization problems for linear systems. Leontief input-output models. Prereq: ECO 360, MA 113 or equivalent. (Same as AEC 690.)

791 *Problems in Econometrics.* (3)
Empirical estimation of multi-equation models. Bayesian estimation theory and techniques. Non-linear estimation techniques. Supervised empirical work requiring a major research paper. Prereq: ECO 792.

792 *Econometrics II.* (3)
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 692 or equivalent. (Same as AEC 691.)

793 *Seminar in Econometrics.* (3) II
Comprehensive consideration of current literature. Individual dissertation progress reports and discussion. Prereq: ECO 791 or consent of instructor.

796 *Seminar.* (1-6)
An extended original investigation of some specific topic with a view to giving training in methods of research and studying intensively a particular subject in the field of economics. May be repeated to a maximum of six credits.

797 *Research Problems in Economics.* (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits.



Pharmacy

Joseph V. Swintosky, Ph.D., is Dean of the College of 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, partners and employees, his creditors and his debtors, his suppliers and his clients, his professional colleagues and his non-professional friends. He must be able to discharge effectively 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 and other health care practitioners, 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.

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 66 credit hours of acceptable college work. This preparatory work may be taken at the University of Kentucky or at any other accredited institution.

To insure consideration for entrance in the Fall Semester all applications must be received by April 1. It is not essential that final grades for courses taken during the Spring term accompany the application. However, in order that final evaluation may proceed so selections can be made for the entering class, these grades should follow the application at the earliest date possible following completion of the Spring term.

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 along with one or more years of laboratory science, especially chemistry. Foreign languages are not required.

Those who take their pre-pharmacy courses in other institutions must furnish an additional transcript of all previous college work to the Dean of the College of Pharmacy.

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

Bachelor of Science in Pharmacy Degree (B.S. in Pharmacy)

The degree of Bachelor of Science in Pharmacy is offered on completion of a minimum of 169 semester hours of credit with a Pharmacy standing of 2.0 out of a possible 4.0.

The satisfactory completion of the pre-pharmacy program of 66 semester hours of credit followed by the three years of professional training with 103 semester hours of credit as shown, constitute the college's course requirements for graduation. Additionally, the general requirements of the University for all graduates must be met; among these are such requirements as those relating to work in residence, general studies, and grade point average.

Doctor of Pharmacy Degree (Pharm. D)

The Doctor of Pharmacy degree is offered on the completion of a minimum of 199 semester hours of credit with a Pharmacy standing of 2.0 out of a possible 4.0, and the recommendation of the supervisory committee.

For the University of Kentucky student who elects the six-year Doctor of Pharmacy program, the requirements for graduation will be the satisfactory completion of two years of pre-professional work, 66 semester hours, followed by four years of professional training with 133 semester hours of credit as shown. Additionally, the general requirements of the University for all graduates must be met; among these are such requirements as those relating to work in residence, general studies, and grade point average.

Admission into this program is limited.

The Curriculum

The dynamic changes affecting pharmacy demand a curriculum that will not only allow but will insure effective practitioners who have a thorough understanding of drugs and disease. Education and training of pharmacists should assure that they can communicate effectively with other health practitioners and with patients now, and in the future, as they assume new and expanding roles in health care. The curriculum must include a component that will promote greater interaction between the pharmacist and other health professions. This component must assure that pharmacists see patients in their diseased state, witness the action of drugs, and learn to work closely with physicians, dentists, nurses, and other health care professionals. This training will help them serve more effectively as advisors on drug selection and use.

Due to the wide spectrum of activities available to pharmacists—e.g., community practice, hospital practice, industrial pharmacy, teaching, research, etc.—it is apparent that only a very flexible academic program can meet the educational needs of all pharmacists at the B.S. level. The College of Pharmacy has established a realistic core curriculum required of all pharmacy students.

The objectives of this core curriculum are:

(1) to produce an educated individual; a person able to participate effectively in community affairs. This may be partially accomplished by providing the opportunity for students to elect courses in the social sciences and humanities;

(2) to prepare all students for the responsibilities of licensure as a pharmacist through education in certain basic and clinical sciences;

(3) to allow students considerable flexibility to select additional course work that supplements the core program. This will give each student a measure of freedom to fulfill his own wishes regarding professional, scientific, and educational goals.

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 program 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.

General Studies Component, University of Kentucky

The University of Kentucky requires, in addition to other requirements, that all baccalaureate degree programs include four components or general divisions. These are: (a) general studies, (b) pre-major or pre-professional, (c) major or professional, and (d) free electives.

The general studies component also must include course sequences, as outlined in the general catalog, in five of the eight general areas of study listed below:

1. Mathematics-Philosopsy
2. Physical Science
3. Biological Science
4. Foreign Language
5. Humanities-Literature, Art, Music
6. History

7. Social Science
8. Behavioral Science

Required courses of the pre-professional curriculum satisfy requirements for the areas of Mathematics, Physical Science and Biological Science. A second course in the Social Science Area (in addition to ECO 260, in the pre-pharmacy requirements) shall satisfy the general studies component in Social Science, leaving one other general studies component from areas IV, V, VI, or VIII to be completed.

Minimum requirements for admission to the College of Pharmacy beginning in the Fall 1970 are:

1 year English Composition
1 year Biology (with laboratory)
1 semester Microbiology (with laboratory)
1 semester Mathematics (Calculus)
1 semester Principles of Economics
1 year Physics (with laboratory)
1 year General Chemistry (with laboratory) including qualitative analysis
1 year Organic Chemistry (with laboratory)

Additional courses: Sufficient elective courses need to be selected such that a minimum of 66 hours are presented. Wise selection of electives will assist in meeting the General Studies Component requirement for graduation from the University.

Suggested Pre-Pharmacy Program

First Year

Course	*Cr.*
CHE 110—General College Chemistry I	3
CHE 111—General Chemistry Lab I	2
ENG 101—English Composition	3
CHE 112—General College Chemistry II	3
CHE 113—General Chemistry Lab II	2
ENG 102—English Composition	3
MA 113—Calculus	4
*MB 200—Principles of Bacteriology	4

Second Year

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

* Students taking BIO 200 and BIO 202 on the University's Lexington campus are exempt from MB 200.

Additional electives must total, with these requirements, 66 semester hours.

The student should distribute his electives among several disciplines in order to satisfy the General Studies Component of the University rather than concentrate in any particular area.

PROFESSIONAL PROGRAM

The Core Curriculum for the B.S. Program in Pharmacy

The core curriculum for the three-year professional program leading to the B.S. in Pharmacy consists of certain specified courses. The core curriculum comprises 79 of the 103 hours required for the total professional program.

Third Year

Course	Cr.
PHR 815—Pharmaceutical Systems	4
MM 334—Physiology & Pharmacodynamics	5
PCH 310—Pharmaceutical Analysis	5
PCH 400—Biochemistry	4
	18
PHR 825—Physical Pharmacy	4
MM 346—Physiology & Pharmacodynamics	5
MM 330—Pharmacognosy	3
CPH 810—Pharmacy and the Health Care System	2
Elective	3
	17

Fourth Year

Course	Cr.
PHR 845—Biopharmaceutics	4
PCH 340—Principles of Medicinal Chemistry	3
MM 342—Pharmacognosy	4
CPH 815—Patient Services and Clinical Pharmacy Practice	2
Elective(s)	4
	17
CPH 816—Patient Services and Clinical Pharmacy Practice	3
CPH 820—Prescription Compounding and Dispensing	4
CPH 830—Pharmacy Administration	3
CPH 862—Pharmacotherapeutics I	4
Elective	3
	17

Fifth Year

First Semester

Group A	*Cr.*
CPH 835—Pharmaceutical Law	2
CPH 863—Pharmacotherapeutics II	5
*CPH 870—Clinical Pharmacy Clerkship	6-10
*Elective (Scientific Option only)	4
	17

Group B	*Cr.*
CPH 835—Pharmaceutical Law	2
CPH 863—Pharmacotherapeutics II	5
Electives	10
	17

Second Semester

Group A	Cr.
CPH 864—Pharmacotherapeutics III	5
MM 380—Environmental Toxicology	2
Electives	10
	17

Group B	Cr.
CPH 864—Pharmacotherapeutics III	5
MM 380—Environmental Toxicology	2
*CPH 870—Clinical Pharmacy Clerkship	6-10
*Elective (Scientific Option only)	4
	17

* Note: For the clerkship and for electives the class will be divided into two groups.

Elective Program for the B.S. in Pharmacy

1. A student must elect a minimum of 24 credits to supplement the core curriculum.

2. At least 12 credits must be chosen from the following list of professional and scientific courses. These courses should complement the core curriculum and enable the student to orient his academic program to his particular professional and/or scientific goal(s).

Electives available include:

	Cr.
ACC 201—Principles of Accounting	3
BSC 527—Society and Health	3
CPH 838—Community Pharmacy Practice	3
CPH 872—Non-Prescription Pharmaceutical Products and Supplies	3
CPH 880—Introduction to Institutional Practice	3
PHR 540—Industrial Pharmaceutical Technology	4
CHE 440—Physical Chemistry	3
CHE 442—Physical Chemistry	3
MA 114—Calculus	4
MA 213—Analysis	4
CHE 520—Elementary Radiochemistry	3
MM 335—Microscopic Pharmacognosy	2
PAT 324—Pathology	4
STA 370—Introduction to Statistics	4
CPH 870—Clinical Pharmacy Clerkship	4

3. If a student in preparation for graduate studies chooses scientific electives, including physical chemistry, no further Clerkship credit beyond that specified in the core need be taken. All students not presenting physical chemistry credits *must* present an additional 4 credits of Clerkship beyond the 6 credits specified in the core curriculum.

4. Students demonstrating poor proficiency in pharmaceutical calculations at the end of the third year are required to take remedial work in this area until proficiency is established.

Doctor of Pharmacy Program

The College of Pharmacy offers an optional six-year program leading to the degree of Doctor of Pharmacy (Pharm. D.).

If pharmacy manpower is to be utilized more efficiently in our total health structure, the faculty of the College of Pharmacy at the University of Kentucky believes that the profession and its educational system will have to prepare its practitioners for a closer interaction with other health professions. The clinical education and training of the pharmacist must be appropriate to the environment of his future professional practice.

Over several decades there has developed in pharmaceutical education a strong emphasis in the basic pharmaceutical sciences. While this emphasis on science has resulted in the production of a scientifically sophisticated group of pharmacists, the nature of professional practice in the future is expected to be significantly different from that of today. Under the influence of socio-economic changes and the emerging patterns of providing health services to society, total medical services will become increasingly available in centralized or group practice complexes. Drugs and dosage forms of increasing complexity, with great potential for good and for harm, will be used and prescribed in such settings. The pharmacist will be the drug information specialist and the basic purpose in developing a stronger professional program, such as the Pharm. D. degree, is to upgrade the quality of pharmacy service.

Graduates of the Pharm. D. program will have specialized in community pharmacy practice, nursing home or other institutional drug programs, hospital care practice, pharmacy and health care organizations, non-prescription drug products, drug product evaluation, drug information retrieval, drug and health laws, product formulation, animal care products, or other specializations.

Much of the value of the Pharm. D. program will result from the personalized supervision of the student by the instructor in the clinical setting. Through the interaction and counsel between student and teacher, between the student and other health professionals, and between the pharmacy student and the patient being served, a professional spirit and a sense of competence will be developed.

Admission to the Pharm. D. Program

Students at the University of Kentucky may elect to apply for admission to the Doctor of Pharmacy program following the completion of the fourth year of the pharmacy curriculum. Through careful scheduling and use of elective time, these students may graduate with the Pharm. D. in six years (two pre-

professional and four professional years). Registration as a pharmacist in Kentucky requires an additional year of internship.

Admission to this degree program is available to selected qualified individuals holding a Bachelor of Science in Pharmacy degree from accredited colleges of pharmacy. Such students may obtain the Pharm. D. degree by making up deficiencies in their previous training (including orientation in Clinical Pharmacy) and completing the requirements. For these students, a minimum of two years of academic work and directed professional experience by a supervisory committee would normally be required for earning the degree.

Supervisory Committee

Each candidate for the Pharm. D. degree will be expected to spend a minimum of two academic years under the guidance of a Supervisory Committee. This Committee will be responsible for providing the personalized attention necessary in assessing the student's needs, for guiding and supervising his program, for evaluating his academic attainment and professional competence, and for recommending the student to the faculty for graduation. For each person enrolling in the Pharm. D. program his Supervisory Committee will establish, in addition to the specified requirements, any additional requirements considered essential for attainment of an appropriate level of professional competence.

The Core Curriculum for the Doctor of Pharmacy (2 + 4) Program

The core curriculum for the Doctor of Pharmacy program is recommended to consist of the following *specified* courses. These courses represent 95 of the 133 credits required in the program. (Pre-professional requirements are the same for all pharmacy students.)

Third Year

	Cr.
PHR 815—Pharmaceutical Systems	4
MM 334—Physiology & Pharmacodynamics	5
PCH 310—Pharmaceutical Analysis	5
PCH 400—Biochemistry	4
	18

	Cr.
PHR 825—Physical Pharmacy	4
MM 346—Physiology & Pharmacodynamics	5
MM 330—Pharmacognosy	3
CPH 810—Pharmacy and the Health Care System	2
Elective	3
	17

Fourth Year

	Cr.
PHR 845—Biopharmaceutics	4
PCH 340—Principles of Medicinal Chemistry	3
MM 342—Pharmacognosy	4
CPH 815—Patient Care Services and Clinical Pharmacy Practice	2
PAT 324—Pathology	4
	17

	Cr.
CPH 816—Patient Care Services and Clinical Pharmacy Practice	3
CPH 820—Prescription Compounding and Dispensing	4
CPH 830—Pharmacy Administration	3
CPH 862—Pharmacotherapeutics I	4
Elective	3
	17

Fifth Year

	Cr.
CPH 835—Pharmaceutical Law	2
CPH 863—Pharmacotherapeutics II	5
STA 370—Introduction to Statistics	4
CPH 818—Basic Sciences and Patient Care	1
Electives	5
	17

	Cr.
CPH 864—Pharmacotherapeutics III	5
MM 380—Environmental Toxicology	2
CPH 819—Basic Sciences and Patient Care	1
Electives	9
	17

Sixth Year

Summer Semester

	Cr.
CPH 870—Clinical Pharmacy Clerkship	10
Elective	3
	13

Fall Semester

	Cr.
CS 220—Introduction to Algorithmic Processes	2
Electives	15
	17

Doctor of Pharmacy Curricular Requirements for Holders of the B.S. in Pharmacy Degree

For the great majority of those who enter the Pharm. D. program and are holders of the Bachelor of Science in Pharmacy degree, their educational background will include little, if any, of the patient-

oriented health team interaction experience provided for pharmacy students at Kentucky. During the two years such a student* spends in residence under his Supervisory Committee he would be expected to complete any special requirements imposed and present acceptable credit or evidence of equivalent experience in the following courses:

	Cr.
CPH 815—Patient Care Services and Clinical Pharmacy Practice	2
CPH 816—Patient Care Services and Clinical Pharmacy Practice	3
PAT 324—Pathology	4
CPH 863—Pharmacotherapeutics II	5
CPH 864—Pharmacotherapeutics III	5
STA 370—Introduction to Statistics	4
CPH 818—Basic Sciences and Patient Care	1
CPH 819—Basic Sciences and Patient Care	1
CPH 870—Clinical Pharmacy Clerkship	10
CS 220—Introduction to Algorithmic Processes	2
Elective Credit	18
Total	55

* For a person holding a Master's degree in addition to a B.S. in Pharmacy, not less than one year in residence under a Supervisory Committee will be required.

Elective Program for the Doctor of Pharmacy Program

The electives should provide preliminary academic preparation for later specialization.

Some courses suitable as electives are: **

	Cr.
ACC 201—Principles of Accounting	3
BSC 527—Society and Health	3
CPH 838—Community Pharmacy Practice	3
CPH 872—Non-Prescription Pharmaceutical Products and Supplies	3
CPH 866—Hospital Pharmacy Practice I	3
CPH 868—Hospital Pharmacy Practice II	3
PHR 540—Industrial Pharmaceutical Technology	4
CHE 520—Elementary Radiochemistry	3
BA 341—Business Law I	3
CPH 876—Disease Processes and Advanced Pharmacotherapeutics I	8
CPH 878—Disease Processes and Advanced Pharmacotherapeutics II	8
CPH 880—Introduction to Institutional Practice	3
CPH 874—Drug Literature Evaluation	3
CPH 892—Clinical Drug Communications	1-5
CPH 895—Independence Problems in Clinical Pharmacy	*1-3
PCH 395—Independent Work in Pharmaceutical Chemistry	*1-3
PHR 895—Independent Problems in Pharmacy	*1-3
MM 474—Independent Problems in Toxicology	*1-3
MM 475—Independent Problems in Pharmacognosy	*1-3
MM 476—Independent Problems in Pharmacology	*1-3
MM 620—Biotoxicology	3 or 5
MM 630—Biotoxicology	3 or 5
MM 640—Environmental Toxicology and Occupational Hygiene	3
MM 335—Microscopic Pharmacognosy	2

* May be repeated for a total of 6 credits.

** Supervisory Committees will normally include an independent problems course for the Pharm. D. student to give him a keener appreciation of the research process, the expertise of obtaining useful information, and a better appreciation of how to evaluate research data.

Specialization Opportunities

Although a residency is not a requirement for the Doctor of Pharmacy degree, opportunities for further specialization in certain career areas (e.g., hospital pharmacy, drug information retrieval, etc.) are now available in the form of residency programs. These non-academic programs may be taken subsequent to the attainment of the Pharm. D. degree, or they may, with the approval of the Supervisory Committee, be taken concurrently with the degree program. In the latter case, the total program would be extended by the length of the particular residency or internship.

Graduate Program

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

History of The College

The University of Kentucky College of Pharmacy was established August 16, 1870, as the Louisville College of Pharmacy. It was incorporated by an Act of Legislature, February 6, 1873. Organized as an outgrowth of the preceptorial system, it was operated as a 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. On January 1, 1966, the College of Pharmacy became a part, administratively, of the Albert B. Chandler Medical Center.

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 assists students in locating prospective employment. Personnel representatives of the large pharmaceutical houses usually visit the College yearly, scheduling interviews with the grad-

uates. Each year the College has a greater demand for its graduates than it can supply.

Library

The student has access to the University of Kentucky Library, one of the largest libraries in the South, and the Medical Center Library with over 106,000 volumes and 1,800 periodicals located in the pharmacy clinical teaching environment of the hospital. Furthermore, there is a library and reading room in the pharmaceutical science lecture and laboratory area of the pharmacy building. It houses over 5,000 reference works plus 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. Similarly, membership is available in the Kentucky Pharmaceutical Association. Prompt affiliation upon enrolling in the College not only serves to identify the student with the profession but is regarded as evidence of his interest in and enthusiasm for the profession he has chosen to follow. Through the activities of the Student Chapter 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 Pharmaceutical Fraternity, Upsilon Chapter

Phi Delta Chi, Alpha Beta Chapter

The women of the College are represented by the Ring of Hygeia, a local group.

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 Dean 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 familarize 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 of not less than forty hours per week, under the direct personal supervision of a registered pharmacist. After January 1, 1973, thirteen weeks of the internship must have been acquired after graduation from an accredited college of pharmacy.

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 internship under the supervision of a registered pharmacist within ten days of the beginning and ending of such internship.

d. Internship shall be credited only when it has been obtained in a pharmacy acceptable to the Board for that purpose.

An intern having served part or all of his time in a pharmacy outside the state shall be given credit for the time, when affidavit(s) of his said internship is made by his Preceptor showing the exact time and dates served, and when same is attested by the Secretary of the State Board of Pharmacy of that state. In such cases, their requirements for Internship must be comparable and acceptable to the Kentucky Board of Pharmacy.

These regulations are subject to change. Students are advised to consult the Kentucky Board of Pharmacy, P. O. Box 553, Frankfort, Kentucky 40601, for final decisions on internship problems.

CLINICAL PHARMACY

FACULTY

Paul F. Parker, chairman

Associate Professor

Paul F. Parker	M.S., Michigan, 1951

Assistant Professors

John L. Butler	M.S. Philadelphia, 1962
Thomas W. Dunphy	Pharm. D., California, 1967
Clifford E. Hynniman	M.S., Maryland, 1967
John A. Oliver	M.S., Michigan, 1960
John J. Piecoro, Jr.	M.S., Ohio State, 1966
Donald D. Vogt	Ph.D., Texas, 1969

Instructors

William A. Miller	B.S., Ohio State, 1965
Frederick J. Shainfeld	Pharm. D., California, 1966

Course Descriptions

810 *Pharmacy and the Health Care System* (Clinical Pharmacy I). (2) II

A study of philosophy of health care and the relationship of pharmacy to the health needs of society. Consideration is also given to the development of pharmacy as a profession, its present status in health care and its future challenge. Orientation to the Medical Center and the Clinical Pharmacy Programs is also stressed. Lecture, two hours. *Parker.*

815 *Patient Care Services and Clinical Pharmacy Practice.* (Clinical Pharmacy II) (2) I

An introduction to the clinical environment, medical practices, and other health care services. The various health care services and their interrelationships in patient care are stressed. Considerable emphasis is given to the methodology used by the clinical pharmacist, his contributions to patient care, and how he interacts with the other health professions. Lecture, three hours. Prereq: CPH 810. *Staff.*

816 *Patient Care Services and Clinical Pharmacy Practice.* (Clinical Pharmacy III) (3) II

A continuation of CPH 815. Lecture, two hours; laboratory, three hours. Prereq: CPH 815. *Staff.*

818 *Basic Sciences and Patient Care.* (1)

Weekly interdisciplinary seminar and conference sessions are presented to demonstrate the relationship of basic science disciplines and pharmaceutical education to the care of patients. Prereq: Admission to the Doctor of Pharmacy program.

819 *Basic Sciences and Patient Care.* (1)

Continuation of CPH 818. Prereq: Admission to the Doctor of Pharmacy degree program and CPH 818.

820 *Prescription Compounding and Dispensing.* (Clinical Pharmacy IV) (4) II

The application of principles presented in previous pharmacy courses to the compounding techniques necessary for today's prescription practice. Lecture, three hours; laboratory, three hours. Prereq: CPH 815; PHR 845. *Lesshafft.*

830 *Pharmacy Administration.* (3) II

An examination of the socio-economic factors and trends affecting pharmacy practice. The channels of distribution, the pharmaceutical industry and the consumer are considered. Stressed also is the development of a basic knowledge of the administrative aspects of pharmacy practice. Lecture, three hours. Prereq: ECO 260. *Staff.*

835 *Pharmaceutical Law.* (2) I

A study of important legislation, regulations and rulings related to the practice of pharmacy. Lecture, two hours. Prereq: CPH 810. *Staff.*

838 *Community Pharmacy Practice.* (3) I

An introduction to the economic, administrative, and professional considerations in owning a pharmacy or practice in a community pharmacy. Lecture, three hours. Prereq: CPH 830. *Staff.*

862 *Pharmacotherapeutics I.* (4) II

A presentation of the physicochemical properties, syntheses, pharmacodynamic mechanisms, toxicologic mechanisms, and therapeutic applications of modern drug products, with emphasis on structure-activity relationships and the applications of pharmaceutical/pharmacological principles in rational therapeutics. Lecture, four hours. Prereq: MM 346. *Magarian, Walton and Staff.*

863 *Pharmacotherapeutics II.* (5) I

A continuation of CPH 862. A presentation of the physicochemical properties, syntheses, pharmacodynamic mechanisms, toxicological mechanisms, and therapeutic applications of modern drug products with emphasis on structure-activity relationships and the applications of pharmaceutical/pharmacological principles in rational therapeutics. Lecture, five hours. Prereq: CPH 862. *Magarian, Walton and Staff.*

864 *Pharmacotherapeutics III.* (5) II

A continuation of CPH 863. A presentation of the physicochemical properties, syntheses, pharmacodynamic mechanisms, toxicological mechanisms, and therapeutic applications of modern drug products, with emphasis on structure-activity relationships and the applications of pharmaceutical/pharmacological principles in rational therapeutics. Lecture, five hours. Prereq: CPH 863. *Magarian, Walton and Staff.*

866 *Hospital Pharmacy Practice I.* (3)

The administrative and professional principles and concepts of hospital pharmacy practice. Emphasis placed on the development, functions and organization of the hospital and the relationship of the pharmacy as a component of the hospital. Lecture, three hours. Prereq: CPH 870, or permission of department chairman. *Staff.*

868 *Hospital Pharmacy Practice II.* (3)

A study of the administrative and professional principles and concepts of hospital pharmacy practice. Emphasis is placed upon the development of trends affecting hospital pharmacy; the administrative organization of the pharmacy; organizing and planning of the department; business management of the pharmacy and analysis of the professional service and activities of the hospital pharmacy. Lecture, three hours. Prereq: CPH 866. *Staff.*

870 *Clinical Pharmacy Clerkship.* (6 or 10) I, II, S

This course acquaints the student with the techniques and various considerations involved in the diagnosis and evaluation of disease states and their treatment. It affords the student opportunity to gain an appreciation of the scientific, social, emotional and psychological aspects of illness and provides the student with ability to work with other health professionals, as well as providing an individualized experience in which he can be evaluated. Laboratory, 18-30 hours. Prereq: CPH 820. *Staff.*

872 *Non-Prescription Pharmaceuticals and Supplies.* (3) II

A study of various non-prescription pharmaceuticals, medical and surgical supplies and appliances commonly found in community pharmacy practice. Their evaluation, rational use and therapeutic efficacy will be stressed. The use of home remedies and their limitations in the treatment of minor ailments will be considered. Lecture, three hours. Prereq: MM 346. *Staff.*

874 *Drug Literature Evaluation.* (3) I, II

This course apprises the student of the pharmacological and toxicological principles and techniques employed in the clinical evaluation of drugs and enables the student to use more effectively the clinical literature. It is designed as a natural continuation of CPH 864. Lecture, three hours. Prereq: CPH 864. *Walton.*

876 *Disease Processes and Advanced Pharmacotherapeutics I.* (8)

An interdisciplinary course in which in-depth study of specific disease processes, especially the quantifiable, pathognomonic parameters permit the student to develop concurrently a unique expertise in the application of pharmacotherapeutic knowledge to clinical drug use. Lecture, five hours. Prereq: CPH 864; CPH 874. *Walton.*

878 *Disease Processes and Advanced Pharmacotherapeutics II.* (8)

A continuation of CPH 876. An interdisciplinary course in which in-depth study of specific disease processes, especially the quantifiable, pathognomonic parameters permit the student to develop concurrently a unique expertise in the application of pharmacotherapeutic knowledge to clinical drug use. Lecture, five hours. Prereq: CPH 864; CPH 874. *Walton.*

880 *Introduction to Institutional Practice.* (3) I

A presentation of the fundamental concepts and procedures involving the acquisition, distribution and control of drugs by pharmacists in hospitals. It is designed to acquaint the student with hospital pharmacy as a specialized area of practice. Lecture, three hours. Prereq: CPH 830. *Staff.*

890 *Clinicdl Pharmacy Seminar.* (1)

Topics in areas of clinical pharmacy concepts and principles of practice emphasizing the technical and professional knowledge and abilities required for involvement of the pharmacists in the health care team. Prereq: Admission to the Doctor of Pharmacy program. May be repeated to a maximum of two credits.

892 *Clinical Drug Communications.* (1-5)

This course is designed as a natural continuation of CPH 874 and serves the specific purpose of providing instruction and experience of such a nature and quality as to promote the professional role of the pharmacist in the communication of clinical pharmacology data and therapeutics information. May be repeated to a maximum of 10 credits. Lecture, one hour; lab, 4-16 hours. Prereq: CPH 874.

895 *Independent Problems in Clinical Pharmacy.* (1-3)

Selected problems in patient care, drug information, pharmacy administration, and pharmaceutical technology as related to pharmaceutical services. May be repeated to a maximum of six credits. Prereq: Permission of instructor.

MATERIA MEDICA

FACULTY

James T. Doluisio, acting chairman

Professor

Charles A. Walton — Ph.D., Purdue, 1956

Associate Professor

Mark M. Luckens — Ph.D., Connecticut, 1963

Assistant Professors

Louis Diamond — Ph.D., Maryland, 1967
George A. Digenis — Ph.D., Wisconsin, 1964
Richard M. Doughty — M.S., Pittsburgh, 1953
Grant R. Wilkinson — Ph.D., London, 1966
Gerald P. Sherman — Ph.D., Philadelphia, 1967

Instructor

William T. Lipscomb — B.S., Florida, 1959

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.*

330 *Pharmacognosy.* (3) II

A study of immunological antibiotic, allergenic endocrine and related proteinaceous products. The processing, standardization, and utilization of these products are discussed in relation to the appropriate infectious and pathological disease conditions. Antifectant chemical agents are discussed also. Lecture, three hours. Prereq: CHE 232, MB 200 and BIO 202. *Doughty and Digenis.*

334 *Physiology and Pharmacodynamics.* (5) I

Basic human anatomy and physiology with strong emphasis on the functioning of the nervous, muscular, endocrine, excretory, respiratory, circulatory, digestive and reproductive systems, including principal anomalies of these systems and the pharmacodynamics of typical drugs. Lecture, four hours; lab, three hours. Prereq: BIO 202 or ZOO 200, and CHE 232. *Diamond and Staff.*

335 *Microscopic Pharmacognosy.* (2) II

This lecture-laboratory course discusses and teaches the microscopic features of crude drug sections and powders. Pollen and fiber morphology is included. Photomicrographic techniques are examined. Two two-hour lecture-laboratory periods. Prereq: BIO 202 or BOT 200. *Doughty.*

342 *Pharmacognosy.* (4) I

A study of important drugs of vegetable and animal origin. The pharmacological and chemical nature, economic importance, extraction and biosynthesis of these products is discussed with suitable background material. Lecture, three hours; lab, three hours. Prereq: CHE 232 and BIO 202. *Doughty and Digenis.*

346 *Physiology and Pharmacodynamics.* (5) II

A continuation of MM 334. Lecture, four hours; lab, three hours. Prereq: MM 334. *Diamond and Staff.*

380 *Environmental Toxicology.* (2) II

This course is concerned with the recognition, evaluation, and control of toxicologic factors arising in man's environment; their influence on health and well-being of the citizen and the community. Measures currently employed or under investigation for the control, elimination, or mitigation of biologic, physical, and toxicologic factors deleterious to man and his environment will be considered. Two class hours per week. Prereq: CPH 863 or permission of the instructor. *Luckens.*

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. *Walton and Staff.*

462 *Pharmacology and Toxicology.* (5) II

A continuation of MM 450. Lecture, four hours; lab, two hours. Prereq: MM 450 or equivalent. *Walton and Staff.*

470 *Drug Literature Evaluation.* (3) I

This course apprises the student of the pharmacological and toxicological principles and techniques employed in the clinical evaluation of drugs and enables the student to use more effectively clinical literature. It is designed as a natural continuation of MM 462. Prereq: MM 462. *Walton.*

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. *Luckens.*

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. *Doughty and Digenis.*

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. *Diamond and Staff.*

486 *Poison Information and Control.* (3) I

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. *Luckens.*

620 *Biotoxicology.* (3 or 5)

An advanced course in toxicology and toxicodynamics concerned with the sources, isolation, purification identification as well as the physiologic effects on man, animals, and plants of the various toxic substances encountered in the occupations, home, as well as rural and urban environments. Special attention will be given to type compounds as well as structure-activity relationships. Lecture, three hours; lab, four hours. Prereq: BCH 514, 515, CHE 532, PHA 521, and PGY 503 or MM 334 and 346; or consent of instructor. *Luckens.*

630 *Biotoxicology.* (3 or 5)

A continuation of MM 620. Prereq: MM 620 or permission of the instructor. *Luckens.*

640 *Environmental Toxicology and Occupational Hygiene.* (3)

An advanced course concerned with the recognition, analysis, evaluation, and control of the physical, physiologic, and toxicologic factors arising from occupational and natural environments; their effects on the well-being of the worker and the community; and current practices in their recognition, elimination and/or mitigation. The occupational environment will be considered as a special case of the ambient environment. Special attention will be given to the development of design data for practical problems. Lecture, three hours per week. Prereq: MM 620, 630 or permission of the instructor.

PHARMACEUTICAL CHEMISTRY

FACULTY

Arthur C. Glasser, chairman

Professor

Arthur C. Glasser — Ph.D., Ohio State, 1953

Associate Professor

Milton J. Kornet — Ph.D., Illinois, 1962

Assistant Professors

George A. Digenis — Ph.D., Wisconsin, 1964

Edward O. Magarian — Ph.D., Mississippi, 1964

VOLUNTARY FACULTY

Assistant Adjunct Professor

Samuel T. Christian — Ph.D., Tennessee, 1966

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.*

302 *Organic Pharmaceutical Chemistry.* (5) II

A course similar to Pharmaceutical 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.*

304 *Inorganic Pharmaceutical Chemistry.* (2) 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. Prereq: CHE 110 and 112. *Dittert.*

310 *Pharmaceutical Analysis and Control.* (5) I

A study of the quantitative analytical techniques commonly used to assure the potency, quality, and stability of raw materials and finished pharmaceutical dosage forms. Four class hours per week; lab, three hours per week. Prereq: CHE 112 or equivalent. *Dittert.*

340 *Principles of Medicinal Chemistry.* (3) I

A course designed to introduce the fundamental concepts of the application of chemical principles to the study of medicinal agents. Basic heterocyclic chemistry as is needed to develop the chemistry of physiologically active molecules. Physiochemical properties of drugs and their relation to physiological activity, and fundamental consideration of the metabolic changes in drug molecules are major areas of development of the course presentation. Three class hours per week. Prereq: PCH 400 or equivalent. *Kornet.*

395 *Independent Work in Pharmaceutical Chemistry.* (1-3) I, II, S

Selected problems of interest from the general field of Pharmaceutical Chemistry. May be repeated for a total of six credits. Prereq: Pharmacy major and standing of 3.0 in major. Consent of instructor. *Staff.*

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.*

402 *Pharmaceutical Analysis and Control.* (4) I

A course which deals with the application of analytical methods in the determination of the strength, purity and quality of drugs and pharmaceuticals; and includes the means by which quality can be assured in a fabricated pharmaceutical product. Laboratory exercises include analysis of raw materials and dosage forms. Lecture, three hours; lab, three hours. Prereq: CHE 226. *Dittert.*

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. *Magarian.*

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. *Magarian.*

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: PCH 302 or equivalent. *Magarian.*

412 *Advanced Organic Pharmaceutical Chemistry* (3) II

A continuation of PCH 410. Lecture, one hour; lab, six hours. Prereq: PCH 302 or equivalent. *Magarian.*

510 *Modern Methods in Pharmaceutical Analysis.* (5)

A course which deals with the application of modern analytical methods, primarily instrumental methods, in the determination of the strength, purity, and quality of drugs and pharmaceuticals. Laboratory exercises include analysis of raw materials and finished dosage forms. Three class hours and four lab hours per week. Prereq: CHE 226. *Dittert.*

620 *Natural Products Chemistry.* (3)

Chemistry of natural products. A course designed to establish a bridge between organic chemistry, biochemistry and biology in terms of such areas as biogenisis, biotransformations, isolation, degradation, structure elucidation and synthesis of natural products of interest as medicinal agents. Three class hours per week. Prereq: PCH 400 or equivalent and consent of instructor.

640 *Advanced Pharmaceutical Chemistry I.* (3)

Chemistry of chemotherapeutic agents. A course bridging synthetic organic chemistry and biological activity and considering those organic compounds used as therapeutic agents in infectious diseases emphasizing the synthesis, relationship between chemical structure, biological activity, molecular modification and metabolism. Three class hours per week. Prereq: Advanced Organic Chemistry and consent of instructor.

642 *Advanced Pharmaceutical Chemistry II.* (3)
Chemistry of pharmacodynamic agents. A course similar to PCH 640, but considering those agents altering physiological activity such as antihistaminics, anesthetics, antispasmodics, hypnotics, etc. Three class hours per week. Prereq: Advanced Organic Chemistry and consent of instructor.

760 *Topics in Pharmaceutical Chemistry.*
(Topic and credit to be listed when offered) (2-4)
A study of selected areas of pharmaceutical chemistry such as drug-protein binding, synthetic methods in drug development, heterocyclic compounds, alkaloids, steroids, flavones, etc. May be repeated for a maximum of 10 hours. Prereq: Consent of instructor.

768 *Residence Credit for Master's Degree.* (0)
May be repeated. (1-6 credits equivalence.)

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely. (1-12 credits equivalence.)

776 *Seminar in Pharmaceutical Chemistry I.* (1)
Reports and discussion on pertinent research and literature developments in pharmaceutical chemistry. Required of all graduate students. Prereq: Graduate standing.

778 *Seminar in Pharmaceutical Chemistry II.* (1)
Reports and discussion on pertinent research and literature developments in pharmaceutical chemistry. Required of all graduate students. Prereq: Graduate standing.

780 *Special Problems in Pharmaceutical Chemistry.* (1-6)
Selected problems of laboratory or library nature in which a student pursues a topic of interest to him under the supervision of a faculty member particularly qualified in that area. May be repeated once. Prereq: Consent of instructor.

790 *Research in Pharmaceutical Chemistry.* (1-12)
Research work to be conducted in the various areas of pharmaceutical chemistry such as synthesis of medicinal agents, analytical methods for drugs, structure action relationships, and related topics. Prereq: Approval of student's Graduate Committee and consent of instructor.

PHARMACY

FACULTY

James T. Doluisio, chairman

Professors

James T. Doluisio	Ph.D., Purdue, 1962
Howard Hopkins	Ph.D., Nebraska, 1959
Harry B. Kostenbauder	Ph.D., Wisconsin, 1956
Earl P. Slone	M.A., Columbia, 1951
Joseph V. Swintosky	Ph.D., Wisconsin, 1948

Associate Professors

Norman F. Billups	Ph.D., Oregon State, 1963
Charles T. Lesshafft, Jr.	Ph.D., Purdue, 1955
Lewis W. Dittert	Ph.D., Wisconsin, 1961

Assistant Professor

Grant R. Wilkinson	Ph.D., London, 1966

VOLUNTARY FACULTY

Assistant Adjunct Professor

John C. LaPiana	B.S., Temple, 1959

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. *Slone.*

540 *Industrial Pharmaceutical Technology.* (4) II
The course is designed to give the student a basic understanding of the technology used in the preparation of the principle type of dosage forms by the pharmaceutical industry. Two class hours and four lab hours per week. Prereq: PHR 825. *Billups, Lesshafft.*

612 *Quantitative Pharmacodynamics. Pharmacokinetics.* (2)
Quantitative treatment of dynamics of drug absorption, distribution, metabolism and excretion, including development of mathematical models for these processes and application of techniques such as analog simulation. This course is cross-listed with PHA 612. Two class hours per week. Prereq: PHA 521 and consent of instructor.

622 *Advanced Biopharmaceutics.* (2)
An advanced treatment of the factors affecting drug availability from dosage forms and the influence of the route of administration and the dosage regimen on drug availability. Two class hours per week. Prereq: PHR 612.

630 *Pharmaceutical Rate Processes.* (3)
Kinetics of reactions of pharmaceutical interest; mechanisms of drug decomposition and theoretical approaches to stabilization and preservation; accelerated stability analysis. Three class hours per week. Prereq: Physical Chemistry and Chemical Kinetics.

631 *Equilibrium Phenomena in Pharmaceutical Systems.* (3)
An advanced study in special topics of a physical chemical nature which are applicable to pharmacy, with special emphasis on physical properties and molecular structure solubility, complexation and equilibria in solution. Three class hours per week. Prereq: Physical Chemistry.

632 *Pharmaceutical Disperse Systems.* (3)
The theoretical considerations basic to the technology of pharmaceutical disperse systems. Topics include colloidal dispersions, suspensions, emulsions, and rheology. Three class hours per week. Prereq: Physical Chemistry.

760 *Topics in Pharmaceutics.* (2)
This course deals with emerging basic concepts of pharmaceutical interest that are not being covered in other courses. Two class hours per week.

768 *Residence Credit for the Master's Degree.* (0)
May be repeated indefinitely. (1-6 credits equivalence.)

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely. (1-12 credits equivalence.)

776 *Seminar in Pharmaceutics I.* (1)
Reports and discussion of pertinent research and literature in pharmaceutics. Prereq: Graduate standing.

778 *Seminar in Pharmaceutics II.* (1)
Reports and discussion of pertinent research and literature in pharmaceutics. Prereq: Graduate standing.

780 *Special Problems in Pharmaceutics.* (1-6)
Special problems of a laboratory or literature nature in which a student pursues a topic of interest to him. Prereq: Consent of the instructor.

790 *Research in Pharmaceutics.* (1-12)
Research work to be conducted in various areas of pharmaceutics. Prereq: Approval of student's Graduate Committee and consent of instructor.

805 *Pharmaceutical Calculations.* (3) I
A systematic study of arithmetical problems encountered in Pharmacy. Lecture, three hours. *Billups.*

810 *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. *Doluisio.*

815 *Introduction to Pharmaceutical Systems.* (4) I

This course is designed to give the student an understanding of technology useful in the preparation of the principal type of dosage forms of drugs. Lecture, three hours; laboratory, three hours. *Billups.*

820 *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 805 and 810. *Doluisio.*

825 *Physical Pharmacy.* (4) II

A study of quantitative or theoretical principles as they apply to Pharmacy. The course is intended to provide a basis for analyzing and interpreting the physical and chemical aspects of systems of interest to pharmacists. Lecture, three hours; laboratory, three hours. Prereq: PHR 815. *Doluisio and Kostenbauder.*

830 *Theoretical Pharmacy.* (4) I

A continuation of Pharmacy 810 at a more advanced level. Lecture, three hours; lab, three hours. Prereq: PHR 820; PCH 302, 304. *Billups.*

835 *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. *Staff.*

840 *Pharmaceutical Technology.* (4) II

A continuation of Pharmacy 820 at a more advanced level. Lecture, three hours; lab, three hours. Prereq: PHR 830. *Billups.*

845 *Biopharmaceutics.* (4) I

This course deals with the interrelationships of absorption, distribution, metabolism, storage and excretion of drugs with the physical-chemical properties of body tissues, drugs and drug dosage forms. The receptor site concept of drug action will also be introduced. Lecture, three hours; laboratory, three hours. Prereq: PHR 825. *Doluisio and Kostenbauder.*

850 *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 835 and 840. *Lesshafft.*

855 *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 840; PCH 304, 400, MM 346. *Hopkins.*

856 *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 835 and ECO 260. *Staff.*

860 *Pharmaceutical Dispensing.* (5) II

A continuation of Pharmacy 850. The second semester's work is chiefly concerned with liquid prescriptions. Lecture, three hours; lab, four hours. Prereq: PHR 850. *Lesshafft.*

865 *Modern Therapeutic Agents.* (3) II

A continuation of PHR 855. Lecture, three hours. Prereq: PHR 855. *Hopkins.*

866 *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 856. *Staff.*

870 *Pharmaceutical Manufacturing.* (2-5)

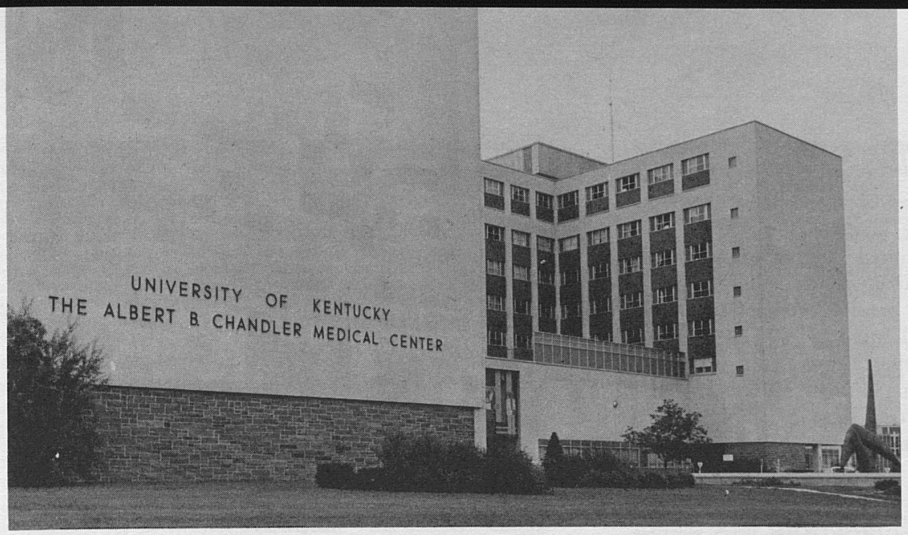
Methods of larger scale manufacture of compressed tablets, solutions, mixtures, ointments and creams, and suppositories. The use and care of equipment involved. Field trips to medium sized pharmaceutical manufacturing concerns. Prereq: Permission of department chairman. *Staff.*

880 *Introduction to Hospital Pharmacy.* (3) I, II

A presentation of the fundamental concepts and procedures involving the acquisition, distribution, and control of drugs by pharmacists in hospitals. It is designed to acquaint the student with hospital pharmacy as a specialized area of professional practice. Lecture, one hour; lab, eight hours. Prereq: MM 462 or consent of instructor. *Parker.*

895 *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.*



Medicine

William S. Jordan, Jr., M.D., is Dean of the College of Medicine.

