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University of Kentucky Bulletin



General Information for Undergraduates

May 1974

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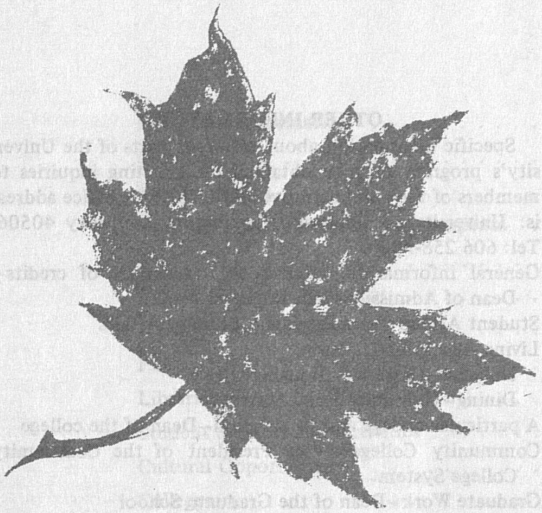

University of Kentucky Bulletin 1974/75

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Volume 66 **May 1974** **Number 5**

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Sources of Information

PUBLICATIONS

The following colleges issue course and information bulletins which may be requested through the dean's office of the individual colleges or the Dean of Admissions and Registrar

Agriculture
Allied Health Professions
Architecture
Community College System
Dentistry
Education
Engineering
Graduate School
Law
Library Science
Medicine
Nursing
Pharmacy
Social Professions

The following material also is available from the Registrar's Office:

University of Kentucky Bulletin—General Information for Undergraduates

University of Kentucky Bulletin—Academic Policies and Course Descriptions *

Schedules of Classes:
- Fall Semester
- Spring Semester
- Summer Sessions

COMMUNITY COLLEGES

The University has two-year community colleges at Ashland, Cumberland, Elizabethtown, 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.

OTHER INFORMATION

Specific information about different parts of the University's program may be obtained by directing inquiries to members of the administrative staff. The post office address is: University of Kentucky, Lexington, Kentucky 40506. Tel: 606 258-9000.

General information, admissions, transcripts of credits—Dean of Admissions and Registrar

Student Affairs—Vice President, Student Affairs

Living Accommodations—
- Housing—University Housing Office
- Dining—University Food Services

A particular college and its program—Dean of the college

Community Colleges—Vice President of the Community College System

Graduate Work—Dean of the Graduate School

Student Financial Aid—Director of Student Financial Aid

General publications about the University—Director of University Information Services

Placement Services—Director of Placement Services

Counseling and Testing Center—Directors of Counseling and Testing

Extension, Evening and Correspondence Courses—University Extension Office

Fort Knox Center, Fort Knox, Kentucky

*The University Academic Policies and Course Descriptions Catalog is distributed to all newly admitted undergraduate students through the Advising Conference, and to graduate students through the Graduate School Office. Additional or replacement copies may be purchased through the University Bookstore.

Reference copies are distributed to all high school counselors and public libraries in the Commonwealth of Kentucky.

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Calendar

1974 Four-Week Intersession

April 1—Monday—Deadline for applying for admission or readmission for any summer term for all categories of undergraduate applicants
May 13—Monday—Registration
May 14—Tuesday—Class work begins
May 15—Wednesday—Last day to enter an organized class for the Intersession
May 24—Friday—Last day to drop a course without a grade
May 27—Monday—Memorial Day (Academic Holiday)
May 28—Tuesday—Last day to withdraw from University and receive any refund
May 28—Tuesday—Last day to withdraw from class before end of session
June 1—Deadline for applying for admission or readmission for the 1974 Fall Semester for all categories of undergraduate applicants, other than non-resident freshman applicants, for whom April 1 shall remain as the deadline
June 11—Tuesday—End of Four-Week Intersession
June 13—Thursday—All grades due in Registrar's Office by 4 p.m.

1974 Summer Session

June 1—Deadline for applying for admission or readmission for the 1974 Fall Semester for all categories of undergraduate applicants, other than non-resident freshman applicants, for whom April 1 shall remain as the deadline
June 10—Monday—Registration
June 11—Tuesday—Class work begins
June 14—Friday—Last day to enter an organized class for the 1974 Summer Session
June 21—Friday—Last day to drop a course without a grade
June 24, 25—Monday and Tuesday—Last days for filing application for an August degree in College Dean's Office
July 1-3—Monday through Wednesday—Summer Advising Conference for new Community College transfer students enrolling in the 1974 Fall Semester
July 4—Thursday—Independence Day (Academic Holiday)
July 8, 15, 22—Mondays—Summer Advising Conference for readmission students enrolling in the 1974 Fall Semester
July 8-29—Monday through Thursday—Summer Advising Conference for new freshman students enrolling in the 1974 Fall Semester
July 9—Tuesday—Registration automatically cancelled if fees not paid in full
July 10—Wednesday—Last day for paying graduation fees for August degree in Billings and Collections Office
July 12, 19, 26—Fridays and Monday—Summer Advising Conference for new advanced standing (transfer), auditors, and non-degree students enrolling in the 1974 Fall Semester
July 23—Tuesday—Last day to withdraw from a class before the end of the Summer Session
August 6—Tuesday—End of Summer Session
August 8—Thursday—All grades due in Registrar's Office by 4 p.m.

1974 Fall Semester

June 3—Monday—Deadline for applying for admission or readmission for the 1974 Fall Semester for all categories of undergraduate applicants, other than non-resident freshman applicants, for whom April 1 shall remain as the deadline
August 26, 27—Monday and Tuesday—Classification, registration and drop-add
August 28—Wednesday—Class work begins
September 2—Monday—Labor Day (Academic Holiday)
September 3—Tuesday—Last day to enter an organized class for Fall Semester
September 9—Monday—Last day to drop a course without a grade
September 27—Friday—Last days for filing application for a December degree in College Dean's Office
October 15—Tuesday—Deadline for applying for admission or readmission for the 1975 Spring Semester for all categories of undergraduate applicants
October 21—Monday—Last day to withdraw from the University and receive any refund
October 29—Tuesday—Last day to pay graduation fee in Billing and Collections Office for a December degree
November 7—Thursday—Spring advising conference for new freshmen
November 7—Thursday—Last day to withdraw from a class before final examinations
November 8—Friday—1975 Spring Advising Conference for new advanced standing (transfer) students, Community College transfer students, and the readmission and non-degree students
November 11-22—Monday through Friday—Advance registration for 1975 Spring Semester
November 28, 29, 30—Thursday through Saturday—Thanksgiving Holidays (Academic Holidays)
December 13—Friday—Class work ends
December 16-21—Monday through Saturday—Final examinations
December 21—Saturday—End of Fall Semester

All grades are due in the Registrar's Office by 4 p.m. three days after final examination is administered.

1975 Spring Semester

January 13, 14—Monday and Tuesday—Classification and registration
January 15—Wednesday—Class work begins
January 21—Tuesday—Last day to enter an organized class for Spring Semester
January 27—Monday—Last day to drop a course without a grade
February 13—Thursday—Last day for filing application for a May degree in College Dean's Office
February 13—Thursday—Last day for payment of registration fees in order to avoid cancellation of registration
March 7—Friday—Last day to withdraw from the University and receive any refund
March 17-22—Monday through Saturday—Spring Vacation
March 24—Monday—Last day to pay graduation fee in Billing and Collections Office for a May degree
March 31—Monday—Last day to withdraw from a class before finals
April 1—Tuesday—Last date for out-of-state freshmen to submit all required documents to Registrar's Office for admission to either the summer term or to the 1975 Fall Semester
April 1—Tuesday—Deadline for applying for admission or readmission for any summer term for all categories of undergraduate applicants.
April 10—Thursday—1975 Summer Session Advising Conference for new freshmen
April 11—Friday—1975 Summer Session Advising Conference for new advance standing (transfer) students, Community College transfer students, and the readmission and non-degree students
April 14-25—Monday through Friday—Advance registration for 1975 Fall Semester
May 3—Saturday—End of class work
May 5-10—Monday through Saturday—Final examinations
May 10—Saturday—End of 1975 Spring Semester
May 10—Saturday—Commencement Exercises
June 2—Monday—Deadline for apply for admission or readmission for the 1975 Fall Semester for all categories of undergraduate applicants, other than non-resident freshman applicants, for whom April 1 shall remain as the deadline

All grades are due in the Registrar's Office by 4 p.m. three days after final examination is administered.

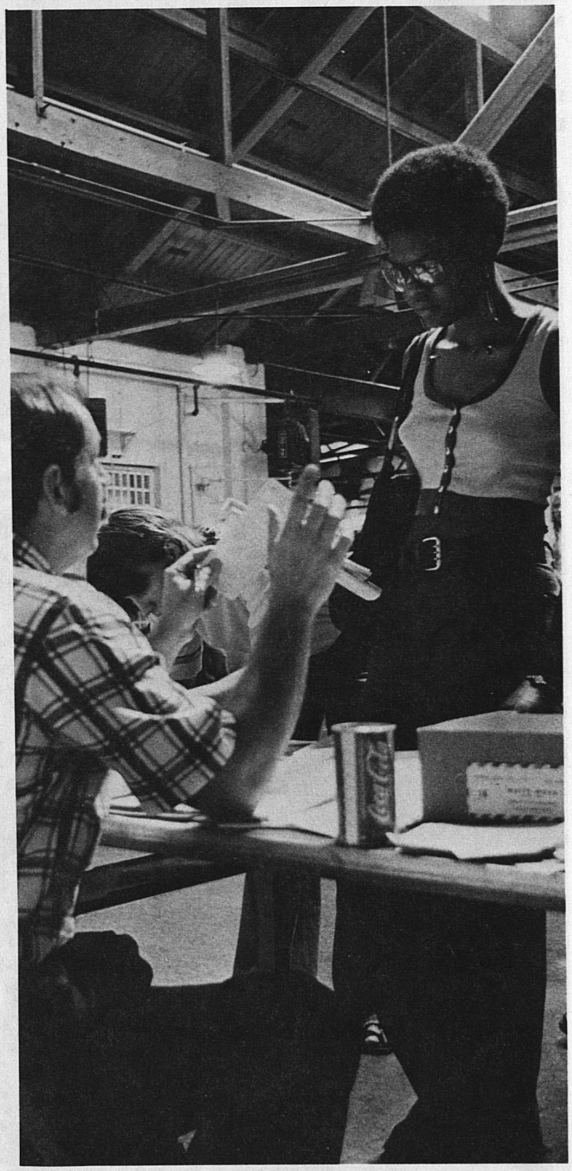
1975 Four-Week Intersession

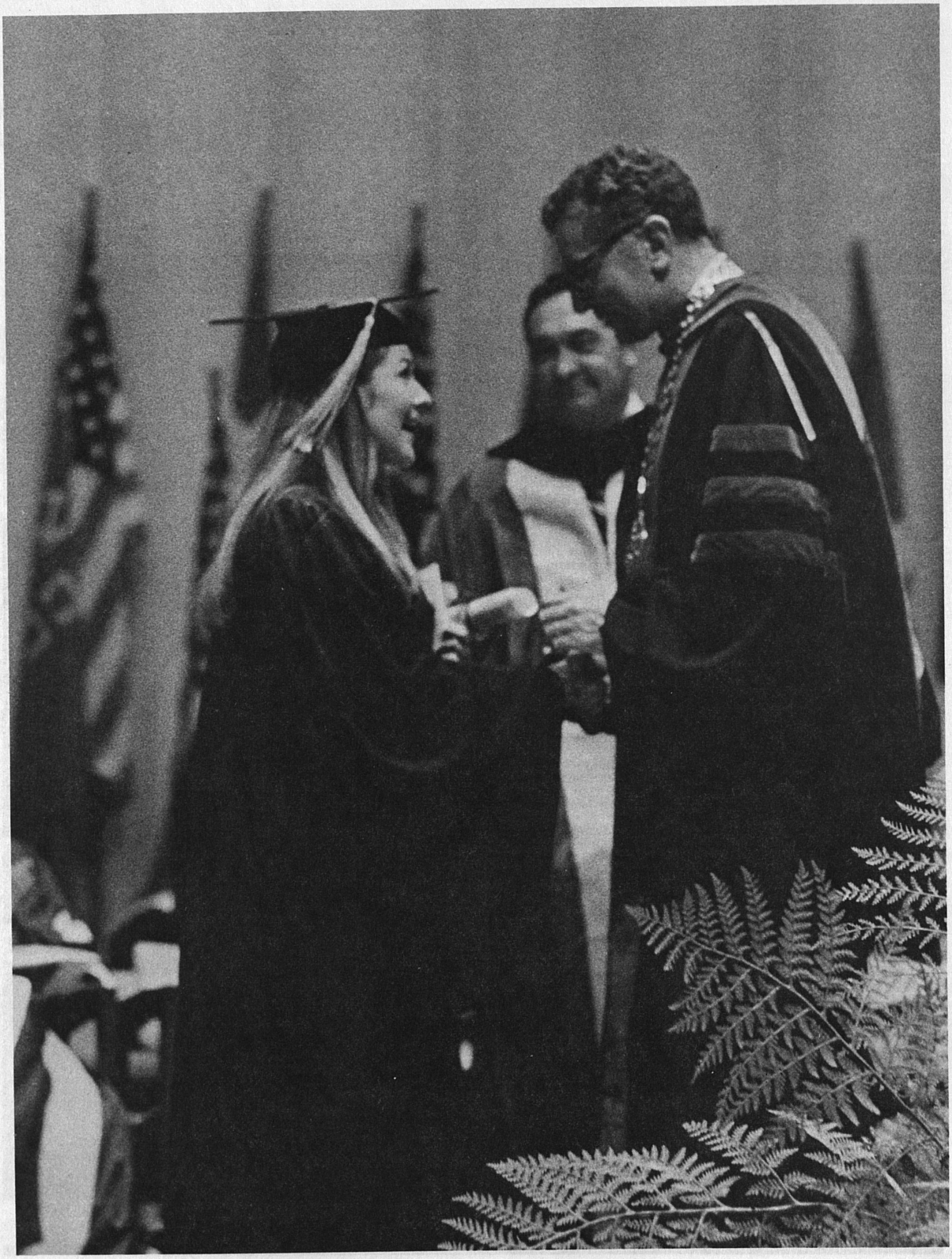
April 1—Tuesday—Deadline for applying for admission or readmission for any summer term for all categories of undergraduate applicants
May 19—Monday—Registration

May 20—Tuesday—Class work begins
May 23—Friday—Last day to enter an organized class for the Intersession
May 26—Monday—Memorial Day (Academic Holiday)
June 2—Monday—Last day to drop a course without a grade
June 2—Monday—Deadline for applying for admission or readmission for the 1975 Fall Semester for all categories of undergraduate applicants other than non-resident freshmen applicants, for whom April 1 is the deadline
June 1—Last day to withdraw from class before end of session
June 1—Last day for payment of registration fees in order to avoid cancellation of registration
June 4—Wednesday—Last day to withdraw from University and receive any refund
June 17—Tuesday—End of Four-Week Intersession
June 20—Friday—All grades due in Registrar's Office by 4 p.m.

1975 Summer Session

June 1—Deadline for applying for admission or readmission for the 1975 Fall Semester for all categories of undergraduate applicants, other than non-resident freshman applicants, for whom April 1 shall remain as the deadline
June 16—Monday—Registration
June 17—Tuesday—Class work begins
June 20—Friday—Last day to enter an organized class for the 1975 Summer Session
June 21—Friday—Last day to drop a course without a grade
June 30—Monday—Last day for payment of registration fees in order to avoid cancellation of registration
July 1—Tuesday—Last day for filing application for an August degree in College Dean's Office
July—Summer Advising Conference for new Community College transfer students enrolling in the 1975 Fall Semester
July—Summer Advising Conference for new freshmen enrolling in the 1975 Fall Semester
July 4—Friday—Independence Day (Academic Holiday)
July 16—Wednesday—Last day to withdraw from University and receive any refund.
July 17—Thursday—Last day for paying graduation fees for August degree in Billings and Collections Office
July—Summer Advising Conference for new advanced standing (transfer), auditor and non-degree students enrolling in the 1975 Fall Semester
July 29—Tuesday—Last day to withdraw from a class before the end of the Summer Session
July—Summer Advising Conference for readmission students enrolling in the 1975 Fall Semester
August 12—Tuesday—End of 1975 Summer Session
August 15—Friday—All grades due in Registrar's Office by 4 p.m.





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 new students it may be different from anything previously known, having left the shelter of home and familiar ways of learning and moving toward a life hwere he or she will have the chance to be largely on their own.

It is a place of broad opportunity, where libraries, laboratories, and men and women 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 or her abilities. It is also a place of quiet meditation and shaded walks, of cheering crowds and lively debate, of people of many interests, and, most importantly, a place where the student can mature—mentally, physically, and emotionally.

The search for new knowledge is an unending adventure in which both the faculty and students take part. This seeking results in a continual expansion of information in every field of concern known to mankind, 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 is also made more familiar with the other places of learning, particularly the libraries and laboratories, or workshops. The student may not decide upon a field of study during the first years, but as interests become stable and increase in depth, the student reaches out more and more. In advanced courses, undergraduate as well as graduate, he or she may work with a considerable degree of independence from the professor.

Given these opportunities the University of Kentucky student should:

Widen his interests and develop an inquiring attitude; aware that "to become a man of learning is an enterprise of a lifetime."

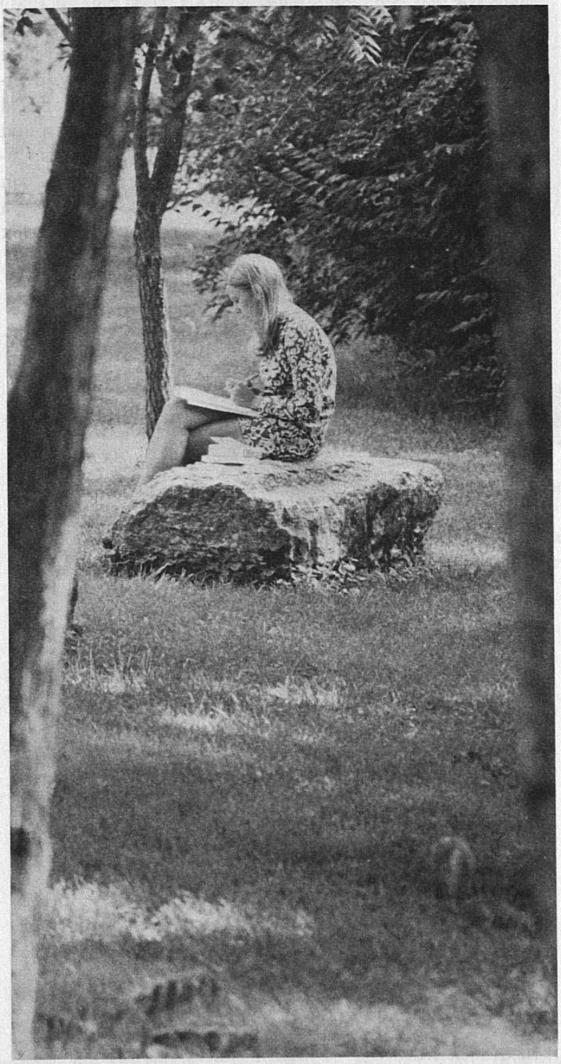
Gain broad knowledge and understanding as well as intensive familiarity with his or her main field of interest and become well prepared for the work chosen; have an appreciation for the finer things of life and possess a moral purpose.