The College of Medicine offers a four-year curriculum leading to a degree of Doctor of Medicine (M.D.) and training for post-doctoral and research fellows. The University Hospital offers accredited post-doctoral training for interns and residents.

A curriculum in Medicine has been a part of the University of Kentucky since 1960 when the first class was enrolled. The College of Medicine is responsible for providing its students with training in related basic sciences and with clinical experience under supervision in the University Hospital and other selected facilities.

As a part of the Medical Center—which also includes the University Hospital, the Colleges of Dentistry, Nursing, and Pharmacy, and a School of Allied Health Professions—the College of Medicine strives for programs of the highest possible quality. This means acquiring and keeping talented and outstanding faculty and administrative staffs, selecting the best possible student body, and creating an environment which fosters learning, investigation, and clinical excellence.

Philosophy and Program

A major objective of the College of Medicine is to prepare well educated students in the sciences and the art of medicine, and, with further training and experience, capable of engaging in the practice of general medicine or any of its specialties. Specialty training is provided largely through residency programs of the University Hospital. The educational program and facilities are designed to provide opportunities for interdisciplinary 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.

Although the school bears a special responsibility to prepare physicians who can meet the health needs of the people of Kentucky, including 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.

Academic Preparation for the Study of Medicine

Medical science and practice involve 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 study in physics; two semesters in the biological sciences; four semesters in chemistry, including organic chemistry; and at least one year of English with emphasis on communication skills such as reading, writing, and speaking.

Courses in each of the natural science areas should include laboratory work. Advanced work in mathematics is highly recommended, as are courses in the psychological 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 concentrated study of at least one subject in a major area of his interest by completing courses beyond the introductory level. Courses in subjects such as human anatomy, medical biochemistry, medical bacteriology, and mammalian physiology will be covered in medical school and are not essential in premedical education.

Requirements for Admission

Most applicants for medical college will be expected upon matriculation to have completed a liberal arts degree program in an accredited College of Arts and Sciences. Applicants with three years of college will be favorably considered if they present outstanding qualifications, indicating 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.

Criteria of Selection

In admitting students to the College of Medicine, the University endeavors to select those students who show promise of making the best possible future physicians. Applicants are judged on the basis of their total qualifications and in comparison with other applicants.

As a State-supported school, the College of Medicine gives preference to qualified residents of Kentucky. Well qualified out-of-state candidates are encouraged to apply since some non-residents also are admitted.

Selection from among applicants who meet the general premedical educational requirements of the College of Medicine is based on a number of criteria.

A high level of academic performance in an undergraduate college is important. It is recognized, however, that a meaningful evaluation of student performance must consider many factors in addition to the grades which a student has received.

Scholastic aptitude as measured in certain objective tests also is considered. All applicants are required to take the Medical College Admission Test. It has been demonstrated that the scores obtained on this test provide some basis for prediction of a student's relative ability to cope with the medical curriculum.

Since the practice of medicine involves the physician in continual relationship with people—with his patients, and with other members of the health team—applicants are also judged according to the personality characteristics which they demonstrate. Friendliness, warmth, compassion, and integrity are all essential traits in the physician.

Often the physician's ability to communicate effectively will determine his degree of success in the diagnosis and management of a patient's health problem and in his other professional activities. Thus, consideration is given to the communication skills demonstrated by each applicant. Communication is a two-way process and involves the ability to listen perceptively, as well as to speak and write clearly.

Because the practice of medicine and the life of the medical student require a great investment of effort and are demanding of both time and energy, it is essential that a prospective medical student be in good health and that his motivation to study medicine be sufficiently strong to sustain him in the face of difficulties.

Requests for further information or application forms should be sent to:

Committee on Medical College Admissions
Medical Center
University of Kentucky
Lexington, Kentucky 40506

ANATOMY

FACULTY

Harold F. Parks, chairman

Professors

Robert S. Benton	Ph.D., Duke, 1960
Lois A. Gillilan	M.D., Pittsburgh, 1947
Harold F. Parks	Ph.D., Cornell, 1950

Associate Professors

William B. Cotter, Jr.	Ph.D., Yale, 1956
Ira Fowler	Ph.D., Northwestern, 1952
Harold H. Traurig	Ph.D., Minnesota, 1962
Miroslava N. Winer	Ph.D., Duke, 1957

Assistant Professors

William K. Elwood	Ph.D., Wayne State, 1965
Roger O. Lambson	Ph.D., Tulane, 1965
David Peck	Ph.D., Johns Hopkins, 1961
Stephen D. Smith	Ph.D., Tulane, 1965
J. Kent Trinkle	M.D., Indiana, 1959

Instructor

Jeptha R. Hostetler	Ph.D., Ohio State, 1968

The Department of Anatomy provides instruction in each of the major subdisciplines of Anatomy for medical and dental students. It also gives courses relevant to the needs of students of nursing and physical therapy, and maintains a graduate program to train and educate future anatomists and to strengthen the scientific backgrounds of postdoctoral students preparing for careers in academic medicine and dentistry.

Course Descriptions

104 *Anatomy and Physiology.* (4)
This course will cover the general features of the anatomy of the human body and the general aspects of physiology. Early in the semester emphasis will be on anatomy and on physiology in the later part, with form and function related throughout. Information is presented at the college freshman level. Prereq: consent of instructor. (This course is offered only in the Community Colleges.)

106 *Introduction to Anatomy.* (3)
A detailed study of the bones of the human skeleton; arrangement of joints, ligaments and muscle attachments. Other major systems of the body will also be studied. Lecture, one hour; laboratory, four hours.

107 *Laboratory for Anatomy* 106.

206 *Elementary Anatomy.* (3) I

The objectives of the course include: A familarization with the terminology applying to the major parts of the body; the organs, systems and regions, and the terminology applying to motion in the various parts of the body. Information is given on the constituents of cells, the ways in which cells are united with each other and with intercellular substances to form tissues, organs and regions of the body. Students will be informed about the structure of the body in such a way that the functions of the body can be better understood. Lectures, three hours per week with occasional optional demonstrations. Prereq: Introductory course in biology, zoology, or botany and consent of the chairman.

503 *Independent Work in Anatomy.* (3) I, II, S

Reading and laboratory work in a defined area of anatomy are carried out under the direct supervision of one staff member. Hours of discussion and lab work by individual arrangement. May be repeated 3 times for a maximum of 12 credits. Prereq: An introductory course in biology, zoology, or botany and permission of the chairman.

511 *Introduction to Anatomy.* (4)

The principles of organization of the human body are presented. Several methods of studying anatomy are utilized. Gross anatomy lectures follow a systemic development. Other methods include radiology, palpation of living structures, *in vivo* microscopy, the demonstration of prosected fresh and fixed materials and dissection. Prereq: Some background in biology, including one or more such courses as biology, zoology, botany, comparative anatomy or embryology, and consent of the instructor.

512 *Microscopy and Ultrastructure.* (3)

The organization of cells, tissues and organs are presented through lectures and in the laboratory, through the microscopic study of *in vivo* materials, histological sections and illustrations. Prereq: Some background in biology, including one or more such courses as biology, zoology, botany, histological techniques, comparative anatomy or embryology, and consent of the instructor.

513 *Developmental Anatomy.* (2)

The development of the human body is presented through lecture, visual aids including motion pictures, histological sections and laboratory demonstrations and exercises. A majority of the time is spent on intra-uterine development; however, post-natal growth and common morphological changes associated with aging are also taken up. Prereq: Some background in biology, including one or more such courses as biology, zoology, botany, comparative anatomy or embryology, and consent of instructor.

516 *Anatomy of the Nervous System.* (3)

The gross and microscopic structure of the central and peripheral nervous systems and their blood supply will be studied. The course will include the functional interpretation of anatomical structures. Prereq: ANA 511, 512, 513; PGY 511; consent of instructor.

529 *Concepts of Morphology.* (2) I, II

The objective of this course is to present concepts of morphology as they concern cells, tissues, or organs, systems and/or regions of the human body. Necessarily, the history of the development of ideas about the selected topic will be surveyed. Inherent also in the presentation of concepts of structure will be the presentation of controversies which have resulted from differing methods and interpretations. Four class hours per week. May be repeated once for a total of 4 hours. Prereq: Advanced work in biology, preferably a major or minor in a biological science, and consent of the staff.

531 *Combined Gross and Neuroanatomy.* (6)

The course includes a presentation of principles and generalizations about the morphology of the human body and several techniques for studying gross and neuroanatomy of the head, neck, and thorax. Neuro and gross anatomy will be given to three hours of lab work. Dissection guide, texts, atlases and original articles will be assigned. Prereq: Entrance requirements of College of Dentistry. Some background in biology and consent of instructor.

532 *Combined Histology and Embryology.* (4)

The course includes the microscopic study of tissues and organs of the human body and the general development of the human embryo and fetus, with emphasis placed upon the development of head, neck, and face. Texts and additional literature references are assigned. Approx. one hour lecture to two hours lab. Lecture, 50 hours; lab, 70 hrs. Prereq: Entrance requirement to College of Dentistry. Some background in biology and consent of instructor.

533 *Oral Histology.* (2)

A detailed study of the microscopic organization and ultrastructure of the several gross structures of the oral cavity and tooth development. Texts and original articles are assigned. Discussion will be carried out within the laboratory periods. Approx. one hour lecture to two hours lab. work. Lecture 18 hours; lab. 32 hours. Prereq: ANA 531, 532 or their equivalents; consent of instructor.

611 *Regional Gross Anatomy.* (8)

The course will include: (1) a detailed dissection of the human body (2) study of specific relations of the systems within major regions (3) a familiarization with reference sources in the field of gross human anatomy. Prereq: Courses in Comparative Anatomy and Embryology and ANA 511 or the equivalent and consent of instructor.

629 *Techniques of Anatomical Research.* (2) I, II, S

The objective of this course is the familiarization of students with research techniques in anatomy. The relationship will be tutorial. Students will work under the direction of given staff members for determined periods of time, usually on a problem. The exact length of time will depend upon the student's purposes, progress and the techniques. The problem may be new research or a repetition of previous work. Prereq: Previous senior college or graduate level work in biology and consent of chairman.

631 *Advanced Gross Anatomy.* (3-5) I, II, S

The objective of this course is to meet individual student needs for increased knowledge in particular areas of gross human morphology. Investigations of problems involving gross morphology will be carried out. One or several defined areas of the body will be studied in considerable detail by dissection, by intensive use of the pertinent literature, by the use of visual aids, prosected materials and other appropriate learning aids. May be repeated at the discretion of the student's committee. Prereq: A background in gross human anatomy equivalent to a medical school course in regional anatomy and consent of instructor.

633 *Advanced Developmental Anatomy.* (2-5)

The objectives of the course include a detailed study of the intrauterine development of the human fetus as well as of fetal physiology and comparative aspects of gestation. Prereq: Comparative Anatomy, Embryology, consent of instructor.

634 *Advanced Endocrinology.* (2-5)

The objectives of this course include interrelating the microscopic and ultrastructural morphology of endocrine glands with the functions of these glands. Emphasis will be placed on functional aspects, chemistry and mode of action of specific hormones. All endocrine organs will be studied and given equal importance. The relationship between the central nervous system and the endocrine system will be covered in detail. Prereq: Fundamental background in biology including some previous work in endocrinology; consent of instructor.

636 *Advanced Neuroanatomy.* (3-5) I, S

The objectives include specific and detailed correlation of anatomical materials with clinical data particularly in the areas of the subspecialties of Neurology, Psychiatry, Ophthalmology, Otolaryngology, Internal Medicine, and Neurosurgery. Clinical data from these subspecialties will be related to the location of nuclei, the precise patterns of fiber tracts, and to blood supply. The detailed content and emphasis will depend upon both the background and the purposes of the students. Prereq: ANA 511, 512, 513, 516, or their equivalent and consent of instructor.

638 *The Genetic Basis of Human Morphology.* (2-5)

The course will provide an historical survey of human genetics as background for current concepts. The genetics of man will be studied together with the problems of data gathering which are unique and are inherent in this field. The interrelations of known errors of human metabolism to alterations of cell and system morphology will be presented. Prereq: Elementary Genetics and consent of instructor.

651 *Special Projects in Anatomy of Head and Neck Correlated with Neuroanatomy.* (3-5) Every other I, II

The objective of the course is to provide the opportunity for the learning of detailed information about gross anatomical relations in the head and neck. Prereq: A course in regional gross anatomy and neuroanatomy and consent of the instructors.

662 *Ultrastructural Anatomy.* (2-5)

The objectives of this course are to advance the student's knowledge of the mammalian tissues and the human body. Those students registering for more than 2 hours of credit will do advanced laboratory work in electron microscopy and micro-radiographic technics. Correlation of intra and extra cellular morphology and function will be stressed. Prereq: Previous work in microscopy including histology or cytology and previous technique work with microbiology; consent of instructor.

768 *Residence Credit for Master's Degree.* (0) I, II, S

This course is for residence credit for the Master's Degree candidates. May be repeated twice. (1-6 credits equivalence.)

769 *Residence Credit for Doctor's Degree.* (0) I, II, S

This is for residence credit for the Doctoral Degree candidates. May be repeated indefinitely. (1-12 credits equivalence.)

811 *Gross Anatomy.* (5)
A gross anatomy course designed to present the principles of the human body on a systemic basis emphasizing general concepts of principles which apply to the structure of the systems. (Note: This course is based on and will include parts of ANA 511, Introduction to Anatomy, the standard course for medical students, with two credit hours of lab. especially pertinent to physical therapy.) Prereq: Comparative Anatomy and consent of instructor.

ANESTHESIOLOGY

FACULTY

Peter P. Bosomworth, chairman

Professors

Peter P. Bosomworth	M.D., Cincinnati, 1955
Marion A. Carnes	M.D., Tennessee, 1949
Dean H. Morrow	M.D., Indiana, 1959

Associate Professors

Robert B. Boettner	M.D., Western Reserve, 1955
Lloyd F. Redick	M.D., Ohio State, 1958
Daniel W. Wingard	M.D., Western Reserve, 1959

Assistant Professors

William J. Carey	M.D., Louisville, 1962
Ronald W. Dunbar	M.D., Northwestern, 1960
Jan. D. Hasbrouck	M.D., Rochester, 1962
Daniel MacDougall	M.D., Kentucky, 1964
John Plumlee	M.D., Missouri, 1959

VOLUNTARY FACULTY

David Lorenz Brown, M.D., *Clinical Assistant Visiting Anesthesiologist*
Ben Wade Crawford, M.D., *Associate Visiting Anesthesiologist*
Edward Philip Crawford, M.D., *Clinical Assistant Visiting Anesthesiologist*
Lewis Francis, M.D., *Associate Visiting Anesthesiologist*
Norman Keith Kirby, M.D., *Clinical Assistant Visiting Anesthesiologist*
Charles F. Moller, M.D., *Associate Visiting Anesthesiologist*
Robert C. Morris, M.D., *Assistant Visiting Anesthesiologist*
Saul Rubin, M.D., *Assistant Visiting Anesthesiologist*
Jack H. Welch, M.D., *Clinical Assistant Visiting Anesthesiologist*

The academic responsibilities of the Department of Anesthesiology include instruction in anesthesia principles and techniques to medical and dental students. In addition, the Department conducts a formal postgraduate program for the training of physicians in the specialty of Anesthesiology. Students receive every opportunity to make informed decisions regarding patient care under close supervision. The Department of Anesthesiology cooperates in selected parts of the course work in the departments of Pharmacology, Physiology and Surgery.

Course Descriptions

831 *Anesthesia Clerkship.* (3)
Two weeks full time.

BEHAVIORAL SCIENCE

FACULTY

Robert Straus, chairman

Professors

Thomas R. Ford	Ph.D., Vanderbilt, 1951
Eugene B. Gallagher	Ph.D., Harvard, 1958
Art Gallaher	Ph.D., Arizona, 1956
Melvin J. Lerner	Ph.D., New York University, 1957
Marion Pearsall	Ph.D., California, 1950
Robert Straus	Ph.D., Yale, 1947

Associate Professors

Ronald C. Dillehay	Ph.D., California, Berkeley, 1962
John V. Haley	Ph.D., Loyola, 1964
Roy K. Jarecky	Ed.D., Columbia, 1958
Garth Olde	Ph.D., University of West Ontario, 1967

Assistant Professors

Anthony Colson	Ph.D., Stanford, 1699
Donald McVarish	Ph.D., California, Berkeley, 1966
Philip M. Moody	Ph.D., Utah, 1967
John B. Stephenson	Ph.D., North Carolina, 1966
Laia Hanau	M.A., Rochester, 1960

VOLUNTARY FACULTY

Jerome S. Miller, Ph.D., *Adjunct Associate Professor*
John A. O'Donnell, Ph.D., *Adjunct Associate Professor*

The Department of Behavioral Science has the following major objectives with respect to education for medical students: 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 within medical institutions themselves; third, the provision of instruction and consultation in research methodology; and, fourth, the development of curricula and research around concepts of communication and small group human interaction.

The teaching program of the Department, in the College of Medicine, includes the course, *Health and*

Society, a series of elective courses, participation in several conjoint courses, and participation as consultants in patient-management and other clinical conferences on invitation from the various clinical departments.

The Department also offers courses in the Colleges of Dentistry and Nursing, a program of concentration in medical behavioral science for graduate students who are working for doctoral degrees in the various behavioral science disciplines, and a program for post-doctoral fellows.

Course Descriptions

212 *Human Growth and Development.* (4)
A study of individual growth and development from conception through senescence, focusing on the sequence of physical, social, and psychological development, including the influence of internal and external forces, and the individual characteristics and developmental tasks of each age group with special reference to health experiences in the life cycle. Prereq: PSY 104, SOC 101.

221 *Behavioral Factors in Health and Disease.* (3)
The study of human behavior relating to health and disease and the organization of medicine as a social system. Selected concepts from the psychological and social sciences are presented in a holistic frame of reference and applied to the consideration of specific problems.

527 *Society and Health.* (3) II
The study of human behavior in illness and of medicine as a complex form of social organization in perspective of historical, cross-cultural and contemporary analysis. This course is designed primarily for students preparing for careers in an allied health science and profession. Prereq: SOC 101. (Same as SOC 527.)

546 *Social Factors in Mental Health.* (3) In alternate years II
The significance of social and cultural factors in the recognition, course, and management of mental health problems; social organization of the mental hospital and cultural alternatives of hospitalization. Prereq: Consent of instructor; SOC 101. (Same as SOC 546.)

670 *Seminar on Role Theory.* (3) I
An exploration of differences and similarities in the utilization of the concept of role in sociology, anthropology and psychology. Emphasis is placed on the potentiality of role as a unifying concept in the behavioral sciences. Three class hours per week. Prereq: Consent of instructor; SOC 101. (Same as SOC 670.) (Same as ANT 670.)

765 *Research Problems in Medical Anthropology.* (3) II
(1) History and theory of medical anthropology; (2) research design, field work, analysis of data, and report writing. Two class hours, three lab hours per week. Prereq: Graduate status in ANT, SOC, or PSY, and a Concentration or Minor in Medical Behavioral Science. (Same as ANT 765.)

766 *Concepts in Medical Sociology.* (3) I
A systematic review of sociological concepts and methods which have been applied to the study of health and medicine; the contributions of medical sociology to general sociological theory; the roles of sociology in education for the health professions and in research on health related problems of society. Two class hours and four lab hours per week. Prereq: Predoctoral status in one of the Social or Behavioral Sciences with a Concentration or Minor in Medical Behavioral Science; SOC 101. (Same as SOC 766.)

772 *Topical Seminar in Medical Behavioral Science.* (1-3) I, II
Advanced study of topics of current importance in medical behavioral science such as alcoholism, social psychological processes related to health, social structure of mental hospitals, social epidemiology of disease, institutional dependency, computer-aided medical diagnosis. One to three class hours per week. May be repeated to a maximum of 6 credits. Prereq: Consent of instructor.

790 *Research in Medical Behavioral Science.* (1-6) I, II
Individually directed research and reading in particular aspects of medical behavioral science under the supervision of one or more members of the faculty. By appointment. Prereq: For students taking a Concentration or a Minor in Medical Behavioral Science as part of their doctoral programs or as elective for graduate, medical or dental students.

810 *Concepts of Dental Behavioral Science.* (2)
Selected concepts from the behavioral sciences, (psychological, sociocultural, historical) are considered with special reference to the understanding of the nature and organization of dental resources and human behavior with respect to dental health and disease. Principles of human communication are considered in terms of the dentist-patient relationship. Some fundamental elements of statistics applicable to the basic sciences of dentistry are introduced through lectures, problems, and discussion. Lecture 32 hours.

811 *Health and Society.* (2)
This course is designed to provide medical students and graduate students in health related fields with selected concepts and principles from the behavioral sciences within the context of a holistic theory of behavior; to facilitate recognition of the pertinence of psychological, social and cultural variables in the understanding of human behavior in health and disease; to illustrate the application of behavioral science concepts and findings to a further understanding of the etiology, course and management of health problems; to provide an understanding of variations in human response to illness, of the organization of medicine as a major system of behavior and of interpersonal relationships and social structure within medicine. Prereq: For medical and graduate students only.

BIOCHEMISTRY

FACULTY

George W. Schwert, chairman

Professors

Frederick J. Bollum — Ph.D., Minnesota, 1956
Robert L. Lester — Ph.D., California Institute of Technology, 1956
George W. Schwert — Ph.D., Minnesota, 1943
David C. White — Ph.D., Rockefeller Institute, 1962

Associate Professors

Alfred S. L. Hu — Ph.D., Oregon, 1957
Alfred D. Winer — Ph.D., Duke, 1957
John W. Yarbro — M.D., Louisville, 1956; Ph.D., Minnesota, 1965

Assistant Professors

Shung-Kai Chan — Ph.D., Wisconsin, 1962
Donald E. Slagel — Ph.D., Wisconsin, 1961

Because many of the phenomena of biology can now be described in molecular terms, the language and concepts of biochemistry have come into common use in all fields of experimental and applied biology. However, the growth of biochemistry has been so rapid that introductory courses, whether intended for medical, dental, or graduate students, must be selective in the choice of topics and in the scope of presentation. It is the object of introductory courses in this department to acquaint students with the principal concepts and methods of the major fields of biochemistry with particular reference to animal cells and cell systems. It is anticipated that these courses will provide a

foundation upon which students who have special interests in metabolism, growth and development of microorganisms or of plants or in clinical applications of biochemistry can develop those interests.

Lectures are used to augment textbooks in providing emphasis and to provide a portion of the experimental basis for major conclusions. Small group conferences serve to clarify problems and further to develop topics of special interests.

(For a description of the curriculum leading to the Ph.D. degree in Biochemistry, please consult the appropriate graduate bulletins of the University of Kentucky.)

Course Descriptions

501 *Biochemistry for Dental Students.* (6)
This is a course in general biochemistry in which particular emphasis is given to those aspects of the field which are of interest to students of dentistry. Lectures, 119 hours; lab., 26 hours.

511 *Biochemistry.* (7)
A selective summary of available information on cellular activities at the molecular level. Particular emphasis will be given to the processes by which metabolites are converted into compounds essential to the maintenance or growth of the cell or are oxidized to yield energy in a form which is useful to the cell. Discussions of respiration, nutrition and of the processes by which a constant extracellular environment is maintained are also included. Prereq: CHE 112 or 104, 232; CHE 442 is also highly desirable; ZOO 100; permission of department chairman.

514 *General Biochemistry.* (3)
An introductory but intensive course in the broader aspects of biochemistry. Topics stressed include the chemistry of naturally occurring materials, nature of enzyme action, intermediary metabolism and chemical aspects of the specialized behavior of animals, plants and microorganisms. Prereq: CHE 112, 222, 232. One year of a biological science; CHE 442 and 443 are highly desirable for students majoring in Biochemistry. These courses, however, may be taken concurrently.

515 *General Biochemistry.* (3)
A continuation of BCH 514.

517 *Experimental Methods in Biochemistry* (2)
A laboratory course dealing with the procedures and instruments of biochemical research. Each technic is employed in the course of a classical experiment demonstrating an important biochemical finding. The course is designed to accompany BCH 514, 515 and may be taken concurrently with BCH 515 during the second semester or in the following year. Because the materials employed are labile one full day per week is spent in the laboratory. Prereq: BCH 514 or its equivalent.

610 *Intermediary Metabolism.* (3)
A lecture and seminar course devoted to a study of the detailed mechanisms of carbohydrate, lipid and nitrogen metabolism. Prereq: BCH 511 or 514, 515.

611 *Intermediary Metabolism.* (3)
A lecture and seminar course devoted to a study of the detailed mechanisms of carbohydrate, lipid and nitrogen metabolism. A continuation of 610. Prereq: BCH 511 or 514, 515.

614 *Biochemistry of Proteins, Nucleic Acids and Enzymes.* (3)
A lecture and seminar course devoted to the chemical, physical and biological properties of proteins and nucleic acids and to the broad area of physical biochemistry, including kinetic and thermodynamic aspects of enzyme-catalyzed reactions. Prereq: BCH 511 or 514, 515; CHE 442.

615 *Biochemistry of Proteins, Nucleic Acids and Enzymes.* (3)
A continuation of BCH 614. Prereq: BCH 511 or 514, 515; CHE 442.

618 *Seminar in Biochemistry.* (1)
A weekly seminar, required of all students majoring in biochemistry devoted to discussions of areas not covered in other courses and to recent developments in the field.

619 *Seminar in Biochemistry* (1)
A weekly seminar, required of all students majoring in biochemistry, devoted to discussions of areas not covered in other courses and to recent developments in the field.

640 *Research in Biochemistry.* (1-15)
Prereq: Permission of instructor.

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely. (1-12 credits equivalence.)

COMMUNITY MEDICINE

FACULTY

Abram S. Benenson, chairman

Professors

Abram S. Benenson	M.D., Cornell, 1937
Howard L. Bost	Ph.D., Michigan, 1955
Ernest W. Chick	M.D., Duke, 1953
Michael L. Furcolow	M.D., Yale, 1938
William S. Jordan	M.D., Harvard, 1942
Frank R. Lemon	M.D., Loma Linda Univ., 1950
Tom. F. Whayne	Dr. P.H., Harvard, 1950
William R. Willard	Dr. P.H., Yale, 1937

Associate Professors

Joseph D. Alter	M.D., Hahnemann Medical College, 1950
Joseph Hamburg	M.D., Hahnemann Medical College, 1951
Donald L. Hochstrasser	Ph.D., Oregon, 1961
William H. McBeath	M.D., Louisville, 1957
Michael J. McNamara	M.D., New York University, 1955
Nicholas J. Pisacano	M.D., Hahnemann Medical College, 1951
Jesse W. Tapp	M.D., Chicago, 1955
H. Mac Vandiviere	M.D., North Carolina, 1960
Keene A. Watson	M.D., Vanderbilt, 1947

Assistant Professors

David S. Bauman	Ph.D., West Virginia, 1968
Ralph W. Eichenberger	M.D., Northwestern, 1950
Robert F. Gloor	M.D., Loma Linda Univ., 1954
Ian B. Shine	M.D., Cambridge, 1965
G. David Steinman	M.D., Baylor, 1963
Martin B. Marx	Ph.D., North Carolina, 1968

Instructors

Rose Marie Hawkins	M.P.H., North Carolina, 1963
Coy T. Smith	B.S., Southwestern State College, 1965

Research Associate

Irene G. Melvin	M.S., North Carolina, 1954

VOLUNTARY FACULTY

Charles F. Blankenship, M.D., *Clinical Professor of Community Medicine*
Buster Brown, M.D., *Assistant Clinical Professor of Community Medicine*
Samuel T. Christian, Ph.D., *Assistant Clinical Professor of Community Medicine*
Jorge Deju, M.D., *Assistant Clinical Professor of Community Medicine*
Frederick Eberson, M.D., Ph.D., *Associate Clinical Professor of Community Medicine*
William R. Elsea, M.P.H., *Associate Clinical Professor of Community Medicine*
Rena Gazaway, Ph.D., *Assistant Professor of Community Medicine*
W. D. Mortimer Harris, M.D., *Assistant Clinical Professor of Community Medicine*
C. Hernandez, M.D., *Assistant Clinical Professor of Community Medicine*
Mark T. Hoekenga, M.D., *Clinical Professor of Community Medicine*
William P. McElwain, M.D., M.P.H., *Assistant Professor*
Dan A. Martin, M.D., *Clinical Professor of Community Medicine*
Ralph C. Pickard, M.P.H., *Assistant Professor of Clinical Community Medicine*
Frank D. Scutchfield, M.D., *Assistant Clinical Professor of Community Medicine*
Joseph W. Skaggs, D.V.M., M.P.H., *Assistant Professor of Clinical Community Medicine*
Russell E. Teague, M.D., M.P.H., *Professor of Clinical Community Medicine*
John E. Trevey, M.D., *Assistant Clinical Professor of Community Medicine*
Laurel W. True, M.P.H., *Clinical Instructor*

The Department of Community Medicine has broad teaching, research, and service responsibilities. In teaching, the main objective is to prepare the student to contribute effectively to the identification and solution of community factors bearing on health.

More detailed teaching objectives of the Department are:

1) To provide the student with an understanding of the health problems and needs of the community and the circumstances under which the disease occurs; and the influence of community factors on the pattern of disease.
2) To help the student acquire the attitude of viewing individuals and families in a complex and changing environment.
3) To familiarize the student with existing community resources and organizations designed to meet these needs.
4) 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.
5) 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, 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 includes an elective assignment for carefully selected senior students who may undertake study, research, and service in communities within the state and in selected overseas areas.

Course Descriptions

821 *Community Medicine.* (2)
The major purpose of the course (72 hours), open only to medical students, is to prepare the student to understand and deal effectively with health problems of a community so that he can apply this knowledge in giving comprehensive quality care to individuals and families. The course will include lectures, seminars, demonstrations and field and laboratory assignments with emphasis on concepts of clinical public health, preventive medicine, epidemiology, environmental and ecological health, biostatistics and comprehensive medical care needs of communities.

841 *Fourth-Year Clerkship in Community Medicine.* (8)
Six weeks full-time.

CONJOINT

815 *First-Year Elective.* (2)
With the advice and approval of his faculty adviser, the first year student may choose approved electives offered by the various departments of the College of Medicine. The intent is to provide the student an opportunity for individual thinking and for the development of his own intellectual initiative. Prereq: Admission to College of Medicine and approval of the student's faculty adviser.

818 *Conjoint Sciences.* (2)

821 *Biology of Disease.* (18)
A cooperative interdisciplinary course encompassing what previously was taught as pathology, medicinal diagnosis, medical microbiology, parasitology, and radiobiology. Prereq: Admission to second-year medical curriculum.

822 *Human Growth and Development.* (2)

824 *Introduction to Communication and Interviewing.* (1)

825 *Second-Year Elective.* (1-4)
Electives to be offered by various College of Medicine departments will vary in length from 25 to 100 hours and will carry one to four hours credit. A student will select his elective with the advice and approval of his adviser. Prereq: Admission to second-year medical curriculum and approval of adviser.

841 *Fourth-Year Clinical Clerkship I.* (32)
This clerkship provides the student with clinical experience in Medicine and Surgery. Twelve weeks are spent on each service. Prereq: Admission to fourth-year medical curriculum.

842 *Fourth-Year Clinical Clerkship II.* (24)
This clerkship provides the student with clinical experience in Medicine, Surgery, and Obstetrics and Gynecology. Six weeks are spent on each service. Prereq: Admission to fourth-year medical curriculum.

843 *Fourth-Year Clinical Clerkship III.* (24)
This clerkship provides the student with integrated clinical experience in Medicine, Psychiatry, and Community Medicine. The clerkship will run for 18 weeks. Prereq: Admission to fourth-year medical curriculum.

845 *Fourth-Year Elective for Medical Students.* (1-24)
All departments participating—twelve weeks full-time.

848 *Fourth-Year Clinical Clerkship V.* (48)
This clerkship is designed for the exceptional student and provides him with an opportunity to study in depth clinical and medically related subjects for a period of 36 weeks. Prereq: Admission to fourth-year medical curriculum.

DIAGNOSTIC RADIOLOGY

FACULTY

Harold D. Rosenbaum, chairman

Professor

Harold D. Rosenbaum — M.D., Harvard, 1944

Associate Professors

John Howieson — M.D., Kansas, 1965
Arthur Lieber — M.D., Louisville, 1953
Joseph A. Sayeg — Ph.D., California, Berkeley, 1954

Assistant Professors

William R. Merritt, Jr. — M.D., Harvard, 1963
Leonidas Mostowycz — M.D., University of Innsbruck, Austria, 1951
David F. Preston — M.D., Cincinnati, 1959
Frances B. Toomey — M.D., Marquette, 1950

VOLUNTARY FACULTY

Harry J. Batts, M.D., *Assistant Clinical Professor of Radiology*
Joe D. Bernard, M.D., *Assistant Clinical Professor of Radiology*
John F. Berry, Jr., M.D., *Clinical Instructor of Radiology*
W. Leroy Boswell, M.D., *Associate Clinical Professor of Radiology*
Colby N. Cowherd, M.D., *Clinical Instructor of Radiology*
Zygmunt S. Gierlach, M.D., *Associate Clinical Professor of Radiology*
Michael M. Klien, M.D., *Assistant Clinical Professor of Radiology*
Charles K. Mahaffey, M.D., *Clinical Instructor of Radiology*
Thomas R. Marshall, M.D., *Associate Clinical Professor of Radiology*
Robert D. Shepard, M.D., *Assistant Clinical Professor of Radiology*

Every specialty in the practice of medicine utilizes the services of the Department of Diagnostic 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, diagnostic 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 diagnostic 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 conjoint courses. Nevertheless, the subject matter of diagnostic radiology is sufficiently distinctive and important to warrant a formal independent course. This need is satisfied by a required subject, RAD 834, in the third year. An elective in Diagnostic Radiology is available during the fourth year. Each elective course is tailored to the student's needs.

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 diagnostic radiology. All teaching exercises are designed to encourage maximal student involvement. Solving of clinical problems with roentgen evidence has largely replaced didactic presentations.

Course Description

834 *Radiology Clerkship.* (2)
Open only to Medical students. The radiology clerkship has been designed to accomplish the same broad purpose as the original course except that students will gain a more intimate knowledge of radiology by actual experience in the department with some responsibilities for the day to day radiological evaluation of patients, under faculty supervision.

MEDICINE

FACULTY

James W. Hollingsworth, chairman

Professors

James W. Hollingsworth — M.D., Duke, 1947
Harris Isbell — M.D., Tulane, 1934

William S. Jordan, Jr. M.D., Harvard, 1942
Irving F. Kanner
M.D., Western Reserve University, 1937
Ullin W. Leavell M.D., Duke, 1945
Frank R. Lemon M.D., Loma Linda Univ., 1950
Ralph Shabetai
M.D., University of Edinburgh, Scotland, 1952
Borys Surawicz
M.D., Stephen Batory University, Poland, 1939
William H. Waugh M.D., Tufts University, 1948
William W. Winternitz
M.D., Johns Hopkins University, 1945

Associate Professors

Robert N. Class M.D., Wayne State, 1946
Joseph Hamburg
M.D., Hahnemann Medical College, 1951
Robert G. Luke
M.B., Ch.B., Glasgow Univ., Scotland, 1959
Paul Mandelstam Ph.D., Harvard, 1953
M.D., Harvard, 1950
Alberto Mazzoleni
M.D., University of Milan, Italy, 1952
Michael P. McQuillen
M.D., Georgetown University, 1957
Jack L. Mulligan M.D., Louisville, 1952
Richard P. O'Neill
M.D., University College (Dublin), 1955
Robert W. Penman
M.D., Edinburgh University, Scotland, 1961
Nicholas J. Pisacano
M.D., Hahnemann Medical College, 1951
E. Douglas Rees M.D., Yale, 1954
John T. Reeves M.D., Pennsylvania, 1954
John W. Schaefer M.D., Cincinnati, 1953
John B. Selby M.D., Tennessee, 1946
Katherine L. Sydnor M.D., Cincinnati, 1949
Paul VanLith
M.D., State University of Leyden, Netherlands, 1952
Joseph E. Warren M.D., Harvard, 1938
John W. Yarbro M.D., Louisville, 1956
Ph.D., Minnesota, 1965

Assistant Professors

Doris Cary M.S.N. Ed., Indiana, 1958
Frank Cascio M.D., Buffalo, 1954
Leonard S. Gettes M.D., Penn State, 1958
Theodore N. Guiglia M.D., Louisville, 1956
James A. Maddy M.D., Vanderbilt, 1963
Ewa J. Marciniak
M.D., Vroclav Medical School, Poland, 1951
Lloyd D. Mayer M.D., Louisville, 1944
Robert R. Siegel M.D., Columbia, 1955
Karl F. Yoshonis M.D., Michigan, 1959

VOLUNTARY FACULTY

Fred L. Anderson, M.D., *Assistant in Medicine*
Kenneth Andrews, M.D., *Assistant Clinical Professor of Medicine*
James W. Bard, M.D., *Clinical Assistant in Medicine*
Carey Barrett, M.D., *Clinical Professor Emeritus of Medicine*
J. Hunter Black, M.D., *Clinical Instructor of Medicine*
M. Cary Blaydes, M.D., *Assistant Clinical Professor of Medicine*
David J. Brecount, M.D., *Clinical Instructor of Medicine*
Richard W. Carpenter, M.D., *Clinical Instructor of Medicine*
John S. Chambers, M.D., *Emeritus Clinical Professor of Medicine*
Allen L. Cornish, M.D., *Associate Clinical Professor of Medicine*
Matthew C. Darnell, M.D., *Associate Clinical Professor of Medicine*
George S. Dozier, M.D., *Assistant Clinical Professor of Medicine*
Stephen G. Edelstein, M.D., *Clinical Instructor of Medicine*
George R. Ellis, M.D., *Assistant Clinical Professor of Medicine*
Henry C. Evans, Jr., M.D., *Assistant Clinical Professor of Medicine*
Carl H. Fortune, M.D., *Clinical Professor of Medicine*
Richard M. French, M.D., *Assistant Clinical Professor of Medicine*
Charles R. Gill, M.D., *Assistant Clinical Professor of Medicine*
Armond T. Gordon, M.D., *Clinical Instructor of Medicine*
Ronald Hamilton, M.D., *Clinical Instructor of Medicine*
Richard F. Hench, M.D., *Clinical Instructor of Medicine*
Wallace Herrell, M.D., *Clinical Professor of Medicine*
Thomas G. Hobbs, M.D., *Associate Clinical Professor of Medicine*
David H. Johnston, M.D., *Assistant Clinical Professor of Medicine*
Charles N. Kavanaugh, M.D., *Assistant Clinical Professor of Medicine*
Karl C. Kelty, M.D., *Assistant Clinical Professor of Medicine*
William E. McDaniel, M.D., *Assistant Clinical Professor of Medicine*
Franklin B. Moosnick, M.D., *Associate Clinical Professor of Medicine*
John E. Myers, Jr., M.D., *Assistant Clinical Professor of Medicine*
Alfred S. Nelson, M.D., *Associate Clinical Professor of Medicine*
William H. Nickell, M.D., *Associate Clinical Professor of Medicine*
James A. Orr, M.D., *Assistant Clinical Professor of Medicine*

John Perrine, M.D., *Clinical Instructor of Medicine*
Charles E. Rankin, M.D., *Assistant Clinical Professor of Medicine*
John D. Ruff, M.D., *Assistant Clinical Professor of Medicine*
Samuel R. Scheen, Jr., M.D., *Assistant Clinical Professor of Medicine*
Stephen C. Schindler, M.D., *Clinical Instructor of Medicine*
Thornton Scott, M.D., *Clinical Professor of Medicine*
Jane B. Sears, M.D., *Clinical Instructor of Medicine*
Ronald L. Sergent, M.D., *Assistant Clinical Professor of Medicine*
Lee C. Shine, M.D., *Clinical Instructor of Medicine*
Robert B. Simons, M.D., *Assistant Clinical Professor of Medicine*
Earle E. Spencer, Jr., M.D., *Clinical Instructor of Medicine*
Kenneth C. Tufts, Jr., M.D., *Assistant Clinical Professor of Medicine*
Wilk O. West, M.D., *Assistant Clinical Professor of Medicine*
Kenneth Welsh, M.D., *Clinical Assistant Visiting Physician*
Isadore Zapolsky, M.D., *Assistant Clinical Professor of Medicine*

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. It hopes to 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 humane 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 psychologic sciences.

Course Description

831 *Medical Clerkship.* (14)

NEUROLOGY

FACULTY

David B. Clark, chairman

Professor

David B. Clark M.D., Chicago, 1946

Associate Professors

Michael P. McQuillen M.D., Georgetown University, 1957
Jonathan D. Wirtschafter M.D., Harvard, 1960

Assistant Professor

H. Douglas Jameson M.D., Wisconsin, 1958

Instructors

Robert H. A. Haslan M.D., University of Saskatchewan, 1960
Grahame A. Wise M.D., University of Sydney, Australia, 1958

VOLUNTARY FACULTY

Leslie W. Blakey, M.D., *Associate Clinical Professor of Neurology*
Carl F. Essig, M.D., *Assistant Clinical Professor of Neurology*
John C. Malek, M.D., *Assistant Clinical Professor of Neurology*
Richard L. Roth, M.D., *Assistant Clinical Professor of Neurology*

The Department of Neurology wishes to do four things for all medical students. It wishes to acquaint them with the major forms of organic disease of the nervous system; to give to all a working familiarity with the major manifestations of neurological disease, and with the techniques of their diagnosis and treatment; to express to all the changing functions of the nervous system which attend its growth, maturation, and senescence; and to make all aware of the effects of chronic neurological disorders on patients, their families, and their communities.

Clinical neurology knows no age or sex limitations, nor is it bounded by any special techniques or approaches. For the convenience of the students, the required course material is presented concurrently with that of other departments, principally Internal Medicine and Pediatrics. For those students who find a special interest in clinical neurology or neurological research, electives are available by consent of the Departmental faculty.

OBSTETRICS AND GYNECOLOGY

FACULTY

John W. Greene, Jr., chairman

Professors

John W. Greene, Jr. M.D., Pennsylvania, 1952
John W. Roddick, Jr. M.D., Northwestern, 1950

Assistant Professors

Preston V. Dilts, Jr. M.D., Northwestern, 1959

John L. Duhring — M.D., Pennsylvania, 1959
Stephen J. Zwirek — M.D., University of Toronto, 1956

Instructor

Barbara Clark — M.D., Chicago, 1944

VOLUNTARY FACULTY

Arthur E. Butterfield, M.D., *Clinical Instructor of Obstetrics and Gynecology*
Eugene A. Castle, M.D., *Associate Clinical Professor of Obstetrics and Gynecology*
G. Nelson Copeland, M.D., *Clinical Instructor of Obstetrics and Gynecology*
Philip S. Crossen, M.D., *Associate Clinical Professor of Obstetrics and Gynecology*
George E. Dodson, M.D., *Clinical Instructor of Obstetrics and Gynecology*
Donald E. Edger, M.D., *Assistant Clinical Professor of Obstetrics and Gynecology*
Ian Keith Edwards, M.D., *Clinical Instructor of Obstetrics and Gynecology*
William C. Ellis, M.D., *Clinical Instructor of Obstetrics and Gynecology*
Carl T. Evans, M.D., *Clinical Instructor of Obstetrics and Gynecology*
James R. Freedman, M.D., *Clinical Instructor of Obstetrics and Gynecology*
Laman A. Gray, M.D., *Professor of Clinical Obstetrics and Gynecology*
George Greene, M.D., *Associate Clinical Professor*
J. Kenneth Hurlocker, M.D., *Clinical Instructor of Obstetrics and Gynecology*
Charles L. Preston, M.D., *Clinical Instructor of Obstetrics and Gynecology*
James B. Stith, M.D., *Clinical Instructor of Obstetrics and Gynecology*
Charles N. Tarkington, M.D., *Clinical Instructor of Obstetrics and Gynecology*
Elwood L. Woolsey, M.D., *Associate Clinical Professor of Obstetrics and Gynecology*

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 reproduction system throughout woman'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 preclinical 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 19-day clerkship. At this time he is expected to master the basic concepts and principles concerning the physiology of pregnancy, labor and delivery, as well as certain aspects of pathologic pregnancies. This is achieved by observation of and participation in the care patients hospitalized at or near the end of pregnancy for many of a number of reasons. Concurrently, the student is expected to achieve a basic comprehension of certain pathologic processes which may adversely affect the female reproductive tract. During this interval, these learning processes are reinforced by at least 48 hours of small group conferences and seminars where concepts are discussed and their clinical applications emphasized.