Learn to see the relationship between one idea and another and as a consequence, use logic to overcome bias and to exercise restraint;

Recognize the importance of maintaining physical health and vigor;

Have the desire to take a responsible part in the society in which he or she 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.

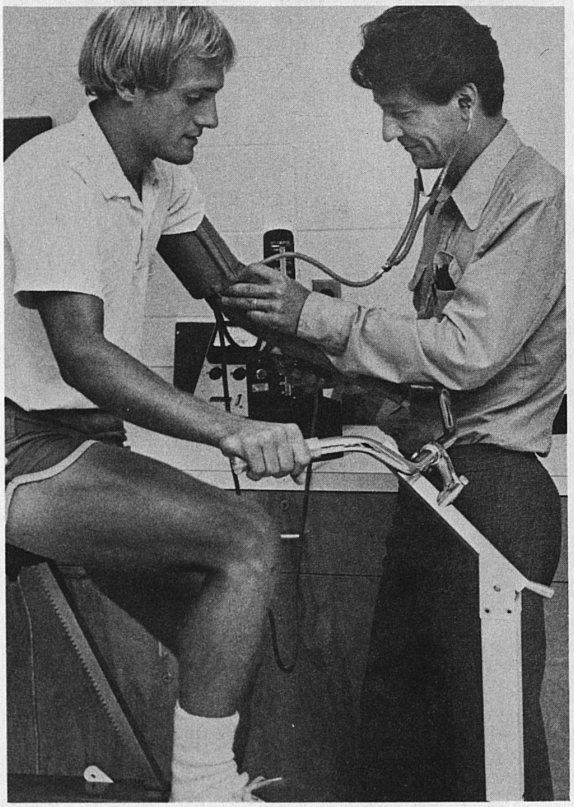


THE FOUR FUNCTIONS OF THE UNIVERSITY

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.

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

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 it 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 University Information Services, the Engineering Experiment Station, the Kentucky Research Foundation, the Child Guidance Service, the Social Research Consultation Service, the University Hospital and related services, the Bureau of Community Service (Sociology), the Computing Center, Conferences and Institutes, the Council on Aging, the Donovan Senior Citizens Fellowship Program, the Kentucky High School Speech League, the Civil Defense Program, the Continuing Education Program, the University Center for the Handicapped, the Office of Pre-Admissions, the Center for Learning Resources for Allied Health, and the Institute for Planning and Administration.

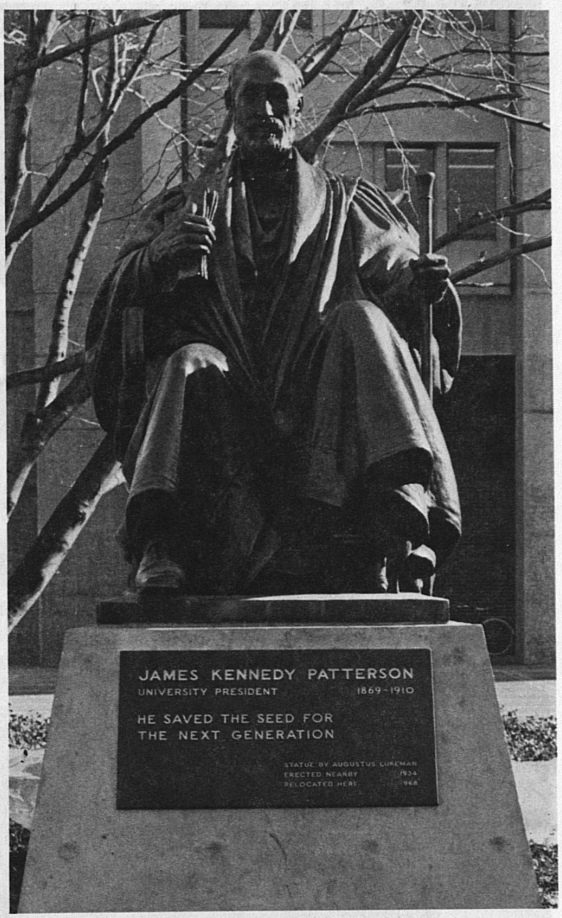
HISTORY

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

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

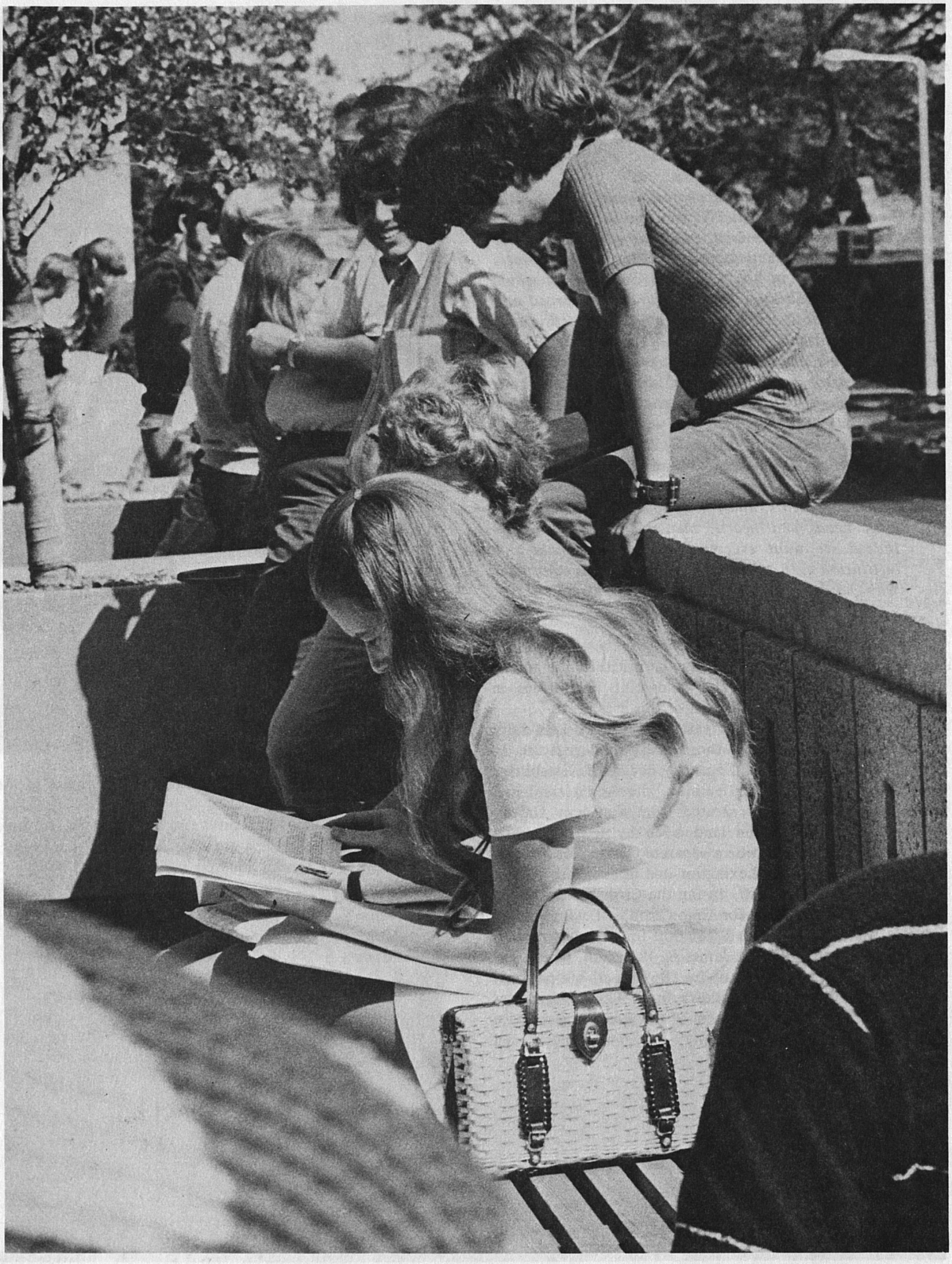
Bowman's statement was made the year the University of Kentucky was established. Today the institution is among the 93 state universities and land-grant institutions in America which are the fulfillment of this dream.

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



In the more than fourscore years that have passed since its establishment as a separate state institution, the University of Kentucky has had only eight presidents:

James K. Patterson, 1878-1910
Henry S. Barker, 1910-1917
Frank L. McVey, 1917-1940
Herman L. Donovan, 1941-1956
Frank G. Dickey, 1956-1963
John W. Oswald, 1963-1968
Albert D. Kirwin, 1968-1969
Otis A. Singletary, 1969-



Admission and University Requirements

Approval of the admission of all students into the University System of the University of Kentucky is under the authority of the Dean of Admissions and Registrar. However, 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 the main office of the Registrar. The exceptions are listed below:

The Graduate School
The College of Medicine
The College of Dentistry
The Center for Learning Resources for Allied Health
Evening Class Program, Lexington Campus
Fort Fnox Center

The main office of the Dean of Admissions and Registrar is located in the Administration Annex 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 applicants for admission are considered equally, regardless of race, color, religion, sex, marital status, national origin, age or beliefs.

Minimum academic conditions must be satisfied by an applicant for admission to the University. Meeting these conditions is sufficient for admission into some academic units, while other units specify additional conditions for admission, such as the completion of two or more years of college work, the completion of specific sequences of courses, minimum ACT scores, etc.

Beginning freshman and advanced students transferring from other schools who meet general University admission requirements are accepted by the following colleges:

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

Admission as a transfer student into a Professional Teachers Program in the College of Education will be subject to additional requirements beginning with the Fall Semester 1974. Freshmen admitted for the Fall Semester 1974 and thereafter will be subject to these additional requirements in 1976 when they will have completed lower level pre-requisites.

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

The College of Nursing, the College of Allied Health Professions, the College of Law, the College of Pharmacy and, beginning with the Fall Semester 1975, the College of Architecture.

These explicit requirements are described in the section of the Bulletin devoted to those colleges. Students who wish to enroll in these colleges should read the appropriate section carefully.

All students attending the University are enrolled in one of the various colleges, each under the supervision of an academic dean. Each college is made up of several academic departments and offers different major fields of study which the student may elect to follow.

ELIGIBILITY FOR ADMISSION TO THE FRESHMAN CLASS

The Colleges of Allied Health and Nursing have requirements for freshman admission in addition to those described below. The College of Architecture will have additional requirements for freshman admission beginning with the Fall Semester 1975.

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 required 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 or her 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 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 facilties. 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 or she can achieve a satisfactory grade standing in the freshman year will be considered for acceptance. Other non-resident applicants will not be considered for acceptance unless the Dean of Admissions and Registrar can determine that additional factors in the student's record make acceptance possible.

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 or she 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 for all beginning freshmen and of transfer students who have earned less than 12 semester hours of credit at another school. Freshman applicants who took the ACT earlier than five years before the planned matriculation date must take it again as a part of the admissions procedure. Due to the nature of the information supplied through the ACT and its reporting format, other tests cannot be accepted as a substitute. Your high school should be able to provide ACT registration forms, 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. Registration always falls about 30 days before a test date. Furthermore, you need to take into account in your plans the fact that ACT reports are not mailed to the University until approximately four weeks after the test is taken.

Applicants who have taken the ACT but did not list the University of Kentucky as one of the six 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. 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.

APPLYING FOR ADMISSION TO THE FRESHMAN CLASS

Enter-ACT. High school seniors **who list the University of Kentucky as their first college choice on the ACT profile** are not required to an application.

Within approximately six weeks after taking the ACT, the Kentucky high school senior will receive notification of admissability to the University and an Advising Conference date, as will acceptable non-resident applicants.

About the same time the applicant will receive financial aid and housing information if this request had been made on the Student Profile Section of the ACT.



Other Kentucky and non-Kentucky prospective candidates for admission to a freshman class should obtain an application packet either from their high school office or by writing to the Dean of Admissions and Registrar. This packet contains the application for admission, an instructional brochure on application procedures, and information on University housing, financial aid, health service, and other student services.

Required documents must be received in the Admission Office by the following deadlines:

For the Fall Semester ..... June 1
For a Summer Session ..... April 1
For the Spring Semester .....October 15

However, applicants are urged to apply as early as possible—at the beginning of their senior year in high school, for instance, or even in the preceding summer. Kentucky students and acceptable non-Kentucky applicants will be given a tentative acceptance and assigned an Advising Conference date as soon as their application and the official report of the ACT have been received. If you will take the ACT at an early date and apply early, this can be done long before your actual graduation from high school.

Please notice that you do not have to have your high school record sent, either when you apply or after you graduate. The procedure for confirming your graduation is taken care of by the University Admissions Office through a computer report sent to your high school.

OTHER CATEGORIES OF FRESHMAN ADMISSIONS

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.

Summer Work after Graduation from High School. Some students, after acceptance by the University for the fall freshman class may wish to take a class for college credit at another school near their home in the summer following high school graduation. This can usually be done, upon advance approval by the University, without adversely affecting the eligibility of the student for entry in the Fall Semester.

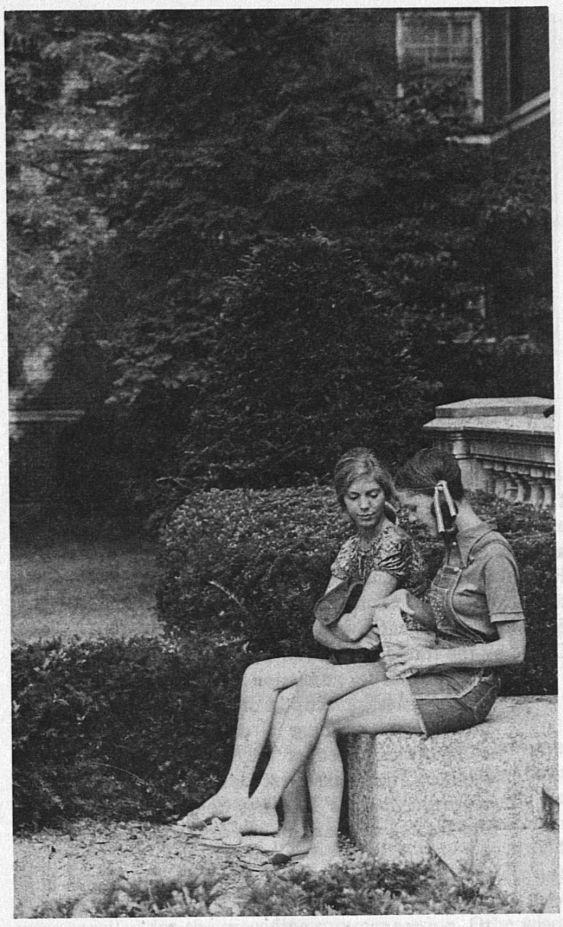
Non-graduates of High School. Students who are not high school graduates and have not attended college may be granted admission as freshmen on the basis of demonstration by tests and other evidence that they are prepared to do the work required.

Students with High School Equivalency Certificates. An applicant for admission to the freshman class who is not a high school graduate but presents a valid High School Equivalency Certificate may be considered on the same basis as a high school graduate. The High School Equivalency Certificate must have been approved by a state Department of Education and issued by a local Board of Education. The basis for the issuance of an Equivalency Certificate by a Department of Education is usually the presentation of satisfactory GED (General Education Development) scores. Please notice that this University cannot accept GED score reports for admissions—the applicant must present the scores directly to the Department of Education. We can consider the applicant only after he or she has been issued the High School Equivalency Certificate. Local Boards of Education can usually tell the student how to apply for a certificate. Applicants must be 19 years old.

HIGH SCHOOL JUNIOR SUMMER PROGRAM

The High School Junior Summer Program is conducted by the University of Kentucky during the Eight-Week Summer Term at the University of Kentucky. In order to be considered for admission the applicant must have a B average or better in high school academic courses. Applicants are considered for admission as beginning freshmen.

The transcript of high school grades (B or better) and the results of the American College Test plus letters of recommendation from teachers must reach the Admissions Office by the deadline for applying for admission to the summer session.



ADVANCED STANDING STUDENTS

The Colleges of Allied Health and Nursing, and the Professional Teachers Programs in the College of Education have admission requirements in addition to the general requirements described below. The College of Architecture will have additional requirements beginning with the Fall Semester 1975.

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

1. 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 enrollment has been only part-time. Generally, a student under academic suspension also cannot meet the grade-point average requirements; 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 or her original matriculation year, should have progressed beyond this point in the academic program.

Applying for Admission. Candidates for admission as transfer students should write for, or otherwise obtain an application packet from the Office of the Dean of Admissions and Registrar. Law, Pharmacy, Nursing, and Allied Health applicants must also follow the procedures and meet the deadlines for those colleges. For other applicants the following documents must be received by the Admissions Office by the stated deadlines:

1. Application for admission to the University.
2. One official transcript from each college or school attended, containing a complete record of all courses completed at the time of application. In addition, the transfer student should bring, when reporting for the Advising Conference, a copy of the catalog of the school he or she 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 the first three documents, of his or her admissibility at that time, or of the rejection of his or her 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 ineligibility because of the lowering of his or her grade-point average below the required 2.0, or suspension or dismissal. However, an applicant for admission to a fall semester whose admissibility has been established after completion of a spring semester may take summer work without losing this eligibility to attend the Summer Advising Conference. The applicant must, of course, maintain a satisfactory grade average for this summer work.

Although 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 Bulletin, to see if the deadlines for receipt of final transcripts can be met.

Transfer of Credit. The University accepts baccalaureate degree credits earned at a fully accredited college or university. "Fully accredited" means that the institution is a member in good standing of one of the six regional academic accrediting associations. Transfer work from institutions outside the United States is evaluated on an individual basis upon receipt of official transcripts.

Each academic college and school within the University must, in addition, review transfer course work 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 Admissions Office, to consult further with the college or school in which he or she will be enrolled about the applicability of transferred work to the program in which he or she will enroll. This can be done when the student reports for his or her Advising Conference, since both the acceptability of the course work 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 Two-year Colleges. Students transferring directly from a junior college or two-year branch may not transfer more than 67 semester hours of credit to the University of Kentucky, including work at other institutions previous to or concurrent with the two-year college work. Students transferring from a four-year college who have attended a two-year college previous to their enrollment in a four-year college will be limited to 67 semester hours of the two-year college work.

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 course work. The student will be notified upon receipt of his or her 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 course

work is also a part of a two-year baccalaureate degree transfer program, such work will be accepted by the University to the extent that it parallels 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.

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.

UNIVERSITY OF KENTUCKY COMMUNITY COLLEGE STUDENTS TRANSFERRING TO THE LEXINGTON CAMPUS UNIVERSITY SYSTEM

Students enrolled in University of Kentucky Community Colleges (including the Lexington Technical Institute) are in general eligible to transfer to the Lexington campus provided that 1) they are not under suspension or financially delinquent to the University, and 2) meet the admission requirements of the individual colleges for which they apply. Some students may have been admitted to Community Colleges with academic records which would have prevented their admission to the Lexington campus. The applications of these students will be considered on an individual basis.

The amount of credit transferable by a Community College student is limited to 67 semester hours, including courses which may have been taken previously on the Lexington campus or at other institutions.

Courses taken at a Community College which are identical to courses offered on the Lexington campus are transferred with credit, grades, and quality points.

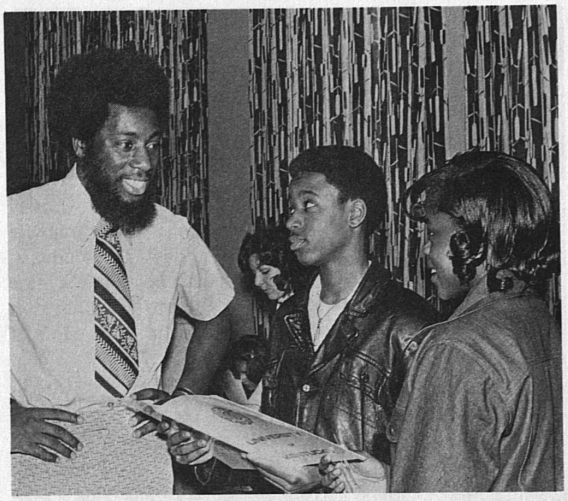
The individual University colleges have the option of accepting the credit for Community College courses not offered on the Lexington campus. In case such courses are accepted by a college, only credit hours, not grades or quality points, are transferred.

Applying for Admission. The transfer procedure for Community College students is handled by the Registrar's Office at the Community College in which the student is enrolled. For admission to a summer session or fall semester, the student should report to his Community College Registrar's Office on or soon after February 1, and for admission for a spring semester on or soon after September 1.

ADVISING CONFERENCES

All new undergraduate students attend an Advising Conference prior to entering the University of Kentucky, unless excused by written permission in very special circumstances and emergencies.

Advising conferences for students entering in the fall semester will be in late June or the month of July. For students accepted for admission to a spring semester the



Advising Conferences are held the preceding November. For the summer sessions, these conferences are usually held in April.

When accepted for admission to the University, the student will be sent full information about the Advising Conference.

READMISSION TO THE UNIVERSITY

Former University students in good standing who have not attended another school since their last enrollment here are eligible for readmission. However, they must file an application for readmission by the stated deadlines. An exception to this is made on behalf of students who attend only University Summer Sessions. These students do not have to apply for readmission to a summer session if they were enrolled for the preceding summer session. Otherwise, an application for readmission must be filed.

Former University students who have been enrolled 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 or she 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.

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 course work for personal or professional purposes. As many as six credit hours with the grade of A or B, earned in regular graduate courses by one enrolled as a non-degree student at the University of Kentucky, may be counted toward the requirements for a graduate degree. These credits must be earned in the academic year immediately preceding the student's acceptance and enrollment in the Graduate School and must be appropriate to his program of study for the graduate degree. The use of such credits must have the approval of the student's Director of Graduate Studies and the Dean of the Graduate School. Any student who contemplates applying for admission to the Graduate School should consult with the Graduate School Office before enrolling as a non-degree student.

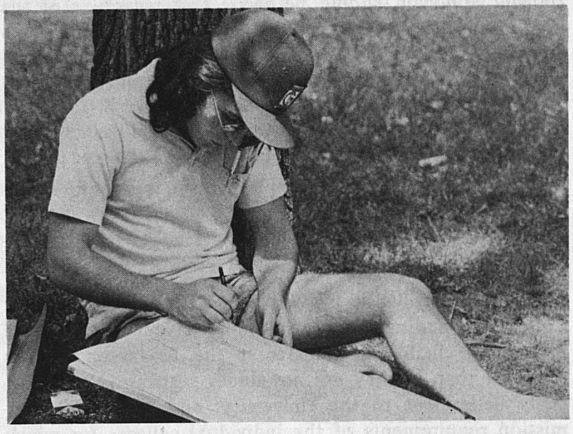
Non-degree students may apply later as advanced standing degree students by filing the necessary documents, provided that they meet the admission requirements described above for undergraduate applicants. However, work taken as a non-degree student cannot in itself qualify a person for admission as a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

Auditors. By filing an application for admission by the stated deadline, one may enroll in the University as an auditor. Auditors do not receive grades or course credit. The fees are the same as the student would pay for 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 being admitted to the University as a regular student by filing the required documents by the deadline for a subsequent semester. A student under suspension cannot be admitted as an auditor.

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

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

UK Students as Transients at Other Schools. University students may earn a limited amount of credit toward a 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 accredit-



ed and the course work meets the University's specifications for the acceptance of credit from other schools. The student should consult with his or her adviser or dean, and with the Registrar's Office well in advance of enrollment at another institution. If such enrollment is concurrent with enrollment at the University, the student must have the specific approval of his dean for double enrollment. It is the student's responsibility to ascertain the acceptability of course work at another school, and of its applicability towards his degree program. Since the University Senate has established the conditions for the acceptance of credit earned at other schools which the Registrar's Office must follow, improper enrollment at other institutions will necessarily result in the loss to the student of credit earned elsewhere.

Re-entering the University. A University student who enrolls elsewhere for only a summer session between a spring enrollment at UK and the following fall semester does not need to reapply for admission for the fall semester. He or she must arrange for transcripts of summer work to be sent to the University Registrar's Office immediately following the end of the summer session.

Credit by Examination. The University of Kentucky participates in the College Entrance Examination Board's Advanced Placement Program and College Level Examination Program. University policy for awarding course credit in these two programs is fully described in the Accelerated Program section of this Bulletin.

Veteran and War Orphan Benefits. The Office of Veteran Affairs coordinates veteran and war orphan affairs between the University and the Veterans Administration. The veteran or war orphan should report to the Office of Veteran Affairs 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:

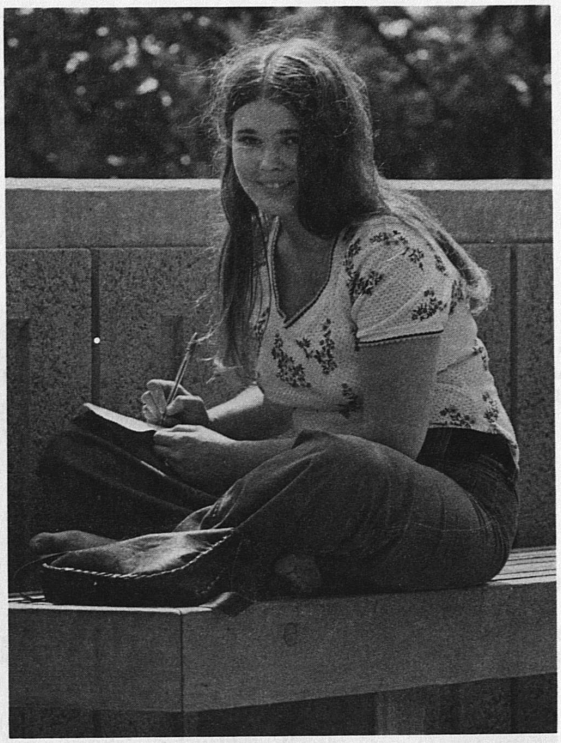
1. The credentials necessary for admission to the University as described in this section of Admission to the University in this Bulletin.
2. A certificate for Education and Training, Public Law 634, or a letter indicating eligibility Under Public Laws 721, 815, or 894. (No payment for subsistence may be made until a certificate has been filed with the University.) The veteran or war orphan should obtain his certificate from the Veterans Administration as soon as possible after he decides to enter the University of Kentucky. Application for veteran or war orphan benefits should be made to the Veterans Administration Regional Office at least eight weeks prior to entering classes at the University of Kentucky. Transfer students should request a change of place of training at least four weeks prior to registration.
3. Sufficient personal funds to provide subsistence for six weeks, since that time, is usually 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 to the Office of Veterans Affairs, 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 services are eligible for exemption for the payment of the registration fee. This exemption does not cover special fees or additional fees which are charged for certain courses.

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 academic and personal circumstances will be satisfactorily prepared for, it is necessary that these students apply for admission at least six months before the opening of the semester in which they wish to enroll. Admission is very competitive and preference is given to those applicants who are best qualified academically. The University's academic requirements for admission, including graduation from high school must be met, and all necessary documents relating to academic records, financial ability, competency in the English language, and physical health must be received before permission to enroll and the I-20 form can be issued.

At the undergraduate level, University financial aid funds are extremely limited and are available only to those accepted for admission and who are approved for specific aid grants. Therefore, all applicants in order to be considered for admission must have at least $3,000 for each academic year of planned attendance. The above amount will cover present tuition fees, books and living expenses from the fall semester thru the spring semester. Health



insurance, summer school attendance, travel or support of dependents will require additional funds. All costs are subject to change.

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

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

RESIDENCY REQUIREMENTS

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

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

Fees

REGISTRATION FEES

(Effective Fall 1974)

School Year 1974-1975

Full-time Student:	*Resident*	*Non-resident*
All Undergraduate Colleges		
Semester Fee	$240.00	$ 605.00
Summer-8 wks. only	133.50	320.00
Graduate School		
Semester Fee	265.00	630.00
College of Law		
Semester Fee	240.00	605.00
Summer Term Fee	133.50	320.00
Colleges of Medicine and Dentistry		
Annual Fee	910.00	1,805.00

Part-time Student:	*Resident*	*Non-resident*
All Undergraduate Colleges		
Semester and Credit Hour Fee	$20.00	$51.00
Summer	23.00	54.00
College of Law		
Semester Fee	24.00	61.00
Summer Term Fee	27.00	64.00
Graduate School		
Semester and Credit Hour Fee	30.00	70.00
Summer	30.00	69.00

HOUSING COSTS

	Per Year
Men's and Women's Residence Halls	$1,256*
Men's and Women's Residence Halls	1,090**
Men's and Women's Residence Halls	1,130***
Cooperstown Single Student Housing:	Per Year
Single grad student efficiency	$ 584****
Single grad student efficiency	1,171*
Single grad student efficiency	1,033**
Single grad student efficiency	1,073***
Single grad student one-bedroom apt.	674****
Single grad student one-bedroom apt.	1,261*
Single grad student one-bedroom apt.	1,123**
Single grad student one-bedroom apt.	1,163***
Married Student Housing	Per Month
(one-year contract)	
Efficiency apt.	$ 95****
One-bedroom apt.	110****
Two-bedroom apt.	120****

Professional Students:	Per Year
Single occupancy	$1,174*****
Single occupancy	1,764*
Single occupancy	1,623**
Single occupancy	1,663***
Double occupancy	587***
Double occupancy	1,174*
Double occupancy	1,036**
Double occupancy	1,076***
Men's and Women's Residence Halls: (to be paid with application)	Summer Term
For double room occupancy	$ 145****
For single room occupancy	185****

*Includes three meals daily except Sunday evening meal.

**Includes breakfast and the evening meal daily. (Sunday noon meal replaces Sunday evening meal.)

***Choice of any two meals.

****Includes adequate basic furnishings and utilities. Does not include board or telephone.

*****Does not include board.

Health Fee

An optional health fee ($10 a semester in 1974-75) paid to the University with registration fees entitles any student (full-time or part-time) to many outpatient medical and mental health services provided through the Student Health Service and the Medical Center. Students who do not pay the health fee are billed $7 per visit to the Student Health Service. Information about the Health Service program and the services covered by the health fee is mailed to each pre-registered student, or it can be obtained by calling the Student Health Service.

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 BEGINNING OF CLASSES EACH SEMESTER. SPECIFIC DATES WILL BE ANNOUNCED. A $5 late payment fee attaches to all late payments.

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.

Financial Delinquency

The University expects the student to be financially responsible and not to be delinquent in his financial obligations to the University or to any department or division thereof, including room and board payments to sanctioned fraternal student organizations. Such obligations shall not include fines and penalties assessed against the student by other than University officers.

Financial obligations that are not met within 10 days after the date due shall be reported in writing to the proper office. Obligations to any Division or Department shall be reported to the Office designated by the Vice President for Business Affairs and Treasurer.

The appropriate business office shall notify the student of the financial obligation. If the student does not settle the obligation by the date designated on the notice, he shall, subject to regulations promulgated by the Vice President for Business Affairs and Treasurer, be considered delinquent, and that office shall notify the Registrar.

After the Registrar has been notified that a student is delinquent, he shall not allow the student to register, or to transfer credits, or certify him for graduation, until he has been notified in writing by the appropriate business office that the obligation has been settled.

Additional fees and/or deposits may be assessed for certain courses or activities. All fees and housing costs are subject to change without notice.

PERSONAL EXPENSES (not payable to the university)

Books and Supplies. Range from $50 up, depending on the student's major field of study and schedule of classes for the semester.

Identification Cards. All students, full and part-time, are issued I.D. cards. Only full-time students are allowed to attend athletic events and the concert-lecture series. Full-time students will be given a student activity card at time of fee payment. Students should report lost or stolen I.D. cards to the Dean of Student's Office. It may be replaced, but a fee of $5.00 will be charged. Students who pay the health fee will be issued health I.D. cards that are good from the beginning of one academic session until the beginning of the next.

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

Dry Cleaning. Both men and women students make their own arrangements for dry cleaning.

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.

Health Insurance. The University strongly urges every student to have insurance to cover those expenses related to hospitalization, accident care and surgical services. The University assumes no responsibility for payment of these expenses and they are not covered by the health fee. As a service to those students who need insurance, the University makes available an excellent Blue Cross and Blue Shield student group insurance plan that provides coverage on campus, at home or while traveling. The cost for a single student is approximately $25 for six months coverage. Options to cover students' dependents are available. Pre-registered students will receive detailed information about the group insurance program by mail or it can be obtained by calling the Student Health Service.

Special Academic Programs

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, the six Honors courses in history of ideas: "The Greek World View," "The Christian World View in the Middle Ages," "Rise of the Near Eastern Tradition in Antiquity," "The Premises of Modern Civilization, Renaissance through the 19th Century," "Dominant Ideas of the 20th Century," and "The Roman World View."

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 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.

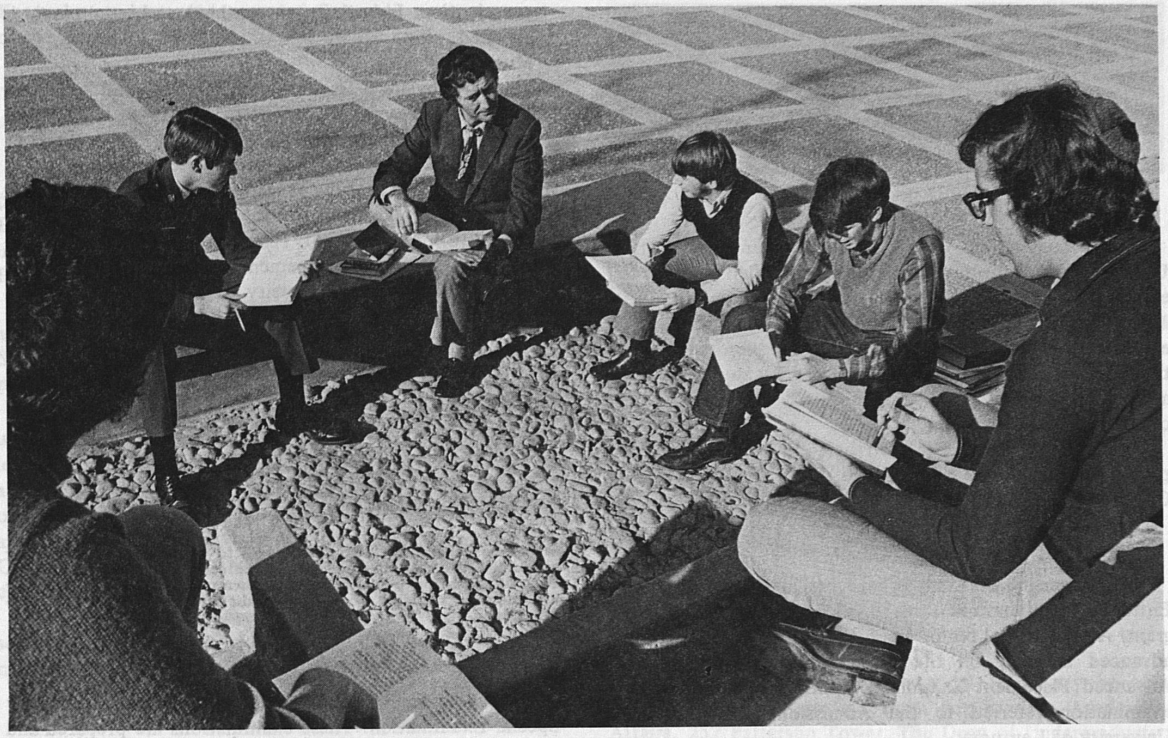
Selection of Honors Students

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. Grad-



uation 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 percent of the graduates of the Honors Program enter professional or graduate schools, most of them with financial support. A considerable portion of each class 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
231 Patterson Tower
University of Kentucky
Lexington, Kentucky 40506

ACCELERATED PROGRAMS

In the Spring of 1972 the University Senate of the University of Kentucky endorsed the concept of an accelerated program to enable superior students to complete their undergraduate college experience in less than the traditional four years. Inherent in the Accelerated Program concept is the opportunity for a student to receive credit by examination on course material which he may have mastered by nontraditional educational means.

High school students who wish to begin the acceleration process while still in high school should inquire about admission to UK's High School Junior Summer Program, or apply for admission as an applicant with Unusual Ability prior to high school graduation. Both the High School Junior Summer Program and the Unusual Ability program are outlined in greater detail in the Admissions section of this Bulletin.

Another method by which students may begin their college careers while still in high school is through Independent Study Courses. If you have the written permission of your counselor or principal, you may register for University of Kentucky freshman level courses offered through the Independent Study Program at the same time you are engaging in high school work. For additional information on the Independent Study Program for high school students, you should contact:

Director,
Independent Study Program
University Extension
University of Kentucky
Lexington, Kentucky 40506

SPECIAL EXAMINATIONS

Once a student has been accepted for admission to the University, there are several means for qualified students to earn degree credit by successfully completing examinations. Many students use credit earned by examination to accelerate progress toward a degree. Others prefer to use the time gained to explore areas outside their major or to take additional work in the major. Both uses of examination credit are appropriate.

Credit earned through any of the following examination procedures may be used in satisfying the University's General Studies requirement.

Advanced Placement Program (AP)

The University of Kentucky participates in the College Entrance Examination Board Advanced Placement Program. A high school senior who wishes to be considered for advanced standing on the basis of performance on an Advanced Placement Examination should have his or her examination referred to the Admissions Office of the University of Kentucky.

Academic departments have indicated the following current policy for students who score a 3 or better on the Advanced Placement Examination:

American History—Credit for HIS 108 and 109. Area VI of the General Studies requirements satisfied.

Art Studio*

Art History—Students who score a 3 or better will receive three hours' credit for Art History 201, thus satisfying the Art portion of Area V of the General Studies area.

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

Chemistry*

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

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

Foreign Languages—Area IV waived.

Latin—Students who score a 2 or 3 will receive six hours' credit in appropriate 200 level courses. Students scoring a 4 or 5 merit nine hours' credit in appropriate 200 level courses.

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

Music*

Physics—Physics B-Exempt from PHY 211 and 213. Area II satisfied. Physics C-Exempt from PHY 231, 232, 241 and 242. Area II satisfied.

Students who receive credit for a particular course on the basis of Advanced Placement results may use this credit just as if they had taken the course at the University of Kentucky. CEEB Achievement Tests are not used by the University of Kentucky for placement purposes.

Inquiries about the University of Kentucky's Advanced Placement policy should be directed to:

Director of Advising Conferences and
Special Programs, Admissions Office
Administration Annex
University of Kentucky 40506

*These departments encourage you to submit examinations for evaluation. No specific score will guarantee placement and/or credit. Each examination is evaluated on its own merit. However, each year a number of students do receive credit and/or placement in these disciplines.

Special Departmental Examinations

Many courses in the University are available for credit by Special Examination. These examinations are prepared and administered by the department which teaches the course and are usually equivalent to a final examination.

If you believe you are qualified to pass a Special Examination in a course, you should apply in writing to the chairman of the department. The application should include some evidence that you are, in fact, reasonably prepared for the examination.

If the department chairman believes you are reasonably prepared and if the course has been determined to be suitable, you will be examined within a reasonable time. Some departments give special examinations once or twice per semester and anyone who wishes to take an examination must do so at the scheduled time.