Course Description

831 *Third-Year Clerkship in Obstetrics and Gynecology.* (3)
Two weeks full-time.

PATHOLOGY

FACULTY

Wellington B. Stewart, chairman

Professors

Herbert Braunstein — M.D., Hahnemann Medical College, 1950
Wellington B. Stewart — M.D., Rochester, 1945
Daniel L. Weiss — M.D., Columbia, 1946

Associate Professors

Harmon C. Bickley — Ph.D., Rochester, 1964
John A. Koepke — M.D., Wisconsin, 1956
Irene E. Roeckel — Dr. M.Sc., University of Heidelberg, 1946
Duane N. Tweeddale — M.D., Creighton University, 1951

Assistant Professors

Charles L. Stephens — M.D., Louisville, 1961
Robert A. Stewart — M.D., Wayne State, 1953
Wilmier M. Talbert, Jr. — M.D., Washington University, 1956
Tatsuo Yoneyama — M.D., Hakkaido University School of Medicine, Sapporo, Hakkaido, Japan, 1954

VOLUNTARY FACULTY

Malcolm L. Barnes, M.D., *Clinical Professor of Pathology*

Buster F. Brown, M.D., M.P.H., *Assistant Clinical Professor of Pathology*

P. R. Caffrey, M.D., *Assistant Clinical Professor of Pathology*

H. Davis Chipps, M.D., *Clinical Professor of Pathology*

Louis D. Dubilier, M.D., *Assistant Clinical Professor*

E. J. Fadell, M.D., *Associate Clinical Professor of Pathology*

Octavius E. Iglesias, M.D., *Assistant Clinical Professor of Pathology*

Ullin W. Leavell, Jr., M.D., *Associate Clinical Professor of Pathology*

John J. Loughrin, M.D., *Clinical Professor of Pathology*

James T. McClellan, M.D., *Clinical Professor of Pathology*

Ronald A. Moss, M.D., *Associate Clinical Professor of Pathology*

Harold E. Resinger, M.D., *Associate Clinical Professor of Pathology*

Leonard Wallace, M.D., *Assistant Clinical Professor of Pathology*

Kazuko Yoneyama, M.D., *Clinical Instructor of Pathology*

The educational mission of the Department of Pathology embraces all four years of the medical curriculum; however, the largest single effort is made in the second year. During the first year the Department participates in the Conjoint Sciences (818) course.

The second year provides a 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. Members of other departments assist in the instruction.

In addition to the more or less traditional approach to instruction, emphasis is placed upon personal contact and small informal group teaching, which is accomplished to a major degree in the student laboratories.

Electives in laboratory medicine are available to qualified third- and fourth-year students.

Course Descriptions

324 *Human Pathology.* (4)
This course constitutes a general survey of human disease with particular emphasis on diseases of interest to dental students. Lectures 32 hours; lab. 97 hours.

421 *Fundamental Human Pathology.* (4)
This course will provide a general survey of the various types of reactions to injury; regeneration, repair, the granulomata and the fundamentals of neoplasia. The emphasis will be upon the pathogenesis, mechanisms, and natural history of disease processes with particular stress on the interrelationships of structural and metabolic abnormalities. For non-medical students. Prereq: For graduate students: ANA 511, 512, 513, PGY 511, BCH 511 or equivalents and permission of departmental chairman.

422 *Systemic Human Pathology.* (7)
The study of disease of each organ system. For non-medical students. Prereq: For graduate students: ANA 511, 512, 513, PGY 511, BCH 511 or equivalent; permission of department chairman.

839 *Forensic Medicine.* (1)
The third-year Medico-Legal Series is designed to cover information in three interrelated areas, most of which are not formally taught in most medical schools. These are: (1) Forensic Medicine as seen by a forensic pathologist with emphasis on the possibilities and limitations of the field; (2) the interrelation between law and medicine with emphasis on problems for medicine and how to make the two systems interact better; and (3) Legal Medicine as the lawyer sees it with emphasis on the legal responsibilities of physicians. Prereq: Admission to the third-year medical curriculum.

PEDIATRICS

FACULTY

Warren E. Wheeler, chairman

Professors

David B. Clark	M.D., Chicago, 1946
Doane Fischer	M.D., Temple, 1947
Michael L. Furcolow	M.D., Yale, 1938
Warren E. Wheeler	M.D., Harvard, 1933
C. Charlton Mabry	M.D., Emory, 1954
Jacqueline A. Noonan	M.D., Vermont, 1954

Associate Professors

C. Phillip Holland	M.D., Louisville, 1954
Nancy H. Holland	M.D., Louisville, 1954
Dorothy Hollingsworth	M.D., Virginia, 1950

Assistant Professors

Robert A. Beargie	M.D., Ohio State, 1957
Kenneth L. Gerson	M.D., Ohio State, 1958
Vernon L. James, Jr.	M.D., North Carolina, 1956
Marina T. Yarbro	M.D., University of San Marcos, Peru, 1955

Instructors

Arturo Bautista	M.D., University of San Simon, Bolivia, 1960
Ingrid M. Daoud	M.D., University of Heidelberg, 1964
Ruth L. Pitman	M.S.W., Chicago, 1941
Jane K. Roe	M.S.W., Tulane, 1960
Earl E. Vastbinder	M.Sc., Ohio State, 1967
Linda R. Walters	M.D., Indiana, 1962

VOLUNTARY FACULTY

Alexander J. Alexander, M.D., *Associate Clinical Professor of Pediatrics*

Humildad Anzures, M.D., *Assistant Clinical Professor of Pediatrics*

Murvel C. Blair, M.D., *Assistant Clinical Professor of Pediatrics*
Guy C. Cunningham, M.D., *Assistant Clinical Professor of Pediatrics*
John L. Goiser, M.D., *Clinical Assistant in Pediatrics*
Gordon Hollins, M.D., *Clinical Assistant in Pediatrics*
Erwin Jones, M.A., *Clinical Assistant of Pediatrics*
Martin P. Kaplan, M.D., *Assistant Clinical Professor of Pediatrics*
Maurice Kaufmann, M.D., *Clinical Professor of Pediatrics*
Paul G. Kyker, M.D., *Clinical Assistant of Pediatrics*
Nobel T. MacFarlane, Jr., M.D., *Assistant Clinical Professor of Pediatrics*
William T. Maxson, M.D., *Associate Clinical Professor of Pediatrics*
Robert N. McLeod, Jr., M.D., *Assistant Clinical Professor of Pediatrics*
Dennis B. Penn, M.D., *Assistant Clinical Professor of Pediatrics*
James W. Rackley, M.D., *Clinical Instructor of Pediatrics*
Joan E. Rider, M.D., *Assistant Clinical Professor of Pediatrics*
Garner E. Robinson, M.D., *Clinical Assistant of Pediatrics*
William F. Schnitzker, M.D., *Assistant Clinical Professor of Pediatrics*
Carl H. Scott, M.D., *Assistant Clinical Professor of Pediatrics*
Jo Anne Sexton, M.D., *Clinical Assistant in Pediatrics*
Charles W. Taylor, M.D., *Clinical Assistant of Pediatrics*
William L. Underwood, M.D., *Clinical Assistant of Pediatrics*
Robert B. Warfield, M.D., *Associate Clinical Professor of Pediatorics*
William T. Watkins, M.D., *Clinical Assistant of Pediatrics*
Carl L. Wheeler, M.D., *Associate Clinical Professor of Pediatrics*
James G. Wilhite, M.D., *Clinical Instructor of Pediatrics*
Thomas M. Wilson, M.D., *Clinical Assistant of Pediatrics*
Karl E. Yaple, M.D., *Assistant Clinical Professor of Pediatrics*
Walter F. Yates, M.D., *Clinical Assistant of Pediatrics*

The faculty of the Department of Pediatrics is composed of physicians who have devoted their lives to the proposition that the future of our society lies in its children. As the child's advocate, the Department of Pediatrics tries to provide every medical student with an appreciation of the processes of human growth and development, and the science and art of the prevention, diagnosis, and treatment of diseases and disorders in children. At each exposure to a child patient, the student has an opportunity to study: (1) the family and its pattern of child rearing, (2) an example of a child of stated age, (3) an example of disease or disorder. The major teaching of the Department of Pediatrics is in the student's third year, where, for the first time, he begins to learn about patients by studying people.

Course Description

831 *Clerkship Children.* (14)
Open only to medical students.

PHARMACOLOGY

FACULTY

Tihamer Z. Csaky, chairman

Professors

Tihamer Z. Csaky
M.D., University of Budapest, Hungary, 1934
Helmut A. Gordon
M.D., University of Budapest, Hungary, 1932
Harris Isbell M.D., Tulane, 1934
Abraham Wikler
M.D., Long Island College of Medicine, 1935

Associate Professors

James W. Flesher Ph.D., Loyola, 1958
Donald E. Knapp Ph.D., Michigan, 1962
E. Douglas Rees M.D., Yale, 1954

VOLUNTARY FACULTY

Charles W. Gorodetzky, M.D., *Instructor*
Donald R. Jasinski, M.D., *Assistant Professor*
William R. Martin, M.D., *Associate Professor*

The aim of the Department of Pharmacology is to acquaint medical students with the actions of drugs upon the normal and diseased organism. It is anticipated that with a basic knowledge of pharmacodynamic principles students will be able to use intelligently in their future practice the ever-increasing number of drugs and pharmaceutical preparations.

(The Department also offers a graduate program leading to M.S. or Ph.D. degrees in Pharmacology. For the description of the graduate curriculum please consult the appropriate graduate bulletins of the University of Kentucky.)

Course Descriptions

521 *General Pharmacodynamics.* (2)
A fundamental discussion of the response of the living organism to drugs analyzed primarily on the cellular and subcellular levels. Factors which affect the absorption, distribution and the disposal of drugs in the body will be discussed. The quantitative aspects of dose-response relationships to drugs will be analyzed including an introduction to the problems of biological assay. Prereq: Consent of instructor.

522 *Pharmacology in Medicine.* (3)
This course is aimed to give a fundamental understanding of the pharmacodynamic action of drugs most commonly used in medical practice. Prereq: PHA 521; consent of instructor.

541 *Biological Assay.* (3)
A study of the estimation of potencies of treatments against some standardized scale. One and one-half hours lecture; and four hours lab. Prereq: Consent of instructor.

555 *Gnotobiotic Methodology.* (2)
A practical course for students who wish to learn how to conduct gnotobiotic experiments. In this type of work animals are maintained either in absence or in association with known microbial contaminants. Prereq: MB 200, consent of instructor.

610 *Seminar in Pharmacology.* (1)
May be repeated indefinitely.

612 *Quantitative Pharmacodynamics* (2)
Quantitative treatment of dynamics of drug absorption, distribution, metabolism and excretion, including development of mathematical models for these processes and application of techniques such as analog simulation. This course is cross-listed with PHR 612. Prereq: PHA 521, MA 213, and consent of instructor.

621 *Advanced Pharmacodynamics.* (2)
Continuation of Pharmacology 521 with particular emphasis on recent developments in the field. Prereq: PHA 521, consent of department chairman.

631 *Pharmacological Methodology.* (3)
Practical review of the important specialized methods in study of the effects of drugs. Prereq: PHA 521, 533; consent of department chairman.

645 *Physiology and Pharmacology of Biological Membranes and Transport.* (1)
Advanced study of the structure, functions and permeability of biological membranes and the effect of change of chemical environment upon them. Prereq: BCH 514/515 or PCH 400 or CHE 552 or equivalent, PGY 502/503 or 511 or equivalent, PHA 521, consent of instructor.

650 *Host-Contaminant Relationships.* (2)
The course deals with the effects of microbial associates on various systems of the animal host with special reference to gastrointestinal, cardiovascular, defensive functions and aging. Materials will be presented as a comparative study between gnotobiotic and conventional animals. Prereq: BSC 421/422, CHE 220, 230, 444, ZOO 200, MB 200, 550 or equivalent, consent of instructor.

658 *Advanced Neuropharmacology.* (4)
A study of the general theories of the mode of action of drugs upon nervous tissue and a review of the effects of analgesics, sedatives, hypnotics, anesthetics, tranquillizers, psychotomimetics, analeptics, antidepressants, anticonvulsants and drugs affecting motor dyskinesias upon neurones, synapses and functional components of the central nervous system. Prereq: PGY 416 or equivalent, PHA 521, 522, consent of instructor.

660 *Pharmacology of Steroids.* (4)
Lectures and laboratory work dealing with the chemistry, metabolism and pharmacology of steroids. Emphasis will be placed on methods of research which will be illustrated in laboratory exercises. Prereq: CHE 232, BCH 514/515 or PCH 400 or CHE 522 or equivalent, PHA 521. Consent of instructor.

664 *Advanced Molecular Pharmacology.* (2)
An advanced discussion of actions of drugs at the molecular level. The mechanism by which drugs alter the biochemical machinery which operates in the maintenance in the cellular integrity will be emphasized. Chemical events which occur when drug molecules interact with macromolecules with cell constituents which modulate the activities of cell will be discussed. Prereq: PHA 521 and consent of instructor.

665 *Drug Receptor Interrelationship.* (1)
A seminar course in which the nature and topography of the reactive groups constituting the receptors of various drugs is discussed. Prereq: CHE 550/552 or BCH 514/515 or equivalent, PHA 521, 522; consent of instructor.

670 *Clinical Psychopharmacology.* (2)
Purposes, indications and contraindications, methods of administration and effects of psychotropic drugs on human behavior. Prereq: PHA 521, 522, PSY 210, 330 and 336 or equivalent and consent of the Director of Graduate Studies in PHA.

671 *Integrative Psychopharmacology.* (2)
Mechanisms of action of psychotropic drugs. Prereq: Same as for PHA 670, PSY 505 and 507 or 509, PGY 516, ANA 516, and PHA 670 are strongly recommended.

680 *Applied Toxicology.* (5)
The course will acquaint students with the various toxicological principles as they apply to problems arising from the complexities of modern society. Lectures, demonstrations and informal discussions. Lecture, five hours per week. Prereq: Consent of the Director of Graduate Studies in Toxicology. (Offered as a Conjoint course.)

750 *Research in Pharmacology.* (1-5)
May be repeated to a maximum of 15 credits.

768 *Residence Credit for Master's Degree.* (0)
(1-6 credits equivalence.) May be repeated. Maximum of 6 weeks can be applied to Master's degree with thesis.

769 *Residence Credit for Doctor's Degree.* (0)
(1-12 credits equivalence.) May be repeated indefinitely.

770 *Seminar in Toxicology.* (1)
One class hour per week. Prereq: Consent of Director of Graduate Studies in Toxicology.

790 *Research in Toxicology.* (1-5)

821 *Medical Pharmacology I.* (5)
This course aims to give a fundamental understanding of the pharmacodynamic action of drugs most commonly used in medical practice. Prereq: Admission to second-year medical curriculum.

831 *Fundamental Pharmacodynamics* (Intro to Dental Pharmacotherapeutics). (2)
A fundamental discussion of the response of the living organism to drugs with particular emphasis on procedures employed in dental pharmacotherapeutics.

833 *Medical Pharmacology II—Therapeutics.* (1)
This course is offered concurrently with a major clinical clerkship in order to enable students to correlate the rational use of drugs in appropriate clinical situations. Pertinent clinical examples will be introduced by invited clinical faculty to be followed by an exploration of therapeutic principles and applications by members of the Department of Pharmacology. Prereq: Admission to third year in College of Medicine.

840 *Pharmacology and Therapeutics for Dental Students.* (2)
This course will provide the dental students with a basic understanding of the mode of action of drugs, particularly those which are used in the practice of clinical dentistry. Lectures, conferences, and laboratory exercises deal with the pharmacodynamic action of drugs. Clinical conferences provide a discussion of the intelligent pharmacotherapeutic approach to the individual problems in patient care. Seventy lecture hours.

PHYSIOLOGY AND BIOPHYSICS

FACULTY

Fred W. Zechman, chairman

Professors

James W. Archdeacon — Ph.D., Rochester, 1943
Louis L. Boyarsky — Ph.D., Chicago, 1948
Ward O. Griffen — M.D., Cornell, 1953; Ph.D., Minnesota, 1963
Fred W. Zechman — Ph.D., Duke, 1956

Associate Professors

Eugene C. Crawford	Ph.D., Duke, 1965
Joseph Engelberg	Ph.D., Pennsylvania, 1958
Donald T. Frazier	Ph.D., Kentucky, 1964
Henry R. Hirsch	Ph.D., M.I.T., 1960
Judith D. Pratt	Ph.D., Duke, 1958
Paul A. Thornton	Ph.D., Michigan State, 1956
David R. Wekstein	Ph.D., Rochester, 1962
James F. Zolman	Ph.D., California, 1963

Assistant Professors

H. Douglas Jameson	M.D., Wisconsin, 1958
Ernest P. McCutcheon	M.D., Duke, 1959
Bertram Peretz	Ph.D., Iowa, 1968

The Department of Physiology and Biophysics in the College of Medicine, in addition to instruction for medical, dental and nursing students, offers courses at the undergraduate level and a graduate program leading to M.S. and Ph.D. degrees. The department is equipped with modern physiological and biophysical research equipment.

The coursework in physiology for medical students is directed to the following objectives:

1) Presentation of basic facts of physiology as they relate to human functions, 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 a description of the curriculum leading to the M.S. and Ph.D. degrees in Physiology and Biophysics, please consult the appropriate graduate bulletins of the University of Kentucky.)

Course Descriptions

102 *Introduction to Physiology.* (3)
The course is designed to present to the student, who has no scientific background, a thorough survey of the arrangement and general functions of the various systems that make up the human body. Open to freshmen. Three lecture hours per week. (Offered only at University Community Colleges.)

206 *Elementary Physiology.* (3) I, II, S
Emphasis is placed upon the physiology of muscle, circulation, respiration, digestion, absorption, energy metabolism, and excretion. Lecture, 2 hours; lab, demonstration, 2 hours. Open to freshmen by instructor's consent. Prereq: One of the following: ANA 206, one semester college Chemistry, college Biology or permission of the instructor.

502 *Principles of Physiology Lectures.* (3)
A comprehensive discussion of physiology using advanced texts and library reading; includes function as related to major body systems. Prereq: One year Physics and Organic Chemistry. (Same as ZOO 502.)

503 *Principles of Physiology.* (5)
A comprehensive discussion of physiology using advanced texts and library reading; includes function as related to major body systems and laboratory experience with major experimental techniques. Prereq: One year Physics and Organic Chemistry. (Same as ZOO 503.)

504 *Independent Work in Physiology.* (2-4) I, II, S
A study of some advanced problems in physiology under the direct supervision of the instructor. Discussion period, 1 hour; lab, 4 hours. May be repeated to a maximum of 8 credits. Prereq: Consent of instructor.

507 *Introduction to Endocrinology.* (3) I, S
Introductory study of the development, structure, and fundamental functions of endocrine glands. Lecture, 3 hours. Prereq: General chemistry; consent of instructor.

510 *Medical Physiology Lectures.* (4) II
Provides advanced work in mammalian physiology approached from a biophysical point of view. Lectures and small group discussions will include consideration of cellular function, excitable tissues, volume conductors, contractile tissues, circulation, respiration, gastrointestinal tract, energy exchange, kidney and mid-brain control systems. Four class hours per week.

511 *Medical Physiology.* (7)
The instruction in physiology will provide advanced work in mammalian physiology approached from a biophysical point of view. Lectures and small group discussions will include consideration of cellular function, excitable tissues, volume conductors, contractile tissues, circulation, respiration, gastrointestinal tract, energy exchange, kidney and mid-brain control systems. Laboratory experience will also include electrophysiological techniques and mammalian surgical techniques with emphasis on experimental design and biometrics. Prereq: Admission to medical school or permission.

512 *Cellular Physiology.* (4) I, S
An intensive study of general physiological principles with emphasis on the chemistry and physics of the cell. Lecture, 2 hours; lab, 2 hours. Prereq: Physics and general chemistry.

513 *Cellular Physiology Lab.* (0)
Laboratory for PGY 512.

522 *Mathematical Biophysics.* (3)
Mathematical approaches to biophysical problems in biology. Emphasis on the abstract representation of physiological systems and processes. Three class hours per week. Prereq: MA 114 or equivalent.

602 *Physiological Instrumentation I.* (3) II
Electronic circuits in physiological measuring systems. One lecture, two lab hours per week. Prereq: MA 113; knowledge of integration and differentiation of simple functions or permission of instructor.

603 *Physiological Instrumentation II.* (3)
Physical basis of physiological measurement and analogs of physiological systems. Three lectures per week. Home assignments will emphasize problem solving and will include a term problem to be selected by the student in consultation with the instructor. Topics to be covered in this course include: non-linear electronic circuits; transducers; synthesis of instrumentation systems; and analogs of biological and mechanical systems. Prereq: MA 113, PGY 511, PGY 602, or consent of instructor.

606 *Advanced Neurophysiology.* (3) II
Electrical analysis of nerve fibres and synapse; nerve impulse theories, reflexes, metabolism and central nervous function are considered from the cybernetic viewpoint. Lecture, 2 hours; lab, 2 hours. Prereq: PGY 512, 513; consent of instructor.

607 *Advanced Neurophysiology Lab.* (0)
Laboratory for PGY 606. Two lab hours per week.

620 *Theoretical Biophysics.* (3)
Study of applications of mathematical techniques used in modern theoretical biophysics to physiological problems. Emphasis on abstract presentation of physiological systems and processes. Prereq: MA 113, PGY 502 or 512 or BOT 501.

630 *Advanced Topics in Physiology and Biophysics.* (2)
Contemporary topics in physiology and biophysics. Course designed to utilize the special research interests of resident and visiting faculty. May be repeated to a maximum of six credits. Prereq: PGY 503 or 511 or consent of instructor.

660 *Systems Biophysics.* (3)
The development and analysis of models of physiological systems. Applications of probability theory, spectral analysis, transient and frequency analysis to these systems. Prereq: PGY 522, MA 114 or equivalent, or consent of instructor.

768 *Residence Credit for the Master's Degree.* (0) I, II, S
May be repeated once. (1-6 credits equivalence.)

769 *Residence Credit for the Doctor's Degree.* (0) I, II, S
May be repeated indefinitely. (1-12 credits equivalence.)

774 *Graduate Seminar in Physiology.* (1) I, II, S

791 *Research in Physiology.* (2-5) I, II, S
May be repeated to a maximum of 15 credits.

810 *Principles of Human Physiology.* (5)
A basic course in human physiology including the function and regulation of the major body systems. Prereq: One year, inorganic chemistry; one semester, college anatomy or one year, college biology. (Same as CNU 502.)

812 *Principles of Human Physiology Lectures.* (4)
A basic course in human physiology including the function and regulation of the major body systems. Prereq: One year, inorganic chemistry; one semester, college anatomy or one year, college biology.

PSYCHIATRY

FACULTY

Cornelia B. Wilbur, acting chairman

Professors

Stanley L. Block — M.D., Alabama, 1957
Joseph B. Parker — M.D., Tennessee, 1941
Myron G. Sandifer — M.D., Harvard, 1947
Hugh A. Storrow — M.D., Southern California, 1950
Abraham Wikler — M.D., Long Island College of Medicine, 1935
Cornelia B. Wilbur — M.D., Michigan, 1939

Associate Professors

Robert G. Aug — M.D., Cincinnati, 1955
David H. Looff — M.D., Maryland, 1954

Assistant Professors

Billie M. Ables — Ph.D., Wisconsin, 1960
Thomas E. Buie — M.D., Bowman Gray School of Medicine, 1961
Eugene B. Daniels, Jr. — Ph.D., North Carolina, 1968
Martin Gebrow — M.D., Kentucky, 1964
Francine Middelman — M.D., City University of Amsterdam, The Netherlands, 1954
Frida G. Surawicz — M.D., University of Munich, Germany, 1943

Instructors

William G. Drew — Ph.D., Tennessee, 1969
Helen L. Hallock — M.D., Louisville, 1947
Mary N. Smith — M.D., New York University, 1945
Lane J. Veltkamp — M.S.V., Michigan State, 1964

VOLUNTARY FACULTY

Sabin Akaydin, M.D., *Clinical Instructor of Psychiatry*
Janet M. Boog, M.D., *Clinical Instructor of Psychiatry*
Niles Bernick, Ph.D., *Adjunct Assistant Professor of Psychiatry*
Charles L. Bowden, M.D., *Clinical Instructor of Psychiatry*
John Corcella, M.D., *Clinical Assistant Professor of Psychiatry*
Cleto Elequin, M.D., *Assistant Visiting Psychiatrist*
Dale H. Farabee, M.D., *Assistant Clinical Professor of Psychiatry*
Irving A. Gail, M.D., *Associate Clinical Professor of Psychiatry*
Stanley Hammons, M.D., *Assistant Clinical Professor of Psychiatry*
Jesse G. Harris, Ph.D., *Clinical Professor of Psychology*
Jimmie D. Hawthorne, M.D., *Assistant Clinical Professor of Psychiatry*
Richard B. Heintz, M.D., *Clinical Instructor of Psychiatry*
Hart D. James, M.D., *Assistant Visiting Psychiatrist*
Bernard Langenauer, M.D., *Clinical Assistant Professor of Psychiatry*
Mark G. Markowitz, M.D., *Clinical Instructor of Psychiatry*
Aaron S. Mason, M.D., *Associate Clinical Professor of Psychiatry*
Kenneth B. Moore, M.D., *Assistant Clinical Professor of Psychiatry*
John H. Parks, M.D., *Assistant Clinical Professor of Psychiatry*
Robert W. Rasor, M.D., *Associate Clinical Professor of Psychiatry*
John H. Rompf, M.D., *Associate Clinical Professor of Psychiatry*
Charles I. Schwartz, M.D., *Assistant Clinical Professor of Psychiatry*
Erwin W. Straus, M.D., *Clinical Professor of Psychiatry*
William V. Walsh, M.D., *Associate Clinical Professor of Psychiatry*
Carl Wiesel, M.D., *Associate Clinical Professor of Psychiatry*

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. The student has the opportunity to understand development of personality, mental processes, the influences of human psychic on behavior 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 experience 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 as a future physician he will find necessary to utilize in the practice of medicine, handling everyday emotional problems of patients, as well as the immediate handling and disposition of psychiatric emergencies.

Course Descriptions

821 *Psychopathology of Behavior.* (2)
Open only to Medical Students. This course (74 hours) will emphasize (1) the origin and use of pathological adjustment techniques or defense mechanisms as they develop during the course of normal development and reaction to life situations, (2) the scope and method of psychiatric examination with an elaboration of psychiatric history-taking (how to observe and record information objectively so a diagnostic formulation can be logically attained) and (3) psychiatric syndromes and diagnostic categories. Special attention will be paid to interview process with further understanding of the defense mechanisms manifested or used by the patient in regard to the data elicited and to the physician-patient relationship. Emphasis will be placed on diagnostic orientation based on data and observation obtained by interview, and history obtained from the patient and supplemental sources. This data will be formulated descriptively, psychodynamically, and genetically. The three major components of the course will be integrated as an approach to the understanding of the psychopathology of behavior by lectures, case presentations, and small group interviewing (students with psychiatric patients) with discussion.

831 *Psychiatric Clerkship.* (8)
Open only to Medical Students. 6½ weeks.

SURGERY

FACULTY

Ward O. Griffen, chairman

Professors

Thomas M. Brower — M.D., Washington, 1947
Ward O. Griffen, Jr. — M.D., Cornell, 1953; Ph.D., Minnesota, 1963

Professor Emeritus

Edward H. Ray, Sr. — M.D., Tulane, 1922

Associate Professors

Lester R. Bryant — M.D., Cincinnati, 1962
William G. Malette — M.D., Washington, 1953
Horace A. Norrell — M.D., Tulane, 1958
John Simmons — M.D., Washington, 1951
Paul M. Weeks — M.D., North Carolina, 1958
Jonathan D. Wirtschafter — M.D., Harvard, 1960

Assistant Professors

Robert P. Belin — M.D., Tufts University, 1962
H. Martin Blacker — M.D., Nebraska, 1959
Gordon Brocklehurst — M.D., Guys Hospital, England, 1957
David E. Eifrig — M.D., Johns Hopkins, 1960
Arthur A. Hellebusch — M.D., Kentucky, 1964
William R. Jewell — M.D., Illinois, 1961
William R. Meeker — M.D., Medical College of Alabama, 1957
James J. Rams — M.D., Georgetown University, 1955
Donald E. Slagel — Ph.D., Wisconsin, 1961
J. Kent Trinkle — M.D., Indiana, 1959

PART-TIME FACULTY

Richard H. Segnitz, M.D., *Associate Professor of Clinical Surgery*

VOLUNTARY FACULTY

John M. Allen, M.D., *Clinical Instructor of Surgery*
Ralph J. Angelucci, M.D., *Associate Clinical Professor of Surgery (Neurosurgery)*
N. L. Bosworth, M.D., *Associate Clinical Professor of Surgery (Urology)*
Robert L. Bradley, M.D., *Assistant Clinical Professor of Surgery*
Walter R. Brewer, M.D., *Clinical Instructor (Urology)*
Marion G. Brown, M.D., *Assistant Clinical Professor of Surgery (Orthopedics)*
T. R. Bryant, Jr., M.D., *Assistant Clinical Professor of Surgery*
Charles W. Caldwell, M.D., *Clinical Instructor of Surgery*
Harry S. Caldwell, M.D., *Clinical Instructor of Surgery (Ophthalmology)*
Harvey Chenault, M.D., *Associate Clinical Professor of Surgery (Neurosurgery)*
John R. Cole, M.D., *Assistant Clinical Professor of Surgery (Urology)*
Arnold B. Combs, M.D., *Associate Clinical Professor of Surgery (Otolaryngology)*
Sidney P. Cooper, M.D., *Assistant Clinical Professor of Surgery*
Wilford L. Cooper, M.D., *Associate Clinical Professor of Surgery (Proctology)*
Richard R. Crutcher, M.D., *Associate Clinical Professor of Surgery*
Kearney B. Daniel, M.D., *Clinical Instructor of Surgery*
Melvin L. Dean, M.D., *Assistant Clinical Professor of Surgery*
Howard E. Dorton, M.D., *Associate Clinical Professor of Surgery*
O. T. Evans, M.D., *Assistant Clinical Professor of Surgery (Proctology)*
Harold Faulconer, M.D., *Clinical Instructor of Surgery*
John B. Floyd, Jr., M.D., *Clinical Instructor of Surgery*
Richard D. Floyd, M.D., *Assistant Clinical Professor of Surgery*
Carl M. Friesen, M.D., *Assistant Clinical Professor of Surgery (Orthopedics)*
John W. Garden, M.D., *Clinical Instructor of Surgery (Ophthalmology)*
Randolph M. Gilliam, M.D., *Assistant Clinical Professor of Surgery (Urology)*
Robert Goodman, M.D., *Clinical Instructor of Surgery (Orthopedics)*
Allen E. Grimes, Jr., M.D., *Clinical Instructor of Surgery*
George M. Gumbert, Jr., M.D., *Clinical Instructor of Surgery (Orthopedics)*

Samuel O. Hodges, M.D., *Clinical Instructor of Surgery (Orthopedics)*
James B. Holloway, Jr., M.D., *Associate Clinical Professor of Surgery*
David A. Hull, M.D., *Assistant Clinical Professor of Surgery*
Gordon L. Hyde, M.D., *Assistant Clinical Professor of Surgery*
Chris Jackson, M.D., *Clinical Instructor of Surgery*
Frank M. Jenkins, M.D., *Clinical Instructor of Surgery (Otolaryngology)*
Coleman Johnston, M.D., *Associate Clinical Professor of Surgery*
Peter H. Jones, M.D., *Assistant Clinical Professor of Surgery (Neurosurgery)*
Joseph Keith, M.D., *Assistant Clinical Professor of Surgery (Neurosurgery)*
Robert C. Lam, M.D., *Assistant Clinical Professor of Surgery*
Nathan Levine, M.D., *Assistant Clinical Professor of Surgery*
Graydon A. Long, *Clinical Instructor of Surgery*
S. W. Lykins, M.D., *Clinical Instructor of Surgery*
Richard B. McElvein, M.D., *Assistant Clinical Professor of Surgery*
Florentino Martin, Jr., M.D., *Clinical Instructor (Urology)*
Francis M. Massie, M.D., *Clinical Professor of Surgery*
William K. Massie, M.D., *Assistant Clinical Professor of Surgery (Orthopedics)*
Porter Mayo, M.D., *Associate Clinical Professor of Surgery*
T. R. Miller, M.D., *Clinical Instructor of Surgery*
Andrew M. Moore, M.D., *Associate Clinical Professor of Surgery (Plastic)*
Owen B. Murphy, M.D., *Assistant Clinical Professor of Surgery (Orthopedics)*
Charles H. Nicholson, M.D., *Clinical Instructor of Surgery*
William Offutt, M.D., *Clinical Instructor of Surgery (Ophthalmology)*
Eugene Q. Parr, M.D., *Clinical Instructor of Surgery (Orthopedics)*
Kenneth S. Phillips, M.D., *Clinical Instructor of Surgery (Orthopedics)*
James G. Pope, M.D., *Assistant Clinical Professor of Surgery (Orthopedics)*
William Preston, M.D., *Clinical Instructor of Surgery (Ophthalmology)*
Warren H. Proudfoot, M.D., *Assistant Clinical Professor of Surgery*
Edward H. Ray, Jr., M.D., *Assistant Clinical Professor of Surgery*
James E. Ross, M.D., *Clinical Instructor of Surgery*
D. M. Royalty, M.D., *Assistant Clinical Professor of Surgery (Ophthalmology)*
Robert Schoffstall, M.D., *Assistant Clinical Professor of Surgery*
Raymond M. Slabaugh, Jr., M.D., *Assistant Clinical Professor of Surgery (Urology)*
John S. Sprague, M.D., *Assistant Clinical Professor of Surgery*
James L. Stambaugh, Jr., M.D., *Assistant Clinical Professor of Surgery*
David B. Stevens, M.D., *Assistant Clinical Professor of Surgery (Orthopedics)*
John M. Stoeckinger, M.D., *Clinical Instructor of Surgery*
Ernest C. Strode, M.D., *Assistant Clinical Professor of Surgery*
William T. Swartz, M.D., *Assistant Clinical Professor of Surgery*
Kearns R. Thompson, Jr., M.D., *Assistant Clinical Professor of Surgery (Orthopedics)*
Eugene Todd, Jr., M.D., *Clinical Instructor of Surgery*
Claude W. Trapp, M.D., *Assistant Clinical Professor of Surgery (Ophthalmology)*
Russell Travis, M.D., *Assistant Clinical Professor of Surgery (Neurosurgery)*
William G. Wheeler, M.D., *Clinical Instructor of Surgery (Orthopedics)*
Thomas D. Yocum, M.D., *Assistant Clinical Professor of Surgery (Orthopedics)*
George Zarocostas, M.D., *Clinical Instructor of Surgery (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. The recognition, differential diagnosis, pathophysiology and prognosis of these diseases are taught in part or in the whole by surgeons who have most frequent contact with such problems. 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.

Surgeons are physicians who also know how to operate and as such will be available for participation in medical student instruction in each year of the curriculum.

Course Description

831 *Surgical Clerkship.* (14)

THERAPEUTIC RADIOLOGY

FACULTY

Robert H. Greenlaw, chairman

Professor

Robert H. Greenlaw M.D., Rochester, 1952

Associate Professors

John C. Calkins	Ph.D., Texas, 1963
Joseph A. Sayeg	Ph.D., California, Berkeley, 1954

Assistant Professors

David F. Preston	M.D., Cincinnati, 1959
Don E. Wrede	Ph.D., Cincinnati, 1963

The Department of Therapeutic Radiology was established as an entity in July, 1969. Its sections include Therapeutic Radiology, Nuclear Medicine, Radiation Physics and Radiation Biology. The various sections interrelate with programs of the Medical Center in a variety of ways. Faculty of the department are concerned with biological effects of ionizing radiation. Since, at present, the primary source of radiation exposure in the population is at the request of and by the hands of practitioners in the healing arts, a component of the major, second-year course, Biology of Disease, is presented to establish the fundamental information dealing with biological effects in respect to everyday practice.

Radiation therapy and oncological matters are constantly reviewed in weekly tumor clinics and conferences. Specialty, conjoint tumor clinics exist in such fields as gynecology, head and neck, general neoplasia, neuroneoplasia, and reticuloses. Teaching contacts range from those with second-year students, through postdoctoral resident level, to specialists who return for updating their knowledge in specific areas.

The use of nuclides for evaluating metabolic processes, dynamic function in specific organs and localization of neoplasms in a variety of organs is the major activity in the Nuclear Medicine section. The science basic to this clinical practice, as well as the clinical practice itself, is taught by the faculty in various conjoint courses and conferences in the curricula of the Medical Center.

Both in therapeutic radiology and nuclear medicine, special summer programs of training and research are available for interested students. In addition, elective courses may be constituted for interested students as a part of the curriculum.

The roles of radiation physics and radiation biology, in addition to contributing to the above teaching sessions, are largely creative and investigative. Members of the faculty carry on courses in the bioradiation sciences at the graduate level as programs in residency training as well as in the School of Allied Health Professions under the Department of Radiation Medicine.

Course Description

545 *Radiation Hazards and Protection.* (2) I, II

An analysis of common radiation hazards encountered in medicine and research, regulations for safe usage of radiation, and procedure for safe use of radiation. One class hour per week, two lab hours. Prereq: College physics; one year biology.



Nursing

Marcia A. Dake is Dean of the College of Nursing.

The College of Nursing is one of five colleges which make up the University's Medical Center. The degree, Bachelor of Science in Nursing, is granted upon successful completion of the College and University requirements.

Accreditation

The baccalaureate degree curriculum offered by the College of Nursing is accredited by the National League for Nursing and approved by the Kentucky Board of Nursing Education and Nurse Registration.

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 help students prepare to assume responsibility as professional nurses and active citizens and to increase their personal enjoyment of living. Graduates are able to develop rapidly leadership roles 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

All students interested in admission to the College of Nursing must first be admitted to the University of Kentucky. Requests for application materials should be directed to the office of the Dean of Admissions, University of Kentucky, Lexington, Kentucky 40506.

Students entering the University as freshmen will enroll in the College of Nursing and be advised by the College of Nursing.

Students with previous college work or students who have completed state-approved schools of nursing and are licensed to practice nursing should obtain advice from the Dean of the College of Nursing regarding policies of admission and degree requirements.

Interview: A personal interview with a member of the College of Nursing faculty is recommended for all applicants.

Requirements for Graduation

The curriculum requirements for the degree, Bachelor of Science in Nursing, include general studies, prerequisites to nursing, and nursing courses.

General Studies: The University requires of each student, in addition to six hours of English Composition or demonstration of proficiency, completion of a sequence of two courses in at least five areas of general studies. The College of Nursing requires completion of the following areas:

1. Area I—Mathematics-Philosophy
2. Area II—Physical Science
3. Area VIII—Behavioral Science
4. One area:
   a. Area IV—Foreign Language
   b. Area V—Humanities
   c. Area VI—History
5. One area, excluding area selected under 4:
   a. Area III—Biological Science
   b. Area IV—Foreign Language
   c. Area V—Humanities

d. Area VI—History
e. Area VII—Social Sciences

Prerequisites: The following courses are considered essential to the understanding of Nursing content:

ENG 101-102—English Composition
CHE 102-104 (or 110-112)—Elementary General Chemistry (meets Area II requirements)
PSY 104-106—Basic Psychology (meets Area VIII requirements)
PHY 151—Introduction to Physics
SOC 101—Introduction to Sociology
MB 200—Principles of Bacteriology
ANA 206—Elementary Anatomy
PGY 810—Principles of Human Physiology
NFS 302—Applied Nutrition
NFS 311—Nutritional Biochemistry
BSC 212—Growth and Development
BSC 221—Behavioral Factors in Health and Disease
NUR 201—Individual, Family, and Community Health

Graduate Program

The degree, Master of Science in Nursing, is granted upon successful completion of the College and University requirements.

PHILOSOPHY

The master of Science in Nursing program is designed to prepare master practitioners in nursing with advanced skills in supervision and management of patient care or in teaching nursing. It is the belief of the College of Nursing that certain major concepts support the practice of nursing, regardless of the location or circumstances under which that practice takes place. The master practitioner should be able not only to apply these concepts in selected situations but also to understand their applicability in all such situations. The practitioner prepared at the master's level should be equipped to deal with nursing care problems regardless of medical diagnosis or care environment.

ADMISSION

(See Bulletin of Graduate School)

The general University requirements for admission to the Graduate School will apply. Applicants to the Master's program of the College of Nursing will be expected to take the *Graduate Record Examination prior to acceptance* in the program. Applicants will either have completed a National League for Nursing-accredited baccalaureate degree program or will have their undergraduate transcripts evaluated individually. Current nurse licensure will be required. Personal interviews will be arranged with each applicant.

REQUIREMENTS FOR GRADUATION

Under Plan B of the University of Kentucky Graduate School, the program will require a minimum of 30 credits. Eighteen credits in nursing, made up of three sequential 6-credit nursing courses, plus the course, Behavioral Science 772, will be required for all students. The remaining credits to complete the minimum for 30 credits may be taken in one of several designated cognate areas, such as education or administration, with the consent of the adviser. Independent work in nursing for credit may be arranged through individual student-teacher determination.

NURSING

FACULTY

Marcia A. Dake, dean

Professors

Marcia A. Dake	Ed.D., Columbia, 1958
Loretta Denman	Ph.D., Ohio State, 1962
Jean Hayter	Ed.D., Columbia, 1961
A. Virginia Lane	M.A., Chicago, 1950
Betty Rudnick	Ed.D., Columbia, 1962

Associate Professors

Greta I. Fraser	M.S., Colorado, 1960
Beverly J. McDermott	M.S.Ed., Indiana, 1968
L. Mae McPhetridge	M.A., Columbia, 1956
Muriel A. Poulin	M.S., Colorado, 1960

Assistant Professors

Beverly Backstrom	M.N., Emory, 1962
Doris Cary	M.S., Indiana, 1958
Juanita W. Fleming	Ph.D., Catholic U., 1969
Elsie Forte	M.N., Washington, 1960
Mae Frazier	M.P.H., Michigan, 1960
Evelyn Geller	M.S.N., Catholic U., 1963
Louise Jimm	M.S., Western Reserve, 1959
Delores E. Johnson	M.S., Minnesota, 1966
Eleanor Repp	M.S.N., Texas, 1961
Ruth I. Stoll	M.S., Wayne, 1966

Instructors

Joseph N. Duguay	M.Ed., Columbia, 1969
Martha Garst	M.A., Columbia, 1948
Ellen S. Mitchell	M.N., Florida, 1967

Teaching Associates

Elaine V. Kiviniemi	M.S.N., Yale, 1966
Cynthia A. Monroe	M.S.N., Wayne, 1969

Assistants in Teaching

Mary F. Crowley	B.S.N., Boston, 1963
Elizabeth S. Hellebusch	B.S.N., Nazareth, 1957
Doris J. O'Connor	B.S.N., Kentucky, 1963
Mary R. Price	B.S.N., Kentucky, 1968

STUDENT SERVICES

William A. Bryan, Director — M.S., Indiana, 1961
Anne C. Wright, Asst. Dir. — M.A., Kentucky, 1965

Course Descriptions

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.