English Exam: Credit can be earned by Special Examination in English 102. Entering freshmen with a standard ACT English Score of 25 or above qualify to take a special examination administered once each fall by the freshman English Office. For complete information contact the Director of Freshman English, Office Tower 1219, University of Kentucky.

Self-Instruction Courses for Credit (Package Courses)

In February 1972 the University Senate defined package courses as follows: "Independent or self-paced study which may require supervision by the UK faculty, but does not include extension or correspondence courses at other schools."

Courses offered by other accredited institutions which are available in package form may be used by University of

Kentucky students and accepted for credit upon approval of the course by the appropriate academic unit.

College Level Examination Program (CLEP)

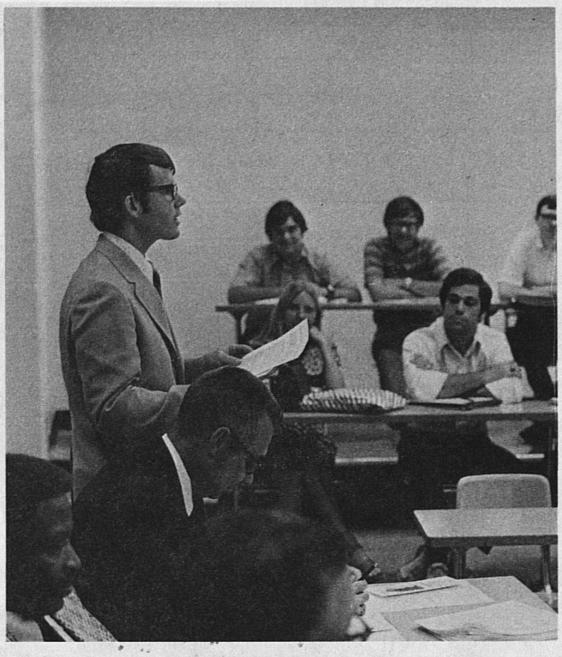
The University Senate has endorsed the University's participation in this national testing program of the College Entrance Examination Board. The CLEP tests are divided into two categories: General Examinations and Subject Examinations.

The General Examinations are broad examinations in the areas of Composition, Natural Sciences, Humanities, Social Sciences and History. The University has not adopted a policy of accepting the General Examinations for credit.

The Subject Examinations cover specific material which is common to courses at many American universities. The level of proficiency required to earn credit through CLEP is approximately equivalent to that required to earn a grade of C in the corresponding course. The CLEP examinations are administered by the University's Counseling and Testing Center, in addition to the many other centers across the country.

By scoring at or above the 50th percentile (national sophomore norms) on the appropriate CLEP, you may earn credit in the following University courses:

ACC 201, 202	Introductory Accounting	6 credits
AMERICAN GOVERNMENT—For a scaled score of 65 or above you will earn three credit hours in Political Science 151, with a grade of A; for a scaled score of 60 to 64 you will earn three credit hours in Political Science 151, with a grade of B; for a scaled score of 50 to 59 you will receive three credit hours for Political Science 151, with no letter grade.		
BA 330, 335, 341		ea. 3 credits
BIO 103, 104		6 credits
CHEMISTRY—For a scaled score between 50 and 55 you will earn a total of nine credit hours in CHE 106, 108, and 115; for a scaled score between 55 and 60 you will earn a total of nine credit hours in CHE 110, 112, and 115. For a score above 60, you will earn credit in CHE 110, 112, and 115 and be awarded a grade of A in these courses.		
ENG 101, 102	Freshman Composition	6 credits
Scaled score 50-64, 3 hrs., ENG 101. 65+, 6 hrs., ENG 101 and 102.*		
GLY 140, 142	General Physical and Historical Geology	8 credits
HIS 104, 105	European History	6 credits
HIS 108, 109	History of the United States	6 credits
MA 109	Pre-Calculus Mathematics	3 credits
MA 113	Calculus	4 credits
PSY 210	General Psychology	3 credits
SOC 101	Introductory Sociology	3 credits
STA 291	Statistical Method	3 credits



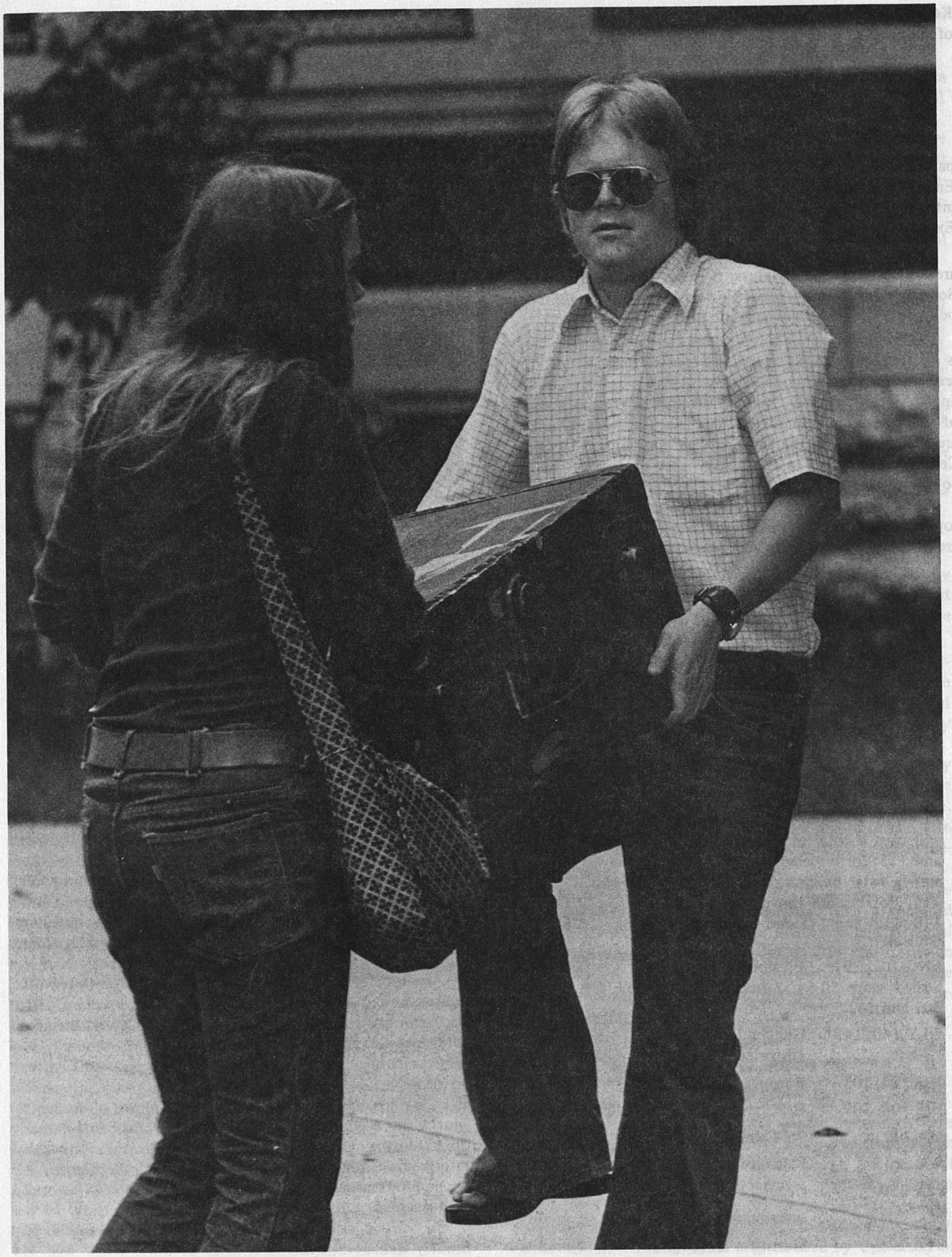
Additional information concerning CLEP may be obtained from the Associate Dean for Student Academic Affairs, 257 Patterson Tower; The Dean of Undergraduate Studies, 321 Patterson Tower; The Counseling and Testing Center, 301 Old Agriculture Building; or The Dean of Admissions and Registrar, Administration Annex.

***After fall 1974, CLEP will not be the official examination for credit in Freshman English. See Special Departmental Examinations.**

International Programs

The Office for International Programs (OIP) was established to assist in the development of international and cross-cultural study programs, student and faculty exchange, and institutional relations abroad. Among the services provided are assistance to students who wish to add an international experience to their academic programs and counseling and referral services on study, research, travel or employment opportunities abroad, as well as on fellowship programs that support overseas study and research such as the Fulbright Graduate Study Program, the East-West Center, and the Doctor Dissertation Abroad Program. OIP also coordinates, and in some cases, administers directly, study abroad programs on campus that allow students to gain academic credit for experience abroad. Currently, programs are available in Mexico, Jamaica, Italy, Romania and Ecuador. OIP also assists in the selection of students who wish to go abroad under the Experiment in International Living Outbound Ambassadors Program and the Interfuture Program. In cooperation with departmental Academic Counselors for International Students, OIP works with academic units on programs for foreign students.

The Office for International Programs is located in Bradley Hall.



Living Accommodations

The University of Kentucky offers you a high standard of residence hall living surpassed by few other institutions.

The residence halls and food service programs are provided and maintained by the Housing and Dining System, which is a self-supporting enterprise of the University. It is the belief of many educators that you must develop a sense of identity, security, belonging, enthusiasm, and stimulation for learning before you can achieve your academic goals. These needs can better be met in the residential setting, and it is the intent of the University of Kentucky to contribute further to the goals of education by insuring a pleasant environment for living.

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

In order to insure a reasonable cost to those students living on campus, occupancy of residence halls must be kept near capacity, otherwise the distribution of fixed costs (debt-service, operational and maintenance costs) would make both room and board fees prohibitively high. With that objective in mind, the University reserves the right to require freshman students to live in University residence halls if space is available. However, during the past four years the shortage of space has prevented the assignment of all students who applied for housing. Applicants are urged to apply as early as possible and to note that receipt of an application by the Housing Office does not guarantee a room.

FOOD SERVICES

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. Three meals per day
2. Two meals a day—breakfast and dinner
3. Two meals a day—choice of any two meals

Room and board are not provided during the official 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, the Student Center Grill, or off-campus.

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

Meal tickets will be distributed in the Student Center after you have made your second payment for room and board. By making the second payment by mail to the Housing Office prior to August 15, it will only be necessary to submit the receipt in order to receive the meal ticket—thus avoiding the long payment lines.

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, 1974 for the fall semester or December 1, 1974 for the spring semester. NO REFUND will be made if the cancellation is received after June 1, 1974 for fall applicants or after December 1, 1974 for spring applicants.

Kentucky students who are accepted by the University, but who are advised to attend another school, may receive a $90 refund if they cancel prior to the cancellation deadline. After the cancellation deadline, there will be no refund of the 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 102 students. Patterson Hall houses 122 freshman women, and while the rooms in Patterson are not as spacious as those in some of the newer units, this hall is highly regarded by all who live there because of its friendly atmosphere and traditional air. Boyd

Hall, situated between Patterson and Jewell, houses 137 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 upperclasswomen in its rooms arranged as suites—double rooms connected by a full bath. The building contains a formal reception room, library, a small grill, and corridor study rooms.

Blazer Hall houses 188 upperclasswomen. This air-conditioned residence hall has corridor study rooms, a library and a music room. A cafeteria, designed to serve students on the north side of the campus, is also located in Blazer Hall.

On the south side of the campus is Donovan Hall, a residence unit for freshman women, constructed in 1956, with a capacity of 339 students. This residence contains a lounge for the comfort of the students. One of the University's three main dining facilities, serving both men and women, is located on the ground floor of Donovan Hall.

Haggin Hall, another unit for freshman men, was completed in 1960. It has a capacity of 556 students—two assigned to each room. Constructed in the shape of a square with a large open court in the center, this four-story facility encourages small-group living with each corridor opening to the outside and locked to all but the occupants of that corridor. Haggin Hall has a central lounge and recreation room, and is completely airconditioned.

Located on the southeast side of the campus is the University's 2664 bed Blanding-Kirwan Complex. The complex comprises eight three-story halls and two 23 story buildings, housing both men and women. These buildings are air-conditioned and have wall-to-wall carpeting throughout. The Blanding-Kirwan Commons Cafeteria is designed to serve those students who live in the complex.

SINGLE GRADUATE STUDENT RESIDENCE HALLS

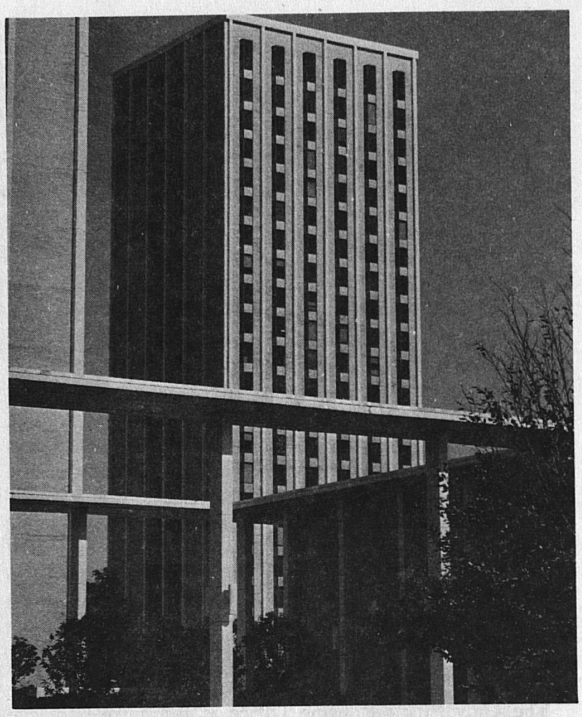
A little farther to the southeast are residence units with apartment facilities. This housing area, known as Cooperstown, provides separate facilities for single graduate or advanced men and women students, assigned two to a unit for the academic year. With permission from the Housing Office, students 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.

MEALS

A choice of meal contracts is available to graduate students who wish to dine in University residence hall cafeterias. Graduate students desiring a meal plan must indicate, on the application, the particular plan desired.

ASSIGNMENTS

Room assignments are made according to the date the completed housing application, first installment, and housing contract are received in the Housing Office. Filing



an application does not guarantee an assignment, nor does it in any way coincide with or affect admission to the University of Kentucky. Receipt of the residence hall assignment will be confirmation of housing for the student.

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

An effort is made to select a suitable roommate, according to similar interests and backgrounds, for those students not designating a roommate choice. 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.

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 $1,174 per academic year for room and board with three meals a day; $1,036 for room and board with two meals a day (breakfast and dinner); or $1,076 for two meals a day (choice of any two meals).

GRADUATES

Graduate rates in Cooperstown are $584 for an efficiency apartment and $674 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 $1,168 for an efficiency and $1,348 for a one-bedroom unit.

The rates for graduate students DO NOT include meals. Meal contracts for the academic year cost $587 for the three-meal plan; $449 for the two-meal plan (breakfast and dinner); or $489 for the two-meal plan (choice of any two meals). There are no meal contracts for the summer session.

BOARD ONLY

Contracts for board only are also available to students residing off-campus. The rate is $587 per year for a three-meal contract plan; $449 for the two-meal plan (breakfast and dinner); or $489 for the two-meal plan (choice of any two meals).

FIRST INSTALLMENT

The first installment of $100 must accompany the student's application. This installment, as well as subsequent payments, must be made by mail to the Housing Office, 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.

***A $10 residence hall programming fee will be assessed.**

Cancellations and Refunds

Before the semester begins:

1. A $90 refund of initial payment will be made if notice to cancel a room application is given in writing to the Housing Office on or before June 1, 1974 for the fall applicant, or December 1, 1974 for spring applicants.
2. No refund will be made if cancellation of a room reservation is requested after June 1, 1974 for the fall semester, or after December 1, 1974 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, 1974 for the fall semester, or after December 1, 1974 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 refund if they cancel prior to the cancellation deadline. After the cancellation deadline, there will be no refund of the $100 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 two weeks; students withdrawing after the second week will be assessed a charge computed at the rate of eight percent of the total semester charge for each week in residence through the 12th week. Any fractional part of a week will be considered a full week.

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

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

STUDENT PARKING

The Public Safety Division is responsible for the safety of all University and property. The University Safety Department; University Police Department and the University Parking Department are administered by this Division. Students are especially encouraged to become familiar with the University parking and traffic regulations.

Parking on the campus is restricted to permit parking between the hours of 7 a.m. and 5 p.m., Monday through Friday, whether or not the University is in official session. Due to limitations of available parking spaces, juniors, seniors, graduate and professional students are given first priority for permits. Freshman and sophomore students are asked to park in the Commonwealth Stadium lots free of charge and ride the Shuttle bus at no charge to and from the campus. Freshman and sophomore students with special needs will be considered in first priority in so far as space is available.

Upperclass students who reside on campus are given parking permits for specific areas. Upperclass commuting students may also purchase permits for specified parking areas. All students are discouraged from bringing cars to the University unless necessary, due to the limited amount of available parking space.

Information concerning students parking is available at anytime from the Parking Department, 305 Euclid Avenue.



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. Applicants for University financial aid, grants-in-aid, or scholarships, utilizing public funds, will be given equal consideration, regardless of race, color, religion, sex, marital status, national origin, age, or beliefs.

LOANS

Information regarding loans and financial aid can be obtained from the Student Financial Aid Office, University of Kentucky, Lexington, Kentucky 40506.

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 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.

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.

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 percent of his or her 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.

Supplementary Educational Opportunity Grants

The Higher Education Act of 1972 provides Supplementary Educational Opportunity Grants for students who could not enter or remain in college without them.

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

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 Direct Student Loans

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

A student must demonstrate the need for a loan and the ability to do acceptable work at the University. The amount of loan is determined primarily by the needs and resources of the student. However, by the terms of the Act, the aggregate loan over a number of years cannot exceed $5000 for undergraduates and $2500 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 three percent 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.

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 Direct Student Loan Program described previously.

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

A student may borrow up to $2500 in one academic year. The borrower must sign a note for the loan, and repayment begins one year after the borrower ceases to be a full-time student. Repayment is to be completed within 10 years thereafter. Interest does not accrue on the loan prior to the beginning of the repayment period, and interest thereafter is charged at the rate of three percent per annum. A loan is cancelled on receipt of proof of death or total, permanent disability.

Related to the Health Professions Student Loans are the Health Professions Scholarships for full-time students entering the Colleges of Medicine, Dentistry, or Pharmacy. An award cannot exceed $2500 a year and the recipient must have exceptional financial need.

Nursing Loans and Scholarships

The Nursing Student Loan Program for full-time students in the College of Nursing is established on the same basis as the National Defense and Health Professions Student Loan Programs. A full-time nursing student at the University may borrow up to $1500 in one academic year and an aggregate of $5000. The borrower must sign a note. Repayment of

the loan begins nine months after the borrower ceases full-time student status and must be completed within 10 years thereafter. Interest begins to accrue at the beginning of the second year a borrower is out of school, and is three percent per annum. The loan is cancelled upon receipt of proof of death or total, permanent disability of the borrower.

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

Federally Insured Loan Program

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

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

Each of the states 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 the cost of education, he or she must: Give first priority to maintaining a satisfactory academic standing; Set aside in his or her class schedule definite time blocks of from two to four hours per day for work. Preferably offer a skill and previous work experience; and at all times assume a mature attitude toward part-time work responsibilities.

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



The College Work-study Program

The Economic Opportunity Act of 1964, as amended by the Higher Education Act of 1972, provides funds to create part-time work opportunities for students from low-income families. In doing so, the University has attempted to provide meaningful work experience for students. Many jobs are related to the student's area of study. Such opportunities include faculty aides, research assistants, laboratory assistants, clerical and secretarial, bookstore assistants, administrative office assistants, food service workers, building and grounds workers, and others. The number of hours a student may work is also determined by the student's need for financial assistance. Hourly rates range from $1.65 to $2.50 per hour.

SPECIAL ASSISTANCE AND 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 may enter the University and attend any regular course without the payment of fees. Work may be taken for credit; some have earned baccalaureate and graduate degrees. Others register as auditors and attend classes for the sheer joy of learning. The program is available at the main campus in Lexington and at all community colleges in the University system.

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



special problems of older adults with a view to devising appropriate procedures for solving them.

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

SPECIAL AWARDS

Undergraduate Research and Creativity Program

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

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

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

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

ROTC FINANCIAL ASSISTANCE

Army ROTC

Two, three and four-year scholarships are available through the Army Reserve Officer Training Corps program. These scholarships pay full tuition, laboratory fees, textbooks and other related academic expenses. A $100 per month tax free subsistence allowance is also authorized during the 10-month academic year. The recipient increases his active-duty obligation from two to four years.

Length of scholarship, application deadline, where to apply:

1. Four years; December 31; senior year of high school, directly to: Commanding General, First US Army, ATTN: ARAAG-CE, Fort George G. Meade, Maryland 20755.
2. Three years; June 22, end of college ROTC freshman year; directly to: Professor of Military Science, Army

ROTC, University of Kentucky, Lexington, Kentucky 40506.

3. Two years; March 5, sophomore ROTC year; directly to the Army ROTC Officer in 2. above.

Two-Year Program: A student already enrolled at the University of Kentucky or at another College may qualify for a commission through the two-year program. Applicants must apply at an Army ROTC Office in January preceding the year of desired enrollment. Applicants must have two years of undergraduate school or graduate school remaining. Qualified applicants will be enrolled in the Advanced Course upon successful completion of a Basic Summer Camp at Fort Knox, Kentucky. For further details, contact the Army ROTC office at the University of Kentucky.

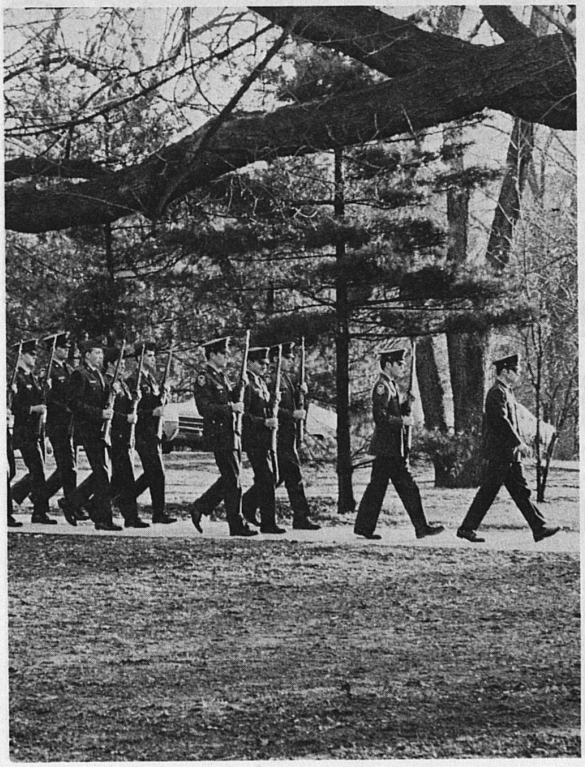
Air Force ROTC Scholarships

Four-year Scholarship:

Scholarships are available to qualified students who enroll in the four-year AFROTC cadet program. These scholarships provide for full payment of tuition, laboratory and associated fees, textbooks, and a nontaxable subsistence allowance which is currently $100 a month.

Applicants interested in obtaining a four-year scholarship will be evaluated on the basis of:

1. Results of the American College Test (ACT) or CEEB Scholastic Aptitude Test.
2. High school academic record.
3. Extracurricular and athletic activities.
4. Personal references.
5. Ability to qualify on an Air Force flying medical examination.



High school seniors who feel they can meet the basic eligibility requirements for a four-year scholarship must submit an application to Air Force ROTC before the last of December of the year prior to enrollment in the program. All selections for four-year scholarships are made at the AFROTC headquarters.

Where to Apply: High school seniors should contact their school guidance counselor or principal early in their senior year for applications. Applications may also be obtained from the Professor of Aerospace Studies, Barker Hall, University of Kentucky, or by writing directly to Air Force ROTC/OI, Maxwell AFB, Alabama 36112.

Two or Three-Year Scholarships: Scholarships are also awarded to cadets in the AFROTC program on a competitive basis for two or three years at sophomore and junior levels. Initial selection is made on campus by a board composed of institutional officials and Air Force ROTC officers. Final selection is made by a central selection board at the Air Force ROTC headquarters. Applicants for two or three-year scholarships should contact the Professor of Aerospace Studies early in their freshman year on campus.

Two-Year Program: Qualified students attending the University of Kentucky or transfer students from another institution who did not enroll in the first two years of Air Force ROTC may receive a commission through the Two-Year Program. Those accepted receive the nontaxable subsistence allowance of $100 a month. The basic requirement for entry into this program is that the student have two academic years remaining, either at the undergraduate or graduate level, or a combination of the two. Entry into the program is on a competitive basis. Applicants must qualify on a written exam (the Air Force Officer's Qualifying Test), have a grade-point average (GPA) of 2.0 or better, pass an Air Force medical evaluation, and be selected by an interview board of AFROTC officers.

Program for Women: The Air Force ROTC program at the University of Kentucky includes women students. Qualified women students who enter are entitled to the full range of AFROTC programs with the exception of flight instruction.

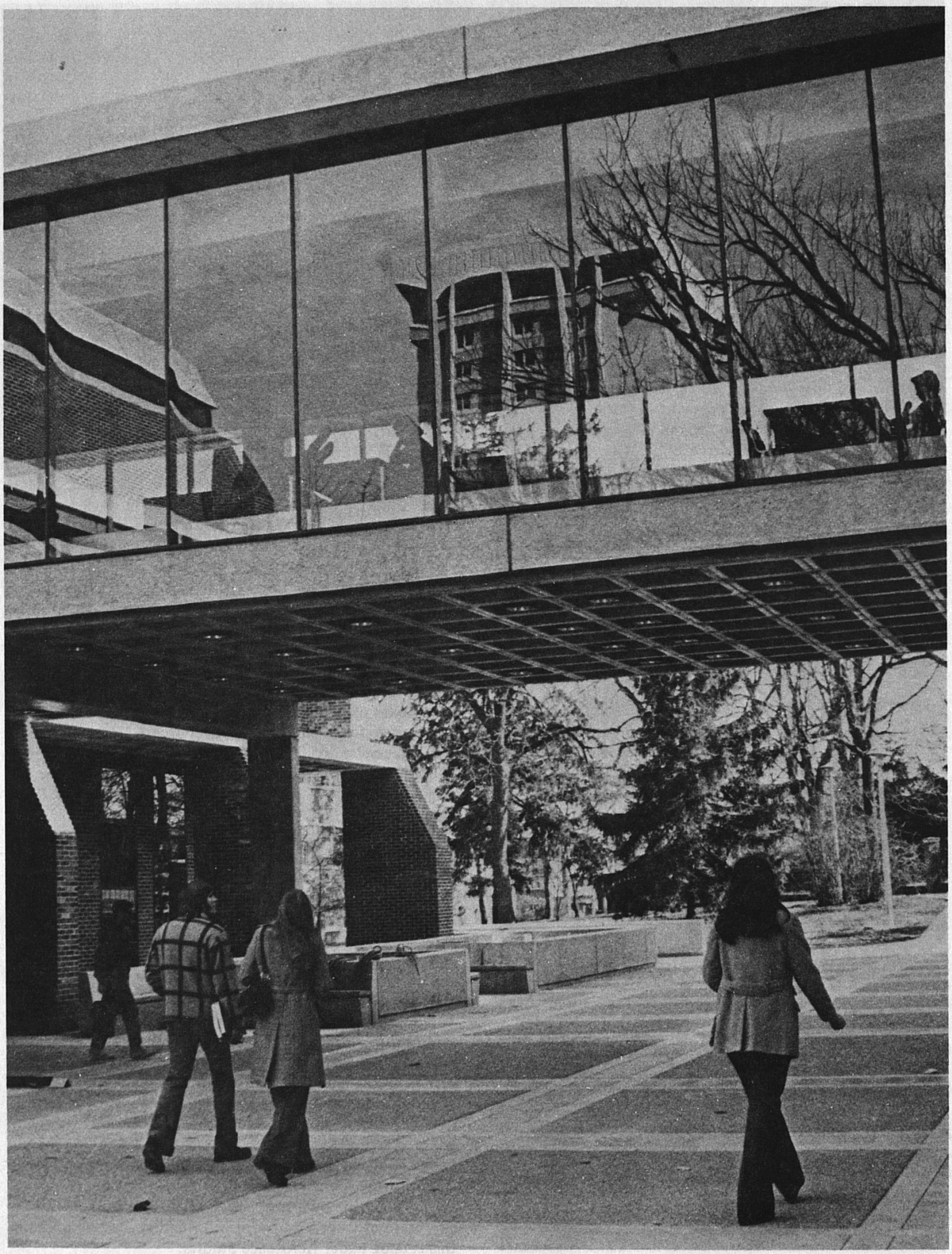
Women students are eligible to compete for Air Force ROTC Scholarships except for the four-year scholarship which is available only to flying officer training program candidates. Women in the program receive the same benefits as their male counterparts. They will also attend a summer training encampment conducted by an active duty WAF officer. Uniforms, food, lodging and pay are provided for the summer course.

National Student Defense Loans. Under the provisions of Public Law 92-318, up to 50 percent of the principal and interest of a National Student Defense Loan taken after June 30, 1972 may be forgiven for active duty military service which includes a 12-month tour in a combat zone.

Commission and Active Duty Requirements:

All men and women students must successfully complete the professional officer course, usually taken during the junior and senior years, and a field summer training course.

For further details of eligibility and requirements contact the Department of Aerospace Studies, Barker Hall, University of Kentucky. Additional information may be found in this catalog under Aerospace Studies.



Libraries

The student attending the University of Kentucky has an opportunity to acquire an academic education and enrich his or her personal development through 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 resource materials—both in printed and manuscript form, and in recorded sound.

The general collection 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 most of the books and library materials in all the libraries on the Lexington campus, including the Lexington Theological Seminary.

Some of the more frequently used 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 you in using library materials. Other informational systems feature business and financial publication services and the Human Relations Area Files, a social science information retrieval system in card form.

Government Publications Department—Official publications of the United States, Canada, United Nations, Kentucky, and selected states. Also includes British Parliamentary publications.

Newspaper and Microtext Room—Newspapers from Kentucky and major cities in the United States and throughout the world. Books, periodicals, and newspapers in various microforms. Spoken word cassettes together with listening facilities. Current copies and back files of general interest periodicals are in the Periodical Reading Room.

Map Room—Comprehensive collection of state, U.S., foreign, and topical atlases. Extensive collection of flat maps featuring city plans and Army depository series. Includes selected air photos and road maps.

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

Special Collections Department—Manuscripts, rare books and items of unique research value. Although heavy emphasis is placed on Kentucky and Ohio Valley history and culture, there is a large collection of 20th Century American political manuscripts which include the public and/or personal papers of Jouett Shouse, Thruston B. Morton, John Sherman Cooper, Albert B. Chandler, Alben Barkley, and Fred M. Vinson. Recently, Special Collections has acquired the Cortot collection of musicology and one of the finest Milton collections in the country.

University Archives—Official repository of non-current University records, papers of former presidents, officials and departments of the University. Also available are complete files of *The Kernel* and *The Kentuckian*, the University yearbook, selected faculty publications, and historical photographs of University life.

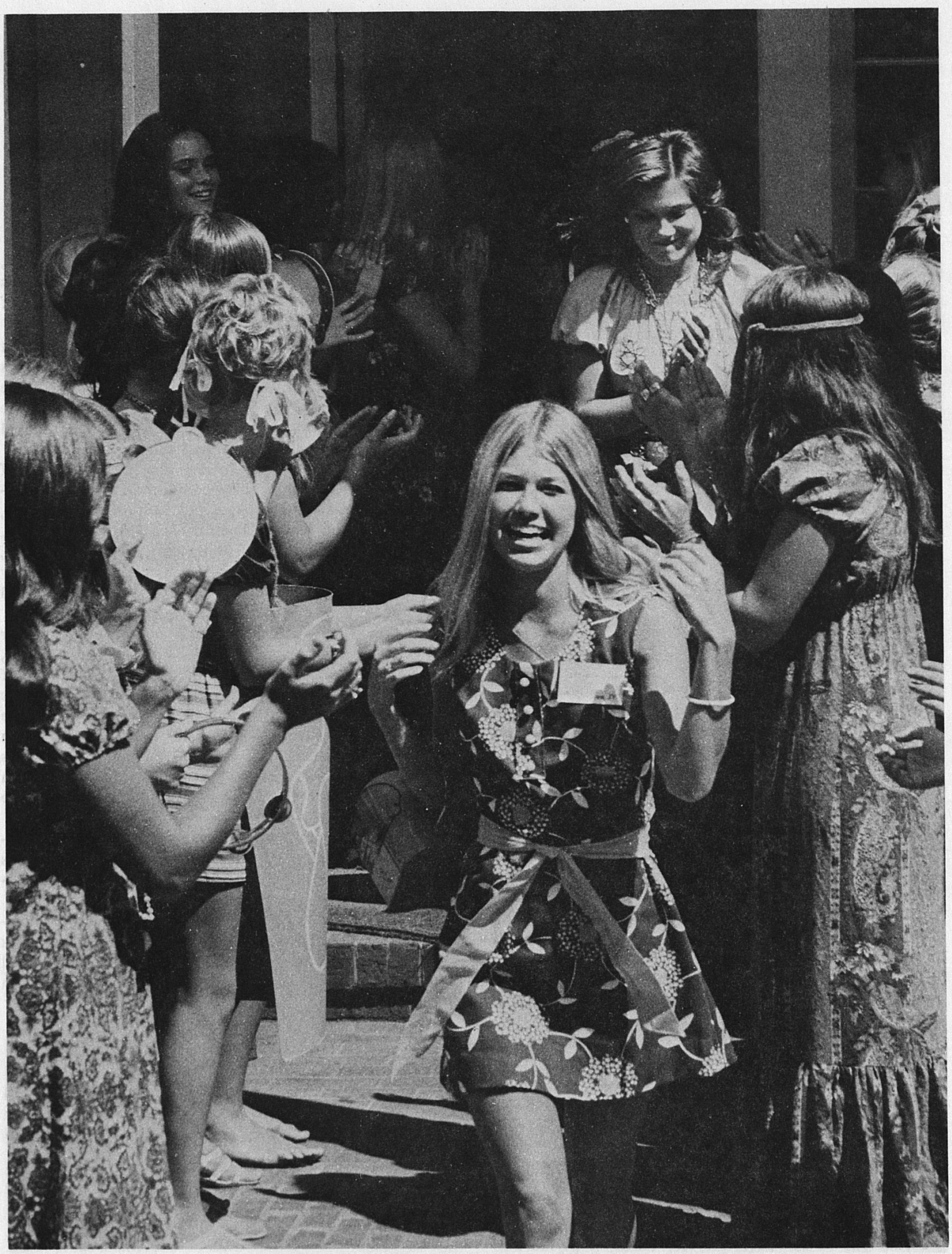
In addition to the King Library, the library facilities of the University include specialized collections in the following departments and colleges: Agriculture, Architecture, Art, Biological Sciences, Chemistry and Physics, Education, Engineering, Geology, Law, Mathematics, Medicine, Music, and Pharmacy. 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, consists 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 Inter-Library Loan 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 currently published in the Middle East.

The collection of books, periodicals, cassettes, microforms, maps and manuscripts in the University libraries has been selected for the purpose of supporting the educational program of the University in teaching, in research, and in the promotion of general culture.





Student Services and Activities

THE OFFICE OF THE VICE PRESIDENT

The Vice President of Student Affairs is responsible for the planning, development, coordination and supervision of programs, services and activities for students. The over-all program is designed to assist you in securing educational benefits from experiences outside the classroom. The Vice President also serves as the representative of Student Affairs in the President's cabinet.

DEAN OF STUDENTS' OFFICE

The Dean of Students' staff is prepared to assist you in fulfilling your responsibilities as citizens of both the University community and the larger Lexington community. Members of the staff are available at any time to discuss with individuals 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.

The Dean of Students' office maintains a listing of non-University housing which students may utilize in their personal search for off-campus housing. Rooms, apartments and houses listed are neither inspected nor to be considered as "approved" by the University. The only requirement is that the prospective landlord sign a statement of nondiscrimination on the basis of race, religion, creed or national origin as provided by law.

FORMATION OF STUDENT ORGANIZATIONS

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

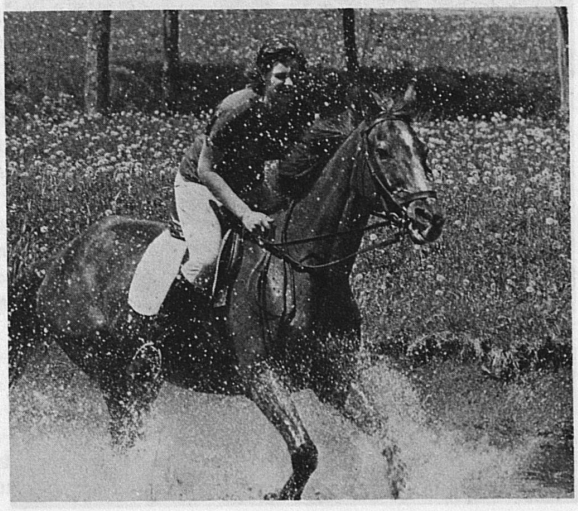
There are nearly 150 registered student organizations on the University of Kentucky campus. These include government organizations, political organizations, social sororities and fraternities, honors and leadership organizations, recognition societies, departmental organizations, professional fraternities, and special interest groups such as Associated Women Students, Black Student Union, Cosmopolitan Club, religious, athletic and military groups.

UNIVERSITY DISCIPLINE

University of Kentucky students are citizens of two communities—the academic community and the city of Lexington. As a student you are subject to institutional disciplinary procedures when offenses are committed against the University or its community of scholars. **The Code of Student Conduct** adopted by the Board of Trustees, effective August 16, 1973, sets expectations for student behavior which are consistent with the goals and purposes of this academic institution and establishes procedures which insure equality and fairness in dealing with all students. While the University is a place where the search for truth is carried on through free inquiry, it is not a sanctuary for those who seek freedom from moral, social and legal obligations. As residents of the City of Lexington, students have the same rights and responsibilities as other citizens.

FRATERNITIES AND SORORITIES

There are 21 national fraternities and 14 national sororities represented on the University of Kentucky campus. The primary responsibility for the operation of these groups rests with the undergraduates, with the assistance of the house director, alumni and University advisers. The University advisers are two assistant deans who are concerned with all areas of fraternity and sorority operations; rushing, pledging, scholarships, finance, leadership, personal growth and University involvement.



Sororities hold a formal rush period the week prior to school opening. This rush is followed by open bidding throughout the semester for available vacancies.

Fraternities have an intensified rush period at the beginning of school year. However, fraternities have an open rushing period which takes place throughout the school year. Both fraternities and sororities hold a short rush at the beginning of spring semester.