201 *Individual, Family and Community Health.* (3)
Examines current concepts of health, factors affecting health, methods of studying health problems, organization for health care and major health problems and programs. Prereq: Sociology 3 credits, Psychology 3 credits.

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.

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 *Clinical Nursing I.* (12)
The study of the scope and practice of professional nursing in the hospital, home and community. Focuses on understanding of the healthy individual, basic human needs and the effects of interference with the fulfillment of human needs and developmental tasks as a basis for planning and providing for nursing care of people of various age groups and in a variety of settings. Prereq: Consent of instructor.

317 *Clinical Nursing II.* (2)
The study of nursing in relation to the effect of interference with selected human needs.

320 *Nursing IV.* (11) II
Continuation of NUR 310. Prereq: 210, 220, 310.

330 *Nursing V.* (12) 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.

338 *The Nursing Profession III.* (1) II
A continuation of NUR 110 and 120 with the focus on the graduate nurse; the privileges of belonging to, and responsibilities in participating in, professional organizations; career opportunities; legal rights and responsibilities.

344 *Nursing VI.* (12) 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.

395 *Independent Work in Nursing.* (1) I, II
Each student pursues a study independently under the guidance of a staff member and writes a paper encompassing the results. Prereq: Grade point average of 3.0 in nursing and consent of instructor.

610 *Concepts and Theories in Nursing.* (6)
Study and analysis of concepts and theories from nursing and cognate areas. The focus is on nursing in any setting, viewed through the spectrum of human needs, health-illness continuum and the age span. Students explore the commonalities of nursing, teaching and administration and the process of systematic inquiry. Lecture, seminar and laboratory. Four class hours per week; laboratory arranged. Prereq: Admission to Graduate Program.

620 *Clinical Nursing I.* (6)
Review and expansion on the process of collaborative efforts for health care; students continue the exploration of nursing care problems and increase their knowledge of systematic inquiry, nursing care and the transmission of knowledge. The focus expands to include greater opportunity for the pursuit of special interests. Four class hours per week; laboratory arranged. Prereq: NUR 610.

630 *Clinical Nursing II.* (6)
A continuation of NUR 620. Focus is on the consolidation of learnings from nursing and cognate courses into a framework for advanced nursing practice with opportunity to test and evaluate results. Four class hours per week; laboratory arranged. Prereq: NUR 620.

768 *Residence Credit for Master's Degree.* (0)
May be repeated once. (1-6 credits equivalence.) Prereq: Matriculation for Master's degree.

781 *Independent Study in Nursing.* (1-3)
An elective course which gives the student an opportunity to explore independently a topic of special interest. May be repeated to a maximum of four credits. Prereq: Consent of adviser.

810 *Nursing I.* (7)
The first course in the nursing major beginning with orientation to nursing as a profession and continuing with introduction to three basic human needs: communication-sensation, activity, and security. Emphasis is placed upon the factors necessary for the individual to meet these needs and the nurse's role in assisting the patient in meeting needs. Laboratory experiences are provided. Prereq: Admission to the College of Nursing and junior standing.

812 *Nursing II.* (7)
Includes planning and organizing nursing care, and introduces four additional basic human needs: sexuality, air, food and water, and elimination. Emphasis is placed on the factors necessary for maintaining and meeting the needs, with the nurse's role in assisting in meeting the needs. Laboratory experiences are provided. Prereq: Consent of instructor.

820 *Nursing III.* (7)
Deals with interferences with security and appropriate nursing action. Introduces the more advanced role of the professional and begins to study the ways in which nursing intervention helps to affect the factors which would interfere with the patient's fulfillment of basic needs. Laboratory experiences are provided. Prereq: NUR 812.

822 *Nursing IV.* (7)
Students learn about interferences with communication-sensation, including interferences with communication in group process and the role of the nurse in assisting the patient to cope with the interferences. Laboratory experiences are provided. Prereq: Consent of instructor.

830 *Nursing V.* (7)
Effects of interferences with nutrition. Includes need for nutrition, hydration and nursing intervention. Encompasses the exploration of specific needs: nutrition and hydration, type and amount of food and fluids, ingestion, digestion, absorption and metabolism. Laboratory experiences are provided. Prereq: NUR 822.

832 *Nursing VI.* (7)
Continuation of the interferences with basic human needs and appropriate nursing intervention. Includes interferences with sexuality, development of processes related to sexuality and interferences with reproduction. Laboratory experiences are provided. Prereq: NUR 830.

834 *Nursing VII.* (7)
Deals with interferences with activity and elimination. Focused upon the role of the nurse in assisting the patient to meet his needs. Laboratory experiences are provided. Prereq: Consent of instructor.

836 *The Nursing Profession.* (3)

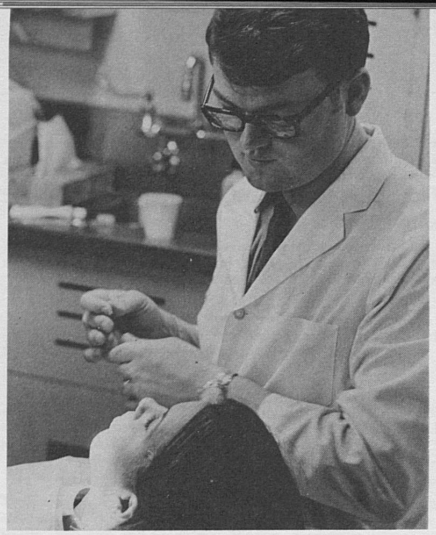
This course offers content and opportunity for the student to explore identification with the profession as she approaches the time she will assume professional practice. Deals with historical aspects, current trends, and problems in nursing. Prereq: Senior standing.

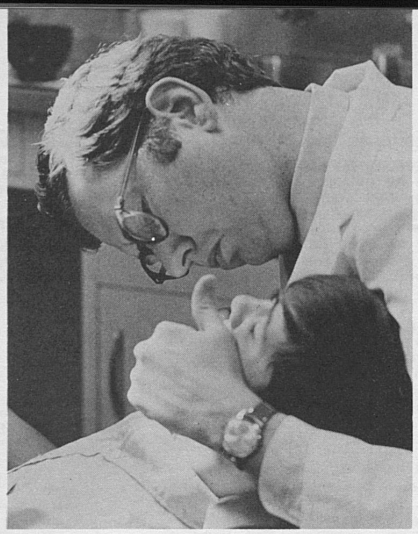
838 *Nursing VIII.* (7)

Introduction to the nursing care of larger numbers of patients, including direct care, management functions, principles of administration, the leadership role and the process of change. Also includes the role of the nurse in a disaster. Laboratory experiences are provided. Prereq: NUR 834.

840 *Nursing IX.* (7)

Deals with interferences with oxygenation, and the nursing role in assisting the patient to meet his need for air. Laboratory experiences are provided. Prereq: Consent of instructor.





Dentistry

Harry M. Bohannan, D.M.D., M.S.D., is Dean of the College of 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 University Medical Center.

The College of Dentistry admitted its first class in September of 1962. Now in full development, the school admits 54 students per year. In addition to the dental curriculum, the College also recognizes its responsibility for the training of auxiliary personnel. In cooperation with the School of Allied Health Professions, the College participates in the educational program for Dental Hygienists. In addition, a Dental Technology Training Program is presented through the Lexington Technical Institute, a component of the University's Community College System.

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 in 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 are important features of the expanding dental program. Opportunities are now available for those who wish to pursue special educational and research interests in Orthodontics, Oral Surgery, Periodontics and the Basic Sciences. Additional programs in other clinical disciplines of dentistry are planned for initiation in the near future.

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 with a cumulative grade-point standing of 2.0 (C) or better. Applicants with this minimal college experience will be considered only if they present outstanding qualifications, indicating personal maturity as well as academic competence. 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.

COMMUNITY DENTISTRY

FACULTY

Wesley O. Young, chairman

Professor

Wesley O. Young
D.M.D., Oregon, 1947; M.P.H., Michigan, 1951

Associate Professor

Timothy A. Smith — Ph.D., North Carolina, 1963

Assistant Professors

John A. DiBiaggio
D.D.S., Detroit, 1958; M.A., Michigan, 1967

Sherwin R. Fishman
D.D.S., Michigan, 1956; M.P.H., 1964

Albert L. Heise
D.M.D., Louisville, 1949; M.P.H., Michigan, 1969

Instructor

Lawrence Smith, Jr. — Ph.D., Kentucky, 1969

Research Associate

Jean H. Shannon — A.B., North Carolina, 1954

Director of Community Laboratories

John A. Clark

The Department of Community Dentistry is concerned primarily with the non-clinical aspects of the students' educational experiences which will help them to be effective practitioners and active participants in the activities of their communities. This general objective is shared by the entire College.

The primary emphasis in teaching is on:

1. current knowledge about preventing dental disease and how the dentist can apply this knowledge for patients in his office and for the total community;
2. knowledge and skill about community organization and structure which will help newly graduated dentists to choose a practice location and function effectively as a member of the community;
3. the skills necessary to talk with patients and educate them about the importance of dental health;
4. the practical problems the newly graduated dentist will have in establishing and managing an effective dental practice.

The Department of Community Dentistry has courses in the first, third, and fourth years in the dental school curriculum. Small group discussions are used throughout these courses so that every student may participate in the discussions. Trips are made to schools and other institutions to see at first hand the dental problems that exist in large groups of people. Visits are made to dental offices to see the practical problems of managing an office. During the third year, a five-day visit is made to a community in Kentucky to study personally the total health and social problems of the community and how the dentist can participate as a community leader to help solve these problems.

These experiences are designed to help the student understand himself, his patients, and his community so that he may better appreciate his responsibilities to his family, his community, and his profession.

Course Descriptions

655 *Practice Environment and Practice Management.* (1)

A seminar course for graduate and post-doctoral students in dentistry, concerning community needs, attitudes and programs for dental services, particularly those provided by specialists. One and one-half class hours per week. Prereq: Admission to graduate programs of College of Dentistry; D.D.S. or D.M.D. degree.

810 *Practice Management I.* (0)

This course is concerned with the broad aspects of practice management, and with specific attention to basic patient management. It is presented early in the student's professional education so that he may more easily identify with his chosen field. This offering will also serve to identify the problems of patient reaction to dental practice, thus allowing substance for correction in the unit *Concepts of Behavioral Science and Biostatistics.* The ethical and moral principles embodied in a professional code of conduct and their relationship to his life as a student and to the management of his future practice will be discussed.

811 *Dental Literature.* (1)
This course is designed to introduce the beginning student to the scope of the literature in his field, and its importance to the study and practice of dentistry. He is oriented to the library and its use through exercises which employ principles of library research. The student is introduced to editorial and publishing procedures as they currently affect the journals and books he will be reading. So that the literature may be better understood and evaluated, attention is directed to the systematic approach to the solving and reporting of scientific problems.

820 *History of Dentistry.* (0)
This is a required offering by which the student is introduced to the history of dentistry not as subject matter for a discreet course, but as a record of human affairs and actions which have shaped and influenced the profession.

830 *The Environment of Dental Practice.* (2)
Introduction to dermographic, economic and social characteristics of the community which affect the practice of dentistry; organizations and agencies in the community which aid the dentist in practice; methods of changing community attitudes toward dental health through public and patient education. Prereq: CD 810 or dental degree or permission of instructor.

840 *Practice Management II.* (2)
This course is designed to aid the student in the selection of a site for practice, type of office and equipment he will need, financial aspects of establishing and running a practice, personal management, use of commercial dental laboratories, records, tax problems, insurance, legal aspects of practice, and ways of cooperating and assisting lawyers and law enforcement agencies.

CONJOINT DENTAL SCIENCES

A number of courses which have interdisciplinary subject matter are taught as Conjoint Courses. These courses are planned and taught by committees composed of representatives from the departments which have a pertinent interest in the material. This system facilitates correlation of the various sciences, both basic and applied.

Course Descriptions

810 *Preventive Dentistry I.* (1)
An introduction to the major oral disease entities found in population groups, their epidemiologic and basic health aspects and the problems associated with their treatment by present-day methods. The concepts of prevention, both on the level of the individual patient and population groups are presented. These concepts include the rationale for various fluoridation techniques, patient-health education, screening examinations for population groups and other preventive measures, such as oral hygiene and regular examinations as part of routine oral health care.

811 *Dental Morphology.* (2)
A detailed study of the anatomy of the teeth, individually and collectively. It includes tooth carving, which serves as an introduction to the anatomy of the teeth, and as a medium for the development of manual dexterity. Intercuspation and relationships of the teeth to their antagonists as well as to proximal members is stressed. Throughout the carving instruction, the significance of tooth form to function is presented. The study of internal tooth morphology is included as a prerequisite for Endodontics in the second year.

812 *Principles of Occlusion.* (3)
Those principles of occlusion common to all disciplines of clinical dentistry are covered to provide the student with a basic understanding of the fundamentals involved. This orients the student to the basic philosophy of occlusion and gives him a correlated foundation from which deviations can be developed by the various clinical departments according to their individual needs over the four-year period. The use of the dental articulator is introduced and explained as a method of orienting students to the field of occlusion. The student learns mounting procedures basic to instrumentation. This offering is correlated with *Dental Morphology.*

813 *Pre-clinical Dental Physical Sciences.* (2)
This course is coordinated with the units in Pre-clinical Dentistry and Clinical Dentistry. The lecture presentation is concerned with the physical and chemical properties of restorative and laboratory materials. It introduces the fundamental mechanisms and theories responsible for their behavior, and stresses the basic principles underlying their application in dentistry. The attention of the student is also directed to current research in the development and improvement of dental materials. The laboratory will be utilized to teach the manipulation of dental materials and to demonstrate the results of their being mishandled, thereby emphasizing the necessity for knowledge and care in their use. Technical procedures of an interdepartmental nature are also taught in this course.

815 *Growth and Development.* (2)
This course covers the dental, physical, emotional and environmental growth and development of the normal child from birth through adolescence with some discussion of the aging problem. Will also contain special material relating to cranio-facial components.

821 *Anesthesiology.* (1)
Techniques for administration of local anesthetics in dental practice are covered. Methods of patient evaluation and emergency techniques for cardiac and respiratory resuscitation are taught. The role of general anesthetics in dental practice is described.

822 *Occlusion-Development of Articular Patterns.* (2)
This course is designed to broaden the student's background and understanding of the field of occlusion. Articular patterns will be fabricated in wax on mounted casts and their relationship of the natural and artificial teeth to their antagonists and the jaws studied in detail.

830 *Preventive Dentistry II.* (1)
The concepts of prevention of all dental diseases, both with individual patients and population groups will be presented. A review in depth of current knowledge about the most effective methods of prevention will be emphasized. Prereq: CDS 310 or dental degree or permission of the instructor.

832 *Occlusion-Diagnosis and Treatment of Occlusal Disharmonies.* (1)
This course is directed toward the recognition and treatment of occlusal discrepancies in both natural and artificial dentures. Prereq: CDS 811, 812 or dental degree or permission of instructor.

835 *Principles of Medicine and Pathology.* (5)
This course is designed to give the student an integrated exposure to the related fields of oral medicine, oral pathology, radiographic interpretation and radiation biology, internal medicine and psychiatry. The incorporation of the diverse material into a unified activity should result in an effective correlation between basic sciences and the relation of physical and emotional diseases to the management of dental patients. Prereq: ODM 820 or a dental degree or permission of instructor.

842 *Applied Oral Physiology (Occlusion).* (2)
The purpose of this course will be to provide the undergraduate student with knowledge of the principles of occlusion and occlusal concepts as they apply to clinical practice. The course will also integrate knowledge from various disciplines in the diagnosis and management of patients with temporo-mandibular joint dysfunction.

843 *Applied Oral Biology.* (1)
This course will use seminar and conference techniques to present in a conjoint manner, basic and clinical information as they relate to the management of problems seen in the clinical practice of dentistry.

844 *Community Clinical Laboratory.* (6)
This course provides advanced clinical experience in a field setting. Each student spends four weeks providing care for children in a rural county on dental trailers under the supervision of faculty members of the Departments of Community Dentistry, Pedodontics, and Restorative Dentistry. Students also are given assignments to study various aspects of the health needs of the area. Evening seminars are utilized to review community health problems, unusual conditions noted in children under treatment, care of the homebound and handicapped, etc. Prereq: Admission to fourth-year curriculum. (Note: The grading system of Honors, Pass, Unsatisfactory, is applicable to this course.)

ENDODONTICS

FACULTY

Thomas P. Mullaney, chairman

Assistant Professors

Thomas P. Mullaney
D.D.S., Loyola, 1961; M.S.D., Indiana, 1965

Roland C. Duell
D.D.S., Ohio State, 1963; M.S., Iowa, 1967

Instructors

David W. Vaughn — D.M.D., Louisville, 1962

Herman A. Blair
D.M.D., Kentucky, 1966; M.S.D., Indiana, 1968

Volunteer Instructors

William H. Tudor — D.M.D., Louisville, 1962

Jack Hutton — D.M.D., Louisville, 1953

Ronald F. Borer — D.D.S., Loyola, 1961

Guest Lecturer

John D. Petrich — D.D.S., Loyola, 1959
Cert. Endo., Boston Univ., 1963

Course Descriptions

835 *Endodontics I.* (2)
This is a combined lecture-laboratory course introducing the student to the techniques of treating root canals of teeth. Emphasis will be placed on the anatomic, microanatomic, microbiologic and pathologic problems encountered with the pulpless tooth and its sequelae. Prereq: CDS 811, ODM 810 or a dental degree or permission of instructor.

836 *Endodontics II.* (2)
The course is presented to supplement the basic presentation given in the second year. It will consist of case presentation by the students and discussion of treatment methods. Students will support the choice of treatment for their endodontics cases. Prereq: a dental degree or permission of the instructor.

845 *Clinical Endodontics.* (3)
This is a clinical course in which the students receive instructions in conjunction with patient care.

ORAL BIOLOGY

FACULTY

Donald E. Knapp, chairman

Associate Professors

Harmon C. Bickley, Jr.
D.D.S., Michigan, 1959; Ph.D., Rochester, 1963

Donald E. Knapp D.D.S., 1958; Ph.D., Michigan, 1962

Michael R. Schweisthal — Ph.D., Minnesota, 1964

Assistant Professors

Robert S. Fulghum
Ph.D., Virginia Polytechnic Institute, 1965

Robert T. Probst D.D.S., 1963; Ph.D., Maryland, 1966

Gerald I. Roth
D.D.S., Columbia, 1957; Ph.D., Pennsylvania, 1969

Currently members of the Department of Oral Biology direct or participate in various basic science courses in the dental curriculum. Various complementary and also elective courses in biology are in the process of development.

A major objective of the Department of Oral Biology is to provide a highly interdigitated teaching program in the biological sciences for pre-doctorate dental students. Currently, members of this department are responsible for the administration of predoctorate dental courses in biochemistry, microbiology, and pharmacology. Through such primary instruction, and with the development of appropriate complementary courses in other biological science areas, a broad foundation will be provided for the students' future roles and biologically oriented clinicians and researchers.

Another important objective of this department is to provide a structured format for interaction of various kinds of biological scientists with dentally relevant research interests.

ORAL DIAGNOSIS AND ORAL MEDICINE

FACULTY

James W. Little, chairman

Professor

Alvin L. Morris
D.D.S., Michigan, 1951; Ph.D., Rochester, 1957

Associate Professors

James W. Little D.M.D., 1958; M.S.D., Oregon, 1963

Richard C. Bartlett — D.M.D., Louisville, 1952

Assistant Professors

Laurence R. Bean, Jr. — D.D.S., Ohio State, 1961

James C. Murphy — D.M.D., Louisville, 1962

Robert W. T. Myall — B.D.S., Guy's Hospital; F.D.S., R.C.S.

Instructors

Joseph N. Fister III — D.M.D., Kentucky, 1969

W. Spalding Green, Jr. — D.M.D., Louisville, 1962

Donald R. King D.D.S., Washington University, 1953

The didactic program of the Department of Oral Diagnosis and Oral Medicine consists of formal courses in each of the first three years, as well as clinical conferences, seminars, and hospital assignments during the third and fourth years.

The objectives of the first-year course are to introduce the student to clinical dentistry, expose him to early contact with patients, and teach him certain diagnostic procedures. In addition, the relations of oral health to general health and the role of the dentist as a member of the hospital team are stressed. The stu-

dent rotates through the oral diagnosis clinic, the radiology clinic, and the hospital dental service.

The second-year course covers subjects in the field of oral diagnosis, such as diagnosis of dental pain, diagnosis of soft tissue lesions, and principles of treatment planning. Oral Pathology and Oral Roentgenology also constitute an important portion of this conjoint course.

The third-year course represents a conjoint effort among the departments of Oral Diagnosis, Oral Pathology, Internal Medicine, and Psychiatry. It incorporates diverse types of material into a unified activity and stresses the relation of systemic disease to oral disease as well as the influence of emotional problems on management of dental patients.

The clinical conferences, seminars, and hospital assignments of the fourth year are designed to aid the student in refining his techniques in diagnosis, treatment planning, case presentation and patient management.

Course Descriptions

610 *Developments in Oral Medicine.* (2)
A seminar course for graduate students in dentistry, covering medical implications of dental treatment and current research in oral medicine. Two class hours per week. Prereq: Admission to graduate program of the College of Dentistry.

810 *Diagnosis.* (3)
The philosophy and technique of history-taking and of examination of oral hard and soft tissues are presented. Students initially carry out oral examinations on each other, and they subsequently assist in oral examination rounds in the hospital. Their hospital experience also includes an orientation to basic hospital procedures. An abbreviated experience in oral radiography is included in the introduction to diagnosis. Students expose and process intra-oral and extra-oral radiographs for clinic patients as an additional association with patient management and as an introduction to radiographic techniques. The initial introduction to clinical patients will occur in the Oral Diagnosis Clinic and University Hospital.

820 *Oral Diagnosis and Oral Pathology.* (3)
This course covers in detail diagnostic methods employed in dentistry, including the field of intra-oral radiography, both the standpoint of technique and of interpretation. It will also cover the pathology of the more commonly seen oral diseases. In addition continued experience in the University Hospital will be provided.

830 *Clinical Oral Diagnosis I.* (2)
This course is designed to give students opportunities to present and discuss patients with complicated treatment plans. Representatives of various departments involved in the various phases of treatment in each presentation will participate. Prereq: ODM 810, 820; OS 820 or dental degree or permission of instructor.

840 *Clinical Oral Diagnosis II.* (1)
This is a clinical course in which the students receive instructions in conjunction with patient care.

841 *Fourth Year Conferences.* (2)
The conference series will consist of four components: Clinicopathologic Conferences, Surgical Pathology Conferences, Treatment Planning Seminars, and Hospital Conferences.

ORAL PATHOLOGY

FACULTY

Sheldon Rovin, chairman

Professor

Sheldon Rovin
D.D.S., Michigan, 1957, M.S., Michigan, 1960

Associate Professor

William R. Sabes
D.D.S., Minnesota, 1959; M.S.D., Minnesota, 1961

Assistant Professor

Robert M. Howell
D.D.S., Medical College of Virginia, 1965; M.S.D., Indiana, 1967

The major objectives of the Department of Oral Pathology are to give the student an understanding of the fundamentals of oral disease and to teach how to approach the diagnosis of these diseases. The relationship of oral disease to systemic disease is emphasized.

Formal contact with the students occurs during the second, third and fourth years. Individual teaching with small groups in laboratories and seminars receives considerable emphasis.

Course Descriptions

CDS 550 *Research Methodology and Instrumentation.* (2)
Seminars and laboratory work involving methods of several modern research fields. One class hour, and two laboratory hours per week. Prereq: D.D.S. or D.M.D. degree; admission to graduate dental program; or special permission of instructor.

651 *Patho-Physiology of Oral Disease.* (3)
Seminar course in advanced oral pathology. Three class hours per week. Prereq: Dental degree and enrollment in a graduate program of the College of Dentistry; or permission of the instructor.

ORAL SURGERY

FACULTY

Raymond P. White, Jr., chairman

Professor

Emmett R. Costich
D.D.S., Pennsylvania, 1945; Ph.D., Rochester, 1954

Assistant Professors

John R. Cramer — D.D.S., Southern California, 1965; M.S., Iowa State, 1968
Joe W. Daugherty — D.M.D., Louisville, 1951
Markell W. Kohn — D.D.S., California, 1963
William C. Kranz — D.M.D., Louisville, 1951
J. Bernard Poindexter, Jr.
D.D.S., Pennsylvania, 1955; M.Sc., Ohio State, 1962
Raymond P. White, Jr.
D.D.S., Medical College of Virginia, 1962; Ph.D., Virginia, 1967

Research & Teaching Assistant

Elizabeth W. Haley
R.N., Memorial Hospital, Pawtucket, R. I.

Oral Surgery is that part of dental practice which deals with the diagnosis, the surgical and adjunctive

treatment of the diseases, injuries and defects of the human jaws, and associated structures.

The students receive a background of fundamental knowledge and technique for the clinical problems they will treat in their future general practice of dentistry. Such problems include the removal of teeth, surgical modification of the soft tissues to facilitate the placement of dentures or other prosthetic restorations, the treatment of severe infections and abscesses, the removal of tissue for cancer detection, emergency care of fractured jaws, and other operations.

The student is prepared to meet specific problems in his future practice. He is also taught to detect, appreciate, and appropriately refer to the specialist in oral surgery, those problems which in his judgment lie beyond his operating range. Some students with strong interests are encouraged to work further in oral surgery after they have received their dental degree. This program requires three years beyond dental school. Such a program is offered by the Oral Surgery Department.

Course Descriptions

651 *Anatomical Relationships in Surgery.* (1)
A seminar course for dental graduate students in areas other than surgery, emphasizing anatomical and surgical principles applicable to all dental specialties. One class hour per week. Prereq: Admission to graduate or post-doctoral programs of College of Dentistry; D.D.S. or D.M.D. degree.

820 *Oral Surgery I.* (1)
This lecture course will cover the surgical treatment of conditions of bony and soft tissue, of irregularities of the alveolar processes, of localized infections, and the technics of biopsy, as well as the removal of teeth.

830 *Oral Surgery II.* (2)
This course is given to acquaint the students with the surgical management of congenital or acquired abnormalities of the oral structures and associated parts. In addition, surgical treatment of pathologic conditions beyond the training of routine oral surgical practice in general dentistry will be described so the students will understand the limits of their training and know what care can be provided by trained oral surgeons. A portion of the course will consist of a clinical experience in which the students will be closely guided in their first contact with clinical oral surgery. Prereq: OS 820 or a dental degree or permission of instructor.

840 *Clinical Oral Surgery.* (3)
This is a clinical course in which the students receive instructions in conjunction with patient care.

841 *Hospital Clinical Clerkship.* (1)
One full week of hospital clinical experience with Oral Surgery staff and hospital patients. 44 hours.

ORTHODONTICS

FACULTY

William R. Proffit, chairman

Associate Professors

William R. Proffit — D.D.S., North Carolina, 1959; Ph.D., Medical College of Virginia, 1962; M.S.D., Washington, 1963

Louis A. Norton — D.M.D., Harvard, 1962; Post Doctoral Fellow, Harvard, 1964

Assistant Professors

Robert H. Biggerstaff — D.D.S., Harvard, 1955; Ph.D., Pennsylvania, 1969

Francis E. Khouw — D.M.D., Alabama, 1965; Post Doctoral Fellow, Harvard, 1968

Instructors

Howard K. Starnbach — D.D.S., Ohio State, 1961; M.S., Eastman Dental Center, 1964

Edward H. Hamilton, Jr. — D.D.S., Tennessee, 1954; Cert. Ortho., Illinois, 1956

Terry R. Schneider — D.M.D., Louisville, 1963; Grad. Dipl. Ortho., Univ. of Missouri at Kansas City, 1966

Lyman E. Wagers — D.M.D., Louisville, 1943; Cert. Ortho., Ohio State, 1952

Charles W. Kenney — D.D.S., Baylor, 1959; Cert. Ortho., Indiana, 1966

Robert N. Jennings — D.D.S., Northwestern, 1952; M.S., St. Louis, 1961

Orthodontics is the area of clinical dentistry which deals with malocclusion (failure of the teeth to bite together properly). The Department of Orthodontics participates in teaching growth and development to first- and second-year dental students. Preventive and interceptive orthodontics is emphasized in lectures and clinical teaching for third- and fourth-year students.

A graduate training program is offered which has the objective of providing clinical competence in the specialty of orthodontics as well as participation in research in this field. Seminar teaching, laboratory work and patient care form the basic clinical program, leading to a certificate of proficiency in orthodontics after two years of residency. The Master of Science degree will be available through the Graduate School for extra academic and research work, either within the College of Dentistry or through a cooperating department of the University.

Course Descriptions

610 *Cranio-Facial Form.* (3)
Applied radiographic anatomy for graduate students in dentistry. Three class hours per week. Prereq: Admission to graduate dental program; D.D.S. or D.M.D. degree.

CDS 611 *Child Growth & Development, Part I.* (2) I
A seminar course on nature and physiologic control of physical growth, for graduate students in dentistry. Two class hours per week. Prereq: Admission to a graduate program of the College of Dentistry; D.D.S. or D.M.D. degree.

620 *Oral-Pharyngeal Function, Part I.* (2) I
Basic and applied physiology for graduate students in dentistry. Two and a half class hours per week. Prereq: Admission to a graduate program of the College of Dentistry; D.D.S. or D.M.D. degree.

621 *Oral-Pharyngeal Function, Part II.* (2) II
A continuation of ORT 620, emphasizing speech physiology and language development. Two and a half class hours per week. Prereq: Admission to a graduate program of the College of Dentistry; D.D.S. or D.M.D. degree.

660 *Orthodontic Seminar-Clinic.* (2) I
Seminar, laboratory and clinical instruction in orthodontic theory and practice. One and a half class hours per week; 15 laboratory hours per week. Prereq: Admission to graduate program of College of Dentistry; D.D.S. or D.M.D. degree.

661 *Orthodontic Seminar-Clinic.* (3) II
Seminar, laboratory and clinical instruction in orthodontic theory and practice. Three class hours per week; 15 laboratory hours per week. Prereq: ORT 660.

700 *Orthodontic Seminar.* (1) I, II, S
Seminar in orthodontic theory and practice for advanced graduate and post-doctoral students in orthodontics; may be repeated to a maximum of five credits. Three class hours per week. Prereq: ORT 660, 661.

750 *Research in Orthodontics.* (1-5)
Research in orthodontics; maximum of five credits. Prereq: Admission to the orthodontic graduate program of the College of Dentistry; special permission.

768 *Residence Credit for Master's Degree.* (0)
(1-6 credits equivalence.) Prereq: Admission to the Orthodontic graduate program of the College of Dentistry; special permission.

830 *Introduction to Orthodontics.* (2)
This course is designed to introduce the student to the fundamental concepts utilized in the management of orthodontic problems. Methods for evaluating malocclusion and techniques for treatment will be described. Prereq: CDS 811; 812, 820, 822 or a dental degree or permission of instructor.

840 *Clinical Orthodontics.* (3)
This is a clinical course in which the students receive instructions in conjunction with patient care.

PEDODONTICS

FACULTY

John R. Mink, chairman

Professor

John R. Mink
D.D.S., Indiana, 1956; M.S.D., Indiana, 1961

Associate Professors

Milton E. Gellin — D.D.S., Western Reserve, 1946
Robert H. Spedding
D.D.S., Indiana, 1960; M.S.D., Indiana, 1963

Assistant Professors

Clem J. Hill — D.M.D., Louisville, 1949
Herbert W. Sorenson — D.D.S., Toronto, 1954
F.R.C.D. (c), Toronto, 1965

Instructors

Wayne Collier — D.M.D., Louisville, 1952
Michael H. Lerner — D.M.D., Kentucky, 1967
M.S.D., Indiana, 1969

Pedodontics is that phase of dentistry which is primarily concerned with the oral health of both preschool and school-age children. Since oral health is intimately related to total health, it is imperative that each dental student develop an understanding of the normal physical, mental and social development of children.

In order to provide successful dental services for children, the student must be familiar with the unique physical, mental, and social activities of each age group, and he must be able to recognize traits considered to be uncharacteristic for each group. Once the student is familiar with these growth and development patterns, he should be able to evaluate each child's behavior and thus successfully manage the child in the dental environment.

Each student must demonstrate an ability to diagnose and treat, if possible, the abnormal changes of the oral soft and hard tissues. He must also demonstrate that he can provide instruction to the child and parent in the use of preventive measures that are necessary to maintain an excellent level of oral health.

In the first year, the student is exposed to anatomy of the primary dentition in a dental morphology course. Various preventive principles are introduced and discussed in a preventive dentistry course and the principles of growth and development of the child are presented with special emphasis placed on extra and intra-oral structures.

In the second year, the student learns to perform several technical procedures in laboratory exercises conducted in the clinic. Various clinical procedures for the child patient are presented in lecture, slide and television demonstrations, and each student treats carefully selected children in the clinic.

During the third year, the student attends a lecture course and in the clinic provides dental services for children of all ages. Once again during the year preventive dentistry is stressed.

Although no formal lectures are offered during the fourth year, the students meet informally with the Pedodontic faculty to discuss problems that they have encountered during their extensive clinical activity. These sessions enable the students to exchange ideas and provide a mechanism for advancement in the skills related to dentistry for children.

Since the majority of new dentists in private practice treat a relatively large number of children in their dental offices, it is imperative that high quality dental services be made available. It is the responsibility of the Department of Pedodontics to provide its graduates with the knowledge and skill to perform this quality of dentistry for their younger patients.

Course Descriptions

CDS 612 *Child Growth & Development, Part II.* (1)
A seminar course for graduate students in dentistry covering emotional and intellectual growth of children, and diseases and congenital anomalies of children. One and one-half class hours per week. Prereq: Admission to graduate program of the College of Dentistry; D.D.S. or D.M.D. degree.

631 *Dental Care for the Chronically Ill and Handicapped Child.* (2)
A seminar course for graduate students in dentistry dealing with special problems of handicapped children. Two class hours per week. Prereq: Admission to dental graduate program; D.D.S. or D.M.D. degree.

820 *Pedodontics I.* (2)
This course introduces the student to the special problems of dentistry for children with emphasis on management of the child as a patient. The clinical experience will also emphasize the approach to working with a child rather than detailed technical procedures.

830 *Pedodontics II.* (3)
This is an advanced course in clinical pedodontics which includes: the abnormal development of the dentition, lesions, and infections of the oral soft tissues, oral habits, traumatic injuries to teeth, pulp therapy, prosthetic applicances for children, medication for the child, dental care for the handicapped child, clinical experience. Prereq: PDO 820, or a dental degree or permission of instructor.

840 *Clinical Pedodontics.* (4)
This is a clinical course in which the students receive instructions in conjunction with patient care.

PERIODONTICS

FACULTY

Stanley R. Saxe, chairman

Professor

Harry M. Bohannan
D.M.D., Louisville, 1953; M.S.D., Pennsylvania, 1961

Associate Professor

Stanley R. Saxe
D.M.D., Harvard, 1958; M.S.D., Washington, 1960

Assistant Professors

James G. Burch
D.D.S., Ohio State, 1962; M.Sc., Ohio State, 1966
Donald K. Carman — D.M.D., Louisville, 1955
Robert K. Davis — D.D.S., Western Reserve, 1948
Raymond A. Kopszyk — D.D.S., Northwestern, 1956; M.Sc., Ohio State, 1966
Andrew T. Polites — D.M.D., Louisville, 1955

Instructors

John A. Lenox — D.M.D., Kentucky, 1967
Oakie G. Newsome — D.M.D., Kentucky, 1966
Dan R. Trinler — D.M.D., Louisville, 1962

The objective of Periodontics is the preservation of the natural dentition in health and comfort. Periodontics is concerned with diseases of the supporting soft and hard tissues of the teeth.

In both disciplines the application of treatment procedures and techniques is based on basic sciences, especially anatomy, pathology, and microbiology.

Periodontics begins in the first year of the curriculum, stressing the concept of prevention of dental disease. This concept is applied to the patients seen during the first year together with the treatment of simple inflammatory disorders of the supporting soft tissues. In the second year, basic surgical techniques are learned and applied. As part of total dental care for a patient, the student becomes grounded in advanced surgical techniques during the third year of the curriculum. The fourth year of school allows the student to gain experience in providing periodontal therapy in conjunction with any other dental needs of the patient.

The fourth year provides the student with advanced clinical experience in the treatment and preservation of teeth which would otherwise be lost to disease.

Course Descriptions

661 *Modern Concepts in Periodontics.* (2) II
A seminar course designed to present the present understanding of the etiology of periodontal disease and current techniques for treatment of periodontal problems. Two class hours per week. Prereq: Admission to graduate programs of College of Dentistry; D.D.S. or D.M.D. degree.

810 *Periodontics I.* (3)
A combined lecture-laboratory-clinic-seminar session is utilized to introduce the field of periodontics. Students will perform dental services including oral prophylaxis, instrumentation, polishing and instruction in oral hygiene for clinic patients. Through this program the development of a philosophy of prevention is emphasized.

820 *Periodontics II.* (3)
This is a course devoted to specific diagnosis, prognosis, treatment planning, and therapy of the periodontally involved mouth. Therapeutic procedures involving initial preparation, initial occlusal adjustment, temporary splinting, curettage, and gingivectomy will be performed by each student.

830 *Periodontics III.* (3)
The third-year course in periodontics will be devoted largely to the management of the advanced periodontal lesion. The more complex forms of therapy will be discussed and demonstrated. This course, along with the clinical practice anticipated as a part of routine patient care, is designed to give the student experience in all phases of periodontal case management. Prereq: PEN 820, or a dental degree, or permission of instructor.

840 *Clinical Periodontics.* (4)
This is a clinical couse in which the students receive instructions in conjunction with patient care.

PROSTHODONTICS

FACULTY

Davis Henderson, chairman

Associate Professors

Charles W. Ellinger
D.D.S., Ohio State, 1956; M.Sc., Ohio State, 1959
Davis Henderson — D.D.S., Northwestern, 1939

Assistant Professors

Quentin Frazier — M.S., in Education, Kentucky, 1940; D.M.D., Louisville, 1954
John T. Gattozzi — D.D.S., Ohio State, 1959
Karl W. Lange — D.M.D., Louisville, 1960
Marvin R. Lutes — D.M.D., Louisville, 1949
Robert C. Wesley — D.M.D., Louisville, 1954

Instructors

Ernest L. Jackson — D.M.D., Alabama, 1955
Richard D. Lowe — D.D.S., Western Reserve, 1959; M.S.D., Washington, 1966
James D. Woodward — D.M.D., Louisville, 1965

The Department of Prosthodontics includes both complete and removable partial dentures and maxillo-

facial restorations. Complete dentures are those restorations that are made for patients who have lost all of their natural teeth. Removable partial dentures are made for patients who have some of their natural teeth remaining to which these restorations are attached. Maxillofacial restorations are made for patients who have gross defects of oral and associated structures and facial structures. This part of Prosthodontics often involves the artificial replacement of missing eyes, ears, noses, cheeks, and jaws.

Prosthodontics is a biomechanical science in that a combined knowledge of the biology of the tissues of the oral cavity and mechanical principles as related to stress must be applied. The appearance of the patient, his ability to masticate, and his relationship to society are all greatly affected by this phase of dentistry.

Course Descriptions

810 *Preclinical Removable Partial Prosthodontics.* (2)

This course includes instruction in the preparation of oral tissue for prosthetic appliances, principles of appliance design, impression technics, inter-maxillary registrations, fabrication, and insertion and adjustment of the prosthesis. Special attention is given to occlusal considerations peculiar to the partially endentulous patient.

820 *Removable Partial Prosthodontics I.* (2)

A single removable partial denture is constructed for a patient. Continuation of planning and design for removable partial dentures and an explanation of associated biologic and technical procedures are correlated with the clinical work.

821 *Complete Denture Prosthodontics I.* (4)

Complete dentures are constructed in alternate stages for a mannequin and a patient. The related biologic and mechanical factors that must be incorporated for living tissue to be compatible with complete dentures are stressed.

830 *Third-Year Prosthodontics.* (5)

The third-year course in removable partial dentures continues emphasis on diagnosis, treatment planning, design principles, mouth preparation, and prescription procedures. Students perform the clinical procedures of relining removable partial dentures and surveying and design of casts, with complex oral conditions. An introduction to precision attachment type removable partial dentures is presented. The clinical and laboratory procedures involved in construction of immediate dentures, relining of dentures, repairs and use of tissue conditioning material are presented. A resume of recent research in prosthodontics is discussed.

840 *Clinical Prosthodontics.* (5)

This is a clinical course in which the students receive instructions in conjunction with patient care.

RESTORATIVE DENTISTRY

FACULTY

Harold R. Laswell, chairman

FULL-TIME

Professor

Harry C. Lundeen	D.D.S., Minnesota, 1952

Associate Professors

Arthur W. Aplin	D.M.D., Oregon, 1955 M.S.D., Oregon, 1964
Clair D. Reitz	D.D.S., Pennsylvania, 1955

Assistant Professors

Thomas W. Brehm	D.D.S., Ohio State, 1949
Harold R. Laswell	D.D.S., Indiana, 1961 M.S.D., Indiana, 1966
William L. Pogue	D.D.S., St. Louis, 1951 M.S.D., St. Louis, 1966
Donald A. Welk	D.D.S., Univ. of Washington, 1962 M.S.D., Univ. of Washington, 1965
Carl G. Wirth	D.D.S., McGill Univ., 1962
John W. Wittrock	D.D.S., Missouri, 1960 M.A., San Francisco State, 1966

Instructor

Jon Q. Taylor	D.D.S., Nebraska, 1965

PART-TIME

Assistant Professors

Warren E. Fischer	D.M.D., Louisville, 1952
Andrew T. Polites	D.M.D., Louisville, 1955

Instructors

William M. Anderson	D.M.D., Kentucky, 1966
E. Nelson Barton	D.M.D., Louisville, 1956
John H. Holt	D.D.S., Ohio State, 1957
Laban T. McClure	D.D.S., Ohio State, 1944
E. I. Scrivner, Jr.	D.M.D., Louisville, 1955
Robert L. Southwood	D.M.D., Kentucky, 1966
William H. Wayman	D.M.D., Kentucky, 1966
William B. Wharton	D.M.D., Louisville, 1958

The purpose of the Department of Restorative Dentistry is to develop dental practitioners who will preserve and maintain the natural dentition of man by patient education, therapeutics and the restoration and replacement of teeth. This goal is accomplished in the following ways:

(1) by imparting to students the relationship between general health, diet, oral hygiene, drug therapy, and other factors, and the prevalence of dental caries, trauma, erosion, attrition, abrasion, and other pathologic dental conditions, and

(2) by helping students develop the clinical ability to restore or replace effectively the pathologically affected or missing dental tissues to anatomic form and proper function.

The courses in Restorative Dentistry are designed to correlate the basic sciences with the clinical sciences. Therefore, unlike the practice at many dental colleges, students at this institution treat patients during their first year in dental school. An increasing quantity of patient treatment is accomplished by each student as he continues through the four years.

First-Year Courses

1. Restorative Dentistry—The prevention, diagnosis and treatment of diseases of individual teeth.
2. Dental Morphology—The anatomy of the human teeth.
2. Principles of Occlusion—Anatomy and physiology of jaw relationships as related to the natural dentition.

4. Dental Physical Sciences—The physical characteristics of materials used in dentistry, their biologic implications and clinical applications.

Second-Year Courses

1. Restorative Dentistry—Specialized treatment of diseases of individual teeth and fixed replacement of missing teeth.
2. Occlusion—Anatomy and physiology of jaw relationships as related to the artificial dentition.

Third-Year Courses

1. Restorative Dentistry—Advanced treatment techniques stressing esthetic demands and the patient-dentist relationship.
2. Restorative Dentistry, Clinic—Clinical application of previously taught preventive and treatment concepts.
3. Occlusion—Pathology of malrelationships of the jaws.

Fourth-Year Courses

1. Restorative Dentistry—Advanced clinical application of the principles of Restorative Dentistry. Students are responsible for the complete oral treatment of patients.
2. Occlusion—A conjoint seminar series dealing with current concepts of jaw relationships.

Course Descriptions

CDS 631 *Principles of Dental Occlusion.* (2)
This course is designed to give the student as broad as possible a view of the complex subject of dental occlusion. Two class hours per week. Prereq: Admission to dental graduate program; D.D.S. or D.M.D. degree.