Interfraternity Council and Panhellenic Association, composed of representatives from all houses on campus, are the governing bodies for Greek Life. The Greek Activities Steering Committee programs all-Greek social, University and community activities.

The Office of Fraternities and Sororities is located in Room 575, Patterson Office Tower. Interfraternity Council and Panhellenic Association have an office in Room 138, Alumni Gym.

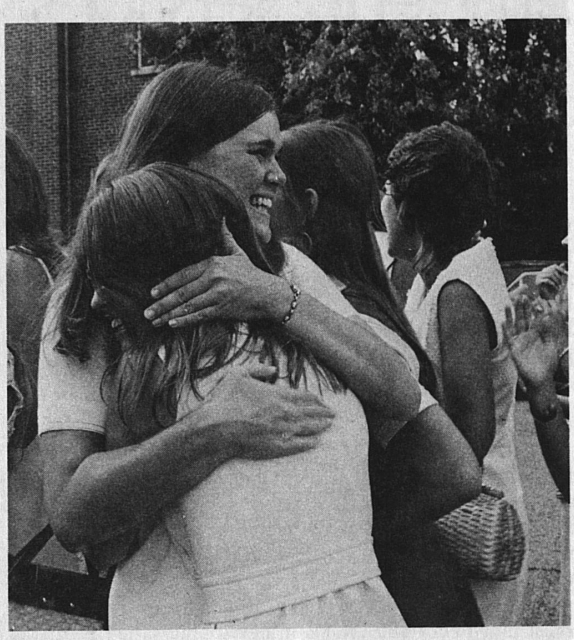
RESIDENCE HALLS PROGRAMMING

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



HUMAN RELATIONS CENTER

The Human Relations Center 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 programs, and handicapped student services, and the Continuing Education for Women Program.

Religious Affairs

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, Friends, Unitarian, Presbyterian, Disciples, Lutheran, Methodist. 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 Adviser's 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 University encourages you to draw upon the resources of religious activities on campus and to be aware of the various ways to relate your own religious convictions to the experience of higher education.

International Student Affairs

The adviser to International Students familarizes over 400 graduate and undergraduate students, who represent some 50 countries, with the academic and social opportunities on the campus and in the community. Foreign Students are assisted in any problems they may encounter, particularly those concerning University regulations, visas, passports, and correspondence with home governments. Special programs and publications are also provided to familiarize international students with academic and social opportunities on the campus and in the community.

Volunteer Programs

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

Handicapped Student Services

Special assistance is made available to handicapped students through Handicapped Student Services and the Rehabilitation Materials Unit.

Handicapped Student Services provides disabled students the following types of services: academic advising with special emphasis on architectural barriers, time necessary to travel to class, and academic needs; orientation counseling; recruitment of volunteers; liaison with the Bureau of Rehabilitation Services, faculty, students and staff; screening applicants for handicapped parking permits; and supervising the reading room for the handicapped.

Students with visual limitations receive recorded, braille, large print and other academic materials from the Rehabilitation Materials Unit, an agency of the state Division of Services for the Blind. The Unit supervises the technical aids for the blind.

All handicapped students are urged to register with the Director of Handicapped Services and obtain information on the various types of assistance available to them.

The Office of Human Relations is located in the Alumni Gym.

Continuing Education For Women

Recognizing the special needs of mature women returning to school, the office of Continuing Education for Women has recently been expanded. Approximately 1300 women, 25 years or older, are now completing their undergraduate and graduate degree programs. This office serves as a center for programming and distributing information necessary to satisfy the special needs of these women. A University-Community Women's Resource Room is also available for informal and intellectual interaction.

The office of Continuing Education for Women is located in the Alumni gym.



Minority Student Affairs

The Assistant to the Vice President for Student Affairs for Minority Students assists both students and University staff in the development of coordinated programs and supportive services for minority students. Through the Office of Minority Student Affairs, within the limits of available resources, additional programs and services are developed and operated to assist minority students when specific needs cannot be met effectively through the coordination of existing resources. Minority students are provided information regarding special graduate and career opportunities for minorities as well as non-academic counseling. Supplemental academic support is provided through individual tutorial arrangements on a limited basis. The Summer College Preparatory Program, an orientation and work-study program for eligible high school graduates planning to attend college, is being coordinated by the Office of Minority Affairs. The Office also works closely with minority student groups to facilitate a variety of organizational goals and activities.

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

CAMPUS RECREATION

The Department of Campus Recreation is organized with the belief that it is an educational responsibility of a modern university to promote a complete and intelligently

conducted intramural, extramural and recreation program for the large mass of its students who are unable to 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. The Department tries to provide every student in the University with the opportunity to participate in the activity of his or her choice as often as time, space and inclination permit. You are invited to participate in as many activities as deemed advisable. Some sports in the program are organized for team competition and others for individual participation. Non-competitive recreational outlets are also available. In the case of team competition, groups or teams may be organized by residence halls, fraternities, clubs, a department or a group of individuals.

Students, faculty, and staff of the University are offered a wide variety of leisure-time pursuits through the following programs: Aquatics, Intramurals for men, Intramurals for women, 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. Club activities are designed to serve individual interests and are student-oriented. These club activities include archery, Blue Marlins (synchronized swimming), fencing, judo, rugby, soccer, Tau Sigma (U.K. Dance Company), U.K. Troupers (singing, dancing, novelty acts and gymnastics) and weight lifting.

The Office of Campus Recreation is located in the Seaton Center Building.

THE STUDENT CENTER

The University of Kentucky Student Center is owned and operated by the University of Kentucky as a service to all students, faculty, and staff of the academic community. Open approximately 120 hours a week during the academic year, the Center is where students, faculty and staff members and their friends can get together in an informal atmosphere. In fact, it is often referred to as "the living room" of the University family. Since the Student Center's major source of income is derived from activity fees, it seems fitting that the policies governing the building be made by a Student Center Board, composed of students, 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: an art gallery, ballroom, barber shop, bookstore, browsing and music room, cafeteria and grill, card room, check cashing facility, cloak room, game room, information desk, lost and found office, offices and meeting rooms, patio, theatre, travel map, and TV lounges.

STUDENT PARTICIPATION

You are encouraged not only to attend but to take part in the programs and activities of extracurricular campus life. Many will enjoy participating in the activity provided by the musical organizations on campus, including bands, orchestras, choruses, and smaller ensembles. Others become interested in working with the various students' publications, including the *Kentucky Kernel,* an independent newspaper published by students, and the annual, *The Kentuckian.* Both publications are open to all interested students. The Department of Theatre Arts invites students to take part in the many phases of dramatic productions. Student Government participation is open to all students. As the official voice of students within the University

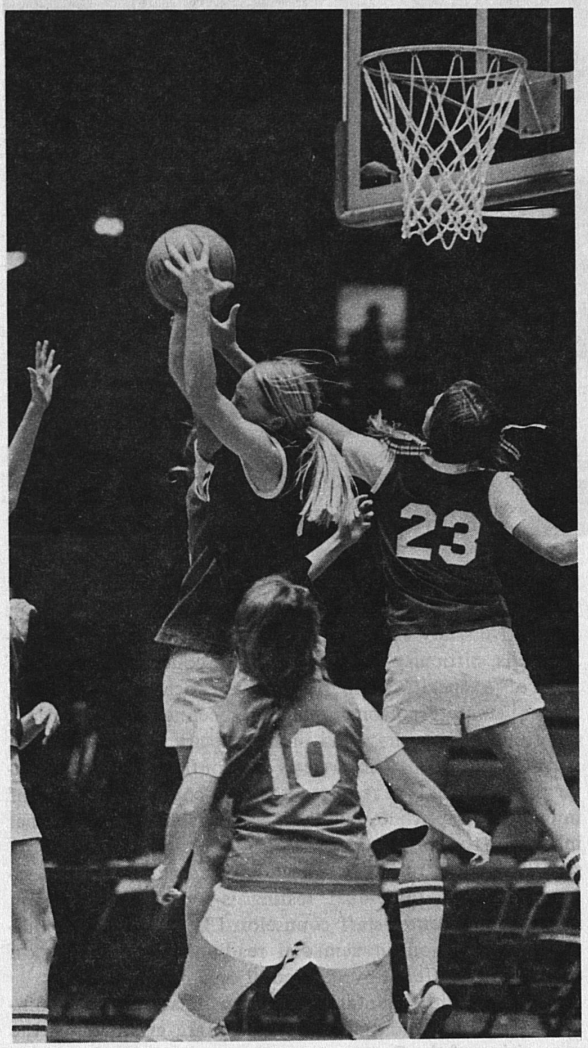


community, Student Government is challenged with the responsibility of recommending policy considerations in the areas of academic affairs and student life, and provides numerous student services. You are urged to take part in activities ranging from those of your living unit to those of the all-campus student government represented by the executive, legislative, and judicial branches. The Student Center Board provides a wide variety of activity in its program of social, cultural, and recreational events. Traditional events, such as Wildcat Welcome, Little Kentucky Derby, Quiz Bowl, Peace, Love and Brotherhood Day, Leadership Conference and the Coffee House, are planned

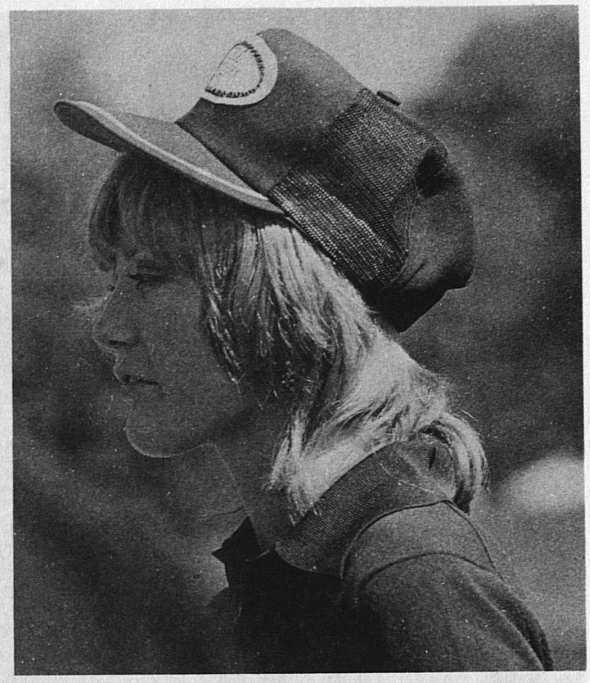
by the Student Center Board. A variety of speakers and concerts are also sponsored during the year by this group. Several honorary organizations each year confer awards and membership on selected students who exhibit outstanding qualities of scholastic achievement, leadership, and character.

ATHLETICS

The University of Kentucky is a member of the Southeastern Conference and has approximately 1000 student athletes actively participating in its competitive sports program. Although football and basketball get the headlines, other sports receive prime treatment from the Department



of Athletics, which conducts its activities without overemphasis or sacrifice of educational objectives. Its various sports teams furnish wholesome entertainment for the entire student body, the faculty, staff, alumni and general public. The University fields representative baseball, track, swimming, golf, tennis, polo, and rifle teams.



The Athletics Association helps support the band, cheerleaders, Kentucky Belles and the Student Athletic Committee;

Aids the Kentucky High School Athletic Association by supplying facilities for district, regional and state tournaments in all sports;

Offers athletic scholarship aid for a number of student athletes competing in most of its eight major sports;

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

PROFESSIONAL SERVICES

Health Services

The University has a comprehensive health care program for all Lexington campus students, both full-time and part-time. The University Health Service is an outpatient clinic for UK students, staffed with professionals who are chosen for their ability to deal sympathetically with the special medical, surgical, and emotional health problems of young adults.

The Medical Service provides consultation and treatment of both acute and chronic illnesses. There are health maintenance and preventive medicine programs which include a chronic disease "registry" for the evaluation and continuing treatment of students with long-term health problems; tuberculosis control programs; communicable disease control programs; allergy clinics; gynecology clinics for women students; a program designed to meet the special health needs of international students, and special education programs.

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



The health fee does not include those health services that are covered by traditional insurance policies: hospitalization, accident care and surgical services. It is essential that you or your parents have insurance to cover these expenses. Many insurance policies stop coverage on dependents when they reach age 19. As a service to students who need health insurance, the University of Kentucky makes available one of the best student group plans in the country at a very reasonable rate. Thousands of students are insured under the UK Student Blue Cross and Blue Shield Plan.

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

A Health Report Form, mailed to each entering student, provides a record of his health history and immunization status. The submission of a completed form by full-time students is a requirement of the University.

University Counseling and Testing Center

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

All placement, orientation, and classification tests administered to new and transfer students are given under the supervision of the Center.

The University Counseling and Testing Center has been certified by the International Association of Counseling Services as an agency providing approved counseling services. The services of the Center are available by appointment to all who are enrolled in the University as well as to faculty and staff. There are no fees for the testing or

counseling of University-connected clients. Appointments may be made by calling 258-8701; referral from another campus agency is not necessary.

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

Students who need specialty services beyond those available in the Health Service are referred to consultants in the Medical Center. If you need to be hospitalized, you will be admitted to the University Hospital and usually attended by a Health Service physician.

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

Hours: Monday-Friday
8 a.m. to 5 p.m.
Saturday
8 a.m. to noon

Financing the cost of health services. Students must arrange for their health care just as they do for their housing and meals. The University has a prepayment plan whereby students pay a health fee with their registration fees. In 1973-74 the fee was $7 per semester. Students who pay the health fee are issued a special ID card that entitles them to many outpatient services at the Student Health Service and the Medical Center at no additional cost. Students who do not pay the health fee are billed for all on-campus medical services.

Placement Service

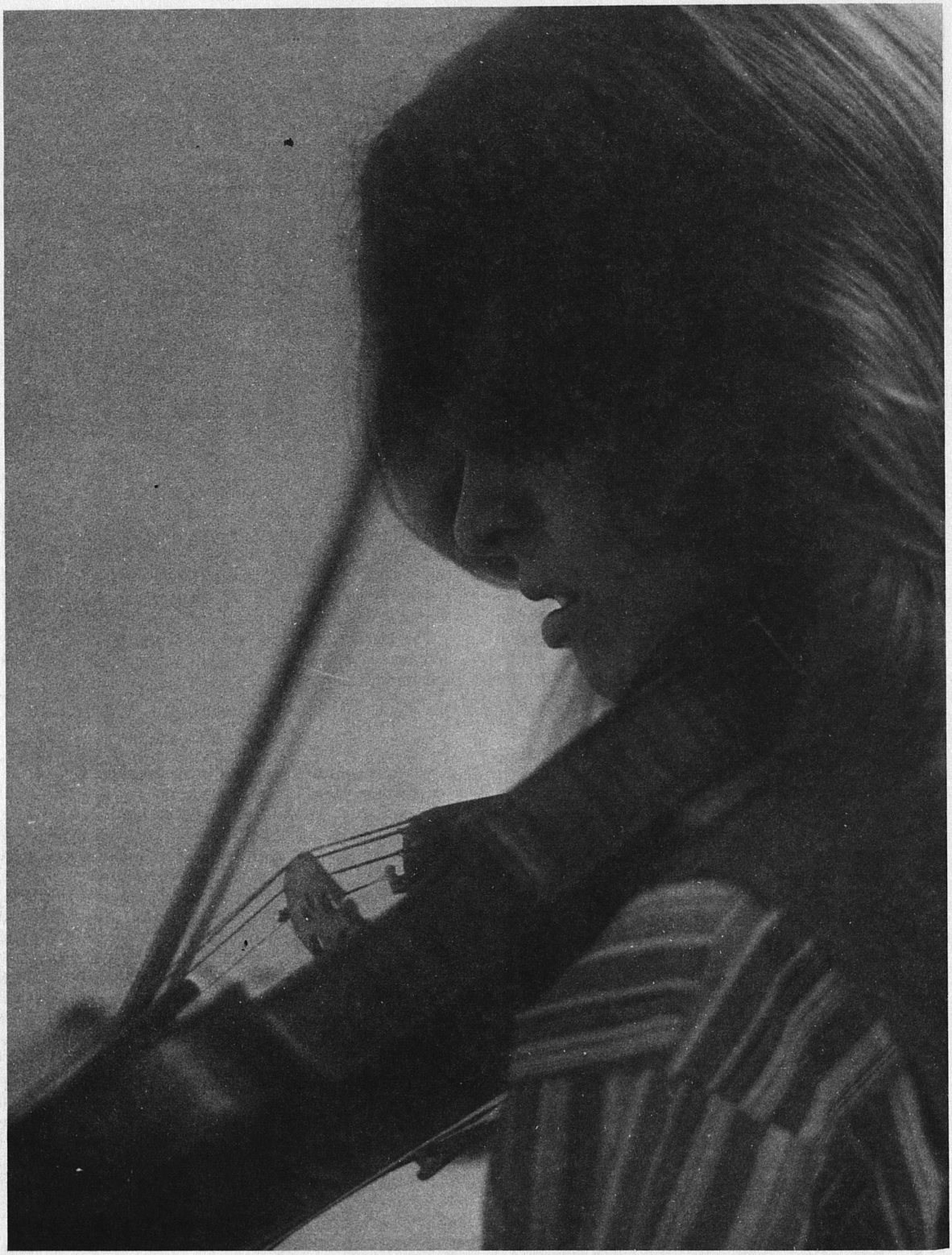
Established for the purpose of assisting undergraduates, graduate students, alumni, and community college students with employment opportunities, the Service has several functions. First, it provides employment counseling by providing information regarding immediate and future employment opportunities.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

Through the Placement Service, all students and alumni seeking employment 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 businesses, government agencies, and other professions.

Undergraduate and postgraduate students are encouraged to register for full-time employment opportunities at the beginning of their final year at the University. Students seeking career summer employment should register during the fall semester of their sophomore and junior years.

The Placement Service strongly urges each of you to become acquainted with the many job opportunities available through the Service.



Cultural Opportunities

THEATRE

The Department of Theatre Arts offers a large number of dramatic productions each year, and invites each interested student to become part of an organization which provides dramatic performances for the educational and regional community. Participation is possible as audience member, performer, stage worker or any of the other theatre related activities.

All university students are invited to audition for the plays presented. Similar opportunities are made available by a summer theatre program.

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

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

UNIVERSITY CONCERTS

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

Student musical organizations include the Symphony Orchestra, the Symphonic Band, the University Choristers, the University Chorus, and the Collegium Musicum. Faculty recitals, faculty ensemble concerts and concerts by student organizations are all offered free of charge to students as well as to the general public.

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

CENTRAL KENTUCKY CONCERT AND LECTURE SERIES

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

THE LEXINGTON CHAMBER MUSIC SOCIETY

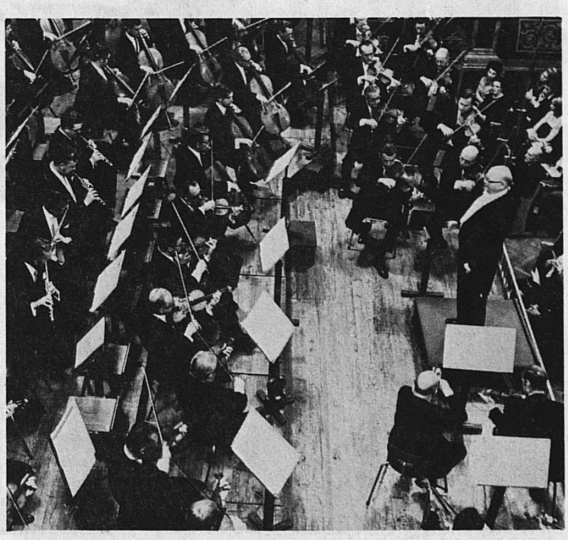
The Lexington Chamber Music Society annually presents a series of concerts featuring outstanding chamber music ensembles of national and international reputation. These concerts are open to University students upon presentation of I.D. cards.

THE LEXINGTON PHILHARMONIC ORCHESTRA

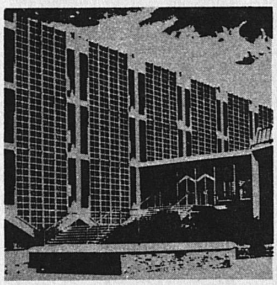
Composed of talented instrumentalists from throughout the central Kentucky area, the Lexington Philharmonic Orchestra performs one of each pair of concerts in Memorial Hall on the University campus. A semiprofessional organization, the Orchestra features outstanding guest artists at each concert. Performances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

UNIVERSITY ART GALLERIES

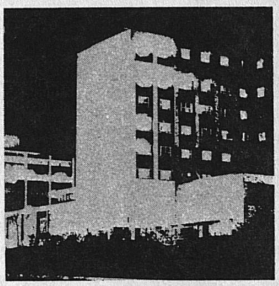
The University Art Gallery in the Fine Arts Building offers a series of exhibitions each year, including group shows, special exhibitions in various media, the work of major individual artists and the annual student exhibition. Painting, drawing, graphic arts, photography and sculpture, as well as experimental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



Colleges



Agriculture



Allied Health



Architecture



Arts and Sciences



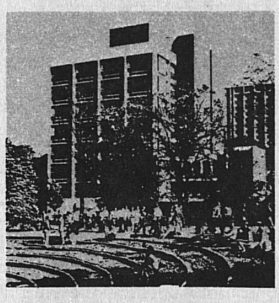
Business and Economics



Dentistry



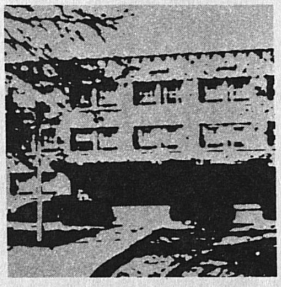
Education



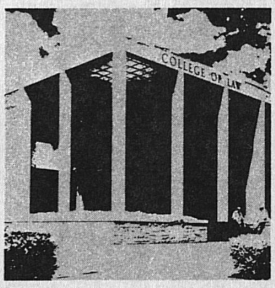
Engineering



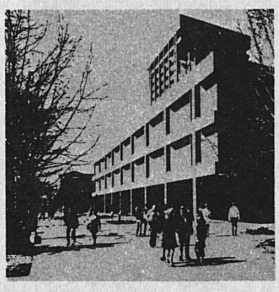
Graduate School



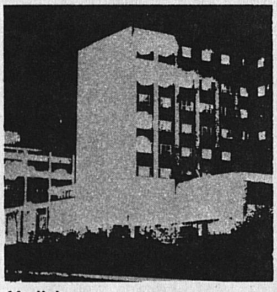
Home Economics



Law



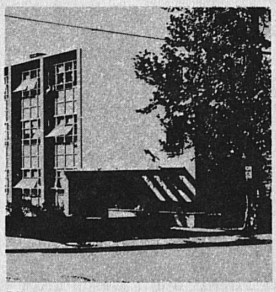
Library Science



Medicine



Nursing



Pharmacy



Social Professions

Agriculture

Charles E. Barnhart, Ph.D., is Dean of the College of Agriculture, Director, Agricultural Experiment Station, and Director, Cooperative Extension Service; Granville W. Stokes, Ph.D., is Associate Dean, College of Agriculture; John C. Robertson, Ph.D., is Associate Dean for Instruction; C. Oran Little, Ph.D., is Associate Dean for Research; John L. Ragland, Ph.D., is Associate Dean for Cooperative Extension.

Students in the College of Agriculture may elect majors in the following departments: Agricultural Economics, Agricultural Education, Entomology, Agronomy, Animal Sciences, Forestry, Horticulture, Plant Pathology, and Sociology.

In addition, you may follow a pre-professional program in Theology or Veterinary Medicine.

Those majoring in Forestry are awarded a B.S. degree in Forestry.

The extensive research, teaching, extension, and regulatory functions of the College of Agriculture are combined into a coordinated, mutually supporting program of undergraduate and graduate education. Teaching in this College is so related to the other functions that you have a unique opportunity to broaden your background in the areas of research and application of scientific findings in laboratories, greenhouses, field plots and feed lots.

The general aim of the teaching program in the College of Agriculture is to provide for the development of competence for useful service in all aspects of agriculture along with the capabilities for useful citizenship. More specifically, our curricula have been planned:

1. To develop a professional competency necessary to properly manage the nation's agriculture and natural resources.
2. To provide educational programs offering the general and specialized information needed for professional employment.
3. To provide broad educational opportunities which develop an understanding of our society and the need for continuing education.
4. To develop a desire and ability to think effectively, logically solve problems, exercise leadership and contribute to our society.

ADMISSION

All students planning to study in any phase of agriculture, including Forestry and Pre-Veterinary, are admitted directly into the College of Agriculture as soon as they arrive on the campus.

SCHOLARSHIPS AND FINANCIAL AID

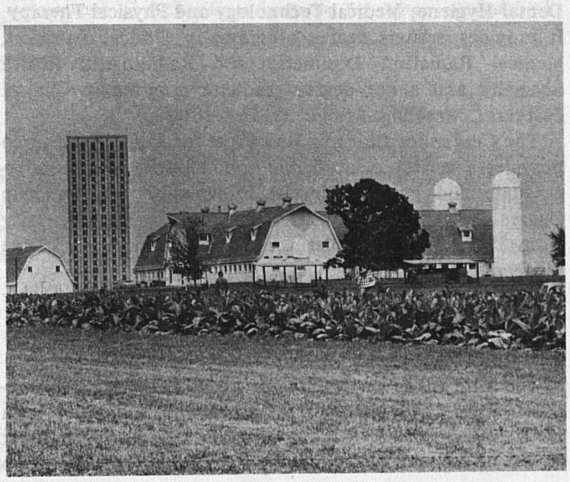
In addition to the assistance provided by the Office of Student Financial Aid, the College of Agriculture has a number of scholarships and awards which are made available to you on the basis of academic accomplishment and financial need. Many of the departments in the college use student help in laboratories, greenhouses, barns, and field work in connection with the research program in agriculture. Information about these scholarships, awards, and jobs is available in the Office of Associate Dean for Instruction in the College of Agriculture.

FACULTY AND FACILITIES

Faculty. The College of Agriculture has built up a scholarly, able, and forward-looking faculty. The men 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 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.

Library. A unit of the University Library is located in the Agricultural Science Center. Professional journals, popular agricultural magazines, and related periodicals are received and shelved in the Agricultural Library. Supplemental references for use in classes in agriculture are placed on reserve for your convenience. The agricultural unit of the library receives regularly approximately 2500 periodicals and serials. The library presently consists of 60,000 volumes of reference books on agriculture and related areas. New books and periodicals are constantly being added to the library for use by students and staff.

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. A second Research Center used for teaching and for additional research, was completed in 1972. 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 have 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 4000 acres of this land is near enough to the Lexington campus to be used regularly in the teaching program. The remainder consists of a 14,250 acre tract of forest land in Breathitt County, a 1100 acre farm in Caldwell County, and a 938 acre farm in Owen County. The college also leases farms for experimental work in Mercer and Woodford counties.

Allied Health

Joseph Hamburg, M.D., is Dean of the College of Allied Health Professions.

The College 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.

The Allied Health Professions is today's most rapidly growing field on the health care scene. This is as it must be if the mounting demands for health care services are to be met. Because the supply of physicians and dentists will never properly provide the work force necessary to meet these demands, the allied health professions are being called upon more and more to assume greatly expanded and increasingly complex health care duties and responsibilities. The College of Allied Health Professions strives continuously to review its offerings in keeping with society's evolving expectations.

The College presently offers programs at the baccalaureate level in Allied Health Education, Community Health, Dental Hygiene, Medical Technology and Physical Therapy. It provides masters degree programs in Clinical Nutrition, Medical Radiation Dosimetry and Radiological Health Specialty and a non-degree graduate program in Clinical Pastoral Counseling.

The Center for Learning Resources for Allied Health also provides a variety of academic opportunities at the undergraduate and graduate levels. Information on Associate Degree programs in Allied Health offered by the University is available in the Bulletin of the Community College System.

ADMISSIONS PROCEDURE FOR BACCALAUREATE PROGRAMS

The admissions procedure for all undergraduate departments within the College of Allied Health Professions, with the exception of experimental programs in the Department of Allied Health Education and Research, is a two-step process. Applicants must first be accepted by the University of Kentucky and secondly, during the semester prior to completing prerequisites, apply for admission to their department's professional program.

Applicants to programs in the Department of Allied Health Education and Research should contact that department at the address indicated under 3 below. Materials necessary to complete application to all other professional programs are included in the University of Kentucky application packet.

Persons who will have completed prerequisites for admission to a professional program prior to entering the University must complete both application to the University and application to a professional program at the same time. Freshman and transfer applicants who will not have completed prerequisites prior to entering the University must complete only the University of Kentucky application.

This admissions procedure is made necessary by limited space in the professional years of Allied Health programs. Space considerations do not permit acceptance of all interested persons who apply in spite of their satisfactory performance at this or other academic institutions. All students should maintain contact with their faculty advisers who will keep them appraised of their chances for acceptance.

1. **Admission to Pre-Professional Programs** (Freshman and transfer students without prerequisites): Persons applying for admission prior to having completed prerequisites for entrance into a professional program initially complete only the first step in the application process; application to the University of Kentucky. Freshman applicants seeking admission to the College will be admitted if they meet University entrance requirements, have an ACT composite score at or above the 50th percentile, and if they have a minimum high school grade-point average of at least 2.0. Materials necessary to complete application to the University of Kentucky must be returned to the Office of Admissions in the Administration Annex.

2. **Admission to Professional Programs**: Consideration for admission to professional programs is dependent upon completion of prerequisite course work and completion of the professional application procedure. Semester hours of prerequisite course work are as follows:

Community Health	30 hours
Dental Hygiene	64 hours
Medical Technology	60 hours
Physical Therapy	60 hours

Specific information regarding prerequisite course content is available in the University of Kentucky Bulletin, Academic Policies and Course Descriptions, the College of Allied Health Professions Bulletin, or may be obtained by writing the Office of Student Services.

Unless otherwise indicated, applications for admission to professional programs are accepted for the fall semester only.

3. **Admission to Special Programs in Allied Health Technologies**: Graduates of two-year associate degree programs in the Allied Health technologies, such as respira-

tory therapy, electroencephalography, dental hygiene, dental laboratory technology, or radiologic technology, who desire to teach in or administer programs of their specialties find themselves at an educational dead end. Whereas instructors in community colleges or technical institutes, where most associate degree programs are offered, ideally hold the master's degree, few institutions in the country have curricula whereby the graduate of a two-year program in one of the above technologies may earn the baccalaureate degree.

The graduate of a typical associate degree program will have approximately half of his post-secondary education in arts and sciences and half in his allied health specialty. This curriculum will allow the graduate of such a program to take two additional years of a combination of (1) courses related to his allied health specialty, (2) courses designed for the teacher or administrator or an allied health program, and (3) arts and sciences courses to satisfy the University's requirement for completion of five general studies areas. At the conclusion of this program, the student will be awarded the degree of Bachelor of Health Science.

Consideration for admission to special programs in Allied Health Technologies is dependent upon the applicant's having (1) an associate degree in an appropriate technology, (2) one year or more experience in the field following completion of the associate degree, and (3) commitment to teach or work in an administrative capacity in the field.

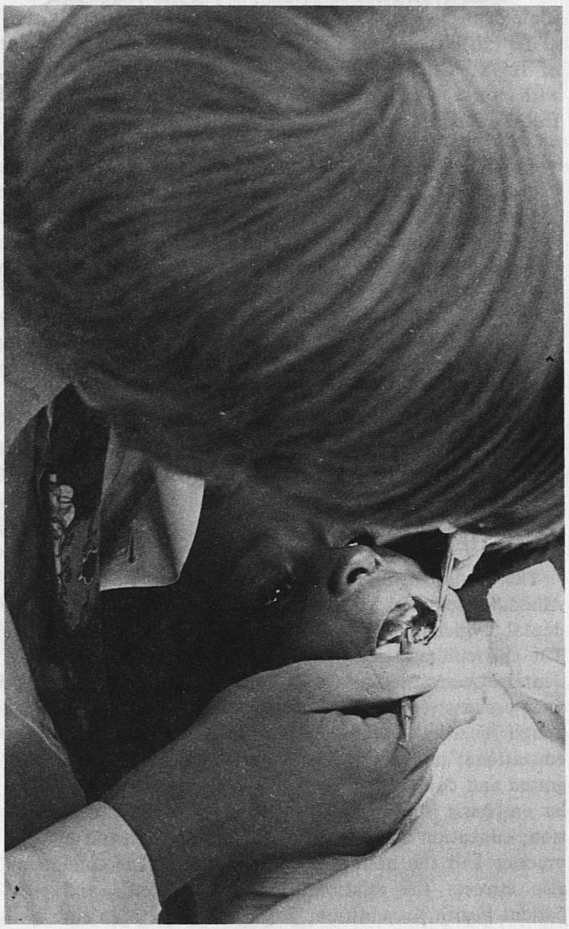
Persons interested in the undergraduate program should obtain a special "Application for Undergraduate Admissions" from the Center for Learning Resources, Room 20, Medical Center Annex #1, University of Kentucky, Lexington, Kentucky 40506.

Undergraduate applications and transcripts should be returned to the Admissions Office, University of Kentucky, Lexington, Kentucky.

DEADLINES FOR SUBMITTING APPLICATION TO PROFESSIONAL PROGRAMS

1. **Transfer Students:** Qualified transfer students must submit **two separate applications:** one to the University of Kentucky and one to the professional program into which they desire admission. Deadlines for receipt of application materials are as follows:
   a. University of Kentucky **and** Professional Program Application Forms—January 1*.
   b. Partial transcript, list of course work in progress, plans for summer course work, recommendations and test scores required by departments—February 15**.
2. **Students Enrolled at the University of Kentucky:** Students who have completed prerequisites at the University obtain professional application materials from the Office of Student Services at the address indicated below:

Office of Student Services
College of Allied Health Professions
Medical Center Annex No.2
Lexington, Kentucky 40506



The following deadlines have been established for return of these materials to Student Services:

a. Professional Application—January 1*.
b. Recommendation and test scores required by departments—February 15**.

* August 1 for students applying for spring admission to Medical Technology.
**September 15 for students applying for spring admission to Medical Technology.

COMMUNITY HEALTH

The primary objective of the Department is the education of the allied health professional for his or her work with the community—a broader responsibility than merely 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 Health Sciences degree, major in Community Health, with three options: Health Education, Environmental Health, and Health Services Administration.

ALLIED HEALTH EDUCATION AND RESEARCH

The Department of Allied Health Education and Research serves as both the repository for and the designer of innovative curricula and experimental programs for the College of Allied Health Professions.

Its faculty, representing a broad spectrum of interests and resources, serves as consultants for our many and diverse interests.

If any place in the College could be designated as a "think tank" for Allied Health development and planning, this would be it.

DENTAL HYGIENE CURRICULUM

The Department of Dental Hygiene in the College of Allied Health Professions offers a four-year curriculum in dental hygiene leading to a Bachelor of Health Sciences. The curriculum is designed to emphasize the prevention of dental disease. Students are trained in educational methods and preventive clinical technics which qualify them as dental health educators and competent clinicians. The educational philosophy encompasses the concepts of integrated and comprehensive dental hygiene practice. Particular emphasis is placed on the correlation between prevention, education and the technical phases of dental hygiene practice and the basic and social sciences. The curriculum also stresses the relationship between dental and total patient health. In addition, you participate in an advanced functions component which is described below.

Students considering admission for the fall of 1975 should be aware that changes are now being considered in the Dental Hygiene Program which may result in considerable alterations of the curriculum published herein. For information regarding the current status of the program please write to:

Office of Student Services
College of Allied Health Professions
University of Kentucky
Medical Center Annex 2
Lexington, Kentucky 40506

Advanced Functions

An educational research program involving dental hygiene is currently being conducted jointly by the Colleges of Allied Health Professions and Dentistry. This program offers training in advanced skills related to dentistry for children. This option is available to students in the undergraduate curriculum as well as those students enrolled in the teacher education program at the undergraduate and graduate levels.



Teacher Education

The Department of Dental Hygiene and the Center for Learning Resources in the College of Allied Health Professions offers a baccalaureate degree program in teacher education. Students are admitted who have graduated from an accredited dental hygiene program with a certificate or an associate degree. The curriculum is designed to provide courses in educational methods for clinical and laboratory teaching and evaluation. A teaching internship in a clinical setting is included in the curriculum. Other course offerings include principles of dental hygiene education, tests and measurements, and educational media.

The graduate program is offered through the College of Education in conjunction with the Center for Learning Resources and the Department of Dental Hygiene. The Master of Science degree is awarded in the Department of Higher and Adult Education. Areas of concentrations include teacher education and/or administration.

MEDICAL TECHNOLOGY

The Medical Technology curriculum is a program of the College of Allied Health Professions of the Medical Center leading to a Bachelor of Health Sciences degree.

The four-year program satisfies the University requirements for the 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 and the Veterans Administration Hospital.

The general objective of the baccalaureate program is to educate adaptable medical technologist generalists who

with further experience and/or education are capable of becoming teachers, specialists or administrators in medical laboratories.

PHYSICAL THERAPY

The Department of Physical Therapy is an integral part of the University's health education program, leading to the Bachelor of Health Sciences degree, and emphasizing the following objectives:

1. Preparing physical therapists who upon graduation are well educated, technically skilled and socially sensitive.
2. Providing opportunities for continuing education for the practicing physical therapists.
3. Exploring through pilot studies the possibilities of training new types of personnel allied to physical therapy and rehabilitation.



CLINICAL PASTORAL COUNSELING

The over-all objective of the Department of Clinical Pastoral Counseling is to educate both health and religious professionals in their developing interrelationships, and particularly to provide course work which will more adequately equip religious professionals to function effectively as members of health teams.

CENTER FOR LEARNING RESOURCES

The University of Kentucky, working in part under a grant from the W. K. Kellogg Foundation, formed the Center for Learning Resources for Allied Health to prepare the person with a background in one of the Allied Health professions, i.e., dental hygiene, medical technology, electroencephalography, etc.; to teach in or administer a department of allied health or any of the allied health clinical training centers. The Center was created primarily to serve Missouri, Illinois, Indiana, Ohio, West Virginia, Virginia, and Tennessee, as well as Kentucky, and combines the resources of the University's College of Allied Health Professions, College of Education, and Community College System.

For the persons with an Associate Degree and experience in an allied health technology, the Center offers an opportunity to earn a Bachelor of Health Science degree via the Experimental Baccalaureate program described in the previous Allied Health section on "Admissions Procedures for Baccalaureate Programs." For details and the necessary special **Application for Undergraduate Admissions** contact the Center for Learning Resources, Room 20, Medical Center Annex #1, University of Kentucky, Lexington, Kentucky 40506.

At the master's and doctoral levels the Center offers graduate students programs with a major in higher education and a minor in his allied health specialty or a related area. For details see the Graduate School Bulletin and the Bulletin of the College of Allied Health Professions.

Architecture

Anthony Eardley, Architectural Association Diploma (Hons), is Dean of the College of Architecture; Clyde R. Carpenter, B. Arch., Associate Dean.