810 *Restorative Dentistry (Plastic Restorative Materials).* (4)
This course is a preclinical and clinical introduction to the etiology, pathology, prevention, and treatment of dental caries. Fundamentals of dental hard tissue surgery and the restoration of these tissues with silver amalgam, silicate cement, and acrylic resin is presented. Most procedures are done on mannequins in the dental clinics with a limited experience with patients. Single tooth restorations only are included in this course.

811 *Restorative Dentistry (Cast Gold).* (3)
This is a preclinical and clinical course with specific emphasis placed on dental hard tissue surgery for single tooth posterior restorations. The various types of posterior gold inlays and onlays and crowns and their relationship to the patient's biological needs are included. The crown preparations are done on mannequins and extracted teeth and patients. Knowledge gained in dental morphology, occlusion, and dental physical sciences are applied in this course.

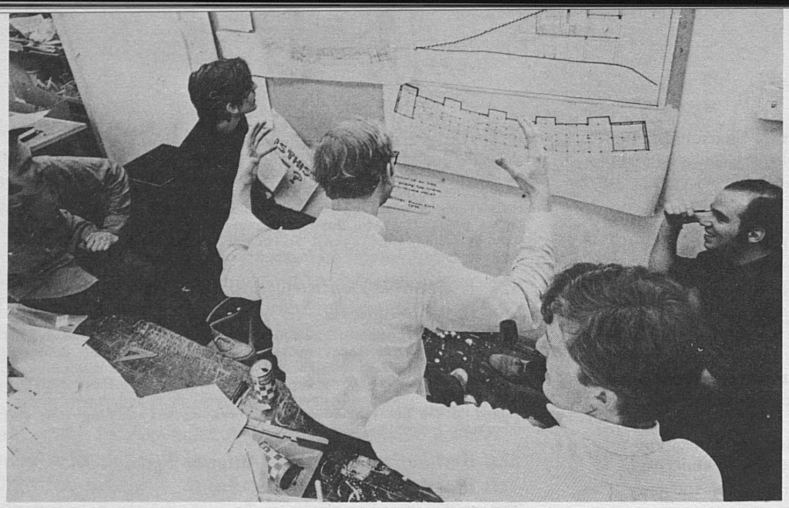
820 *Restorative Dentistry (Posterior Fixed Prosthodontics).* (3)
This preclinical course includes principles of dental hard tissue surgery for posterior extracoronal restorations and fixed partial dentures. Principles of prosthesis design and fabrication and the restoration of occlusion as they relate to the posterior segments of the mouth are taught. The course builds upon the technical skills and understandings gained in the first-year courses. Lectures, various teaching aids, and laboratory instruction and demonstration are utilized.

821 *Restorative Dentistry (Anterior Fixed Prosthodontics).* (2)
This preclinical course places specific emphasis on anterior esthetic crowns and fixed partial dentures. The students learn both technical knowledge and basic theoretical knowledge associated with each of the technics. Several possible materials are presented with the advantages and disadvantages of each carefully outlined. The students are alerted to look for the indications and contraindications for each material. Lectures, various teaching aids and laboratory exercises and demonstrations are used.

822 *Restorative Dentistry (Clinic Orientation).* (2)
This course is designed to develop and expand clinical skills in the phases of Restorative Dentistry that are taught in the first and second-year Restorative courses. Under close supervision, each student will have the opportunity to prepare and restore teeth in amalgam, silicate, resin, cast gold for posterior teeth, and esthetic crowns for anterior teeth.

830 *Restorative Dentistry (Clinical).* (5)
This course emphasizes clinical application of the principles gained in preclinical courses during the first and second years. Advanced concepts of preventive and treatment procedures are introduced in lectures and applied in the clinic.

840 *Restorative Dentistry (Clinical II).* (7)
Advanced principles in restorative dentistry are emphasized in this course. The students perform total patient oral care under faculty supervision to extend their clinical skills. Efficient dental practice procedures, use of auxiliary personnel, and new instruments and materials available are included. Seminars and lectures are held to provide an opportunity for students to gain knowledge in areas they feel it is most needed.



Architecture

Charles P. Graves, M.Arch., is Dean of the School of Architecture.

Architecture is the art of making spaces and structures for human activities. Architecture shapes and gives meaning to the environment; it is the architecture of a civilization which ultimately remains as a symbol to its spirit and aspirations, and as a testament to the lives of its people.

The traditional professional duties of the architect are to plan, design and supervise the construction of buildings. The contemporary concern for creation of a more orderly and humane environment has broadened the architect's role to include a professional responsibility in the development of regional and community plans designed to achieve a balance of economic growth and human viability.

The object of the School of Architecture (College) and its curriculum is to promote the development of those qualities of professional skill, competence and social awareness which the architect must command if architecture is to enhance contemporary life and remain as an enduring and valid expression of our society.

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 School is fully accredited by the National Architectural Accreditation Board.

The instructional program requires the successful completion of a minimum of ten semesters of work (166 semester credits) for the degree, Bachelor of Architecture. The curriculum is divided into two divisions. The lower division of two years will allow the student to meet the general requirements of the University with appropriate counselling from the faculty of the School of Architecture. Following the successful completion of Lower Division studies in the College of Arts and Sciences, the student may be admitted to the final three years, Professional Studies in the School of Architecture. All students admitted to the University, and those who transfer from other colleges and universities who have not completed the Lower Division requirements, will register in the College of Arts and Sciences until all requirements are met.

Prior to admission to the Professional Studies Program students must complete the course in Basic Architecture (ARC 201 and 202) normally taken in their second collegiate year.

A component of general studies is required of all students in the curriculum. Requirements in the physical sciences and mathematics are satisfied by completing the Lower Division program. In addition, each student must complete a minimum of eighteen semester credits chosen from at least three of the following general studies areas: foreign language, humanities, history, social sciences, and behavioral sciences. At least one general studies component and at least one course in each of the other two general studies components must be completed prior to admission to the School of Architecture. Students will obtain approval of their academic adviser for the general studies sequence.

The first two years of the Professional Studies Program will be essentially the same for all students in the School and will offer a broad professional core curriculum with additional opportunities for elective or general studies. This core program consists essentially of three concurrent sequences in architectural studio, architectural history, and systems, conceived as a unity of experiences encompassing the skills, concepts, and principles demanded in the solution of contemporary architectural problems.

The final year of professional study will allow each student to expand his individual interests in preparation for an advanced degree or architectural internship leading to licensure. The elective studies component during the Professional Studies Program is designed to assist the student in preparing for specialized interests and at the same time to extend the opportunities initiated in the general studies component. The professional elective component is designed to allow greater

opportunities for individual interests of the student in architectural subjects at the advanced level and to reinforce the selected topical studies offered in the advanced architectural problems sequence.

The curriculum outlined below will apply only to all new and transfer students. Others may secure information from the office of the Dean.

FACULTY

Charles P. Graves, dean

Professors

James G. Coke — Ph.D., Minnesota, 1956
Charles P. Graves — M.Arch., Pennsylvania, 1957
Herbert Greene — B.Arch., Oklahoma, 1952
George W. Gunther — M.F.A., Indiana, 1954
James Philip Noffsinger — D.Arch., Catholic University, 1955

Associate Professors

Richard S. Levine — M.Arch., Rensselaer Polytechnic Institute, 1963
James A. Prestridge — M.C.P., Pennsylvania, 1964

Assistant Professors

Clyde R. Carpenter — B.Arch., Pennsylvania, 1962
Michael C. Cunningham — Dottore in Architettura, University of Florence, 1967
Charles F. Davis, III — M.Arch., M.I.T., 1962
Stephen C. Deger — M.S.Arch. Engineering, Illinois, 1966
Carl F. Floyd — M.F.A., Cranbrook Academy, 1967
Michael D. Kennedy — B.S. Engineering Physics, Tennessee, 1963
Lois W. Langhorst — M.F.A., Harvard, 1966
Paul M. Pinney, Jr. — M.S.Arch., Columbia, 1966
Francis J. Scott — B.Arch., Detroit, 1967
David A. Spaeth — M.Arch., Illinois Institute of Technology, 1966
John P. Strickland — M.F.A., Cranbrook Academy, 1959
C. Daniel Woodfin — B.Arch., Auburn, 1964

Instructors

Paul Isaacs — J.D., Kentucky, 1969
Robert H. Swenson — M.Arch., Yale, 1969

Visiting Professors

Vito A. Girone — Dipl. Arch. and City Planning Cranbrook Academy, 1940
Pedro L. Koe-Krompecher — D. rr. pol., "Erzsebet" University Pecs., 1942
Dipl. in Arch., "Jozef" Tech. Univ., Budapest, 1926

Visiting Critics and Lecturers

D. Lyle Aten — B.S.L.A., Illinois, 1951
Francis Baden-Powell — Dipl. Arch.; ARIBA, Architectural Association, 1958 M.A., Cambridge, 1951
William Bingham — Director, Council of Neighborhood Organizations; Chairman, Lexington-Fayette County Human Rights Commission
Joseph H. Clark — M.L.A., Harvard, 1961 Dipl., Royal Academy, Copenhagen, 1962
Alan Cranshaw — MCD, B.Arch., ARIBA, AMTPI, Liverpool, 1957
Lawrence C. Hilton — B.S.Arch., Cincinnati, 1960
Philip Hodgkinson — Dip. Arch., ARIBA, Birmingham School of Architecture, 1956
David Parkes — Dip. Arch., ARIBA, FSIA, Birmingham School of Architecture, 1956
Donald Q. Wallace — B.S.C.E., Kentucky, 1959
Jasper D. Ward — B.Arch., M.I.T., 1948

Lower Division Studies

Students admitted to the University directly from high school, and those who transfer from other colleges and universities who have not completed the Lower Division requirements listed below, will register in the College of Arts and Sciences until all requirements are met. Each student will be assigned an academic adviser from the School of Architecture to assist in programming an appropriate selection of courses to fulfill the professional degree requirements.

Lower Division—Year One

	Crs.
ENG 101 and 102—English Composition	6
MA 122 and 123—Fundamental Concepts of Mathematics	6
Elective or General Studies Component	18
	30

Lower Division—Year Two

ARC 201 and 202—Basic Architectural Studies	10
PHY 151 and 152—Introduction to Physics	6
Elective or General Studies Component	18
	34

Professional Studies

Students who have successfully completed a minimum of sixty (60) semester credits including the requirements in English, Mathematics, Physics and the Elective Studies Components and who have successfully completed the requirement in Architectural Studies may be admitted to the School of Architecture and the Professional Studies program upon approval of the Admissions Committee of the School of Architecture. (Equivalent work in the Architectural Studies requirement at other institutions will be determined only after submission of a portfolio.)

Professional Studies—Year One	Crs.
ARC 810 and 811—Architectural Studio	8
ARC 820 and 821—History of Architecture	6
ARC 830 and 831—Systems	8
ARC 840—Theories of Urban Form	3
ARC 850—Professional Practice	3
Elective or General Studies Component	6
	34

Professional Studies—Year Two	
ARC 812 and 813—Architectural Studio	8
ARC 822 and 823—History of Architecture	6
ARC 832 and 833—Systems	8
Elective or General Studies Component	12
	34

Professional Studies—Year Three	
ARC 910 and 911—Advanced Architectural Problems	10
Professional Elective Component	24
	34

CREDITS REQUIRED FOR BACHELOR OF ARCHITECTURE DEGREE	
Professional and Related	100
General Studies	30
Electives	36
Total	166

THE FACULTY

The full-time faculty is assisted by visiting critics and visiting lecturers. 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.

During each of several recent years, a visiting foreign lecturer has been in residence at the School of Architecture for an extended period to teach in the design studios and to offer special elective courses in his particular field of interest. It is anticipated that this program will be continued as a vital part of the educational and teaching programs of the school.

PHYSICAL PLANT

The School of Architecture is located in Pence Hall, just south of the main library, on the central campus. The newly renovated building contains studio-drafting rooms, seminar and classrooms, a large lecture theatre, gallery and jury space, faculty offices, an architectural reference library, dark room facilities, a model shop and a systems laboratory.

SPECIAL ACTIVITIES

The School of Architecture sponsors a program of visiting lecturers which brings architects and related professionals of wide reputation to the campus for public lectures and to work in the design studios for periods ranging from several days to several weeks or longer.

The school gallery features a series of exhibitions of contemporary buildings, graphic art, paintings, sculpture and drawings.

STUDENT ACTIVITIES

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 several professional and social events during the year, including a required annual field trip to an urban center for advanced students and a beaux-arts ball. The Society also provides liaison with the state and national professional societies and contact with other schools of architecture.

FIELD TRIP

As a part of the requirements for the Bachelor of Architecture degree, each student must complete a minimum of three field trips offered annually by the School of Architecture. One field trip must be taken concurrent with ARC 202 and two field trips must be taken during the third through the fifth year of study. The field trips visit major urban centers to study selected works of architecture and of the related professions of landscape architecture and planning.

SCHOLARSHIPS AND PRIZES

Several scholarships are presented each year to qualified students in the School of Architecture. Information on scholarships and scholarship applications may be obtained by writing to the Director, Office of School Relations, University of Kentucky, Lexington, Kentucky 40506.

Several prizes and awards are given each year to outstanding students in architectural design, architectural history and academic courses.

FEES

In addition to University fees, students registered in the School of Architecture are required to pay a studio fee of $1.50 each semester.

SUMMER SESSION

Summer courses in Professional Studies are not generally offered. However, each student is strongly urged to spend at least one summer in the employ of a general contractor on a construction job site, and to spend at least one summer in the employ of a registered architect prior to graduation. This experience will be especially beneficial during the academic training of the student and should be obtained early in the curriculum.

ADMISSION

Beginning architectural students are generally accepted in the School of Architecture only in the fall semester after completion of lower division requirements including the two semesters' work in basic architecture. The latter requirement may be met, by transfer students only, by registering for ARC 203 in the summer session prior to entering the School of Architecture. ARC 203 will be offered by the school when there is sufficient demand. Students enrolled at the University for lower division work who have expressed an intention to enter the architectural program are counselled by members of the Faculty of Architecture during their first two academic years. All students must be in good academic standing at the time of enrolling in the School and admission to the Professional Studies Program.

Each applicant should visit the campus of the University for a personal interview. Transfer students should have their application forms completed and in the Office of the Dean of Admission 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.

To be eligible for the professional degree of Bachelor of Architecture a student must meet the following requirements:

(a) completion of the University requirements relating to English and General Studies;

(b) complete a minimum of 166 semester credits, exclusive of those earned in physical education and reserve officer training programs, with a cumulative standing of not less than 2.0 on a 4.0 system.

Course Descriptions

010 *Architectural Field Trip I.* (0) II
A field trip for students in ARC 202 to visit and study selected works of architecture and of the related professions of landscape architecture and planning. Required of all students registered in ARC 202. Laboratory fee. *Staff.*

020 *Architectural Field Trip II.* (0) II
A field trip for students enrolled in the 3rd through the 5th Year programs to visit a major urban center to study selected works of architecture and of the related professions of landscape architecture and planning. Required of all students in Architecture. Laboratory fee. Prereq: ARC 010 or consent of Dean; Junior classification. *Staff.*

030 *Architectural Field Trip III.* (0) III
Same as ARC 020. Laboratory fee. May be repeated twice. Prereq: ARC 020 or consent of Dean. *Staff.*

232 *History of Architecture Survey.* (3)
A survey of the development of architecture in relation to the world culture with emphasis on aesthetics, principles and philosophies of design, structure, use of materials, and the social and political backgrounds. Illustrated lectures, parallel reading, discussion, sketching and research. Not open to students in Architecture. (Same as A-H 232.)

432 *Seminar in Architectural History.* (2) I, II
A research seminar in special problems of architectural history and philosophy. May be repeated for a total of six credits. Prereq: Approval of instructor. *Staff.*

BASIC ARCHITECTURE SEQUENCE

The first in a two-semester sequence devoted to organization theory and the identification and definition of architectural design determinants in the various disciplines: perception theory, mechanisms of control; social institutions, implications of social structure and cultural convention; material properties, studies analogous and preliminary to materials systems, material dogma and myth. Emphasis throughout on the development of skills in the various media of architecture.

201 *Basic Architecture I.* (5) I
An introduction into those forces and requirements which define the architectural problem: physical and environmental forces, cultural conventions, and visual design phenomena. Lecture, 2 hours; studio, 12 hours. Prereq: Sophomore standing.

202 *Basic Architecture II.* (5) II
A continuing study of the impact of the general parameters of the architectural problem on building form and complexes, with special reference to visual design phenomena. Lecture, 2 hours; studio, 12 hours. Prereq: ARC 201 and approval of instructor.

203 *Basic Architecture III.* (8) S
A combination of the material in Architecture 201 and 202. Offered in the summer session for transfer students only. Lecture, 8 hours; studio 25 hours. Prereq: A-S 102 or A-S 180.

ARCHITECTURAL STUDIO SEQUENCE

A sequence of four semesters covering a full range of problems in design. Integration of design determinants is stressed, together with the definition and consideration of detail conditions and problem limits.

810 *Architectural Studio I.* (4) I
Investigation of the internal physical systems which comprise building; systems and their integration in architectural solutions. Lecture, 1 hour; studio, 12 hours. Prereq: Admission to the School of Architecture.

811 *Architectural Studio II.* (4) II
Continuation of the investigation of internal physical systems; introduction of methodologies for ordering and rationalizing their integration in architectural solutions. Lecture, 1 hour; studio 12 hours. Prereq: ARC 810.

812 *Architectural Studio III.* (4) I
Investigation of the external systems which influence architecture; program, functional and theoretical design considerations. Lecture, 1 hour; studio, 12 hours. Prereq: ARC 811.

813 *Architectural Studio IV.* (4) II
A continuation of the investigation of external systems generating architectural form. Lecture, 1 hour; studio, 12 hours. Prereq: ARC 812.

HISTORY OF ARCHITECTURE SEQUENCE

A sequence of four semesters in study, analysis and synthesis of the relationships which have evolved between man's architectonic expressions and his socio-economic and cultural developments. Selected examples illustrating aesthetic theories,

principles and philosophies of design, political influences, structural concepts, environmental factors, and urban evolution.

820 *History of Architecture I.* (3)
Elementary developments to the World-State. Lecture, 3 hours. Concurrent: ARC 810.

821 *History of Architecture II.* (3) II
The Medieval aesthetic and the Renaissance ideal. Lecture, 3 hours. Prereq: ARC 820. Concurrent: ARC 811.

822 *History of Architecture III.* (3)
Renaissance permeation. Lecture, 3 hours. Prereq: ARC 821. Concurrent: ARC 812.

823 *History of Architecture IV.* (3) II
Contemporary evolution and manifestation. Lecture, 3 hours. Prereq: ARC 822. Concurrent: ARC 813.

SYSTEMS SEQUENCE

A sequence of four semesters which approaches the architectural problem as an integration of physical systems. The scope of the courses includes Mechanical and Electrical Systems, and Material, Construction and Structural Systems.

830 *Systems I.* (4) I
Introduction to systems; emphasis on systems as mechanisms of environmental control; material systems as common discipline; statical and mechanical properties of materials; elementary structural systems; elementary mechanical systems. Lecture, 1 hour; recitation, 2 hours; studio, 3 hours. Concurrent: ARC 810.

831 *Systems II.* (4) II
A continuation of Architecture 830. Lecture, 1 hour; recitation, 2 hours; studio, 3 hours. Prereq: ARC 830. Concurrent: ARC 811.

832 *Systems III.* (4) I
Advanced structural systems; three dimensional structural organization; integration of complex building systems. Lecture, 1 hour; recitation, 2 hours; studio, 3 hours. Prereq: ARC 831. Concurrent: ARC 812.

833 *Systems IV.* (4) II
A continuation of Architecture 832. Lecture, 1 hour; recitation, 2 hours; studio, 3 hours. Prereq: ARC 832. Concurrent: ARC 813.

840 *Theories of Urban Form.* (3) I
Discussion of socio-economic forces and theories of planning affecting urban form. Discussion of contemporary theories of urban form, theories related to the functional elements or urban areas and comprehensive urban form. Lecture, 2 hours; seminar, 2 hours. Concurrent: ARC 810.

850 *Professional Practice.* (3) I, II
Professional and ethical responsibility to profession and community; procedural matters pertaining to practice and management. Lecture, 3 hours.

ADVANCED ARCHITECTURAL PROBLEMS SEQUENCE

A sequence of two semesters dealing with comprehensive problems and special studies in specific areas of contemporary architectural thought and technology. Advanced design problems to be selected by the student in relation to his professional objective.

910 *Advanced Architectural Problems I.* (5) I, II
Advanced topical studies in architecture. Prereq: Approval of Architectural Faculty. By appointment.

911 *Advanced Architectural Problems II.* (5) I, II
Same as Architecture 910. Prereq: ARC 910. By appointment.

912 *Seminar on Selected Topics in Design.* (3)
Seminar on selected topics in architectural and environmental design. Three class hours per week. May be repeated by permission of Dean for a maximum of six semester hours. Prereq: Enrollment in ARC 910 or 911, or consent of instructor.

914 *Seminar on Special Problems in Architecture.* (3)
Seminar on Special Problems in Architecture and Environmental Design. Three class hours per week. May be repeated by permission of Dean for a maximum of six semester hours. Prereq: Enrollment in ARC 910 or 911; or consent of instructor.

920 *Program in Contemporary Architectural History.* (2)
Analysis of current problems in Architectural History, Historic Urban Renewal and Preservation, Innovation in Research Techniques and their significance, Modern Architectural Philosophies and their applications. Two class hours per week. Prereq: ARC 823; consent of instructor.

922 *Seminar on Housing.* (2)
A survey of various aspects of housing, while scope of investigation will be international in scale. Participants will select a limited topic concentration of study. Two class hours per week. Prereq: Concurrent ARC 910-911, or consent of instructor.

950 *Computer Applications in Architecture.* (3)
Present utilization methods for computers in architecture to include information retrieval, problem decomposition, graphics simulation, etc. Lecture, two hours; lab, three hours. Prereq: CS 220; enrollment in Architecture.

960 *Architectural Photographic Media in Design I.* (2)
Development of creative capacity and visual awareness of architectural phenomena through photography. Exercise in visual organization and observation of three-dimensional form and space. Correlation of photographic analysis with architectural design, space and time concepts, aspects of light and color. Study of architectural models through photographic technique. Six hours per week. Prereq: Enrollment in School of Architecture and consent of instructor.

961 *Architectural Photographic Media in Design II.* (2)
Continuation of Architectural Photographic Media in Design I. Application of the recording and transforming powers of the camera to problems in architecture and design. Exploration of photometaphoric evocation, direct subject matter contact, compositional interpretation and concentrated investigation of concepts in ARC 960 as related to the enhancement of the student's abilities to comprehend architectural phenomena. Evaluation of impact of photography on architectural communication. Six hours per week. Prereq: ARC 960; consent of instructor.

963 *Advanced Special Problems in Architecture I.* (3)
Seminars and independent investigations in special problem areas in Architecture. May be repeated by permission of Dean for a maximum of six semester hours. Prereq: Consent of instructor.

964 *Advanced Special Problems in Architecture II.* (3)
Seminars and independent investigations in special problem areas in Architecture. May be repeated by permission of Dean for a maximum of six semester hours.



Graduate School

Lewis W. Cochran, Ph.D., is Dean of the Graduate School and Vice President–Research.

Introductory Statement

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:

DOCTOR OF PHILOSOPHY
DOCTOR OF BUSINESS ADMINISTRATION
DOCTOR OF EDUCATION
DOCTOR OF MUSICAL ARTS IN MUSIC TEACHING
SPECIALIST IN EDUCATION
MASTER OF ARTS
MASTER OF SCIENCE
MASTER OF SCIENCE IN ACCOUNTING
MASTER OF SCIENCE IN AGRICULTURE
MASTER OF SCIENCE IN CLINICAL NUTRITION
MASTER OF SCIENCE IN HOME ECONOMICS
MASTER OF SCIENCE IN AGRICULTURAL ENGINEERING
MASTER OF SCIENCE IN CHEMICAL ENGINEERING
MASTER OF SCIENCE IN CIVIL ENGINEERING
MASTER OF SCIENCE IN DENTISTRY
MASTER OF SCIENCE IN ELECTRICAL ENGINEERING
MASTER OF SCIENCE IN ENGINEERING MECHANICS
MASTER OF SCIENCE IN LIBRARY SCIENCE
MASTER OF SCIENCE IN MECHANICAL ENGINEERING
MASTER OF SCIENCE IN METALLURGICAL ENGINEERING
MASTER OF SCIENCE IN NUCLEAR ENGINEERING
MASTER OF SCIENCE IN RADIOLOGICAL HEALTH
MASTER OF SCIENCE IN MEDICAL RADIATION DOSIMETRY
MASTER OF SCIENCE IN NURSING
MASTER OF SCIENCE IN STATISTICS
MASTER OF ARTS IN EDUCATION
MASTER OF SCIENCE IN EDUCATION
MASTER OF BUSINESS ADMINISTRATION
MASTER OF MUSIC

The degree of Doctor of Philosophy is offered with major work in the following fields: Agricultural Economics, Agricultural Engineering, Anatomy, Animal Sciences, Anthropology, Biology, Biochemistry, Chemical Engineering, Chemical Physics, Chemistry, Civil Engineering, Diplomacy and International Commerce, Economics, Education, Electrical Engineering, Engineering Mechanics, Entomology, English, French, Geography, German Languages, History, Mathematics, Mechanical Engineering, Metallurgical Engineering, Microbiology, Pharmaceutical Sciences, Pharmacology, Physics, Physiology and Biophysics, Plant Pathology, Plant Physiology, Political Science, Psychology, Sociology, Soil Sciences, Spanish, Statistics, Toxicology, and Veterinary Science. Minor work may be carried in any department offering graduate courses.

Organization of the Graduate School

The Graduate Faculty consists of the Dean of the Graduate School and all persons appointed thereto by the President of the University. As the chief University agency for the promotion of the ideals of graduate study, it determines the policies of the Graduate School and makes recommendations to the University Senate on such matters as require the approval of that body. All rules affecting graduate work and the inauguration of new graduate majors must be approved by the Graduate Faculty.

The Dean and His Office. The Dean of the Graduate School is charged with the administration of the policies adopted by the Graduate Faculty and the University Senate relating to graduate studies.

The Graduate Council is composed of eleven members of the Graduate Faculty and the Dean of the Graduate School.

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

Directors of Graduate Study. A director of graduate study serves as adviser to each student majoring in his area until the student has a thesis director.

Honorary Degrees. The selection of candidates for honorary degrees originates in the Graduate Faculty,

and the Graduate Faculty makes its recommendation to the University Senate.

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

Admission

A student who is a graduate of a fully accredited institution of higher learning and has an undergraduate grade-point standing of 2.5 on a basis of 4.0 may apply for admission to the Graduate School by submitting to the Graduate Admission Office two official transcripts of all college courses and a written application at least a month before anticipated entrance. Application blanks may be obtained from the Admission 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 the Graduate Record Examination and other evidence acceptable to the Dean of the Graduate School, and to the Department, indicates that he is capable of doing satisfactory graduate work. Individual departments often establish higher requirements.

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.

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. Graduate credit will be allowed for each credit hour of graduate work beyond the six or fewer credit hours needed to complete undergraduate requirements. The incidental fee is that of a full-time student in the school in which more than half of the work is taken. In cases where the load is evenly divided between the schools, the larger fee is assessed. Requirements for the undergraduate degree must be completed during the semester in which the student is allowed to register for part-time graduate work. Students desiring to enroll in the Graduate School under these conditions must fill out in duplicate a petition listing the course or courses to be taken in order to complete their undergraduate requirements. The petition must be approved by both deans concerned.

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 his graduate adviser 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 adviser. *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 within 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 he be allowed to withdraw from a class within five weeks of the final examination period (two weeks during the Summer Session).

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	see explanation below
see explanation below	S—satisfactory
0 grade points per credit	I—incomplete

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

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

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

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 adviser's approval of his proposed program.

CREDIT EQUIVALENCE

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

ACADEMIC LOAD

The total term load of a student is the sum of all credits and credit equivalents being carried. The normal load of a graduate student during any semester is twelve credit hours or equivalent and under no circumstances may it exceed fifteen credit hours or equivalent. In the summer session the normal load is six credit hours and the maximum nine. Students satisfactorily completing in residence 9 course credits, or equivalent, of graduate level work during a semester, or 6 course credits, or equivalent, during a summer term are classified as full-time or full-residence students. Those completing less than these amounts are classified as part-time or part-residence students.

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

A master's candidate working on his thesis may register for up to the equivalent of 6 course credits by signing for course 768 in the appropriate department and indicating the desired credit equivalent in parentheses on the registration card.

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

Graduate students serving in the University as assistants or part-time instructors should register for less than the normal load, as determined by their advisers. 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.

SHORT COURSES: WEEKLY COURSES

Short courses are defined as courses of less than a term in length; weekly courses are courses of more than one credit that meet only once a week. A short course may not carry credits greater than the number of weeks during which it is offered. Two short courses of 4 weeks or less or two full-term courses and a short course may not be taken simultaneously. A total graduate program may not be made up of short courses. Not more than 12 hours of the course work requirements for a degree may consist of courses (resident and extension) that meet only once a week.

THE GRADUATE RECORD EXAMINATION

All students working for graduate degrees must take the Graduate Record Examination (the Aptitude Test, and the Advanced Test in the major subject). This must be done no later than the first term of the 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.

TIME LIMIT FOR DEGREES

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

To be eligible for a degree, the student must file an application at the Graduate Office within 30 days after the beginning of the semester or 15 days in the Summer Session in which he expects to complete his work. The degree applicant must pay his graduation fees within 60 days after the beginning of the semester or 30 days in the Summer Session in which he expects to complete his work.

FEES

Registration fees per semester are $165 for residents of Kentucky, $515.00 for non-residents. The new credit hour fee for part-time students had not been established at the time the 1970-71 catalog was printed. When these hourly fees are established, information may be obtained from the Registrar's Office, University of Kentucky, Lexington, Kentucky 40506.

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

General Requirements for All Masters' Degrees

ON-CAMPUS RESIDENCE

At least 18 semester hours of the minimum degree requirements must be earned while in residence on the Lexington campus of the University of Kentucky. Normally, candidates for masters' degrees must spend at least two full summer terms or one semester in full residence at the University. For individual superior students the full 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.

TRANSFER OF CREDITS

With the approval of his graduate adviser and the dean, a student may transfer up to six credit hours 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.

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. Exception 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.

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 $25.00 at the Billings and Collections Office.

DETAILED REQUIREMENTS FOR THE VARIOUS MASTERS' DEGREES MAY BE FOUND IN THE GRADUATE BULLETIN

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 thesis 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.

Information concerning admission and other requirements may be found in the Graduate Bulletin.

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.

Additional requirements may be found in the Graduate Bulletin.

Requirements for the Degree of Doctor of Musical Arts

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

1. Only one foreign language, normally French or German, is required for the D.M.D. degree. The candidate must also demonstrate a working knowledge of musical terms in French, German, and Italian prior to the qualifying examination.
2. The applicant for this degree must have at least two years of successful teaching experience.

Further information concerning prerequisites and courses of study can be found in the Graduate Bulletin. At present the Doctor of Musical Arts is offered only in the field of Music Teaching.

Requirements for the Degree of Doctor of Business Administration

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

Major and minor fields may be selected from accounting, behavioral analysis, managerial economics, finance, human resource development, international business, and marketing.

Further information concerning prerequisites and courses of study can be found in the Business and Economics section of the Graduate School Bulletin.

Requirements for the Degree of Specialist in Education

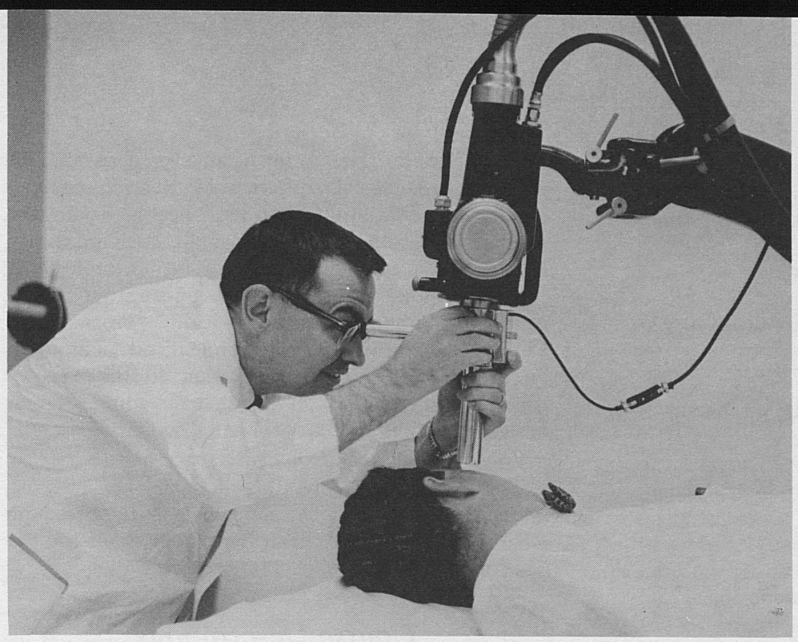
The degree of Specialist in Education is conferred upon a candidate who satisfactorily completes a sixth-year planned program in Education under the general requirements stated in the Graduate Bulletin.

Fellowships And Assistantships

The Graduate School is responsible for the awarding and administration of the various University of Kentucky Non-service Fellowships, the National Defense Education Act (Title IV) Fellowships, and the National Science Foundation Graduate Traineeships as well as a number of other non-service fellowship awards open to graduate students. Stipends vary from $2,000 to $4,000 per academic year; some provide dependency allowances in addition. All fellowships include waiver of out-of-state tuition fees and the NDEA Fellowships and NSF Traineeships include waiver of all tuition fees. Tenure varies from one to as many as four years. The application deadline for fellowships, unless otherwise stated, is February 1. Additional information and the application form may be obtained from the Graduate School Office.

The fellowship applicant is automatically considered for all fellowships for which he is eligible. However, a fellowship preference may be indicated by writing the name of the preferred award across the top of the first page of the application form.

Most departments employ part-time teaching and research assistants at stipends ranging to $3,000, plus waiver of out-of-state fees. Information concerning assistantships may be obtained from the various departments.



Allied Health Professions

Joseph Hamburg, M.D., is Dean of the School of Allied Health Professions.

The School of Allied Health Professions was established in 1966 in recognition of the need for a coordinated approach to the education and training of the allied health professional.

In recent years, the exponential growth of our population with its changing social patterns has placed a heavy demand for health care services on a relatively scarce supply of physicians and dentists. Out of efforts to meet this demand there has evolved the concept of the "health-care team."

This team approach will utilize more fully the skills of the allied health professionals, but it will also require a redefinition of some of the roles of the existing members as well as the developmnt of entirely new careers in the allied health field. The School of Allied Health Professions joins the University Medical Center in providing the locus for this activity.

The School presently offers programs at the baccalaureate level in Dental Hygiene, Medical Technology, Physical Therapy, and Master's Degree programs in Clinical Nutrition, Medical Radiation Dosimetry, and Radiological Health Specialty. In addition, it provides guidance and support for allied health programs at the Associate Degree level in the Community College System.

CLINICAL NUTRITION

FACULTY

Paul A. Thornton, chairman

Associate Professor

Paul A. Thornton — Ph.D., Michigan State, 1956

Instructors

Willena S. Beagle — M.S., Tennessee, 1964

Wilma F. Robinson — B.S., Kentucky, 1929

The Master's Degree Program in Clinical Nutrition provides an opportunity for graduate study in the fundamentals of Clinical Nutrition. The curriculum is designed specifically to provide practical experience in nutrition in the treatment of illness and the maintenance of health and to deepen the student's foundation in the sciences fundamental to nutrition. It is intended primarily for those who wish to undertake careers in dietetics and clinical nutrition in university hospitals, large community hospitals, and medical centers, for those who intend to teach in the field of clinical dietetics and for those who plan careers as members of a research team in clinical nutrition and metabolism.

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

Course Descriptions

502 *Principles of Human Physiology.* (5)
A basic course in human physiology including the functions and regulations of the major body systems. Prereq: One year in organic chemistry; one semester of college anatomy, or one year of college biology. (Same as PGY 810.)

601 *Clinical Nutrition.* (4)
An analysis of the process by which man ingests, assimilates and utilizes all of the constituents of food in health and disease. Relationship of biochemical and physiological factors to the nutrient requirements of the human body. Evaluation of dietary status and rationale of dietary management. Course to be taught by lectures, clinical rounds, conferences and written and oral case studies. Prereq: PGY 502, 503; consent of instructor. BCH 501 to be taken concurrently.

602 *Current Trends in Nutrition.* (1)
A seminar to review the current literature of nutrition; development of techniques for the preparation of abstracts, reviews and bibliographies on current topics. Questions of editing, editorial styles, evaluation and graphic interpretation to be discussed. Course to be taught through seminar sessions, along with reports and some lectures. Prereq: PGY 502, 503; BSC 421 (Statistics); BCH 501 to be taken concurrently.

701 *Advanced Clinical Nutrition.* (2)
A course dealing primarily with the clinical application of the principles of nutrition, to include clinical conferences and case studies. Prereq: CNU 601 or concurrent.

768 *Residence Credit for Master's Degree in Clinical Nutrition.* (0)
(1-6 credits equivalence.) May be repeated.

780, 781, 182 *Independent Study.* (1 ea.)
Required each semester and summer school by all students enrolled in the Clinical Nutrition program. Topics of interest will be reviewed in depth with appropriate presentation.

CM 601 *Principles of Nutrition in Population Groups.* (2)
Epidemiological aspects of nutrition. Factors affecting adequacy of dietary intake and assessment of nutritional status in population groups. Community programs in social welfare and public health, including city, state, federal and international programs. Field work 4 weeks. Course will be taught through lectures and discussions. Prereq: BCH 501; BSC 421 (Statistics); PGY 502, 503; SOC 780. Consent of instructor.

COMMUNITY HEALTH

FACULTY

Ralph W. Eichenberger, chairman

Professor

William Brooks Hamilton — Ph.D., Massachusetts, 1935

Associate Professors

Wilbur August Heinz — M.S.P.H., Michigan, 1930
Joe Fred Sills — Ph.D., North Carolina, 1964

Assistant Professor

R. W. Eichenberger — M.P.H., North Carolina, 1962

The primary objective of the department is the education of the allied health professional for his work with the community—a broader responsibility than merely his service to the individual patient. To attain this objective its teaching functions include:

(1) Offering courses in the concept and principles of community health to all the allied health and health-related professions.

(2) Preparing health professionals for specialized careers in community health.

To fulfill the first function, the Department of Community Health offers certain courses which provide a broad introduction to health in our society and the operations of some of the systems and institutions in the health field.

To fulfill the second, the department offers the Bachelor of Science degree with a major in Community Health. The recipient of this degree is prepared with a general education for a career in community or public health in a local health department, a voluntary health agency or a similar welfare agency. He may also be prepared to go on to professional education in medicine, dentistry, nursing, etc., or to graduate education in Public Health. Programs are being developed in the Department of Community Health to offer graduate education to the Master's degree with emphasis on health care administration, health education and environmental sanitation.

For University requirements see page 6.

The requirements for this program are presently under review. A detailed statement of these requirements may be obtained from the Chairman of the program.

Course Descriptions

101 *Introduction to the Health Sciences.* (1) I, II
Limited to students contemplating a career in one of the health sciences. One class hour per week. *Hamburg and Staff.*

224 *Community Organization for Public Health.* (1)
A consideration of community resources that may be utilized in the promotion of Public Health programs.

500 *Public Health Sanitation.* (3)
A consideration of the cause, prevalence, transmission, and control of preventable diseases.

501 *Public Health.* (3)
A cintinuation of CH 500. Administrative and organizational approach to disease prevention.

510 *Health Education.* (3)
A course dealing primarily with principles of health education, health service, and health protection.

511 *Independent Work in Hygiene and Public Health.* (3)
May be repeated 3 times for maximum of 12 credits. Prereq: Major and standing of 3.0 in the department.

515 *Communicable Diseases.* (3)
Environmental sanitation and the effects of environment on the control of communicable diseases. Prereq: MB 200 or 400 or equiv.

520 *Mental Hygiene.* (3)
An introduction to mental hygiene including a consideration of the cause, treatment and prevention of mental disorders. Not open to students who have credit in PSY 520.

521 *Community Health.* (3)
An ecological view of community health, a study of the demographic, social, cultural and physical environmental factors that influence a community's state of health. Basic epidemiology and biostatistics are introduced as necessary instruments of community health analysis. Three class hours per week. Prereq: Upper division or graduate standing and consent of instructor.

522 *School and Community Health.* (2)
A course designed to develop an idea of the cooperative nature of school health work and the importance of connecting it with adult health work.

550,552 *Problems in Health Education.* (2 each)
An individual problems course for students and teachers in service, based upon a systematic attack upon the health problems of a school.

600 *Epidemiology.* (3)
A study of the natural history of disease.

603 *Public Health Records.* (2)
General principles of recording, filing and use of public health data.

604 *Maternal and Child Health.* (2)
A study of the principles of maternal, prenatal, infant and child care.

612 *Public Health Administration.* (3)
A consideration of the principles of public health administration.

613 *Public Health Administration.* (2)
A continuation of CH 612.

618 *Vital Statistics.* (3)
Application of the statistics of population, births, deaths, etc. in Public Health.

619 *Vital Statistics.* (2)
A continuation of CH 618.

625 *County Health Practice for Health Officers.* (3)
An internship in actual county health practice.

626 *County Health Practice for Health Officers.* (2)
A critical analysis of one service of the Fayette County Health Department.

768 *Residence Credit for Master's Degree.* (0)
May be repeated once. (1-6 credits equivalence.)

770 *Seminar.* (1)

841 *Community Health Clerkship.* (3)
Community Health Clerkship—field experience in applying the principles of community health analysis. Prereq: CH 521 and/or consent of instructor.

DENTAL HYGIENE

FACULTY

Pauline Schmidt, chairman

Thomas M. Cooper,
director of dental auxiliary programs

Professors

John Mink	M.S.D., Indiana, 1961
Wesley O. Young	M.P.H., Michigan, 1951

Associate Professors

James W. Little	M.S., Oregon, 1963
William R. Proffit	M.S.D., Washington, 1963
William Sabes	M.S.D., Minnesota, 1961
Stanley Saxe	M.S.D., Washington, 1960
Pauline Schmidt	B.A., Wayne State, 1966

Assistant Professors

Arthur W. Aplin	M.S.D., Oregon, 1964
Sherwin Fishman	M.P.H., Michigan, 1964
Milton Gellin	D.D.S., Western Reserve, 1946
Clem J. Hill	D.M.D., Louisville, 1949
Harold R. Laswell	M.S.D., Indiana, 1966
Edith Schweikle	M.P.H., Michigan, 1965
Robert H. Spedding	M.S.D., Indiana, 1963

Instructors

Laurence R. Bean	D.D.S., Ohio State, 1961
Sheila Keefe	B.S., Columbia, 1968
Sandra Krebs	B.A., Indiana, 1965
Janet V. Schweisthal	B.A., Syracuse, 1945
Jon Q. Taylor	D.D.S., Nebraska, 1965

The dental hygienist, as an auxiliary to the dentist, has a significant contribution to make as a dental health educator and as a completely trained clinician. Her training in educational methods and clinical techniques makes her a valuable member of the dental health team.

Thus, the educational philosophy of the program encompasses the concepts of integrated and comprehensive dental hygiene practice. Particular emphasis is placed on the correlation between the technical phases of dental hygiene practice and the basic and social sciences. In addition to providing a thorough foundation in the principles and techniques of each major scientific and clinical subject, the curriculum stresses the relationship between dental and total patient health. The curriculum, leading to the degree of Bachelor of Science in Dental Hygiene, is designed to give each student ample opportunity for elective work in areas of special interest.

ACADEMIC PREPARATION FOR THE STUDY OF DENTAL HYGIENE

Applicants to the Dental Hygiene program are expected to have completed a minimum of 64 credit hours (exclusive of physical education) and a sequence of two courses in at least five of the general studies areas.

Students will be expected to have maintained a satisfactory standing and to have completed the following prerequisites (or their equivalents) before being admitted to the dental hygiene program in the junior year:

2 semesters of English Composition
2 semesters of Chemistry
2 semesters of Microbiology *or*
1 semester of Microbiology and
1 semester of Health or Biology
2 semesters of Sociology
2 semesters of Psychology
1 semester of Speech
1 semester of Nutrition

Students selected for admission to the third year of the program not only must have accomplished the prerequisites stated above, but also must meet the requirements of professional acceptability as determined by the Committee on Dental Hygiene Admissions.

SELECTION CRITERIA

In admitting students to the Dental Hygiene program, the University endeavors to select those young men and women who show promise of making the best possible future dental hygienists. Applicants are judged on the basis of their total qualifications and in comparison with other applicants. As a state-supported

school, the School of Allied Health Professions gives preference to qualified residents of Kentucky.

Selection from among applicants who meet the general prerequisites of the Dental Hygiene program is based on a number of criteria:

A high level of academic performance is essential to the first two years of college. It is recognized, however, that a meaningful evaluation of student performance must consider many factors in addition to the grades which a student has received.

All applicants are required to take the Dental Hygiene Aptitude Test, the results of which assist in the assessment of a student's relative ability to cope with the dental sciences.

Applicants are also evaluated with respect to personal, social and intellectual maturity. The practice of dental hygiene involves continual close personal relationships with patients and with other members of the professional health team. The dental hygienist's ability to relate effectively both to patients and colleagues will often determine the degree of success in professional activities.

Finally, it is essential that a prospective student be in good health and that motivation to study dental hygiene be sufficiently strong to sustain the student in the face of a concentrated and demanding curriculum.

PROCEDURE FOR APPLICATION

Applications for admission to the dental hygiene program in the fall should be filed no later than March 1 of that year. Early submission of applications is recommended.

In addition to filing a formal application with the dental hygiene program, all candidates for admission are requested to submit official transcripts of their academic records and letters of recommendation from members of the faculty of their college or university. Detailed instructions are included with application materials.

Applicants are also required to take the Dental Hygiene Aptitude Test during their freshman year. This test, for which there is a $9 examination fee, is given in the fall, winter, and spring. Application blanks and information about the test are available from the Department of Dental Hygiene, University of Kentucky, or they may be obtained by writing directly to the American Dental Hygienists' Association, 304 East 45th Street, New York, New York.

Requests for further information or for application forms should be sent to:

School of Allied Health Professions
Committee on Dental Hygiene Admissions
805 South Limestone
University of Kentucky
Lexington, Kentucky 40506

Course Descriptions

811 *Oral Biology I.* (4) I

A course designed to present the general gross anatomy of the human body and the physiology of the major systems and to introduce the microscopic study of the tissue of the oral cavity and the general development of the head and face. Thirty class hours; 50 laboratory hours per semester. Prereq: Admission to Dental Hygiene curriculum.

812 *Oral Biology II.* (4) II

The study of the biological complex of the oral cavity from an ecological viewpoint embracing the development of an oral parasitism and the chemical and physiological conditions affecting host-parasite interactions; an introduction to the response of the living organisms to drugs with particular emphasis on drugs used in dentistry. Thirty class hours; 50 laboratory hours per semester. Prereq: Admission to the Dental Hygiene program.

815 *Dental Morphology and Principles of Occlusion.* (2)

A course designed to permit the study of morphological characteristics of the teeth and other oral structures. Emphasis is placed on the positional relation of teeth in the dental arch and on the practical relation of dental morphology and occlusion to preventive dentistry. Prereq: Admission to the Dental Hygiene program.

816 *Growth and Development.* (2)

This course covers the dental, physical, emotional and environmental growth and development of the normal child from birth through adolescence and with some discussion of the aging problem. Prereq: Admission to the Dental Hygiene program.

820 *Introduction to Oral Examination and Hospital Procedures.* (3)

The philosophy and technique of history taking and of examination of oral hard and soft tissues are presented. Students obtain experience in oral examinations conducted in the clinic and in the hospital. Their hospital experience also includes an orientation to basic hospital procedures, and the initial introduction to patients; and therefore occurs in the Oral Diagnosis Clinic and University Hospital. Prereq: Admission to the Dental Hygiene program.

821 *Periodontics I.* (3)

An introduction to the field of periodontics, including oral prophylaxis instrumentation, polishing, and instruction in oral hygiene for clinic patients. Throughout this program, the development of a philosophy of prevention is emphasized. Prereq: Admission to the Dental Hygiene program.

822 *Pedodontics I.* (2)

This course will utilize parts of a course offered to first year dental students under the title of "Pedodontics I—PDO 820." Those lectures related to space management, child behavior, and caries control will be utilized with separate seminars and examinations scheduled to identify and emphasize aspects of child management particularly relevant to the practice of dental hygiene. *This course will involve clinical practice of dental hygiene with child patients.* Twenty-two class hours and 44 laboratory hours per semester. Prereq: Admission to the Dental Hygiene program.

823 *Restorative Dentistry and Dental Physical Sciences.* (2)

A course designed to introduce students to the etiology, pathology, prevention, and treatment of dental caries. Students also will be introduced to the various materials used to restore teeth and will perform the procedures used for polishing restorations. Prereq: Admission to the Dental Hygiene program.

825 *Clinical Dental Hygiene I.* (3)

Introduction to scaling and polishing technics and performance of oral prophylaxis, radiographs, fluoride treatments, and other clinical procedures on patients at the University of Kentucky College of Dentistry Clinic. Students also will be expected to educate patients regarding dental health, obtain medical and dental histories, and examine the hard and soft tissues of the head and neck. Prereq: Admission to the Dental Hygiene program.

826 *Dental Practice I.* (2)

Orientation to dental specialties, dental practice, office procedures, and dental assisting with opportunity to observe and assist in the various specialties of dentistry. Prereq: Admission to the Dental Hygiene program.

830 *Community Dental Hygiene.* (1)

Orientation to the dental hygiene profession; its history, ethics, professional obligations, and professional organizations. Prereq: Admission to the Dental Hygiene program.

831 *Preventive Dentistry I.* (1)
This is an introduction to the major oral disease entities found in problems associated with their treatment by present day methods. The concepts of prevention, both on the level of the individual patient and population groups, are presented. Sixteen class hours and 20 laboratory hours per semester. Prereq: Admission to the Dental Hygiene program.

832 *Concepts of Dental Behavioral Science.* (2)
Selected concepts from the behavioral sciences (psychological, socio-cultural, historical) are considered with special reference to the understanding of the nature and organization of dental resources and human behavior with respect to dental health and disease. Principles of human communications are considered in terms of the dental hygiene-patient relationships. Prereq: Admission to the Dental Hygiene program.

833 *Health Education for Dental Hygienists.* (2)
This course covers the scope and principles of health education with special emphasis on dental health education for patients as well as school and community groups. Students are given the opportunity to educate patients, school children, PTA groups, etc. and have experience in the selection, evaluation, and preparation of dental health educational materials.

834 *Dental Literature.* (1) II
This course is designed to introduce the student to the scope of literature in his field. The editorial and publishing procedures as they currently affect the journals and books he will be reading are discussed. Attention is directed to the systematic approach to the solving and reporting of scientific problems. Sixteen class hours; 14 laboratory hours per semester. Prereq: Admission to the Dental Hygiene program, first year.

835 *Community Clinical Dental Hygiene Laboratory.* (2)
A course designed to provide advanced clinical experience in a field setting during the summer between the third and fourth years. Each student spends two weeks caring for children in a rural county set up in schoolrooms under faculty supervision. Prereq: Admission to Dental Hygiene program, first year.

911 *Oral Pathology.* (1)
This course covers the pathology of the more commonly seen oral diseases. Prereq: Admission to Dental Hygiene program, second year.

912 *Oral Medicine.* (1)
Subject matter in this course will emphasize the inter-relationships between the oral cavity and the remainder of the body in health and disease. Those diseases with particular significance to dental care. Prereq: Admission to Dental Hygiene program, second year.

920 *Dental Radiology: Technique and Interpretation.* (2)
Extensive experience in radiographic technique is provided through clinical practice on dental clinic patients. This course also includes instruction in dark room procedures and in radiographic interpretation. Prereq: Admission to Dental Hygiene program, second year.

921 *Periodontics II.* (3)
This is a course devoted to specific diagnosis, prognosis, and treatment planning, and therapy in the periodontally involved mouth. Therapeutic procedures involving initial preparation, initial occlusal adjustments, temporary splinting, curretage, and gingivectomy are observed by each student. Prereq: Successful completion of DH 821.

922 *Pedodontics II.* (3)
Topics such as oral habits, pulp therapy, abnormal developments of the dentition and dental treatment for the handicapped children are formally discussed in the lectures in this course. Prereq: Successful completion of DH 822.

925 *Clinical Dental Hygiene II.* (3)
Continuation of Clinical Dental Hygiene I. Prereq: Successful completion of DH 825.

926 *Dental Practice II.* (2)
Continuation of Dental Practice I. Prereq: Successful completion of DH 826.

927 *Clinical Dental Hygiene III.* (3) II
Continuation of Clinical Dental Hygiene II. Two hundred fifty-six laboratory hours per semester. Prereq: Successful completion of DH 925.

930 *The Environment of Dental Practice.* (2)
This course introduces the student to some of the major social forces taking place which will influence the future characteristics of dental practice. Lectures and seminars are designed specifically to prepare students to participate in a five-day community laboratory experience in which five students visit a Kentucky community for an intensive study of the health problems and resources in the area. The use of demography as a tool in the study of health problems and as a guide to the establishment of a dental practice is also included. Prereq: Admission to Dental Hygiene program, second year.

931 *Preventive Dentistry II.* (1)
Advanced course material on preventive dentistry which will supplement the teaching that has been carried out by the other clinical departments is presented in this course. Particular attention is given to providing the most recent data available on areas of preventive dentistry in which new developments are taking place rapidly. Prereq: Successful completion of DH 831.

933 *Public Health and Community Organization.* (1)
Introduction to public health administration and organization. Consideration of community resources that can be utilized in the promotion of public health programs, especially as related to dentistry. Experience in development dental health educational materials and presenting dental health information to child and adult groups. Prereq: Admission to Dental Hygiene program, second year.

937 *Independent Study in Dental Hygiene.* (4)
A course designed to allow the student independent study in a special area of interest; e.g., periodontics, orthodontics, public health or dental hygiene education. Course content and length to be developed for individual student by the clinical departments selected in conjunction with the Director of the Dental Hygiene Department. May be repeated up to maximum of three times or 12 credits. Prereq: Admission to Dental Hygiene program, second year.

MEDICAL TECHNOLOGY

FACULTY

Mary Frances James, chairman
Wellington B. Stewart, M.D., clinical director

Associate Professor

Mary Frances James	M.S., Alabama, 1961

Assistant Professors

Jennie Dee Seaton	M.S., Minnesota, 1963
E. Anne Stiene	M.S., Minnesota, 1969

Instructor

Lillian M. Page	M.S., Louisville, 1957

Assistant-In-Teaching

Lelia G. Tilton	A.B., Transylvania, 1962

Clinical Instructors (part-time)

Jane G. Bryant	B.S., Alabama, 1957
Jane Hagan Crume	B.S., Nazareth College, 1965
Reedes Hurt	B.S., Kentucky, 1957
Mildred G. Jobe	B.S., Georgia, 1942
Betty Mulberry	B.S., Kentucky, 1957
Denver Robertson	B.S., Kentucky, 1948
Ellen T. Shackelford	B.A., Maryville College, 1936
Irvine P. Stapp, Jr.	B.S., Kentucky, 1951
Thomas M. Stoeckinger	Ph.D., Kentucky, 1968

The faculty of the Department of Pathology of the Medical Center participates cooperatively in the clinical teaching program. Those taking part in the program are:

Wellington B. Stewart, M.D.
Herbert Braunstein, M.D.
Daniel L. Weiss, M.D.
John A. Koepke, M.D.
Irene E. Roeckel, Dr. M.Sc.
Duane N. Tweeddale, M.D.
Charles L. Stephens, M.D.
Robert A. Stewart, M.D.
Wilmier M. Talbert, Jr., M.D.
Tatsuo Yoneyama, M.D.

The Medical Technology curriculum is a program of the School of Allied Health Professions of the Medical Center leading to a B.S. degree in Medical Technology.

The four-year program satisfies the University requirements for a B.S. degree, the educational requirements of the Council on Medical Education of the American Medical Association for Medical Technologists, and the prerequisites for national certification by the Registry of Medical Technologists (ASCP).

The Medical Technology curriculum provides breadth in general education through fulfillment of the General Studies Area requirements of the University, a strong foundation in the basic sciences essential to Medical Technology, and professionally-oriented instruction and experience in the Clinical Laboratories of the University Hospital. The curriculum prepares graduates not only for professional work in clinical, public health and research laboratories, but also provides an educational background for graduate studies in Medical Technology or its related fields.

CURRICULUM LEADING TO THE DEGREE OF B.S. IN MEDICAL TECHNOLOGY

Freshman Year

First Semester	Crs.
ENG 101—Freshman Composition	3
CHE 102 or 110, 111—General Chemistry	5
MA 113—Calculus	4
or	
MA 122—Fundamental Concepts of Mathematics I	3
Area Requirement	3
	18

Second Semester	Crs.
ENG 102—Freshman Composition	3
CHE 104 or 112, 113—General Chemistry	5
*MA 123—Fundamental Concepts of Mathematics II	3
Area Requirement or electives	3-6
	14-17

Sophomore Year

First Semester	Crs.
CHE 230, 231—Organic Chemistry	5
ANA 206—Elementary Anatomy	3
Area Requirement	3
Elective	3-6
	14-17

Second Semester	
CHE 232, 233—Organic Chemistry	5
PGY 206—Elementary Physiology	3
MB 200—Principles of Bacteriology	4
Area requirement or elective	3-6
	15-18

**MT 820—Introduction to Medical Technology—1 hr. credit

Junior Year

First Semester	Crs.
MB 500—Pathogenic Bacteriology	4
PHY 211—General Elementary Physics	5
Area Requirement or Elective	7-10
	16-19

Second Semester	
MB 550—Immunology and Serology	5
PHY 213—General Elementary Physics	5
CHE 226—Analytical Chemistry	5
Area requirement or elective	3
	18

Suggested Electives:	Crs.	When Offered
Modern Foreign Language (French, German, Spanish)		I, II, S
CLA 131—Medical Terminology from Greek and Latin	3	II
ZOO 220—Comparative Anatomy	4	I, II
BOT 530—Introduction to Heredity	3	II
or		
ZOO 504—Heredity	4	I, S
ZOO 534—Parasitology	4	I, S
CHE 550, 552—Physiological Chemistry	4	I, II
ZOO 513—General Histology	4	I

** MT 830 Medical Technology Seminar—1 hr. credit.

* Both MA 122 and MA 123 are required to fulfill Area I requirements as alternatives for MA 113.

** MT 820 for Sophomores and MT 830 for Juniors are each offered semesters I and II. They are not required courses but are highly recommended for Medical Technology majors.

Senior Year

A student must have a minimum of 94 credits (exclusive of Physical Education or Military Science), including the courses listed for the junior year or their equivalents, for admission to the senior year of professional instruction and a cumulative 2.0 point average.

The professional instruction and practicum required at the University of Kentucky Medical Center meets the requirements of the Board of Schools of Medical Technology (ASCP) and the Council on Medical Education of the American Medical Association. Senior classes start early in July and January of each year and extend for a calendar year. University scheduled holidays and between semester vacations are allowed.

	Crs.
MT 840—Medical Technology I—Clinical Practicum (Block I)	5
MT 841—Medical Technology II—Clinical Lectures (Block I)	6

MT 842—Medical Technology III—Practicum (Block I)	6
MT 850—Medical Technology IV—Clinical Practicum (Block II)	5
MT 851—Medical Technology V—Clinical Lectures (Block II)	6
MT 852—Medical Technology VI—Practicum (Block II)	6
Total	34

All candidates for the Bachelor of Science in Medical Technology are required to meet the following general studies requirements:

Area I. Mathematics—Philosophy

A. MA 113—Calculus

or

B. MA 122—Fundamental Concepts of Mathematics I

and

MA 123—Fundamental Concepts of Mathematics II

Area II. Physical Sciences

B. CHE 102 and 104—Elem. Gen. Chemistry

or

C. CHE 110, 111 and 112, 113—Gen. Coll. Chemistry

Area III. Biological Sciences

The General Studies requirements in this area are satisfied by substitution of upper division courses with the approval of the dean and the chairman of the department.

Area V. Humanities: Literature, Art and Music

Six (6) hours of credit to include:

3 hours of Literature, e.g., ENG 261 or 262

and

3 hours of Art or Music, e.g., A-H 200 or 201 or MUS 200 or 201

Choice between:

Area VI. History

Completion of one (1) of the acceptable sequences for six (6) hours of credit.

or

Area VII. Social Sciences

Six (6) hours of credit by completing two (2) of the courses listed as acceptable.

or

Area VIII. Behavioral Sciences

Six (6) hours of credit by completing two (2) of the courses listed as acceptable.

Course Descriptions

820 *Introduction to Medical Technology.* (1) I, II

Presentation of information about the profession of Medical Technology and the various phases of laboratory medicine involved in the training for and practice of the specialty. Taught by lectures, films, demonstrations and field trips. (Recommended in sophomore year but not required.)

830 *Medical Technology Seminar.* (1) I, II

An introduction to disease processes, their manifestations and related laboratory studies used in diagnosis and treatment. Taught by lectures. (Recommended in Junior year but not required.)

840 *Medical Technology I (Clinical Practicum).* (5)

For practical, professional instruction and experience, students are rotated individually through three training disciplines: Hematology, Chemistry, and Urinalysis. Prereq: Admission to Senior (Clinical) year of the Medical Technology curriculum.

841 *Medical Technology II (Clinical Lectures).* (6)

Lectures in Professional Orientation Chemistry, including instrumentation and Laboratory Mathematics, Hematology, Urinalysis and Miscellaneous Microscopy. Prereq: Admission to Senior (Clinical) year of Medical Technology curriculum.

842 *Medical Technology III (Practicum).* (6)

Instruction and experience in analytical laboratory procedures in Clinical Chemistry, Hematology, and Urinalysis. Prereq: Admission to Senior (Clinical) year of Medical Technology curriculum.

850 *Medical Technology IV (Clinical Practicum).* (5)

For practical, professional instruction and experience, students are rotated individually through three training disciplines: Microbiology, Blood Bank and Histology. Prereq: Admission to Senior (Clinical) year of Medical Technology curriculum.

851 *Medical Technology V (Clinical Lectures).* (6)

Lectures in Professional Orientation, Bacteriology, Serology, Parasitology, Mycology, Blood Banking and Histologic Technique. Prereq: Admission to Senior (Clinical Year) of Medical Technology curriculum.

852 *Medical Technology VI (Practicum).* (6)

Instruction and experience in clinical Microbiology, Histology, and Blood banking. Prereq: Admission to Senior (Clinical Year) of Medical Technology curriculum.

PHYSICAL THERAPY

FACULTY

Richard V. McDougall, chairman

Associate Professor

Joseph E. Warren	M.D., Harvard, 1938

Assistant Professors

Richard V. McDougall	M.E., Kentucky, 1965
Nancy J. Patton	Ph.D., Wisconsin, 1969

Instructors

Richard Borden	B.S., Arizona State, 1961
Thomas M. Pogue	M.A., Ohio State, 1964

The Physical Therapy Curriculum is a program of the School of Allied Health Professions leading to a B.S. degree in Physical Therapy.

The four-year program satisfies the University requirements for a B.S. degree in Physical Therapy and the educational requirements of the American Physical Therapy Association and the Council on Medical Education of the American Medical Association. Graduates of this program are eligible to practice physical therapy or sit for licensure examination in all 50 states and many foreign countries.

ADMISSION

Students applying for admission to this program must meet the admission requirements of the University as well as the special requirements of the Department of Physical Therapy. Application, indicating the School of Allied Health Professions, Physical Therapy Curriculum, is made directly to the Office of Admissions, Office Tower, University of Kentucky, Lexington, Kentucky 40506. Application for admission to the Physical

Therapy Curriculum is mailed in January of the sophomore year for Fall enrollment.

PREREQUISITES

The first two years of the lower division curriculum may be completed either at the University of Kentucky or at another accredited college or university. Five of the eight areas of the general studies component must be completed for the baccalaureate degree. In addition, the University requires that all full-time students demonstrate competency in English composition by completion of two semesters of English Composition or the passing of English 105 with a grade of B or better.

The Physical Therapy curriculum requires the completion of the following as prerequisites:

	Crs.
English	(6)
II. Physical Sciences	
General College Chemistry	(8-10)
General College Physics	(8-10)
III. Biological Sciences	
General Zoology	(4)
Comparative Anatomy	(4)
VIII. Behavioral Sciences	
Basic Psychology I	(3)
Basic Psychology II	(3)

Two areas may be completed from the following general studies component:

I. Mathematics and Philosophy
IV. Foreign Language
V. Humanities (Literature, Art and Music)
VI. History
VII. Social Science

Electives may be selected to give a total of 60 semester hours. (Excluded from the 60 hours are credits in Physical Education and ROTC.)

A minimum cumulative grade point average of 2.5 based on a 4.0 scale is required before entering the Physical Therapy curriculum. Acceptance may be granted to students whose grade point average is less than 2.5 if their performance in the first two years shows consistent and impressive improvement.

CURRICULUM IN PHYSICAL THERAPY

THIRD YEAR

Fall Semester

	Crs.
ANA 801—Histology for Physical Therapy Students	1
ANA 802—Neuroanatomy for Physical Therapy Students	2
ANA 811—Gross Anatomy for Physical Therapy Students	5
PT 845—Medical Lectures I	2
PT 835—Introduction to Physical Therapy	3
PT 815—Massage	1
PT 825—Hydrotherapy	2
	16

Spring Semester

PAT 326—Pathology for Physical Therapy Students	3
PT 806—Functional Anatomy (Kinesiology)	3
PGY 810—Physiology	5
PT 836—Clinical Clerkship I	1
PT 846—Medical Lectures II	2
PT 856—Therapeutic Exercise I	3
	17

Summer Semester

PT 816—Summer Clerkship	2

FOURTH YEAR

Fall Semester

	Crs.
PT 817—Electrotherapy and Diagnosis	4
PT 837—Clinical Clerkship II	2
PT 847—Medical Lectures III	2
PT 857—Therapeutic Exercise II	3
PT 867—Research Methodology	2
Elective	3
	16

Spring Semester

CH 521—Community Medicine	3
PT 848—Medical Lectures IV	2
PT 868—Research Problems	2
PT 858—Therapeutic Exercise III	4
PT 838—Clinical Clerkship III	2
PT 818—Advanced Clinical Problems	2
PT 808—Organization and Administration	2
	17
Professional Credits (3rd and 4th years)	68
Total Credits at time of graduation	128

Summer Semester
(Post Graduate—Non Degree)

PT 819—Clinical Internship	9

Course Descriptions

806 *Functional Anatomy (Kinesiology).* (3)
A study of the functional aspects of the neuromusculoskeletal systems including the principles of movement, analysis of muscle and joint action in activities and skills. Emphasis is placed on abnormal functions due to physical disability disturbances in normal motion patterns. Prereq: Admission to the Physical Therapy Curriculum.

808 *Organization and Administration.* (2)
A study is made of the organization, administration, policies, and budget of a physical therapy department and a general hospital. Ethical conduct, legal responsibilities in the health professions, interprofessional relationships, and provisions for continuing education are presented. Prereq: Admission to the Physical Therapy Curriculum.

815 *Massage.* (1)
Theory, rationale and physiological effects of massage including indications and contraindications are presented with laboratory practice for the development of techniques. Prereq: Admission to the Physical Therapy Curriculum.

816 *Summer Clerkship.* (2)
The student participates in a 17-day session at a specialized camping facility for handicapped children (Camp Kysoc). They participate in the 24-hour-per-day care of these children in conjunction with students from other specialties, e.g. general, special, and physical education, recreation, social work, and nursing. Prereq: Admission to the Physical Therapy Curriculum.

817 *Electrotherapy and Diagnosis.* (4)
Lecture and laboratory experience provides the student with theory, rationale and techniques of various electrical modalities used in diagnosis and therapy. Included are: radiant heat, ultraviolet radiation, ultrasound, diathermy, and low frequency currents (galvanic, faradic and sinusoidal). Diagnostic procedures include nerve conduction velocities and basic electromyography. Prereq: Admission to the Physical Therapy Curriculum.

818 *Advanced Clinical Problems.* (2)
This course is designed to study the planning and co-ordination of hospital and community services in the comprehensive care of patients with major disabilities and problems encountered in the rehabilitation program by way of seminars, staff conferences, and case presentations. Prereq: Admission to the Physical Therapy Curriculum.

819 *Clinical Internship in Physical Therapy.* (9)
Supervised internship through which the student acquires understanding and skill in physical therapy procedures.

825 *Hydrotherapy.* (2)
The physics and physiological effects of heat, cold and balneology are reviewed and discussed. Various techniques of applying paraffin, whirlpool, hot and cold applications, and underwater exercise in relation to various conditions are discussed and practiced. Prereq: Admission to the Physical Therapy Curriculum.

835 *Introduction to Physical Therapy.* (3)
General orientation to the fields of Physical Therapy and Rehabilitation with their history, development, and place in patient care is presented. An analysis is made of medical terminology and a working medical vocabulary is developed. Instruction is given in handling of the patient. Fundamental principles of asepsis and isolation techniques are presented. Students perform elementary procedures in the laboratory and observe treatments in actual patient care situations in the clinic. Prereq: Admission to the Physical Therapy Curriculum.

836 *Clinical Clerkship I.* (1)
The student observes patient treatment by experienced staff members and is supervised in the performance of elementary procedures involved in patient care. Prereq: Admission to the Physical Therapy Curriculum.

837 *Clinical Clerkship II.* (2)
The clinical participation of the physical therapy student, under supervision, is increased by more intense practice of the basic techniques taught in the classroom. Prereq: Admission to the Physical Therapy Curriculum.

838 *Clinical Clerkship III.* (2)
Under competent supervision students participate clinically in the care of patients in a variety of extramural facilities: general, children's, and Veteran's Administration hospitals, and special out-patient facilities. Prereq: Admission to the Physical Therapy Curriculum.

845 *Medical Lectures I.* (2)
An introduction to medical procedures including: history, physical examination, laboratory and x-rays. Legal, ethical and social problems relating to medical records will be emphasized. Basic clinical aspects of cardiovascular, respiratory, renal and endocrine systems will be presented. Introduction to drug usage. Prereq: Admission to the Physical Therapy Curriculum.

846 *Medical Lectures II.* (2)
A presentation of neurological and psychiatric disease, mental retardation and cerebral palsy. Prereq: Admission to the Physical Therapy Curriculum.

847 *Medical Lectures III.* (2)
Musculo-skeletal diseases and orthopedic disabilities, anesthesiology, general surgery, chest and cardiac surgery, vascular and plastic surgery are presented. Prereq: Admission to the Physical Therapy Curriculum.

848 *Medical Lectures IV.* (2)
Continuation of PT 847—Medical Lectures III. Prereq: Admission to the Physical Therapy Curriculum.

856 *Therapeutic Exercise I.* (3)
This course includes functional activities, disability evaluation, upper and lower extremity prosthetics, orthotoics, and related activities included in the rehabilitation of patients. Prereq: Admission to the Physical Therapy Curriculum.

857 *Therapeutic Exercise II.* (3)
This course includes the history of therapeutic exercise, traditional regimens of exercise and the use of application of exercise apparatus to patient treatment. Prereq: Admission to the Physical Therapy Curriculum.

858 *Therapeutic Exercise III.* (4)
This course includes the introduction, history, development, and the present application of specific methods of neuro-physiological exercise programs in the treatment of the patient with a neuro-muscular disability. Prereq: Admission to the Physical Therapy Curriculum.

867 *Research Methodology.* (2)
By means of lectures and seminars, the student becomes acquainted with the scientific method of problem-solving including the formulation of a hypothesis, literature, search, research design, and methods of data collection and interpretation. Prereq: Admission to the Physical Therapy Curriculum.

868 *Research Problems.* (2)
By means of lectures and seminars, the problems of organizing, collecting and analyzing data are covered in further detail. Each student must present his study before his peers and review the problems of preparing a paper for publication. Prereq: Admission to the Physical Therapy Curriculum.

PAT 326 *General Pathology for Physical Therapists.* (3)
A course in the principles of human pathology which combines a study of the fundamental reactions to injury with a systematic survey of disease processes. Special emphasis is placed on gross and microscopic interpretation of morbid processes in the perspective of basic science.

ANA 801 *Histology for Physical Therapy Students.* (1)
Histology, or microscopic anatomy, for students of Physical Therapy, is primarily directed toward familiarizing the students with the normal structure of the four basic tissues found in the mammalian organism. Additionally, the students are presented with a large number of examples serving to demonstrate the differing quantitative and qualitative arrangements of tissues in organs. This intensive study of tissue types and survey of tissue components or organs will provide the students with a foundation to continue their studies in pathology. This type of knowledge is required for proper understanding and performance of physical therapy technicians in treatment of medical and surgical diseases.

ANA 802 *Neuroanatomy for Physical Therapy Students.* (2)
A concise account of the functional anatomy of the central nervous system. The anatomical organization is correlated with physiological activity. Emphasis is placed upon the morphological basis for progressively higher levels of control of activity from the simple reflex to voluntary motor activities controlled by the cerebral cortex. This type of knowledge is required for proper understanding and performance of physical therapy technicians in treatment of medical and surgical disease.

RADIATION MEDICINE

FACULTY

Joseph A. Sayeg, chairman

Professor

Robert H. Greenlaw* — M.D., Rochester, 1952

Associate Professors

John C. Calkins* — Ph.D., Texas, 1963
Joseph A. Sayeg* — Ph.D., California, Berkeley, 1954

Assistant Professors

David F. Preston* — M.D., Cincinnati, 1959
Donald E. Wrede* — Ph.D., Cincinnati, 1963

* Joint appointments with the Department of Therapeutic Radiology.

Instructor

Leonard C. Wilson B.S., Eastern Kentucky, 1958

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

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

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

Course Descriptions

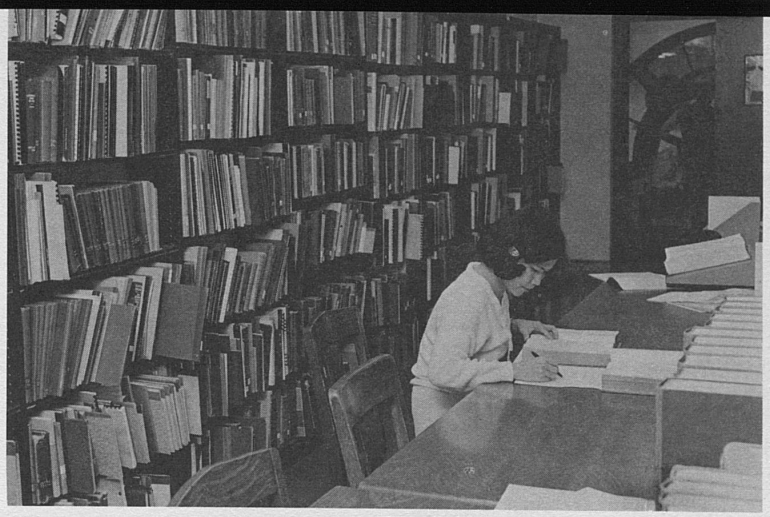
690 *Research in Radiological Health.* (1-3)
Research in the area of Radiological Health. Prereq: Graduate standing in the Bioradiation Sciences.

695 *Research in Radiation Dosimetry.* (1-3)
Independent directed research on theoretical and practical problems in the measurement of radiation. Prereq: Graduate standing in one of the Bioradiation Sciences.

710 *Seminar in Bioradiation Sciences.* (1)
Topics of current interest relating to radiation and its biomedical significance will be discussed. Prereq: Graduate standing in a radiation related science.

715 *Advanced Problems in Radiation Dosimetry.* (2-6)
Advanced problems in Radiation Dosimetry. To be taken concurrently with supervised individual study. Problems in radiation measurement, distribution of energy, computation of dose, and biological and medical effects of an advanced nature will be analyzed, discussed, and described in written reports. Problems will require literature search and utilization of advanced analytical techniques. Prereq: Completion of formal course work in medical Radiation Dosimetry program or consent of instructor.

720 *Advanced Problems in Radiological Health.* (2-4)
Advanced problems in Radiological Health and related areas in physics, biology, or medicine will be analyzed. Prereq: Completion of formal course work in Radiological Health Specialty program or consent of instructor.



Library Science

Lawrence A. Allen, Ph.D., is Dean of the School of Library Science.

Opportunities in Librarianship

The rapid expansion of knowledge resulting in what has been referred to as the "information explosion," has produced a heavy demand for all types of librarians. You will find opportunities for library service wherever you go—in cities, towns, rural areas, in Europe, Asia and South America. Estimates of the need for librarians in the United States alone have ranged from 20,000 to 120,000. There is little doubt that the need is vastly beyond the present supply and will remain so for some time.

If you are a man or woman of sound educational background and with good personal qualifications, you are well qualified to meet the current demand for librarians. Librarianship offers an extremely wide range of opportunities in college, university, public, school, and special libraries.

As a *college and university librarian*, you have more than 2,100 colleges and universities in the United States as possible places of employment. You serve the students and faculty in an academic and scholarly atmosphere characterized by a wide variety of research.

As a *public librarian*, you serve the community by providing educational, informational and recreational materials and services for persons of all ages. The 9,500 U. S. public libraries and branches offer a wide range of opportunity for those interested in public service.

As a *school librarian*, you may select from the largest group of library positions, approximately 50,000. You administer a program for both students and teachers and serve a most important function as director of the center for instructional materials.

As a *special librarian*, you may choose from a wide variety of over 6,000 libraries ranging from medical, law, hospital and institution libraries to special libraries attached to industrial, commercial and governmental organizations. You serve the particular informational needs of the group using the library such as scientists, businessmen, lawyers, doctors, researchers and government officials.

It is never too late to start a "second career," and women of middle years whose youngsters have entered school are finding opportunities for a new career in public and school librarianship. The rapid growth of the library profession has opened a whole new field for the more mature men and women of our society.

Librarianship is, therefore, a profession which is not overcrowded. A shortage exists for a variety of reasons, primarily because of the rapid increase in the number of libraries in all fields and the consequent expansion of services to meet these demands. Demand for librarians *will* continue to exceed supply for many years. Opportunities in the profession are great and the possibilities for personal satisfaction, professional growth and stimulating service are virtually limitless.

The School of Library Science

Although there is evidence of courses in library science being offered as early as 1918 at the University of Kentucky, it was not until 1933 that the Department of Library Science was formally established. On July 1, 1968, the Department was reorganized as a School of Library Science. It is one of the 45 library schools in the United States and Canada accredited by the American Library Association.

The objectives of the School of Library Science are:

- Provide professional education (leading to the M.S. or M.A. Degree in Library Science) for those people wishing to prepare for careers in librarianship and information services.
- Provide specialized education for particular areas of librarianship.
- Provide opportunities for continuing education of librarians.
- Cooperate with librarians, educators and others in strengthening all types of library service.
- Participate in professional activities contributing to the advancement of the profession.
- Engage in research to advance the theoretical knowledge of the profession.

The offices of the School of Library Science are located on the fourth floor of the Tower Building. The Library Science Library is on the fourth floor of the Margaret I. King Library. This collection consists of over 10,000 professional books as well as periodicals and pamphlet material. It is supplemented by the facilities of the University Libraries and other nearby libraries. Libraries in the area include those in a theological seminary, a Veteran's Administration Hospital, a U.S. Public Health Clinical Research Center, the Lexington Public Library, several nearby public regional libraries and the State Department of Libraries in Frankfort, Kentucky.

A monthly Colloquium Series brings outstanding librarians, authors, publishers and other authorities from throughout the country. Field trips to libraries are arranged as part of course requirements and as voluntary visits. Library School students are encouraged to attend meetings of local, state, regional and national library associations.

The students enrolled in the School of Library Science number over 120 with 60% of them attending full-time. About 40% come from outside Kentucky, and there are always from 3 to 6 foreign students in attendance. There is an active Student Committee elected by Library School students each year. This Committee assists the faculty in the orientation program for all new students held at the beginning of each term, publishes a monthly student newsletter, sponsors numerous social activities throughout the year and acts as a liaison on various matters between the administrators and faculty of the School and its student body.

There are approximately 1000 graduates of the Library School and many of these hold important positions in libraries throughout the world. An active Alumni Association sponsors annual meetings on the state and national level during library conferences and acts in an advisory capacity to the School of Library Science. A newsletter is published twice each year by the Library School for distribution to alumni and other interested parties.

Future plans include new, expanded physical quarters for the School of Library Science, a continued growth in faculty and student body and the establishment of a sixth year and Ph.D. program in library and information science.

Admission, Requirements and Procedures for Graduate Study in Librarianship

Applicants are urged to read the Bulletin of the School of Library Science for detailed information on general requirements and procedures which apply to the academic program. The Bulletin of the Graduate School should also be consulted.

Each student has a Library School faculty member assigned to him as an adviser for counsel and guidance. Adviser assignment is based whenever possible on student preference.

ADMISSION

An essential requirement for admission is an undergraduate degree in any discipline (from an accredited institution) with a grade point average of at least 2.5 (on a 4.0 scale). Promise of doing satisfactory advanced study and research and evidence of success in the library profession must also be evident in the application forms, references and, if necessary, in a personal interview.

The Graduate Record Examination (Aptitude) should be taken before application for admission, or at the latest during the first term of enrollment. A combined score of at least 800 on the verbal and quantitative sections must be achieved.

There are no specific library science prerequisites for admission into the Library School. Students are urged not to major in Library Science as undergraduates but to concentrate on other subject area majors and minors and obtain a broad liberal arts background. Those students with many undergraduate library science courses do not repeat similar courses in the graduate program and are usually asked to take graduate courses in non-library science areas to correct undergraduate liberal arts weaknesses. Such courses are, however, counted as part of the 36-hour requirement for graduation.

A reading knowledge of one modern foreign language (normally German, French or Russian) is required and may be met in one of three ways:

- by completion of the second college year of a foreign language course;
- by special examination at the beginning of each semester on campus;
- by successful completion of a special, non-credit, one-semester course in a foreign language given on campus every term.

Other modern foreign languages may be accepted upon petition by the student.

Applications for admission to the School of Library Science must also include application for admission to the Graduate School. A written application form must be obtained from the Graduate School and returned to it plus two copies of all official transcripts no later than 30 days prior to the opening of the term in which the student desires to enroll. Library School students may begin their work in any term, though summer or fall is preferable for the correct course sequence. Prospective graduate students in library science must also complete an application form for admittance into the School of Library Science. Both of these forms—one for admission into the Graduate School and the other for admission into the Library School as well as other

information on admission information may be obtained by writing to the Dean of the School of Library Science.

COURSE REQUIREMENTS

Completion of 36 hours of coursework with an average grade of B or more is the general requirement.

Specific course requirements are as follows:

Required Core Courses to be taken first. (12 hours)

Library Administration
Development of Library Collections
Reference and Information Services
Organization of Library Materials

Advanced Required Courses. (12 hours)

Library Systems Analysis
Methods of Research in Librarianship (usually taken during last semester)

One of the following administration courses:

Public Libraries
Academic Libraries
Special Libraries
Instructional Materials Centers

One of the following bibliography courses:

Bibliography of Social Sciences
Bibliography of Humanities
Bibliography of Sciences

Electives in library science or some in other areas. (12 hours)

Up to six hours of library science courses completed on an undergraduate basis may be transferred into the 36-hour program if they are equivalent to any of the core courses and if they have been completed within the last eight years.

It is possible also to transfer into the program up to six graduate hours of library science courses or certain courses in other fields if they were taken recently as an enrolled graduate student and if they did not count toward another earned degree.

No graduate credit is given for courses taken by correspondence. Up to six of the credit hours required for the degree may be earned in extension courses given in person by University of Kentucky instructors. The Library School is currently offering the core courses at the Northern Community College in Covington. There are introductory courses as well as some advanced ones offered on the main campus during late afternoons, evenings, and on Saturdays. However, most classes meet mornings and early afternoons during the week.

THE M.A. OR M.S. IN LIBRARY SCIENCE

The course requirements described up to this point have been those for the M.S. in Library Science. An M.A. is awarded to those students who elect to write a thesis. The requirements are the same as for the M.S. except for the following:

Six hours credit is given for the thesis and, therefore, the student takes six hours less of formal class work.

A language examination must be passed in one of the modern foreign languages. (The other two options previously described as meeting the foreign language requirement for the M.S. in Library Science do not apply here.)

The student must pass an oral examination in defense of his thesis.

Admission, Requirements and Procedures for Undergraduates

The School of Library Science does not offer any formal program of study on the undergraduate level. Students who are registered as undergraduates at the University of Kentucky may take library science courses at the 500 level as a general minor or as meeting the requirements for certification in Kentucky as a school librarian. Those students who are not working toward certification are encouraged not to take more than six credit hours of the 500 level core courses in library science if they plan to enter the School of Library Science.

Admission, Requirements and Procedures as a Non-Degree Student

It is possible for a student to register in a non-degree status and take certain library science courses. This may be a person who already has a library degree but wishes to take additional courses to bring his knowledge up to date or to strengthen his knowledge in a certain area. It may be a college graduate who is working toward school library certification and who does not wish to complete a 36-hour master's program but only take the 18 or 21 hours of library science courses required for certification. Or it may be the borderline applicant to the School of Library Science who is taking one or two courses as a probationary student pending re-evaluation of his records and new test scores.

Non-degree students should apply for admission to both the School of Library Science and the Dean of Admissions and Registrar, University of Kentucky.

Requirements and Procedures for Certification as a School Librarian in Kentucky

Certification as an elementary or high school librarian is obtained by:

1. Having an elementary or high school teaching certificate based upon a baccalaureate or master's degree.

2. Completing the following library science courses totaling 18 credit hours:

LS 500 Library Administration
LS 501 Organization of Library Materials
LS 502 Reference and Information Science
LS 510 Children's Literature and Related Material
LS 511 Literature and Related Materials for Young People
LS 512 School Library Practice

For certification as a high school librarian the following additional course should be taken:

LS 586 Utilization of Educational Media (Same as EDU 544) 3 Credit hours.

It is possible for school librarians to qualify in both the elementary and secondary program by taking additional education courses. Students should consult the College of Education for information on specific requirements.

The Library Science courses needed for school library certification may be taken in any of three programs in the School of Library Science:

- as a graduate student working toward an M.S. or M.A. in Library Science;
- as an undergraduate student;
- as a special non-degree student.

FACULTY

Lawrence A. Allen, dean
George S. Bobinski, assistant dean

Professors

Lawrence A. Allen	Ph.D., Chicago, 1961
Jacqueline Bull	Ph.D., Kentucky, 1948
Stuart Forth	Ph.D., Washington, 1959

Associate Professors

George S. Bobinski	Ph.D., Michigan, 1966
Robert E. Cazden	Ph.D., Chicago, 1965
Laura K. Martin	M.A., Stanford, 1940

Assistant Professors

Michael H. Harris	Ph.D., Indiana, 1970
John C. Larsen	Ph.D., Michigan, 1967
Nancy B. Pillon	Ed.D., Kentucky, 1968

Instructors

Barbara Brown	M.L.S., Rutgers, 1960
Charles W. Evans	M.S.L.S., California, 1956
John C. Sanderlin	M.S., Florida, 1964

Cooperating Faculty

Ollie Bissmeyer	Ed.D., Indiana, 1964
Omer Hamlin, Jr.	M.S.L.S., Kentucky, 1960
Lawrence S. Thompson	Ph.D., North Carolina, 1938
Paul Allen Willis	M.S., Maryland, 1965

Part-Time Faculty

Jane Fuller Binger	M.S.L.S., Kentucky, 1965
Mary F. Bobinski	M.S.L.S., Case-Western Reserve, 1952
John Frey	M.S.L.S., Illinois, 1961
Virginia Lee Kerr	M.L.S., George Peabody, 1965
Anne McConnell	M.S.L.S., Kentucky, 1967
George J. Soete	M.A.L.S., Wisconsin, 1967

Course Descriptions

PROFESSIONAL COURSES

500 *Library Administration.* (3)
Developing knowledge and skills of library management with emphasis upon organization, library relationships, personnel, quarters and equipment, budgets and reports. Growth of librarianship as a profession and important literature of the field. Provision will be made for individual study in each person's area so that principles will be applied to practice. Three class hours per week.

501 *Organization of Library Materials I.* (3)
Principles, concepts, methods, and problems in organizing library collections for effective use. Study of the fundamental principles and methods of classification and cataloging of books and non-book materials, bibliographical description and subject analysis.

502 *Reference and Information Services.* (3)
An introduction to reference materials, their content, evaluation, organization and use. Emphasis will be placed upon essential works, including dictionaries, encyclopedias, atlases, directories, year books, periodicals, indexes and other guides to basic reference materials.

503 *Development of Library Collections.* (3) I, II, S
Selection and acquisition of library materials, analysis and evaluation of book selection aids in the several communication media. Emphasis will be placed on the structure of the booktrade, methods and criteria of selection, the organization of acquisitions work, and use of major national and trade bibliographies of the world. Three class hours per week.

510 *Children's Literature and Related Materials.* (3)
A survey of children's literature, traditional and modern. Reading and evaluation of books with emphasis on the relationship of the materials to the needs and interests of children. Covers various types of materials for use by and with children of grades 1-6.

511 *Literature and Related Materials for Young People.* (3)
Covers types of materials for use by and with readers of grades 7-12. Emphasis upon materials for curricular and recreational reading. Attention is given to some types of adult materials suitable for more mature students. Practice in the use of standard book selection aids.

512 *School Library Practice.* (3)
Observation and supervised work in a school library, fulfilling a state requirement for certification. Applications for placement must be submitted early in the semester preceding which placement is desired. Prereq: LS 500, 501, 502, 510, 511.

586 *Utilization of Educational Media.* (3) I, II, S
Surveys the broad area of educational media with an emphasis on utilization and the advantages and disadvantages of the various media. Provides experience in relating educational technology to productive learning activity. (Same as EDC 544). *Bissmeyer.*

600 *Advanced Library Administration.* (3)
The library as a social system with emphasis upon organization, communications, leadership and an application of behavioral management theories to the library. Three class hours per week. Prereq: LS 500. *Allen.*

601 *Organization of Library Materials II.* (3)
Advanced studies in organization of library materials, including special materials such as pamphlets, clippings, pictures, slides, films, phonerecords, music, maps, manuscripts, archival records and rare books. Prereq: LS 501 or equivalent.

602 *Bibliography of Social Sciences.* (3)
Survey and evaluation of library materials in the social sciences with emphasis on reference and bibliographical sources in the following areas: Anthropology, Business, Economics, Education, Geography, History, Law, Political Science, Psychology, Sociology, and other closely related subjects. Prereq: LS 502 or equivalent.

603 *Bibliography of the Humanities.* (3) I, II, S
Survey and evaluation of library materials in the humanities, with emphasis on reference and bibliographical sources in the following areas: the Arts, Language, Literature, Music, Philosophy, Religion and other closely related subjects. Three class hours per week. Prereq: LS 502.

604 *Bibliography of Science.* (3)
A survey and evaluation of library materials in the sciences with emphasis on reference and bibliographical sources in the following areas: Agriculture, Astronomy, Biology, Chemistry, Mathematics, Natural Resources, Zoology, and other closely related material. Three class hours per week. Prereq: LS 502.

605 *Library Systems Analysis.* (3)
Role of systems analysis in libraries with emphasis on the analysis, design, and implementation of library systems. The application of tools and techniques used in systems analysis, such as flow charting, data gathering techniques. An introduction to electronic data processing and statistical evaluation methods. Three class hours per week. Prereq: LS 500. *Sanderlin.*

606 *Automation and the Library.* (3) II, S
Introduction to the practice and literature of automation and its implication and application to libraries. A survey and evaluation of electronic and other automated systems for the storage and retrieval of information. Emphasis on understanding the principles and concepts of automation and computers for libraries. Three class hours per week. Prereq: LS 605, CS 220. *Sanderlin.*

608 *Methods of Research in Librarianship.* (3)
Basic tools, techniques and methods of library research. Consideration to the role and purpose of research in librarianship and relationship to research in other fields. Critical evaluation of current research reports in library literature and the development of a research proposal.

609 *Public Libraries.* (3)
An analysis of public library work with emphasis on problems in history and development, administrative and management and current trends. Some attention given to county and regional development.

610 *Academic Libraries.* (3)
History, aims and functions of university and college libraries including organization, collection building and evaluation, finance and personnel. Recent trends in national and regional cooperation. Undergraduate libraries, community colleges and the "library college" will also be reviewed.

611 *Special Libraries.* (3)
Organization, administration and services of the library serving a selective clientele with consideration of the role of the library as a part of the larger institution with well-defined functions. Three class hours per week. Prereq: LS 500.

612 *Instructional Materials Centers.* (3) II, S
Leadership responsibility of the librarian in an age of changing media of communication, the philosophy of the modern school and the librarian's role in implementing it, acquiring, organizing and assisting faculty in learning to use all available media. Relation of the individual school to the district materials center, type of personnel, equipment and collections needed in each. Three class hours per week.

613 *Introduction to Information Science.* (3)
Introduction to the major aspects of scientific and technical information centers, documentation and the use and users of scientific information. Knowledge of systems analysis would be helpful. Three class hours per week. Prereq: CS 220, or equivalent. (Same as CMO 613.) *Sanderlin.*

614 *Information Storage and Retrieval Systems.* (3)
Review of the various solutions for storing and retrieving information, ranging from traditional records and devices to modern computers. Emphasis upon modern electronic equipment for information handling. Three class hours per week. (Same as CMO 614.) Prereq: LS 613. *Sanderlin.*

615 *Information Systems Design.* (3)
Principles and problems of information systems: systems analysis applied to information systems. Design of information systems with particular attention to equipment, training of personnel and evaluation. Three class hours per week. (Same as CMO 615.) Prereq: LS 614. *Sanderlin.*

617 *History of Books and Printing.* (3)
The making of books from earliest times to the present, including the manuscript book, the invention and spread of printing, type design, methods and styles of illustration. Technological and political aspects will also be emphasized. *Cazden.*

618 *Books for Adults.* (3)
Selection, use and individual evaluation of books for the typical community library. Distinctions between the notable, the popular and the significant in books which meet the needs of adult library patrons.

619 *Adult Services.* (3)
Emphasis on the library as an educational institution, influence of educational and sociological trends, with examination of reading and library surveys, practice in the utilization of adult education techniques. Determination of realistic goals for library participation in community action programs, services to groups such as labor unions, professional and business groups, the aged, culturally disadvantaged, etc. Prereq: LS 609.

620 *Rare Books Bibliography.* (3)
Introduction to descriptive bibliography and to a wide range of bibliographic reference works necessary for a modern special collections or rare book librarian. Topics include incunabula research, paper and watermarks, the canons of description, and recent trends in institutional collections. Three class hours per week. Prereq: LS 617.

621 *Special Collections.* (3)
The acquiring, processing and servicing of rare books, manuscripts and other special materials. Attention is given to the criteria for building a collection and for its interpretation through descriptive guides and catalogs, and to the relation of the special collection department to the research worker and the library as a whole. Three class hours per week.

623 *Subject Bibliography.* (3)
Survey and evaluation of library materials in a special subject area, with emphasis on reference and bibliographical sources. Subject areas vary, e.g., theology, law, medicine, engineering, and other topics. Three class hours per week. Prereq: LS 502. May be repeated for credit when topics vary to maximum of nine hours.

624 *Library of Congress Classification.* (3)
Theory, development and practice of classification in libraries, with a strong emphasis on Library of Congress Classification. Colon, Cutter Expansion, Dewey Decimal, Universal Decimal, and other classification schemes will be studied for comparative purposes. Three class hours per week. Prereq: LS 501.

625 *Publishing and the Booktrade.* (3)
History of publishing and bookselling; the structure of the booktrade today. International in scope with special attention given the antiquarian and reprint trade. Three class hours per week. Prereq: LS 501.

626 *Government Publications.* (3)
Study of the nature and scope of government documents, including problems and methods of acquisition, organization, and reference use of federal, state, local and international publications. Prereq: LS 502 or equivalent.

627 *History of Libraries.* (3)
Development of libraries from earliest times to the present with special reference to the relationship of the library to the contemporary social, economic, cultural and political trends. Three class hours per week.

628 *Library Buildings.* (3)
Relationship between physical structure and library function; problems in planning and building procedures, library equipment, acoustics, illumination, and materials of construction. Three class hours per week. Prereq: LS 500.

629 *Public Library Systems.* (3)
Survey of the changing nature of public library government, larger units of service financed by federal and state assistance, influence on the role of the small public library in new methods of evaluation and stimulation of long range planning. Three class hours per week.

639 *Organization and Administration of Youth Services in Public Libraries.* (3)
Study of the historical development and changes in patterns of library service to young adults. Definition of the respective roles of the school and public library, cooperation with other community agencies, critical evaluation of current procedures. Three class hours per week. LS 511 and LS 609.

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 501, 502, or equivalent. *Cazden.*

700 *Seminar: Library Organization and Management.* (3)
Major problems and newer developments in the field of management and administration and casting them in the library environment. Current research in library management. For the advanced student. Three class hours per week. Prereq: LS 500 and 600 or equivalent.

701 *Seminar: Library Materials and Services for Children and Young People.* (3)
Intensive study of special problems in the development of collections for young people, controversial aspects of book selection, studies of reading interests, relation of type of libraries: school, public, extension through bookmobile, and institutional services, regional and state plans. Three class hours per week. Prereq: LS 504, 505.

702 *Seminar in Printing and Publishing History.* (3)
Bibliographical and technical background for original research in various fields of bookmaking, printing, publishing and the dissemination of literature. Survey of current trends in research. For the advanced student. Three class hours per week. Prereq: LS 617 and 625.

703 *Seminar: Technical Services.* (3)
Survey and analysis of technical services in libraries, with special attention to both historical and recent developments, controversial issues, current trends, and literature of the field. Three class hours per week. Prereq: LS 501 and 601 and 503 or permission of instructor.

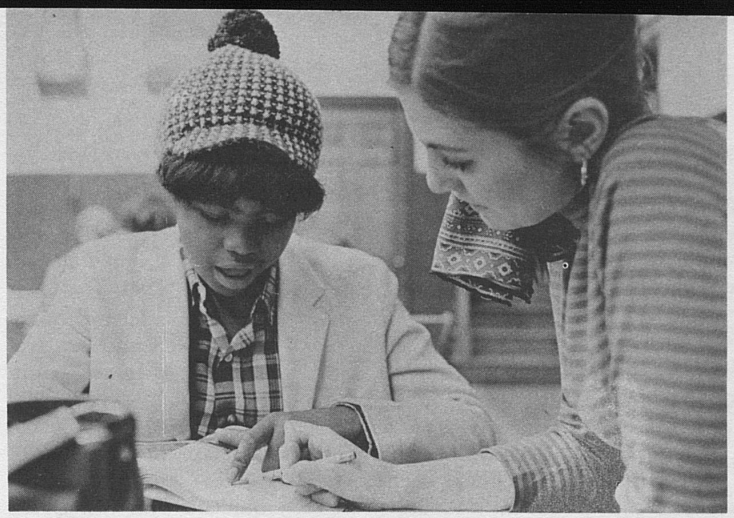
704 *Seminar: Education for Librarianship.* (3)
Attention is given to the development of library education with an emphasis on current trends and problems. Explanation of curriculum development and instructional techniques in library schools. Three class hours per week.

705 *Seminar: Information Sciences.* (3)
An investigation of the parameters of the information sciences from an interdisciplinary approach. Investigation and analysis of the literature of communications, management science, cybornetics, information theory to identify the similarities and differences. From this investigation, both qualitative and quantitative concepts of the directions of information science will be derived. Three class hours per week. (Same as CMO 705.)

710 *Independent Study in Library Science.* (3)
Opportunity for directed study in subject or problems of interest to a student. Observation and research is required, and a written report describing the work accomplished is required. May be repeated to a maximum of six hours.

711 *Workshops in Librarianship.* (1-4)
Intensive study of one aspect of librarianship under the leadership of an authority in that field. Duration is normally shorter than a regular University term, and the student is expected to devote his full-time to the course. May be repeated for credit when topics vary.

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once. (1-6 credits equivalence.) *Staff.*



Social Professions

Ernest F. Witte, Ph.D., is Dean of the School of Social Professions.

The Nature of Social Work

Social work is a helping profession concerned with man's well-being, whether the help provided is in the prevention of social problems; in efforts to eliminate handicaps which have been harmful or hindering to those in trouble; and/or in seeing that resources are made available to those who would otherwise not have the means to maintain life and health.

In attempting to achieve these three goals, the social worker's task is to help communities provide maximum equality of opportunity for all; to help vulnerable individuals learn to cope more effectively with their problems and needs; and to seek continually to strengthen and improve the institutional systems which are responsible for education, justice, health, business, labor and welfare, so that all people are better served. Such actions will reduce the number of social casualties needing individual help in our complex and ever-changing society.

In order to prepare social workers for such complex and difficult tasks with which they must cope in today's world, social work education must increasingly focus its efforts on preparing its graduates to practice preventive social work.

Employment Opportunities for Social Workers

There is an acute shortage of graduates holding the Master of Social Work degree in every part of the country. Graduates have a wide variety of social work positions, including administration, supervision, consultation, teaching or direct practice, from which to choose. Salaries are competitive with those in other professional fields which have comparable educational requirements.

Because there is an increasing demand for social work practitioners in the expanding programs of social welfare, the undergraduate program in social work prepares students for responsible positions in a wide range of public and voluntary agencies which include child welfare, public assistance, community mental health centers, community action, hospitals and clinics, and programs in the character building and leisure time agencies.

Establishment of the School of Social Professions

In keeping with its commitment to serve the needs of the Commonwealth, the Board of Trustees of the University of Kentucky authorized the establishment of a new School of Social Professions on July 1, 1969.

The ultimate program of the new School has not been fully determined but its first two immediate goals are:

- The development of a two-year graduate professional program leading to the degree of Master of Social Work which is to be initiated in the fall of academic 1970-71.
- Continuation of the undergraduate major in social work leading to the Bachelor of Arts degree. The current B.A. curriculum and degree requirements are in process of revision and articulation with the graduate program. Information on these changes will be available on or before registration for the fall semester of academic 1970-71.

The Master of Social Work Program

The education of prospective social workers must provide them with a substantial body of knowledge, as for example, the organization and structure of our society, how it functions, how its decisions are made on policies and programs established, what is known about human behavior, what is known about motivation, the institutions established to serve the needs of people and how they function or fail to function, the processes and methods of intervention, the role of the social worker as a change agent, the role of government

in social welfare as contrasted with the role of voluntary efforts, and much more.

Detailed courses for the graduate curriculum will include in the first year the following content areas organized to foster progression in learning and buttressed by a practicum under educational direction:

social policy and services;

human behavior and the social environment; and social work practice.

A detailed program of courses should be available upon request from the School late in academic 1969-70.

INSTRUCTIONS FOR APPLICANTS REQUESTING ADMISSION TO THE M.S.W. PROGRAM

1. Applications for admission to this new program must be filed not later than April 15, 1970.

2. Application forms and instructions may be obtained upon request from the Dean, School of Social Professions, Office Tower Building, University of Kentucky, Lexington, Kentucky 40506.

3. Applicants for admission to the School of Social Professions must meet the general requirements prescribed by the University for all graduate students (see the Graduate School Bulletin). In summary, applicants must have:

   (a) Received their A.B. degree before enrolling and have achieved a grade point average of 2.5 or better.

   (b) Submitted all of the information requested on the application for admission form, including a list of three references.

   (c) Possess personal qualifications, as judged by the Committee on Admissions, as suitable for the field.

4. Applicants will be notified as promptly as possible as to whether they are admitted to the program or not.

STUDENT STIPENDS

There will be a limited number of student stipends and assistantships available, but preference will be given for admission for 1970-71 to students who are able to meet the cost of their own education.

ACCREDITATION

The M.S.W. degree program is being developed in close cooperation with the Council on Social Work Education. The Council has notified the School of its admission to candidacy for accreditation. Final action on accreditation cannot be completed until academic 1971-72.

The Undergraduate Program of Education for Social Work

The undergraduate program in Social Work was inaugurated in 1944. Effective July 1, 1969 its administration was transferred from the College of Arts and Sciences to the newly established School of Social Professions. Freshmen and transfer students who elect social work as a major should arrange to register in the School of Social Professions. Each such student will be assigned a member of the faculty of the School as an adviser who will assist him in the selection of appropriate courses and insure that the requirements for the B.A. degree are met. Students who wish special information or a personal interview prior to registration may make an appointment through the Office of the Dean of Social Professions.

All social work majors have actual experience in the field under faculty direction. These experiences are provided in a wide variety of agencies located in or adjacent to Lexington.

Courses in social work contribute to the liberal education of all students and help prepare them to be more effective citizens in a complex society in which welfare issues and programs are of increasing importance to everyone.

The curriculum may serve one or more of the following differing purposes:

1. To enrich and broaden the knowledge and understanding of all students as they face the ever-changing and urgent social problems of our society.
2. To prepare students for immediate employment in social work jobs that require skills that can be acquired at the B.A. level.
3. To prepare students for graduate professional education in social work.
4. To contribute basic knowledge of the social services to students engaged in other helping professions (i.e., special education, rehabilitation, nursing, law, medicine, etc.).

The addition of the graduate program in professional education for social work has given new impetus to the undergraduate program. With the critical and cooperative spirit of our students, alumni, agency personnel and faculty, there will be continual evaluation and modification of this program in order to give it the diversity and flexibility required to meet the urgent and complex social problems which confront today's society.

SOCIAL WORK

FACULTY

Professors

Harold E. Wetzel	Emeritus, M.A., Ohio State, 1937
Grace White	M.S.W., Chicago, 1934

Ernest F. Witte — Ph.D., Chicago, 1932

Assistant Professors

Dorothy Miller — M.S.S.W., Minnesota, 1947

Constance P. Wilson — M.S.S.W., Boston University, 1951

Instructor

Evelyn Black — M.S.W., Atlanta, 1946

Lecturers

Daniel Armstrong — M.S.W., Tulane, 1968

Dorothy Bier — M.S.W., Western Reserve, 1934

Betty Kirlin — M.A., Florida State, 1933

A. Y. Lloyd — Ph.D., Vanderbilt, 1933

Irma Rosenstein — M.S.W., Pennsylvania, 1950

Departmental Requirements

For University requirements see page 6.

General Studies Requirements: Area I or II, III, IV, V, plus: In Area VII—PS 151 and SOC 101—Area VIII—PSY 104 or 210—SOC 240.

Pre-Major Requirements: SW 222, ECO 260, and PHI 200 or 230.

Major Requirements: 26 credits in advanced Social Work including SW 327, 328, 344, 345, 500, 505, 510, 513, 516, 530, 540.

Field of Concentration Requirements: PSY 200, SOC 509; PSY 520 or 521 or 544 or 545; SOC 503 or 525 or 526 or 532 or 537 or 538; CH 501 or HPR 275 or HPR 575.

COURSES FOR NON-MAJORS

Students from other departments are eligible to take certain of the social work courses offered either to enrich the content of their basic major and/or to increase their knowledge and understanding of the society of which they are a part.

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. *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. Prerequisite for all majors in Social Work.

327 *Tutorial Work in Social Work.* (2) I

For senior majors in the department.

328 *Tutorial Work in Social Work.* (2) II

For senior majors in the department.

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.

395 *Independent Work.* (1) I, II, S

Conferences, assigned readings, reports on minor research problems. Prereq: Major and a standing of 3.0 in the department. May be repeated to four credits. *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: SW 505, 513.

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.

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: SW 513, 540 or permission of instructor. *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: SW 505, 540.

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: SW 505, 540.

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.

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.

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.

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.



University Extension

R. D. Johnson, Ed.D., is Dean of University Extension; Cornelius R. Hager, LL.D., Assistant Dean.

Independent Study Program

Denver Sloan, M.S., Ed.D., is Director of the Independent Study Program.

Courses offered by independent study are listed by number and course title only. The course description may be found in the listing of courses in this catalog, by the college and department in which the course is offered. The number in parenthesis indicates the amount of credit given for the course.

Several non-credit courses, college level work, are available by independent study. These are listed immediately following the listing of courses available for credit.

Independent Study also offers a series of 40 courses at the high school level. These are in areas of English, Social Studies, Mathematics, Business Education, Health, and Foreign Languages.

For complete descriptions, tuition fees, and required textbooks for courses offered by independent study, the student should request a copy of the Independent Study Catalog, available from the following address:

Director, Independent Study Program
University Extension
University of Kentucky
Lexington, Kentucky 40506

ACCOUNTING

ACC 201 Principles of Accounting (3)
ACC 202 Principles of Accounting (3)
ACC 301 Intermediate Accounting (3)
ACC 302 Advanced Accounting (3)
ACC 408 Cost Accounting (3)
ACC 416 Accounting for Business Combinations (3)

AGRICULTURAL ECONOMICS

AEC 310 Farm Management (3)

AGRONOMY

AGR 510 Ecology and Utilization of Grasslands (4)

ALLIED HEALTH PROFESSIONS

CH 500 Public Health Sanitation (3)
CH 501 Public Health (3)
CH 515 Communicable Diseases (3)

ANIMAL SCIENCE

ASC 280 Feeds and Feeding (4)

BIOLOGY

BIO 100 Biology (3)
BIO 101 Biology (3)
BIO 110 Introduction to Human Biology and Health (3)

BOTANY

BOT 125 General Plant Biology (3)
BOT 219 Dendrology (3)
BOT 530 Introduction to Heredity (3)

BUSINESS ADMINISTRATION

BA 330 Marketing Management (3)
BA 335 Business Management (3)
BA 341 Business Law I (3)
BA 345 Corporation Finance (3)
BA 441 Business Law II (3)
BA 446 Investments (3)

BUSINESS AND OFFICE EDUCATION

BOE 112 Theory and Principles of Shorthand (3)
BOE 113 Intermediate Shorthand and Transcription (3)
BOE 117 Typewriting (3)
BOE 118 Advanced Typewriting (3)
BOE 445 Office Administration and Services (3)

ECONOMICS

ECO 260 Principles of Economics (3)
ECO 261 Principles of Economics (3)
ECO 291 Statistical Methods (3)

ECO 476 Labor Economics (3)
ECO 485 Money and Banking (3)

EDUCATION

EDV 210 Introduction to Vocational Education (2-3) (Foundations in Business Education)
EDF 317 History of Education (3)
EDV 512 Teaching Bookkeeping and Accounting (3)
EDP 522 Educational Tests and Measurements (3)
EDC 544 Utilization of Educational Media (3)
EDP 548 Educational Psychology (3)
EDP 550 The Role of the Teacher and Principal in Guidance (3)

ENGINEERING

Mechanical Engineering

ME 105 Basic Engineering Graphics (2)
ME 350 Safety Engineering (3)

ENGLISH

ENG 101 Freshman Composition (3)
ENG 102 Freshman Composition (3)
ENG 161 Introduction to Literature (3)
ENG 201 Business English (2)
ENG 205 Advanced Composition (3)
ENG 221 Survey of English Literature (3)
ENG 222 Survey of English Literature (3)
ENG 261 Survey of Western World Literature From the Greeks Through the Renaissance (3)
ENG 262 Survey of Western World Literature From 1660 to Present (3)
ENG 425 Shakespeare Survey (3)
ENG 527 Shakespeare: The Tragedies (3)
ENG 551 American Literature, 1800-1860 (3)
ENG 552 American Literature, 1860-1900 (3)

FORESTRY

FOR 100 Elements of Forestry (3)

FRENCH LANGUAGE AND LITERATURE

FR 101 Elementary French (3)
FR 102 Elementary French (3)
FR 201 Intermediate French (3)
FR 202 Intermediate French (3)
FR 204 Introduction to French Literature (3)
FR 205 Introduction to French Literature (3)
FR 502 Survey of XIX Century French Literature (3)
FR 503 Studies in XIX Century French Literature (3)

GEOGRAPHY

GEO 151 Elements of Geography (3)
GEO 152 Regional Geography of the World (3)
GEO 252 Introduction to Weather and Climate (3)
GEO 255 Fundamentals of Economic Geography (3)
GEO 520 Regional Geography of Anglo-America (3)
GEO 522 Geography of Kentucky (3)
GEO 524 Regional Geography of Latin America (3)
GEO 526 Regional Geography of Europe (3)

GERMANIC AND CLASSICAL LANGUAGES AND LITERATURES

German

GER 123 Elementary German (3)
GER 124 Elementary German (3)
GER 201 Technical German (3)
GER 202 Technical German (3)
GER 221 Intermediate German (3)
GER 222 Intermediate German (3)
GER 500 German (Swedish) (3)

Classics—Greek

CLA 131 Medical Terminology from Greek to Latin (3)
CLA 150 Beginning Greek (3)
CLA 151 Elementary Greek Reading (3)
CLA 235 Mythology I (2)
CLA 252 Selections from Greek Writers (3)
CLA 253 Selections from Greek Writers (3)

Classics—Latin

CLA 101 Beginning Latin (3)
CLA 102 Elementary Latin Reading (3)
CLA 203 Intermediate Latin (3)
CLA 204 Intermediate Latin (3)
CLA 209 Selections from Latin Literature (3)
CLA 514 Latin Composition (1)
CLA 515 Latin Composition (1)

HISTORY

HIS 260 The Negro in American History (3)
HIS 500 Pre-classical and Classical Greece (3)
HIS 501 Fourth Century Greece and the Hellenistic World (3)
HIS 502 A History of the Roman Republic (3)
HIS 104 A History of Europe to 1713 (3)
HIS 108 History of the United States through 1865 (3)
HIS 109 History of the United States since 1865 (3)
HIS 202 History of the British People to the Restoration (3)
HIS 203 History of the British People since the Restoration (3)
HIS 229 The Ancient Near East and Greece to the Death of Alexander The Great (3)
HIS 230 The Hellenistic World and Rome to the Death of Constantine (3)
HIS 240 History of Kentucky (3)
HIS 285 History of Russia to 1825 (3)
HIS 286 History of Russia Since 1825 (3)
HIS 558 History of Canada (3)
HIS 561 Colonial America and Independence 1748-1789 (3)
HIS 563 Expansion and Conflict, 1828-1865 (3)

HIS 566 Recent History of the U. S. Since 1939 (3)
HIS 572 American Constitutional History to 1865 (3)
HIS 573 American Constitutional History Since 1865 (3)
HIS 578 History of the Old South (3)

MATHEMATICS

MA 110 College Algebra and Trigonometry (5)
MA 111 College Algebra (3)
MA 112 Plane Trigonometry (2)
MA 113 Calculus (4)
MA 121 Mathematics of Finance (3)
MA 122 The Fundamental Concepts of Mathematics I (3)
MA 123 The Fundamental Concepts of Mathematics II (3)
MA 201 Fundamentals of Elementary Mathematics (3)
MA 202 Fundamentals of Elementary Mathematics (3)
MA 114 Calculus (4)
MA 213 Analysis (4)

PHILOSOPHY

PHI 200 Introduction to Philosophy (3)
PHI 220 Elementary Logic (3)
PHI 230 Ethics (3)
PHI 540 Great Religions (3)

PHYSICS AND ASTRONOMY

AST 191 Descriptive Astronomy (3)
AST 192 Descriptive Astronomy (3)
AST 193 Elementary Astronomy (3)

POLITICAL SCIENCE

PS 151 American Government (3)
PS 201 Introduction to Political Behavior (3)
PS 265 World Politics (3)
PS 280 State Government (3)
PS 570 Political Parties (3)

PSYCHOLOGY

PSY 200 Psychology of the Child (3)
PSY 210 General Psychology (3)
PSY 521 Abnormal Psychology (3)

SOCIOLOGY

SOC 101 Introductory Sociology (3)
SOC 152 Modern Social Problems (3)
SOC 220 The Community (3)
SOC 509 The Family (3)
SOC 536 Sociology of Deviant Behavior (3)
SOC 537 Criminology (3)
SOC 538 Juvenile Delinquency (3)
SOC 539 Sociology of Corrections (3)
SOC 551 Principles of Sociology (3)

SPANISH AND ITALIAN LANGUAGES AND LITERATURES

Italian

SPI 191 Elementary Italian (3)
SPI 192 Elementary Italian (3)

Spanish

SPI 141 Elementary Spanish (3)
SPI 142 Elementary Spanish (3)
SPI 201 Intermediate Spanish (3)
SPI 202 Intermediate Spanish (3)
SPI 315 Masterpieces of Spanish Literature I (3)
SPI 316 Masterpieces of Spanish Literature II (3)

THEATRE ARTS

TA 597 Teaching of Theatre Arts (3)

ZOOLOGY

ZOO 508 Evolution (3)

Non-Credit Courses

BASIC TECHNOLOGY OF DIESEL ENGINES

An Independent Study course prepared by the Mechanical Engineering Department of the College of Engineering for general training in Diesel Engines and their operation. The course is divided into two sections with a total of 70 assignments. The first section deals with fundamentals of Engineering Technology, with problems and applications of basic principles; while the second takes up Diesel Engines. The purpose of the course is to assist anyone interested in becoming more knowledgeable about Engineering fundamentals and their application to Diesel Engines. A general outline of the course is:

Section I

Fundamentals of Engineering Technology (35 assignments)

A. Mathematics
B. Mechanics
C. Basic Electricity
D. Heat
E. Machine Design

Section II

This section is composed of one unit only. Tuition for this Section is $50. It is recommended that Section I be completed prior to Section II. However, a student with the proper background may take Section II, even if Section I has not been formally completed.

Section II is Diesel Engines.

AGRICULTURAL ECONOMICS

008 Agricultural Economics

ENGINEERING

009 Basic Refrigeration and Air Conditioning

LP-Gas Service Training Course

010 Agricultural Engineering—LP-Gas Service Course I
020 Agricultural Engineering—LP-Gas Service Course II
030 Agricultural Engineering—LP-Gas Service Course III
040 Agricultural Engineering—LP-Gas Service Course IV

HIGHWAY ENGINEERING

A series of Independent Study courses prepared by the College of Engineering for the training of employees of the Kentucky Department of Highways and others who may wish to study in the field of Highway Engineering. Each course consists of 12 assignments, each of which will require approximately 6 to 8 hours of preparation. Students should be high school graduates but others may enroll with special permission from the Director of the Independent Study Program. A student may enroll in any one of the 12 courses with approval of the Director, but it is recommended that those with little or no highway experience start with course I or II (depending upon their mathematics background) and continue throughout the series.

Those persons having the appropriate background and experience who plan to become a registered Highway Engineer in the State of Kentucky will find this series of courses very helpful in preparing for the registration examination as it is now constituted.

Highway Engineering I—Basic Mathematics
Highway Engineering II—Geometry & Economics
Highway Engineering III—Basic Engineering Science
Highway Engineering IV—Introductory Thermodynamics & Electricity
Highway Engineering V—Basic Engineering Mechanics
Highway Engineering VI—Structures I
Highway Engineering VII—Structures II
Highway Engineering VIII—Elements of Surveying
Highway Engineering IX—Route Surveying and Design
Highway Engineering X—Hydraulics, Hydrology & Drainage
Highway Engineering XI—Materials I
Highway Engineering XII—Materials II

MATHEMATICS

001 Basic Mathematics
002 Solid Geometry

PHOTOGRAPHY

001 Basic Photography
002 Fundamentals of Photography

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 Independent Study are as follows:

1. Not more than twenty-five per cent or 32 semester hours of the requirements for a baccalaureate degree at the University of Kentucky may be earned by independent study.
2. A student may enroll for an independent study course any time during the calendar year.
3. A student has one year from the date of enrollment in which to finish an independent study 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 an independent study course.
6. Students who have been dropped by the University must be reinstated before they will be allowed to enroll for an independent study 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 independent study without the permission of his dean.
8. The credit hours assigned to an independent study course will be considered in determining the load of a resident student at the University of Kentucky. Credits earned by independent study will be credited to the term in which the course is completed.
9. The final examination must be written at least ten days before the grade is required in the Registrar's Office.
10. Graduate credit is not granted by the University of Kentucky for work taken by independent study. Graduate students, however, may do independent study work, and the credit earned can be applied toward undergraduate major and/or minor fields for certification purposes.

Fees: The new credit hour fee for the Independent Study Program had not been established at the time the 1970-71 catalog was printed. When these hourly fees are established, information may be obtained from the University Extension Office, Frazee Hall, University of Kentucky, Lexington, Kentucky 40506.

Extension Class Program

James W. Brown, M.A., is Director of the 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 non-credit, undergraduate, or graduate 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 5 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 40 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 new credit hour fee for the Extension Class Program had not been established at the time the 1970-71 catalog was printed. When these hourly fees are established, information may be obtained from the University Extension Office, Frazee Hall, University of Kentucky, Lexington, Kentucky 40506.

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: A student may take Extension Courses for which he has prerequisites. A 600 or 700 level course may be taken only by a student having a bachelor's degree. A student need not apply for admission to Graduate School until he is ready to enroll on campus. Such students will register as "Unclassified." If the student had a bachelor's degree from an accredited college at the time he took a certified graduate level course, he will be able to use the credit for graduate school purposes under the following circumstances:

(a) For transfer purposes it will be labeled "Extension." "Certified for graduate credit." Acceptance by another graduate school is entirely the prerogative of that school.

(b) It may count for graduate credit at the University of Kentucky provided:

(1) The course grade is B or higher.

(2) The student gains admission to and enrolls in the Graduate School and was eligible for admission at the time the course was taken. (Grades on such extension courses may never count towards admission.)

(3) The student's director or special committee recommends use of these credits and the recommendations are approved by the Graduate Dean.

(4) No more than six credits of extension courses are involved.

Credit Toward the M.A. Degree: Under certain conditions, up to six hours of the credits may be satisfied by extension courses given in person by University of Kentucky instructors.

Evening Class Program

Millard F. Allen, Jr., M.B.A., is Director of the 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 adviser. Full-time students may enroll in classes listed as "non-credit" by paying the stated fee.

Academic Standing of Evening Students: Evening Class non-degree students are subject to University regulations concerning academic standing (grade point averages), academic probation, and dropping for low scholarship. Each student is responsible for familiarizing himself with these regulations and maintaining the proper grade point average.

Students who have been dropped by the University of Kentucky may not enroll for credit in the Evening Class Program until they have been reinstated.

Students from other institutions desiring to enroll for credit must meet all University conditions for admission. These include good standing in every respect in the institution last attended and a grade point average of 2.0, or C, in all previous college work.

Students who plan to transfer credit to another institution must be eligible in all respects for admission to the University of Kentucky. It is the responsibility of the student to ascertain whether or not the work will be accepted by another institution.

Library Privileges: Evening Class students are entitled to use the University Library while they are officially enrolled, by presenting their receipted card at the main desk on the second floor of the Margaret I. King Library.

Fees: The new credit hour fee for the Evening Class Program had not been established at the time the 1970-71 catalog was printed. When these hourly fees are established, information may be obtained from the University Extension Office, Frazee Hall, University of Kentucky, Lexington, Kentucky 40506.

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.

All fees must be paid at the time of enrollment.

Conferences and Institutes

Robert G. Figg, M.A., is Director of 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 commonwealth.

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 food service 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 University-sponsored continuing education programs and is operated by the Office of Conferences and Institutes for this purpose.]

Council on Aging

Earl Kauffman, M.A., Ed.D., is Director of the Council on Aging.

The University of Kentucky has a deep and abiding interest in people, including those who are nearing retirement and those who have fulfilled their obligations to their job or profession. To give substance to this concern the Board of Trustees has created the Council on Aging, an integral division of the University Extension.

The Council on Aging is a multiple disciplinary agency with representatives from the colleges and departments of the University. It is also related by cooperative working agreements to the Kentucky commission on Aging, a division of State Government.

The purposes of the Council include: the development of a high degree of sensitivity to the various aspects of aging among all members of the University faculty and staff; the promotion of an interest in study and research about aging; and the extension of this interest and knowledge outward from the campus to people everywhere.

The objectives of the Council are accomplished through a variety of programs. Notable among these are: the Herman L. Donovan Senior Citizens Fellowship program which is described under a separate heading under this section.

The Council is developing a material and resource center. In this activity it is cooperating with the University libraries. Various local, state, and national agencies are contributing publications, films, and other related materials. The Center is already in use by citizens seeking information on programs and services for older people.

The Council promotes a number of educational programs. In cooperation with the Departments of Music, Art, and English, special classes have been organized. These include beginning Organ, Drawing and Painting, and Creative Writing.

The Council assists the community colleges in developing continuing education programs for older persons.

The Council is related to state, regional, and national associations and institutes in the field of aging.

The Herman L. Donovan Senior Citizens Fellowship Program

This Fellowship provides an opportunity for any person 65 and over, regardless of place of residence, to enroll for regular courses without the payment of fees. 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.

Donovan Fellows attend regular classes and participate in the many intellectual, social, and cultural programs which characterize the University. They also are involved in special programs arranged for them by the DONOVEM Association—an organization of Donovan Fellows and University Emeriti.

Inquiries about the Donovan Fellowship should be addressed to the Council on Aging, Bowman Hall.

Continuing Education

Cornelius R. Hager, M.A., LL.D., is Director of Continuing Education.

Continuing Education is the newest program in University Extension, but with one of the greatest opportunities. Classes for adults may be organized on either a credit or non-credit basis, but the interested groups are predominantly informal classes involving lectures and discussions for a specific number of sessions. The rapid changes taking place in the country, especially the technical changes, necessitate a program of Continuing Education with many aspects.

It is our major role to organize creative learning programs for adults on a broad scale in various sections of the State. The cost for a non-credit course to each individual is determined by the number of sessions necessary to complete the course. Certificates are awarded at the completion of the course. A record is made in the office of University Extension of all registrants for non-credit courses. The cost for credit courses in Continuing Education is the same as any other course in University Extension.

Extension Civil Defense Program

Charles H. Reedy, M.A., is Director of the Extension Civil Defense Program.

The Extension Civil Defense Program offers intensive non-credit training courses, conferences, and exercises for professional civil defense personnel, county and municipal officials, business and industry, and volunteers. Programs include Shelter Management, Radiological Monitoring for Instructors, Civil Defense Management, Planning and Operations, Community Leadership Conferences, Business and Industry Conferences, and Emergency Operations Training Exercises.

The programs are presented in cooperation with the Department of Defense, Office of Civil Defense, and the Kentucky Division of Civil Defense. Classes are held in different locations throughout the state and each is designed to meet the particular training and educational need of the individual community.

Courses are organized through civil defense officers and local elected officials. There is no registration fee

for any of the programs and all instructional material is furnished through the University.

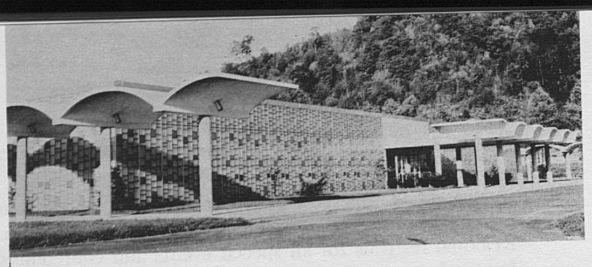
The Kentucky High School Speech League

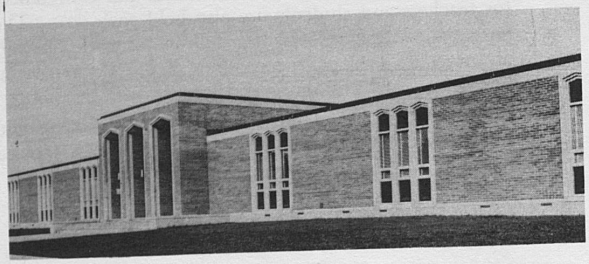
Denver Sloan, M.S., Ed.D., is Director of the League.

The Kentucky High School Speech League offers a program of speech activities in the areas of forensics, interpretation, and drama. The program involves voluntary participation of more than 200 high schools of the state with direct involvement of more than 5,000 students.

A series of one-day workshops for each of the ten regions of the state are included in the program. Regional festivals for all speech events and conferences for teachers and students are also held each year. The program of League activities culminates with festivals at the state level on the campus of the University in forensics, interpretation, and drama.

The League has been under the administration and supervision of University Extension since it was formed in 1921.





Community Colleges

Ellis Ford Hartford, Ed.D., is Vice President for the Community College System; Maurice Stanley Wall, Associate Dean.

COMMUNITY COLLEGE ADMINISTRATIVE PERSONNEL

Dean
Ellis F. Hartford — Ed.D., Harvard, 1942

Associate Dean
Stanley Wall — Ed.D., Kentucky, 1956

Business Officer
B. J. Burnett — M.A., Kentucky, 1958

Curriculum Specialist
W. C. Stoll — M.S., Florida State, 1963

Coordinator, Academic Programs
Larry Stanley — M.A., Kentucky, 1964

Coordinator, Auxiliary Services
Shelby Bowman — B.S., Kentucky, 1949

Coordinator, Associate Degree Nursing Program
Marie Pickarski — M.S., Pennsylvania, 1957

Coordinator, Educational Media
Ridgely Park — M.A., Kentucky, 1949

Coordinator, Self Study
R. G. Matheson — Ph.D., George Peabody College, 1952

Coordinator, Student Affairs
Dan Tudor — M.A., Kentucky, 1960

UNIVERSITY COMMUNITY COLLEGE SYSTEM

The University of Kentucky Community College System is a unique organization designed to realize the advantages of University membership on the one hand, and community orientation on the other. Each college is an integral part of the University with the same standards of admission and operation as apply to the parent institution. And each college, through its local advisory board and other ties, relates itself to the needs of the community.

Until the early 1960's University Centers in Kentucky served some of the functions generally attributed to community colleges, but their programs were closely joined to the parent institution. The Community College Act was passed by the Kentucky General Assembly in 1962. On the recommendation of President John W. Oswald, and with the approval of the Board of Trustees, the University of Kentucky Community College System was formed in 1964.

Today the system comprises fifteen colleges, located at Ashland, Covington, Cumberland, Elizabethtown, Fort Knox, Hazard, Henderson, Hopkinsville, Louisville, Madisonville, Maysville, Paducah, Prestonsburg, Somerset and Lexington Technical Institute at Lexington.

The community colleges have been charged with three functions:

- To offer curricula for the first two years of a baccalaureate program. Courses parallel University offerings and are transferable to the main campus or to another four-year institution. At the conclusion of the two-year prescribed curriculum the Associate in Arts Degree or Associate in Science Degree may be awarded.
- To offer career-oriented programs designed to prepare students for immediate technical or semi-professional employment. These programs are usually completed in two years, and are composed of about one-half general education courses and the other half in semi-professional or technical education. The Associate Degree in Applied Science is awarded upon completion of the two-year curriculum.
- To provide general educational opportunities for citizens within their immediate areas. These include evening classes, workshops, seminars, short courses, concert series, exhibits, lectures, dramatic presentations and folk festivals to meet in-service, re-education and cultural needs of the community. These programs may or may not lead to an Associate Degree.

Courses taken in the community colleges which parallel University offerings are freely transferable to the main campus or to another four-year institution.

Credits earned in curricula not offered on the University campus are chiefly of a technical or semi-professional nature, leading to an associate degree or certificate. In general, courses designated as technical are nontransferable toward a baccalaureate degree at the University of Kentucky.

The community colleges also offer a variety of non-credit courses and services of a professional, vocational, or cultural nature for adults. These activities include to meet in-service, reeducation and cultural needs as evening classes, workshops, seminars, short courses, concert series, exhibits, lectures and dramatic productions expressed in the community.

ASHLAND COMMUNITY COLLEGE

Robert L. Goodpaster, director

Assistant Professors or Senior Instructors

Ellis Broughton, Jr.	M.A., Eastern Kentucky, 1962
Kenneth B. Colebank	Ph.D., Kentucky, 1969
Opal Skaggs Conley	M.S., Kentucky, 1943
Klara Rosa Cook	Dr. Theol., Zurich, 1946
Henry Jackson Daily	M.A., Kentucky, 1946
George J. Edwards	M.A., Minnesota, 1948
Robert D. Halladay	M.S., Ohio University, 1953
Dorothy Seaburg Hope	M.S., North Carolina, 1947
Robert L. Goodpaster	Ed.D., Kentucky 1961
Jeannette Hill Jennings	M.A., Kentucky, 1967
Leonard Jack LeRoy	M.A., Marshall, 1960
George Livingston	M.S., West Virginia, 1963
Nancy Turman McClellan	M.A., Marshall, 1966
George William O'Brien	Ph.D., Kentucky, 1958
Sarah P. Pyles	Ed.S., Kentucky, 1968
John Buckingham Sowards	M.A., Marshall, 1969
Elizabeth Ann Walthall	M.A., Marshall, 1953 (Sabbatical Leave, 1969-70)

Instructors

Thomas Albert Allemang	M.A., Southern Illinois,1964
David Edward Carter	M.S., Ohio University, 1967
Ernie P. Chattin	B.S., Illinois, 1931
Uma Garg	M.Ed., Auburn, 1969
Nikola Ghassomians	M.A., Kentucky, 1964
Dewey Greear	M.A., Morehead, 1966
Carole Griffiths	M.A., Marshall, 1965
Richard P. Hedlund	M.A., Kentucky, 1964
Melba Francine Howard	M.S., Texas Woman's University, 1966
Henry Hughes	M.A., Marshall, 1965
Larry Maxwell Jackson	M.M., Southern Methodist University, 1964
Jimmy Jack Miller	B.S., Pikeville College, 1967
Beecher L. Scutchfield	M.S., Kentucky, 1967
Ernest M. Tucker	M.A., Louisville, 1962

Visiting Instructor

J. T. Richardson	Ph.D., Missouri, 1943

Assistant Director

Carl W. Lively	M.A., Marshall, 1951

Guidance Counselor

Kathryn Reed	M.A., Marshall, 1959

Business Officer

Martha L. Tate	A.B., Morehead, 1940

Librarian

Louise Davidson	M.A., Morehead, 1963

Laboratory Assistant

Theron Budesheim	A.B., Syracuse, 1929

Bookstore Manager

Eleanor Gail Hunsaker

ELIZABETHTOWN COMMUNITY COLLEGE

James S. Owen, director

Assistant Professors or Senior Instructors

Linda N. Alvey	M.S., Kentucky, 1964
Phyllis P. Brandenburg	M.A., Kentucky, 1964
Charles E. Deusner	M.A., Kentucky, 1962*
J. Robert Hill	M.A., George Peabody, 1962
Lila E. Kieser	M.A., George Peabody, 1965
James S. Owen	Ed.D., Auburn, 1956
Mary Maurice Utley	M.A., Western Kentucky, 1963
Donald F. Wallace	M.A., Georgia State College, 1965

Instructors

Martha D. Bain	M.A., Kentucky, 1965
Edward John Clynch	M.A., Ball State, 1968
Michael B. Coyle	M.A., Vanderbilt, 1966
David E. Day	M.Ed., Cincinnati, 1967
Modesto del Castillo	M.S., New Mexico, 1966
James N. Francis	M.A., Western Kentucky, 1968
Fredrick L. Gamble	M.A., Ball State, 1969
James G. Hiett, Jr.	M.Ed., Middle Tennessee State, 1967*
Martha U. Hill	B.S., Berea, 1966
Martha A. T. Knudson	M.Ed., Maryland, 1954
Harry G. Lee	M.A., Kentucky, 1969
Gerald M. Leitzell	M.A., Loyola, 1968
Powell M. Livesay	M.S., Kentucky, 1968
Barbara F. Meadow	M.A., Kentucky, 1961*
Edward L. Morgan	M.Ed., Cincinnati, 1963
Michael E. Robinson	M.A., Kentucky, 1966*
Shelton H. Kirby	M.A., Western Kentucky, 1963
Bill Gene Smith	M.S., Missouri, 1967
Robert E. Toohey	M.A., Kentucky, 1961*
Doris M. Waska	M.S., Murray State, 1968

* Plus advance graduate work.

Assistant Director
Robert Keen — M.A., Eastern Kentucky, 1957

Librarian
Betty Jane McFarland — M.A., George Peabody, 1964

Assistant Librarian
Georgia Ivey Keen — R.N., Berea, 1953

Bookstore Manager
Clarence M. Wilmoth

FORT KNOX COMMUNITY COLLEGE

James Allison Jones, acting director

Assistant Professor or Senior Instructor
James Allison Jones — M.S., Georgia, 1949

Instructor
Fred Marshall Kimmey, Jr. — M.A., Indiana, 1961*

Business Officer
Mary Jane Sledge — M.A., Western Kentucky, 1968

HAZARD COMMUNITY COLLEGE

J. Marvin Jolly, director

Assistant Professor or Senior Instructor
J. Marvin Jolly — Ed.D., Colorado State, 1960

Instructors
Sara Ann Black — B.B.A., Augusta College, 1968
John K. Brown — M.S., Florida State, 1956
Mary C. Brown — M.S., Kentucky, 1951
Ralph E. Clark — M.S., Nevada, 1968
Chi yu Chiang — M.S., Florida, 1967
Berry L. Litsey, Jr. — M.S., Southern Mississippi, 1969
Albertis Gene Long — M.A., Indiana, 1967
Konstantin Prokos — M.A., Central Michigan University, 1969
Carol Sue Robinson — M.A., Marshall, 1969
Carol Schwartz — M.S.L.S., Case Western Reserve, 1969
Joseph H. Webster — M.A., Iowa, 1969

Business Manager
Wayne A. Smiley — M.B.A., Kentucky, 1967

Guidance Counselor
Ann Hurt — M.A., Eastern Kentucky, 1967

Field Professor of Community Medicine
Joseph Alter — M.D., Hahnemann Medical College, 1950

HENDERSON COMMUNITY COLLEGE

Marshall Arnold, director

Assistant Professors or Senior Instructors
Marshall Arnold — Ed.D., Missouri, 1956
Mildred Bennett — M.S.N., Indiana, 1959
Ronald W. Butler — M.A., Kentucky, 1957
Ira Dean Elkins — M.S., Oklahoma, 1950
Arch Sanders Lacefield — M.A., Kentucky, 1950
Dorothy Rothrock Tapp — M.S., Chicago, 1948

Instructors
Albert Braden — M.A., Ohio State, 1964
Grace Buckmaster — M.S., Evansville, 1969
Timothy Cantrell — M.A., Western Kentucky, 1969
Joseph Celania — B.A., Oklahoma East Central State, 1948
Donald Chapman — M.A., Western Kentucky, 1964
Donald Cook — M.A., North Texas State, 1966
Julian Duffy — M.A., Ball State, 1969
Rebecca Durbin — B.S., Evansville, 1963
Sara Francis — M.A., Western Kentucky, 1965
Kenneth Gibson — M.A., Kentucky, 1968
Alan Hedgespeth — M.S., Cincinnati, 1969
Bettye Klauss — M.S.N., Evansville, 1964
Jeordano Martinez — B.A., Baylor, 1964
Patricia McNair — M.A., New Mexico Highlands, 1969
R. Lee McNair — M.A., Missouri, 1966
David Messer — M.A., Purdue, 1969
Ernest L. Overfield — M.A., Vanderbilt, 1954
David Perry — M.B.A., Central Michigan University, 1969
Henrietta Pollock — B.S., Minnesota, 1954
John Sistarenik — M.A., Indiana, 1969
Janice Sprague — M.A., Western Kentucky, 1969
Steve Szabo — M.S., Florida State, 1969

Bookstore Manager
Mildred Gardner

Business Officer
Robert Hall — B.S., Evansville, 1964

Counselor
James Long — M.A., Murray, 1968

Admissions Officer
Bobby D. Park — M.A., Western Kentucky, 1964

Librarian
James Rambow — M.A., Missouri, 1969

HOPKINSVILLE COMMUNITY COLLEGE

Thomas L. Riley, director

Assistant Professors or Senior Instructors
Elizabeth Claiborne — M.A., Wittenberg, 1941*
Clyde Lewis — Ph.D., Clemson, 1968
Vivian M. Littlefield — M.A., Colorado, 1964
J. Brooks Major — Ph.D., Vanderbilt, 1966
Thomas L. Riley — Ph.D., Chicago, 1965

* Plus advance graduate work.

Ben Self — Ph.D., Vanderbilt, 1968
Clara E. Wheeler — M.A., Kentucky, 1945

Instructors

Leslie B. Crane — M.A., George Peabody, 1951, 1966
Hugh A. Duguid — M.S., University of Missouri at Rolla, 1969
Desmond R. Hargis — M.A., George Peabody, 1962*
William Kennedy — M.A., Tennessee, 1963*
Joseph Murphy — M.A., Kentucky, 1966*
Eldridge Rogers — M.A., Austin Peay, 1966
Carol Spence — M.A., Kentucky, 1969
Michael D. Thiel — M.A., Minnesota, 1968*
Frances G. Thomas — M.A., Austin Peay, 1962, 1965
Frank Thompson — M.A., Murray State, 1967

Business Officer

Neil C. Ward — M.A., George Peabody, 1966

Acting Librarian

Ellen Woods — B.S., Illinois, 1968

Bookstore Manager

Margaret P. Thorpe — A.B., Duke, 1949

Regional Director, University Extension

William Summerhill, Jr. — M.S., Kentucky, 1960*

JEFFERSON COMMUNITY COLLEGE

John T. Smith, director
James Hawkins III, assistant director

Assistant Professors or Senior Instructors

Hazel R. Bolan — Ed.D., Indiana, 1967
Thomas Elmer Gaston — M.A., Kentucky, 1960*
James Hawkins III — M.A., Louisville, 1967
Martha Lyon — M.S., Indiana, 1958
John T. Smith — Ed.D., Kentucky, 1961

Instructors

Carter Bechtel — M.S., Ohio State, 1946
Shirley Blankenbaker — M.S., Louisville, 1967
Mellie Burd — M.A., Louisville, 1967
John Canfield — M.A., Indiana, 1968
Barbara Conkin — M.S., Kansas, 1953*
Jacquelyn Clark — M.A., Murray State, 1965
Lois Cundiff — M.Ed., 1956; M.A., Louisville, 1967
Scott Cole — Ph.D., Michigan, 1956
David Doran — M.A., Louisville, 1965*
David Driscoll — LLB., Harvard, 1955
Marry Elgren — B.S., Utah, 1967
Mary Fletcher — M.A., Louisville, 1962
Frank Handley — M.A., 1925; LL.B., Vanderbilt, 1928
Gunnar Hansen — M.S., San Diego, 1968
Ronald Holmes — M.A., Louisville, 1968
Paul Kinsella — M.A., Louisville, 1955
Thomas Knuckles — M.Foreign Studies, Maryland, 1950
Phyllis Krantz — M.S., Indiana, 1966
Richard Lindstrom — M.A., Louisville, 1962
Richard Lyons — M.A.T., Miami, 1963*
Patricia McCoy — M.N.S., Arizona State, 1966
Maurice McCormick — M.Ed., Catherine Spalding, 1968
Susan McCray — M.A., Louisville, 1967
James Mahanes — M.A.S.W., Louisville, 1967
Corina Maya — M.A., Louisville, 1967
Mary J. Mirlenbrink — M.S., Indiana, 1960
Francis Moore — M.B.A., Xavier, 1963
Sara Morris — M.A., Samford, 1967
Colleen Murphy — M.S., Indiana, 1966
Joy Pennington — M.A., State University of Iowa, 1968
Lee Pennington — M.A., State University of Iowa, 1965
Larry Perkins — M.A., Kentucky, 1964*
Vera Quinn — M.S., Indiana, 1966
Ray Reed — M.S., Kentucky, 1960
Gerald Reidling — M.A., Louisville, 1961
Larry Schenck — M.A., Iowa, 1962
Frances Schneiter — M.A., Louisville, 1963*
Robert Schoenhoff — M.A., Kentucky, 1967
Louise Schoo — M.A., Chicago, 1950
Janet Schweitzer — M.S., Louisville, 1968
Lillian Shein — M.A., Louisville, 1967
Edward Sibbald — M.A., St. Michael's College, 1967
Hilda Stoddard — M.A., Louisville, 1968
Rose Stone — M.A.T., Catherine Spalding, 1969
Sarah Stuart — M.S.N., Catholic University of America, 1964
James P. Sullivan — Ph.D., Kentucky, 1965
George Wenstrup — M.Ed., Cincinnati, 1967
Gail Whittington — M.B.A., West Texas, 1969
Mehale A. Zalampas — M.A., Stetson, 1955*
Miriam Zalampas — M.A., Kentucky, 1965*
Clifton Youngman — M.A.L.S., Michigan, 1962

Admissions Officer and Registrar

Charles Herrick — M.Ed., 1961; A.S.Ed., Louisville, 1967

Business Officer

Charles C. Murden — M.Ed., Cincinnati, 1967

Guidance Counselors

Marie Kenoyer — Ph.D., Fordham, 1961
Allan M. Steinberg — M.A., Louisville, 1967

Librarians

Dorothy H. Hagemann — M.A.L.S., Rosary College, 1960
Naomi E. Voit — M.L.S., Kentucky, 1967

LEXINGTON TECHNICAL INSTITUTE

M. L. Archer, director

Assistant Professors or Senior Instructors

M. L. Archer — M.A., Kentucky, 1950
Mary E. Flowers — M.N., Washington, 1952; M.Ed., Teachers College, Columbia, 1968

* Plus advance graduate work.

Instructors

Thomas Cooper — D.D.S., Tennessee, 1956
John Fuhrman — Dent. Tech.
O. W. Gard — M.S., Georgia Institute of Technology, 1952
Helen D. Hanson — M.S.Ed., Pennsylvania, 1961
Edmund Hoy — M.R.E., Asbury Seminary, 1968
Margaret B. Humphreys — M.A., Kentucky, 1943
H. D. Jameson — M.D., Wisconsin, 1958
John T. Kemper, Jr. — Assoc. in Dent. Tech., S.I.U., 1964
Janet M. Lattin — B.S.N., Kentucky, 1969
Robert Manor — B.S., St. Louis, 1956
Anne Noffsinger — M.A., Kentucky, 1968
Laurence C. Pendley — M.S., Purdue, 1949
Steve Potocsnak — B.S.Ed., California State College, California, Pennsylvania, 1950
H. Alex Romanowitz — Ph.D., Michigan, 1948
Donald Shear — Assoc. in Dent. Tech., Kentucky, 1969
Helen B. Wilhoit — B.S.N.E., Nazareth, 1954*

Business Officer

Agnes Spence — B.S., Kentucky, 1946*

MADISONVILLE COMMUNITY COLLEGE

G. Harold Massey, director

Assistant Professor or Senior Instructor

G. Harold Massey — Ed.D., Texas Tech, 1956

Instructors

Alicia Arbuckle — M.A., Western Kentucky, 1967
David R. Fackler — B.S., Iowa State, 1953
Soporo Faye Gray — M.A., Western Kentucky, 1966
Cora Dee Hooks — M.A., Kentucky, 1952
Kao Hsiung Liao — M.S., 1967; Ph.D., Illinois, 1969
Rella G. Jenkins — M.A., Murray State, 1965
Paul Edward Presler — M.A., Western Kentucky, 1968
Michael G. Schene — M.A.T., Florida State, 1969
Helen Snider — M.A., Chicago, 1942
William Harris Terrell, Jr. — M.S., Kentucky, 1960
Frank Thompson — M.A., Murray State, 1967

Admissions and Business Officer

Charles W. Jenkins — M.A., Murray State, 1949

Chairman of the Nursing Program

Vivian Littlefield — M.S., Colorado, 1964

Bookstore Manager

Glenda G. Ayers

MAYSVILLE COMMUNITY COLLEGE

Charles T. Wethington, director

Assistant Professor or Senior Instructor

Charles T. Wethington — Ph.D., Kentucky, 1965

Instructors

Darrell H. Abney — M.A., Western Kentucky, 1968
Robert K. Berry — M.S., Kentucky, 1961; Ph.D., Tennessee, 1967
Marvin D. Burdine — M.S., Kentucky, 1962
John H. Crockett, Jr. — M.A., North Carolina, 1963
Mary Kay Hargett — M.A., Middle Tennessee State, 1968
Natalie Jarzebowski — M.A., Jagellonian University, Poland, 1955
John M. Keith, Jr. — M.A., Western Kentucky, 1965; J.D., Kentucky, 1968
Ellen M. Malone — M.A., Kentucky, 1968
Weymouth H. Martin, Jr. — M.A., University of Northern Iowa, 1968
John F. Meyers — M.A., New Mexico Highlands, 1968
Rosemary C. Moffett — M.A., Morehead State, 1968
Herbert Richey — M.A., Adams State College, 1962; M.S., Purdue, 1968
Alpha Straub — M.A., Morehead State, 1960

Business Officer

H. Lowell Webb — M.A., Kentucky, 1968

Librarian

Joyce Moore — M.S.L.S., Kentucky, 1965

*NORTHERN COMMUNITY COLLEGE***

A. J. Hauselman, acting director

Associate Professor

Charles G. Talbert — Ph.D., Kentucky, 1952

Assistant Professors or Senior Instructors

Martin Brown — M.S., Xavier, 1963
William M. Byron — M.A., Kentucky, 1957
Mary Ann Clark — M.A., Columbia, 1957
A. J. Hauselman — M.A., Kentucky, 1961
Carolyn Lucille Rudorf — M.A., Illinois, 1950
Dixiana Smith — M.A., Columbia, 1957

Instructors

Stellar Bernice Beach — M.A., Baylor, 1961
Doris Brown — M.A., Kentucky, 1968
Ann Cook — B.S., Cincinnati, 1964
Tripta Desai — M.A., Delhi, India, 1959
Larry Lee Dickson — M.S., Ball State, 1966
Sandra Easton — M.Ed., Cincinnati, 1965
Thomas D. Fleming — M.B.A., Xavier, 1959
Norris Dean Hellwig — M.A., Northwestern, 1961
Enid Henry — M.A., Cincinnati, 1964
Martin D. Holtzman — M.Ed., Cincinnati, 1965
Rosemary Imbus — M.F.A., Catholic University, 1965
Thad Lindsey — M.A., Xavier, 1965
James Everett McKenney — M.S., Dayton, 1962
Mary C. Moses — M.A., Cincinnati, 1968
Merle J. Nickell — M.A., Morehead State, 1957

° Plus advanced graduate work.

°° It is expected that Northern Community College will be merged with Northern Kentucky State College July 1, 1970.

Ralph E. Peterson	M.A., Kentucky, 1966
Earl Pfiefer	M.A., Xavier, 1967
Daniel Purcell	M.A., Indiana, 1968
Barbara Quattrone	M.S., Cincinnati, 1969
Cynthia Rankin	B.S., Cincinnati, 1963
Clara Richards	M.A., George Washington, 1941
Terence G. Robbins	M.S., Butler, 1964
Margery Rouse	M.A., Kentucky, 1944
Lois O. Sutherland	M.Ed., Xavier, 1967
Connie Thatcher	M.S., Cincinnati, 1967
Louis R. Thomas	M.A., Cincinnati, 1963
Anna Belle Visnic	B.S., Findlay, 1949
Geraline Weiner	M.F.A., Cincinnati, 1968
Dorothy Whitman	M.S., Kansas State, 1951

Business Manager

Paul R. Schott — B.S., Kentucky, 1959

Librarian

Bobby E. Holloway — M.S., Kentucky, 1967

Assistant Librarian

Sue Ellen Riddell — M.A., Kentucky, 1965

Admissions Officer

Carolyn Ward

Recorder

Kathy Sullivan

Bookstore Manager

Frances Loeb

Coordinator, Student Activities

Bette Doyle

PADUCAH COMMUNITY COLLEGE

Donald J. Clemens, director

Assistant Professors or Senior Instructors

William Beasley	M.A., Texas, 1966
Maxine Clark	M.A., Murray State, 1967
Donald J. Clemens	Ed.D., Southern Mississippi, 1964
Howard Hill	M.A., Kentucky, 1947
Glen Murrell	M.A., Murray State, 1968
Richard Price	M.A., Mexico City College, 1950
Susan Price	M.A., Syracuse, 1942
James Womble	M.A., New York University, 1951

Instructors

John Alexander	M.S., Tennessee, 1968
Gertrude Allen	M.A., Murray State, 1966
Priscilla Alley	M.A., Murray State, 1965
Catherine Beard	M.A., Kentucky, 1948
Maurine Breeden	M.A., Indiana, 1950
Vincent Cain	M.A., Austin Peay, 1969
Carolyn Conyer	M.A., Murray State, 1968
Jerry Counce	M.A., Murray State, 1966
Jean Culp	B.S., Murray State, 1968
Larry Dowdy	M.S., Mississippi, 1966
Lynn Foster	M.A., Memphis State, 1967
Mary Ann Freels	M.A., Murray State, 1968
William Gourley	M.B.A., Murray State, 1967
John Gustafson	M.S., North Dakota State, 1951
Andrew Halford	M.A., Tennessee, 1968
Paul H. Harp	M.A., Murray State, 1968
Leonard Hart	B.S., Idaho, 1967
Claud F. Haws, Jr.	M.A., Murray State, 1957
Allen Henson	M.A., Murray State, 1967
Effie Kemp	M.A., Colorado, 1967
Carolyn Kressenberg	M.A., Southern Illinois, 1965
David Krueger	M.S., Wisconsin, 1965
Lillian Lowry	M.A., Murray State, 1953
Jacqueline Moss	M.A., Murray State, 1963
Charlotte Niksch	B.S., Southern Illinois, 1967
Jimmie D. Peck	M.A., Murray State, 1968
Sara Penry	B.S., Murray State, 1966
B. L. Phillips	M.A., Memphis State, 1964
Chun W. Ro	M.A., Southern Illinois, 1962
Robert Rudder	M.A., Cincinnati College Conservatory of Music, 1956
Burnett Sasseen	M.A., Murray State, 1966
Judith Stovall	M.A., South Carolina, 1967
S. V. Suryanarayama	Ph.D., Kentucky, 1968
Margaret Wallace	M.A., Murray State, 1969
Duncan Wells	M.S., Murray State, 1969
Joyce Worten	B.S., Indiana
Mary Yeiser	B.S., Murray State, 1940
Edward J. Brady	B.S., Northern Arizona, 1968

Associate Director of Academic Affairs

John E. L. Robertson — M.A., Louisville, 1961

Associate Director of Continuing Education

John C. Cromwell — M.A., Murray State, 1963

Student Personnel Officer

Margaret Watson — M.S., Kentucky, 1961

Business Officer

Sue Puckett — A.A., Paducah Junior College, 1955

Guidance Counselor

Jerry Hinton — M.A., Murray State, 1966

Bookstore Manager

Phyllis Stewart

Co-Librarians

Jennie Farmer	M.L.S., George Peabody, 1968
Donna James	M.A., Murray State, 1965

Recorder

Wanda Atkinson

PRESTONSBURG COMMUNITY COLLEGE

Henry A. Campbell, Jr., director

Assistant Professors or Senior Instructors

Henry A. Campbell, Jr. — Ph.D., Texas, 1963

Gus Kalos	M.S., Indiana, 1959*
Laura Weddle	M.A., Kentucky, 1959*
Leo Weddle	M.A., Kentucky, 1959*

Instructors

Robert Blackledge	M.S., Georgia, 1962*
David Browning	B.M.E., William Carey College, 1966*
Ernest Bryant	M.B.A., Indiana, 1952
Marigrace Cottrell	M.A., Morehead State, 1966
Jack Cudaback	M.A., Michigan, 1966
James Earl	M.A., Texas, 1968
Ira Fink	M.S., West Virginia, 1967*
James Funkhouser	M.A., Virginia, 1969
John Hanson	M.S.C.S., Mississippi, 1964
Phyllis Honshell	M.A., Morehead State, 1963*
Charles J. Isbell	M.S., Kentucky, 1963*
David Jackson	M.A., Oregon, 1967
Fred Kramer	M.A., S. Dakota, 1968
Ronald Lipton	M.B.A., Mississippi State, 1968
Anna Magura	B.A., Komensky University, 1941*
Linda Naylor	M.S., Illinois, 1968
Jessica Pollard	M.F.A., Pratt Institute, 1968
James Ratcliff	M.A., Tulane, 1966
Louise Rarick	M.A., Brandeis, 1966
John Sammons	B.S., Pikeville, 1966*
Carolyn Turner	M.A., Kentucky, 1965*

Coordinator of Academic Affairs

Robert R. Allen	M.A., Morehead State, 1965*

Business Officer

G. A. Cowan	B.S., Lincoln Memorial, 1957

Admissions Officer and Coordinator of Student Affairs

Thomas E. King	B.A., Washington State, 1969*

Guidance Counselor

Walter Frasure	M.A., Morehead State, 1963*

Librarian

Robert Wallace	M.S., Kentucky, 1960

Bookstore Manager

Doris A. Lawson	B.S., Morehead State, 1968

SOMERSET COMMUNITY COLLEGE

Roscoe D. Kelley, director

Assistant Professors or Senior Instructors

Mary L. Bacon	M.A., Kentucky, 1964
Robert F. Gloor	M.D., Loma Linda College, 1954; M.P.H., Harvard, 1966
Joseph Jeffries	M.S., Mississippi, 1965
Roscoe D. Kelley	Ed.D., Auburn, 1958
Eleanor Terry Norfleet	M.A., Western Kentucky, 1963

Instructors

Larry L. Adkins	M.A., Delaware, 1970
Stephen K. Atkinson	A.B., Kentucky, 1966
Robert Anderson	B.S., Cumberland College, 1968
Rose Bullock	M.N., Florida, 1968
James O. Burdine	A.B., Kentucky, 1956
Gerald Campbell	M.S., Creighton University, 1966
Billy C. Clark	A.B., Kentucky, 1962
Wendell Cornett	M.M., South Carolina, 1964
Russell Day	M.Ed., Xavier, 1967
James Douglas	M.A., Memphis State, 1969
Glyncon Garrett	M.S., Tennessee, 1964
Danny Jasper	B.S., Kentucky, 1961
Margaret Johns	M.A., Eastern Kentucky, 1963
Donald Johnson	M.S., Indiana State, 1967
Raymond Miller	M.S., East Tennessee State, 1967
Richard David Moon	M.A., Tennessee, 1969
Donald Orwin	M.A., Kentucky, 1969
Charlene Phelps	M.A., Eastern Kentucky, 1969
Jerry Speight	M.A., Murray State, 1968
Patricia Tipton	M.N., Florida, 1968
Bob Todd	M.A., Kentucky, 1966
Yvonne Vernon	M.N., Florida, 1969

Assistant Director and Business Manager

Charles E. Hurt	M.A., Eastern Kentucky, 1952

Coordinator of Student Services and Counselor

Harold Van Hook	M.A., Eastern Kentucky, 1962

Librarian

Freda Howell	Ph.D., Chicago, 1928

Instructional Technician

Ernest Kuhnapfel	A.A., Somerset CC, 1969

Bookstore Manager

Corrinne J. Hurt

SOUTHEAST COMMUNITY COLLEGE

George L. Luster, director

W. Bruce Ayers, assistant director

Assistant Professors or Senior Instructors

Walter P. Gerlach	M.A., Kentucky, 1963
Joanne Hogue	M.B.A., Indiana, 1950
Davie L. Hughes	M.S., Wisconsin, 1953
George L. Luster	Ph.D., Ohio State, 1954
Charles Willis	M.A., Texas State, 1958*

Instructors

Ralph Anderson	B.S.C.E., Kentucky, 1969
Robert Arnold	M.A., Kent State, 1965
Jack D. Bailey	M.A., Eastern Kentucky, 1962
Blaine Beekman	M.A., Ohio State, 1966
Thomas Bowen	M.T. (ASCP, Beckley Memorial Hospital), Oklahoma, 1963*
Anne Carr	M.A., Eastern Kentucky, 1968

* Plus advanced graduate work.

Sara Hancher	A.B., Kentucky, 1959*
Alleen Johnson	Ed.S., George Peabody, 1962
John Kozak	M.A., Indiana, 1968
Gayle Lawson	M.A., Kentucky, 1965
Jack McCord	M.A., Ohio State, 1940
Edwin Newport	M.S., Kentucky, 1965*
John Presley	M.A., Wyoming, 1966
Danny R. Robinette	M.A.T., Vanderbilt, 1966

Upward Bound Program Director

Harold Patterson	B.S., Eastern Kentucky, 1961

Guidance Counselor

Joyce A. Bryan	M.Ed., South Carolina, 1960*

Business Officer

Robert Bryan	B.S., Berea, 1956

* Plus advanced graduate work.

Admissions Officer

Jo H. Bailey	A.B., Kentucky, 1963

Librarian

Gertrude Dale	M.A., George Peabody, 1962*

FOREST AND WOOD TECHNICIAN SCHOOL

Wood Utilization Center, Quicksand, Kentucky

Donald H. Graves, superintendent

Instructors

C. A. Eckerline	B.S., Syracuse, 1947
B. G. Greenlee	
Robert Howard	B.S., Georgia, 1963
Milton Noble	B.S., North Carolina, 1953

Administration

Board of Trustees

EX-OFFICIO

Louie B. Nunn, Governor, Frankfort, Kentucky

Wendell P. Butler, Superintendent of Public Instruction, Frankfort, Kentucky

J. Robert Miller, Commissioner of Agriculture, Frankfort, Kentucky

MEMBERS

Mrs. Rexford S. Blazer, Ashland, Kentucky, December 31, 1970

B. Hudson Milner, Glenview, Kentucky, December 31, 1970

A. B. Chandler, Versailles, Kentucky, December 31, 1971

George W. Griffin, Jr., London, Kentucky, December 31, 1971

Dr. N. N. Nicholas, Owensboro, Kentucky, December 31, 1971

Floyd H. Wright, Lexington, Kentucky, December 31, 1972

Albert G. Clay, Mt. Sterling, Kentucky, December 31, 1972

Jesse M. Alverson, Jr., Paris, Kentucky, December 31, 1973

Richard E. Cooper, Somerset, Kentucky, December 31, 1973

ALUMNI MEMBERS

Robert H. Hillenmeyer, Hillenmeyer Nurseries, Georgetown Road, Lexington, Kentucky, December 31, 1970

James H. Pence, Louisville, Kentucky, December 31, 1972

Thomas P. Bell, Lexington, Kentucky, December 31, 1973

FACULTY MEMBERS

Robert W. Rudd, Department of Agricultural Economics, University of Kentucky, June 30, 1971

Paul G. Sears, College of Arts and Sciences, University of Kentucky, Lexington, Kentucky, June 30, 1972

NON-VOTING STUDENT MEMBER

Tim Futrell, President, Student Government, May 1970

OFFICERS OF THE BOARD

Gov. Louie B. Nunn, Chairman

Albert G. Clay, Vice Chairman

Mrs. Rexford Blazer, Secretary

Administrative Organization

Otis A. Singletary, President

Alvin L. Morris, Vice President for Administration

Lewis W. Cochran, Vice President for Academic Affairs

A. D. Albright, Vice President for Institutional Planning

Glenwood L. Creech, Vice President for University Relations

Robert G. Zumwinkle, Vice President for Student Affairs

William Robert Willard, Vice President for the Albert B. Chandler Medical Center

Howard L. Bost, Assistant Vice President for the Albert B. Chandler Medical Center

George J. Ruschell, Acting Vice President for Business Affairs and Treasurer of the University

Ellis Ford Hartford, Vice President for Community College System

Maurice Stanley Wall, Associate Dean, Community College System

Elbert W. Ockerman, Dean of Admission and Registrar

Keller J. Dunn, Associate Dean of Admissions

Jack B. Hall, Dean of Students

Jack L. Mulligan, Director, University Health Service

Doris M. Seward, Dean of Student Affairs Planning

John E. Barrows, Director of Institutional Studies

Robert Blakeman, Director of Auxiliary Services

Frank Harris, Director of the Student Center

James Ingle, Administrator, Student Financial Aid

Harriet Rose, Administrator, University Counseling and Testing Center

James P. Alcorn, Director of Placement Service

Stuart Forth, Director of Libraries

Roy K. Jarecky, Associate Dean for Admissions and Student Personnel, Medical Center

Jay Brumfield, Director of Alumni Affairs

Frederick A. Woodress, Director of Public Relations

Philip Brunskill, Director of Development

Bruce F. Denbo, Director of the University Press of Kentucky

Howard W. Beers, Director, Center for Developmental Change

Martin B. Solomon, Director of Computing Center

Joe Burch, Director of Safety and Security

THE COLLEGES

Charles E. Barnhart, Dean of the College of Agriculture and Director of Cooperative Extension

W. C. Royster, Dean of the College of Arts and Sciences

Robert M. Drake, Dean of the College of Engineering

Betty Brannan, Dean of the School of Home Economics

William Lewis Matthews, Dean of the College of Law

George W. Denemark, Dean of the College of Education

Charles F. Haywood, Dean of the College of Business and Economics

Joseph V. Swintosky, Dean of the College of Pharmacy

William S. Jordan, Jr., Dean of the College of Medicine

Marcia Allene Dake, Dean of the College of Nursing

Harry M. Bohannan, Dean of the College of Dentistry

Joseph Hamburg, Dean of the School of Allied Health Professions

Raymon Dudley Johnson, Dean, University Extension

Lawrence A. Allen, Dean of the School of Library Science

Charles Parker Graves, Dean of the School of Architecture

Ernest F. Witte, Dean of the School of Social Professions

Index

A

Abbreviations, Courses 62
Academic Program 6
Accounting 249
Admission 18
  Administration of Resident Students, Guidelines for 20
  Advanced Placement Credit 22
  American College Test 22
  Applicants with Less Than Twelve Hours of College Work 22
  Auditors 26
  Credit for Military Service 24
  Exceptions for Freshman Admission 22
  Freshmen 21
  Non-Degree Students 26
  Non-Graduate of High School 23
  Readmission 25
  Requirements for Undergraduates 18
  Resident Student, Definition of 19
  Residents of Other States 22
  Students from Other Countries 25
  Summer Advising Conference 19
  Transfer Students 23
  Transient Students 26
Aerospace Science 72
Agricultural Economics 163
Agricultural Engineering 165, 188
Agriculture 160
  Curriculum and Majors 161
  General 167
  Requirements for B.S. Degree 161
Agronomy 167
Air Force (ROTC) 72
Allied Health Professions 311
American History 121
Anatomy 268
Anesthesiology 270
Animal Sciences 169
Anthropology 73
Arabic 146
Architecture 300
Archives, University 52
Army (ROTC) 130
Art 93
Art-Education 97
Art Galleries 57
Art-History 94
Art-Studio 95
Arts and Sciences 65
Arts and Sciences, Special Courses 72
Ashland Community College 339
Astronomy 133
Athletics 34
Auditors 26

B

Bachelor of Arts Degree 66
Bachelor of Science Degree 66
Bands, University 34
Behavioral Science 270
Biochemistry 271
Biology 76
Botany 77
Business Administration 250
Business and Economics 247

C

Calendar, University 3
Cancellations and Refunds 33
Chemical Engineering 189
Chemistry 79
Choral Ensembles 34
Civil Engineering 191
Clinical Nutrition 311
Clinical Pharmacy 262
Colleges and Schools 14
Combined Courses 69
Commencement Honors 51
Communications, School of 82
  Advertising-Public Relations Sequence 83
  General Editorial 84
  Journalism 83
  Speech 86
  Telecommunications 85
Community Colleges 338
Community Dentistry 291
Community Health 312
Community Medicine 272
Computer Science 87
Concerts 57
Concert and Lecture Series 57
Conferences and Institutes 335
Conjoint Dental Sciences 292
Continuing Education 336
Cooperative Extension Education 171
Council on Aging 336
Counseling and Testing Services 42
Course Numbering System 61
Cultural Opportunities 56
Cultural Programs 34

D

Dean of Students, Office of 35
Degrees 16
Dentistry 290
Dental Hygiene 313
Diagnostic Radiology 274
Dining Facilities 28
Diplomacy and International Commerce, Patterson School of, 88
Disabled Student Services 37
Discipline, University 35
Divisions and Bureaus, University 9
Donovan Senior Citizens Fellowship Program 54, 336
Dormitories 29

E

Economics 252
Education 214
  Administration and Supervision 229
  Curricula 217
  Curriculum and Instruction 230
  Educational Psychology and Counseling 233
  Elementary School Teaching, Requirements for 217
  General Information 216
  Graduate Programs for Master's Degrees 222
  Graduation Requirements 216
  Health, Physical Education and Recreation 235
  Higher and Adult Education 239
  Home Economics, Requirements for Teaching 217
  Junior High Schools, Requirements for Teaching 217
  Master of Arts, 223
  Master of Arts—Special Education 226
  Master Program in Guidance and Counseling 226
  Physical Education 228
  Senior High Schools, Requirements for Teaching 219
  Social and Philosophical Studies in Education 240
  Special Education, Requirements for Teaching 221, 241
  Student Teaching, Requirements for Admission 215
  Student Teaching in Vocational Agriculture and Home Economics 222
  Vocational Agriculture, Requirements for Teaching 221
  Vocational Education 243
Educational Opportunity Grants 38
Electrical Engineering 195
Elizabethtown Community College 339
Employment, Student Part-time 40
Endodontics 293
Engineering 185
Engineering Mechanics 199
England and British History 120
English 89
Entomology 172
Entering the University 18
Entrance Examination 47
European History 120
Evening Class Program 335
Expenses and Financial Aid 2, 37
Extension Civil Defense Program 336
Extension Class Program 333

F

Far East History 122
Fees, Student 2
Fields of Study 14
Financial Aid 37, 38
Financial Delinquency 47
Fine Arts, School of 93
Food Service 28
Forestry 172
Forest and Wood Technician School 345
Fort Knox Community College 340
Fraternities 35
French Language and Literature 106
Functions, The University 8

G

Geography 109
Geology 111
Germanic and Classical Languages and Literatures 113
Grading Systems 44
  Grade-Point Average 45
  Pass-Fail System 45
Graduate Fees 2
Graduation Requirements 50
Graduate School 305
  Admission 306
  Advanced Degrees, Requirements for 306
  Doctor of Business Administration, Requirements for 309
  Doctor of Education, Requirements for 309

Doctor of Musical Arts, Requirements for 309
Doctor of Philosophy, Requirements for 309
Fellowships and Assistance 310
Master's Degrees, Requirements for 308
Organization 305
Specialist in Education, Requirements for Degree 310
Greek 116
Guignol Theater 56

H

Hazard Community College 340
Health Professions Loans 39
Health Service, University 41
Hebrew 141
Henderson Community College 340
History 118
History of the University 9
Honors Program 58
Home Economics, School of 177
General 184
Hopkinsville Community College 340
Horticulture 173
Housing 28 (See Living Accommodations)
Housing and Interior Design 180
Humanities 123
Human Development and Family Relations 180
Human Relations Center 36
Hygiene 123

I

Identification Cards 2
Independent Study Program 330
International Student Office 37
Italian 153

J

Japanese 145
Jefferson Community College 341
Journalism 83

K

Kentucky High School Speech Program 330

L

Latin 115
Law
Admission Test 210
Combined Degree Program 210
Juris Doctor Degree 211
Pre-Legal Study 210
Lexington Philharmonic 57
Lexington Technical Institute 341
Libraries 52
Library Science 321
Requirements
for Graduate Study 322
for Non-Degree Students 323
for Undergraduates 323
Library, Special Collections 52
Living Accommodations 28
Blanding 2, 30
Cancellations and Refunds 33
Cooperstown 30
Damages 31
Food Service 28
For Graduate Students 30
For Married Students 28
For Single Students
Graduates 30
Undergraduates 29
Furnishings and Linens Services 31
Mail and Luggage 31
Motor Vehicles 31
Rates 32
Room Assignments 31
Loans 39

M

Madisonville Community College 342
Mail 31
Management and Family Economics 181
Married Students, Regulations for 22
Materia Medica 263
Mathematics 124
Maysville Community College 342
Mechanical Engineering 200
Medicine 267, 274
Medical Technology 315
Metallurgical Engineering 204
Microbiology 127
Military Science 130
Motor Vehicles 31
Music 97

N

National Defense Loan 39
Nature and Purposes of the University 10
Neurology 276
Non-Degree Students 26
Northern Community College 342
Nursing 286
Nutrition and Food Science 182

O

Oak Ridge Institute of Nuclear Studies 278
Obstetrics and Gynecology 276
Oral Biology 293
Oral Diagnosis and Oral Medicine 293
Oral Pathology 294
Oral Surgery 294
Orchestra, University 34
Oriental Languages 144
Orthodontics 295

P

Paducah Community College 343
Pathology 277
Pass-Fail Option 45
Pediatrics 278
Pedodontics 296
Periodontics 297
Pharmaceutical Chemistry 264
Pharmacology 279
Pharmacy 255, 265
General Studies Component 256
Pharm. D. Degree 256, 258
Requirements for Graduation 256
Requirements for Licensure 261
Philosophy 131
Physical Therapy 317
Physics and Astronomy 133
Physiology and Biophysics 280
Placement Service 42
Plant Pathology 174
Political Science 137
Pre-Dental Curriculum 70
Pre-Law Courses 69
Pre-Medical Courses 69
Pre-Ministerial, Pre-Theological and Pre-Religious Education 71
Pre-Optometry Curriculum 71
Pre-Pharmacy 71
Pre-Theological Major for Rural Ministry 162
Pre-Veterinary Curriculum 163
Prestonsburg Community College 343
Probation, Academic 47
Professional Services 37
Prosthodontics 297
Psychiatry 282
Psychology 141

R

Radiation Medicine 319
Readmission to the University 25
Recreation 37
Registration 19
Registration Fees 2
Reinstatement 47
Religious Affairs 36
Requirements for Undergraduates 18
Research and Creativity Program, Undergraduate 54
Residence Halls, Graduate Students 30
Residence Halls, Single Students 29
Residence Requirements 51
Resident Student, Definition of 19
Restorative Dentistry 298
Room Assignments 31
ROTC Financial Assistance 55
Russian 145

S

Safety and Security 42
Scholarships and Grants 38
Senior Citizens Fellowship Program 54, 336
Short-Term Emergency Loans 39
Slavic and Oriental Languages and Literatures 144
Social Professions 327
Social Work 328
Sociology 146, 175
Somerset Community College 344
Sororities 35
Southeast Community College 344
Spanish and Italian Languages and Literatures 150
Special Awards 54
Special Examinations 47
Speech 86
Statistics 154
Student Activities 34
Student Affairs 34
Student Center 36
Students from Other Countries 25
Student Government 34
Student Organizations, Formation of 35
Student Load 44
Summer Advising Conference 19
Student Participation 34
Surgery 283
Suspension 47

T

Table of Contents 5
Teachers, Preparation of 68
Telecommunications 85
Textiles, Clothing and Merchandising 183
Theatre Arts 105
Theatre 34
Therapeutic Radiology 284
Transient Students 26
Transfer Students 26

U

University Extension 330

V

Veterinary Science 175
Veteran and War Orphan Benefits 41
Vocational Education 243
Volunteer Services 37

W

Work Study Program 41

Z

Zoology 156

Sources of Information

PUBLICATIONS

Several colleges within the University provide course and general information booklets for prospective students and others interested in the respective fields. These bulletins may be requested from either the college dean or the University Registrar's Office. Colleges currently providing such bulletins are:

Agriculture	Graduate School
Allied Health Professions	Law
Architecture	Medicine
Community College System	Nursing
Dentistry	Pharmacy
Engineering	Library Science

The following bulletins also are available from the Registrar's Office:

General University Catalog

Summer Session Bulletin

Admission Information Sheet

Admissions Brochures

COMMUNITY COLLEGES

The University has two-year community colleges at Ashland, Cumberland, Elizabethtown, Fort Knox, Hazard, Henderson, Hopkinsville, Louisville, Madisonville, Maysville, Paducah, Prestonsburg, Somerset and a Technical Institute at Lexington. Information about the Community College System may be obtained by contacting: Community College System Office, University of Kentucky, Lexington.

EXTENSION, EVENING AND CORRESPONDENCE COURSES

Please contact University Extension Office, University of Kentucky.

OTHER INFORMATION

Specific information about different parts of the University's program may be obtained by directing inquiries to members of the administrative staff. In each case listed below, the post office address is: University of Kentucky, Lexington, Kentucky 40506.

General information, admissions, transcripts of credits—Dean of Admissions and Registrar

Student Affairs—Vice President, Student Affairs

Living Accommodations—University Housing Office

A particular college and its program—Dean of the College

Community Colleges—Associate Dean of the Community College System

Graduate Work—Dean of the Graduate School

Summer Session—Director of the Summer Session

Class extension and correspondence study—Dean of University Extension

Cooperative Extension—Director of Cooperative Extension Service

Student Financial Aid—Administrator of Student Financial Aid

General publications about the University—Director of Public Relations (campus maps, viewbooks, and general information brochures)

BULLETIN
of the
UNIVERSITY OF KENTUCKY

Second-class postage paid
at Lexington, Ky. 40506

DIRECTOR
KY. STATE ARCHIVES & RECORDS SERVICE
851 E. MAIN ST.
FRANKFORT, KY. 40601