The art of building is the art of providing space and structure for the organized accomodation of human activity. The art of architecture is the art of evoking poetic response to the built domain. Architecture is one of the most durable symbols that remains as a testament to the lives of a people, to their spirit and their aspirations, to their degree of civilization.

The traditional professional duties of the architect are to plan, design and supervise the construction of buildings. The recently discovered concern for the recovery of a more orderly and humane environment has broadened a hitherto somewhat narrow view of the architect's role to include a professional responsibility in the development of regional and community plans designed to achieve a balance of economic growth and human viability.

The object of the College of Architecture and its curriculum is to promote the development of those qualities of professional skill, competence and social awareness which the architect must command if architecture is to enhance

contemporary life and remain as an enduring and valid expression of our society.

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 College is fully accredited by the National Architectural Accreditation Board.

The instructional program requires the successful completion of a minimum of 10 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 you to meet the general requirements of the University with appropriate counseling from the faculty of the College of Architecture. Following the successful completion of Lower Division studies, you may be admitted to the final three years, Professional Studies, in the College of Architecture.

The first two years of the Professional Studies Program will be essentially the same for all students in the College 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 structures and environmental controls, conceived as a unity of experiences encompassing the skills, concepts, and principles demanded in the solution of contemporary architectural problems.

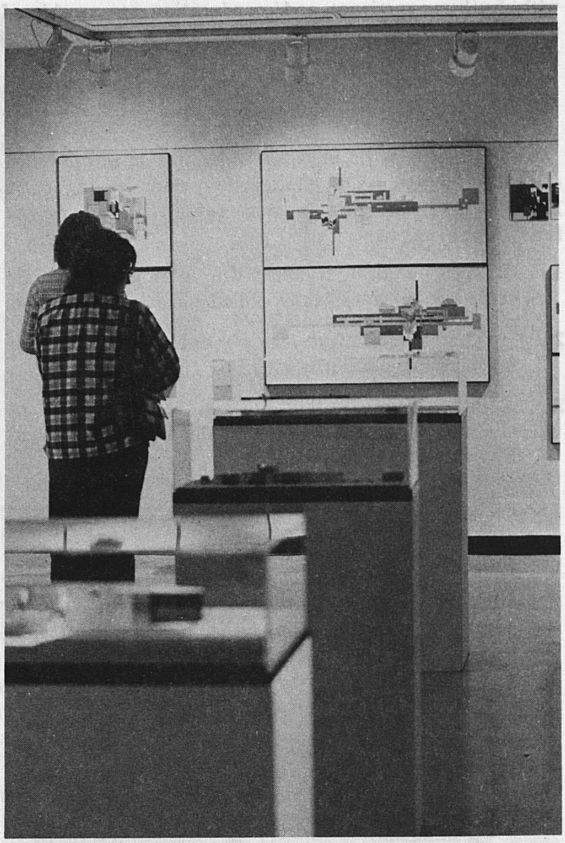
The final year of professional study will allow each of you to expand your individual interests in preparation for an advanced degree or architectural internship leading to licensure. The elective studies component during the Professional Studies Program is designed to assist you in preparing for specialized interests and at the same time to extend the opportunitues initiated in the general studies component. The professional elective component is designed to allow greater opportunities for your individual interests in architectural subjects at the advanced level and to reinforce the selected topical studies offered in the advanced architectural problems sequence.

The College of Architecture is enriching its undergraduate program with the addition of a European workshop as an important option. Run in collaboration with the University of Venice, the workshop enrolled its first students last summer.

ADMISSION

Applicants to the University of Kentucky who may be interested in Architecture are encouraged to visit the campus and to discover more about the program by appointment with the Associate Dean of the College or the College Adviser.

Effective fall semester 1975, enrollment in the College of Architecture will be regulated by means of a selective admissions procedure. All applicants to the College will be examined on a comparative and competitive basis.



Freshman applicants should be aware that acceptance into the freshman class in architecture does not guarantee that the student will be able to continue into the Upper Division Program later on.

Transfer applicants should be aware that the College of Architecture Admissions Committee reserves the right to place an accepted student in the component or components of the College curriculum which it deems most appropriate to his background and previous development.

Admissions Procedures

Freshman candidates are required to file application with the Office of the Dean of Admissions and Registrar by February 10, 1975 for fall 1975 admission, and by October 1, 1975 for spring or summer 1976 admission. Please note that these deadlines are earlier than those for general admission to the University. Candidates will be admitted in order of priority on the basis of the following criteria.

1. A potential for general academic achievement as indicated by the high school grade-point average and freshman entrance examination scores.
   As a rule, the minimum academic standards acceptable to the Admissions Committee will be the same as those that apply to the admission to the University of Non-Resident Freshmen. In the event, however, that the Committee finds clear indications of probable success

in the College from its review of the further evidence pertaining to a candidate who does not meet these minimum criteria, an exception may be made to this rule, upon recommendation of the College of Architecture Admissions Committee and with the approval of the Dean of Admissions.

For fall admission, applicants must register for and take the American College Test (ACT) on either the October or December 1974 test dates. February, April and June 1975 results cannot be considered except for the following spring semester, the summer program or the next admissions year.

2. The probability of success in a professional program in architecture as predicted by:
   a) "The Architectural School Aptitude Test,"
   b) "The Omnibus Personality Inventory,"
   c) Comparative measures of aptitude and motivation derived by the Admissions Committee from supplementary tests and,
   d) In cases of uncertainly and circumstances permitting, personal interview.

   These tests will be administered jointly by the College of Architecture Admissions Committee and the University Counseling and Testing Center in the College of Architecture, Pence Hall, on March 15, 1975 and October 26, 1975.

   Arrangements can be made for those candidates who are unable to attend the examination on campus, for test administration under proper controls prior to March 15 or October 26 at their local educational facility. Requests stating the need for a local examination should be made in writing to the College of Architecture Admissions Committee, 117 Pence Hall, in sufficient time to allow the necessary arrangements to be made, and to ensure that the results of the examination are received by the Committee by the March 15 or October 26 deadline.

Transfer candidates from educational programs other than those in architecture or environmental design will be required to observe the same application deadlines and testing procedures (when applicable) as those set out above for freshmen.

Candidates will be considered in order of priority on the basis of the following criteria:

1. The indication of general academic performance as reflected by the cumulative collegiate grade-point average, and the indications of specific interests and aptitudes as reflected by grades in certain critical disciplines (i.e., art history, biology, foreign languages, freehand drawing, history of ideas, mathematics, philosophy, physics, social history, etc.).

   As a rule, the minimum academic standard acceptable to the Admissions Committee will be a cumulative grade-point average of 2.0 on a 4.0 scale, or an average of C in all previous college work. In the event, however, that the Committee finds clear indications of probable success in the College from its review of the further evidence pertaining to a candidate who does not meet these minimum criteria, an exception may be made to this rule, upon recommendation of the College of Architecture Admissions Committee and with the approval of the Dean of Admissisions.

2. The probability of success in a professional program in architecture as predicted by:
   a) "The Architectural School Aptitude Test,"
   b) "The Omnibus Personality Inventory,"
   c) Comparative measures of aptitude and motivation derived by the Admissions Committee from supplementary tests,
   d) Other indications of aptitude and motivation as may be available (e.g., a portfolio of work, references, experience in building construction or related fields, etc.) and,
   e) In cases of uncertainty, and circumstances permitting, personal interview.

Transfer candidates from programs in architecture or environmental design are required to file application with the Office of the Dean of Admissions and Registrar by April 15, 1975 for fall 1975 admission, and by September 15, 1975 for spring or summer 1976 admission. Please note that these deadlines are earlier than those for application to the University in general.

Candidates will be considered in order of priority on the basis of the following criteria employed together in combination:

1. The indication of general academic success and success in a professional program in architecture as reflected by the cumulative collegiate grade-point average, and indications of specific aptitude and skill development as reflected by grades in architecture or enviromental design courses.

   As a rule, the minimum academic standard acceptable to the Admissions Committee will be a cumulative grade-point average of 2.0 on a 4.0 scale, or a C average in all previous college work. In the event, however, that the Committee finds clear indications of probable success in the College from its review of the further evidence pertaining to a candidate who does not meet these minimum criteria, an exception may be made to this rule, upon the recommendation of the College of Architecture Admissions Committee and with the approval of the Dean of Admissions.

2. a) A review of the candidate's portfolio work in architecture or the environmental design disciplines.

      The portfolio should be brought or mailed, **together with return postage and mailing labels** directly to the College of Architecture Admissions Committee, 117 Pence Hall.

   b) A review of at least four letters of reference addressed to the Admissions Committee from ref-

erees such as previous instructors in architecture or environmental design, other teachers, architectural practitioners or related professionals for whom the candidate may have worked.

The candidate's portfolio and letters of reference should be received by the Committee by May 15, 1975 for fall 1975 admission, and by October 1 for spring and summer 1976 admission.

c) In cases of uncertainty, and circumstances permitting, personal interview.

Transfer Applicants in this category should be aware that the College of Architecture Admissions Committee reserves the right to place an accepted student in the component or components of the College curriculum which it deems most appropriate to his background and previous development.

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 College 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 College of Architecture is located in Pence Hall and Miller Hall on the central campus. The buildings contain 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 College 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 annually 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. The Society also provides liaison with the state and national professional societies and contact with other schools of architecture.

SCHOLARSHIPS AND PRIZES

Several scholarships are presented each year to qualified students in the College 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.

Arts and Sciences

Art Gallaher, Jr., Ph.D., is Dean of the College of Arts and Sciences; Herbert N. Drennon, Ph.D., Associate Dean for Student Academic Affairs; Anthony C. Colson, Ph.D., Associate Dean for Program Development and Evaluation; Lewis Donohew, 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.

The College of Arts and Sciences offers programs leading to the degrees of Bachelor of Arts, Bachelor of Science, Bachelor of Music, Bachelor of General Studies, and Bachelor of Music Education.

The course of study leading to the Bachelor's degree traditionally requires four years, but it is possible to earn the degree in less time. During his first two years at the University you usually select a major and concentrate on meeting the general studies requirements and prerequisites for that major. In his last two years you will normally seek a deep understanding of your chosen field of study and broad academic experience in related areas.

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.

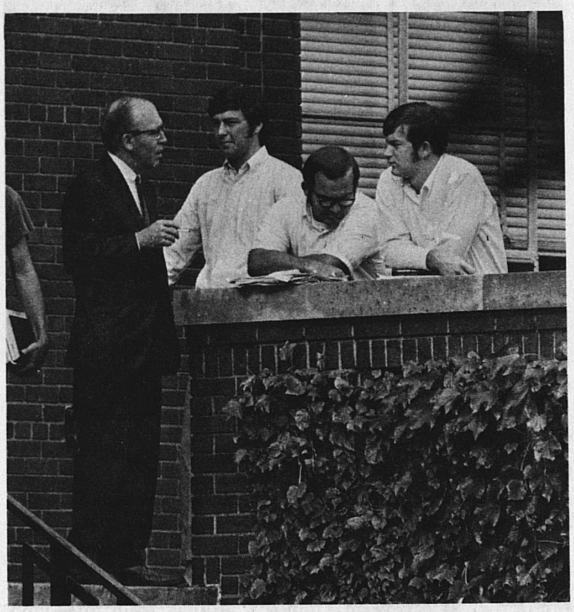
The College of Arts and Sciences encompasses academic programs in Aerospace Studies, Anthropology, Art, Biological Sciences, (including Biology, Botany, Microbiology, and Zoology), Chemistry, Classical Languages, Communications (including Journalism, Speech, and Telecommunications), Comparative Literature, Computer Science, Economics, English, French Language and Literature, Germanic Languages, History, Linguistics, Mathematics, Middle East Civilization, Military Science,

Slavic and Oriental Languages, Sociology, Spanish and Italian Languages, Statistics, Theater Arts, and topical majors, as well as the Patterson School of Diplomacy. Most departments offer programs leading to the Master or Ph.D. degree.

STUDENT ADVISORY COUNCIL

The Student Advisory Council is selected each spring by the undergraduate students regularly enrolled in the College. The chairman of the Student Council is an ex officio member of the Faculty Council of the College.

The Student Council usually consists of nine members who are chosen from all academic areas of the College. Those of you who wish to apply for membership on the Council may contact the Dean's Office on the procedures for nomination and election.



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., B.S., or B.G.S.
2. A professional course leading to a special degree in 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 medicine or 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.

THE STUDENT AND THE ADVISER

The University strives to make available experiences that will enhance your intellectual life and personal development. An important part of this effort is to assist you in obtaining insights and information enabling you to make an effective choice from among the range of options available. To assist in planning a program to gain maximum benefit from what the University has to offer, each student is assigned an academic adviser. You are encouraged, however, not to restrict the adviser's role to that of supplier of information, but to extend it to include his or her becoming for you a counselor and advocate. Before consulting with your adviser, you are encouraged to become familiar with sources of information supplied by the University, such as the University Catalog, the Student's Rights and Responsibilities, Cross Roads (Student's Handbook), the Class Schedule Book, and material on degree requirements available from the dean's office or from some of the departments. In addition, the student should feel free always to seek advice and assistance from the Office of the Associate Dean for Student Academic Affairs, College of Arts and Sciences.

New Freshmen. New freshmen must attend the summer orientation and registration period. At this time you are advised by temporary advisers. When you return in the fall,



you should go to your major departments as soon as possible where you will be assigned to a permanent adviser. Thereafter you will be advised under the supervision of your major department. Undetermined students are advised in the Office of the Associate Dean of Instruction.

Transfer Students. New transfer students must also attend this summer orientation and registration period. You are assigned advisers in the same manner as new freshmen. The new transfer student should bring a catalog from his previous college. He or she should check with the Office of the Associate Dean for Instruction if any question concerning the interpretation of transfer work arises.

Sophomore and Upper Division Advisers. The department in which you are doing your major work appoints your adviser. Students who select interdisciplinary topical majors are advised by the Associate Dean for Student Academic Affairs.

Probation Students. Students placed on academic probation should contact the Office of the Associate Dean for Student Academic Affairs 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.

FIELDS OF STUDY

Aerospace Studies

The Air Force Reserve Officer Training Corps

General Information: By successfully completing either the two-year or four-year Air Force ROTC program, qualified men and women students may concurrently earn a United States Air Force officer's commission while completing the requirements for a degree in their chosen field. Any student may enroll voluntarily in Air Force ROTC at the same time as registration for other undergraduate courses. Those students taking aerospace studies courses for credit only, who do not execute a written agreement with the government, cannot earn a commission in the U.S. Air Force.

Anthropology

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.

Art

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.

The Department offers undergraduate majors in studio, art history, and art education. Intensive studio work is offered in drawing, painting, printmaking, ceramics, fabrics and sculpture. Special libraries, galleries, classrooms, and conference rooms are provided for the critical and historical study of the visual arts. The department has a substantial collection of original works of art, slides, photographs and reproductions.



THOMAS HUNT MORGAN SCHOOL OF BIOLOGICAL SCIENCES

The School of Biological Sciences is named in honor of Thomas Hunt Morgan, native of Lexington, graduate of the University, and Nobel Laureate for his work in genetics. The School has responsibility for courses and programs appropriate for general studies and for undergraduate and graduate courses and programs in biology within the College of Arts and Sciences.

Undergraduate programs are offered with a major in biology, botany, microbiology, and zoology which encompass the major areas of plant biology, animal biology and microbiology. Graduate programs available include the M.S. in botany, microbiology, and zoology, and Ph.D. programs in biological sciences and microbiology. School faculty also participate in a number of additional graduate programs such as the Ph.D. program in Plant Physiology.

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.

Courses are available for those of you 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.

Chemistry

The Department of Chemistry offers a program leading to the Bachelor of Science degree for students who intend to become professional chemists or who intend to do graduate work in Chemistry. The department also offers a Master of Science and Ph.D. degree.

Classical Languages and Literatures

The Department of Classical Languages and Literatures offers curricula leading to the A.B. and M.A. degrees. As a branch of the Liberal Arts College, the Department seeks to broaden and deepen your acquaintance with the Ancient World through the medium of its languages and literatures.

Undergraduate advising for those of you wishing to major or to take courses in the department is available at the Departmental Office, 1105 Patterson Office Tower. At this location information may be obtained on bypass examinations for those desiring to satisfy language requirements through demonstration of competency.

SCHOOL OF COMMUNICATION

Department of Journalism
Department of Speech
Department of Telecommunications

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 you for professional work in communications. The three academic departments of the School—Journalism, Speech and Telecommunications—offer five undergraduate sequences including an interdepartmental communication sequence and a program leading to the Master of Arts degree.

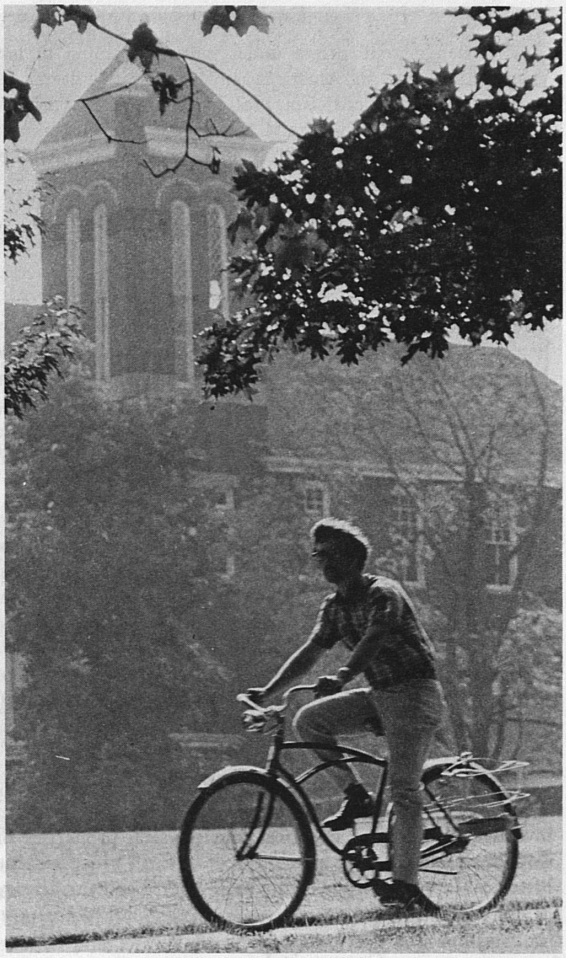
Comparative Literature

As Comparative Literature is the study of literature on a non-national basis, the undergraduate major in Comparative Literature must acquire a sound knowledge of two literatures, plus an introduction to a third. Though it is understood that the reading of the first two literatures will be done in the original language, English literature may be chosen as one of these.

Computer Science

For those of you who are 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 respresentation, storage, manipulation, retrieval and presentation of computer information. The Department also offers a Master's degree program.

The facilities of the University of Kentucky Computing Center, including the IBM 360 Model 65, are available to students in computer science. A PDP 8E Computer with disk and tape facilities is available to graduate students in mathematical sciences.



Diplomacy and International Commerce (PATTERSON SCHOOL)

The Patterson School of Diplomacy and International Commerce offers an interdisciplinary Master's degree especially designed to prepare people for professional careers in fields such as international organizations, U.S. government agencies in foreign affairs, international economic and development activities, international reporting, and related endeavors requiring professional graduate training at the Master's level.

Although the Patterson School does not offer a Bachelor's degree, somewhat similar programs are available at the undergraduate level by individual arrangement with the Associate Dean of Arts and Sciences for Topical Majors.

Economics

Those of you 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.

English

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).

French Language and Literature

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, the Department has as one of its fundamental aims to broaden and deepen your acquaintance with the French-speaking world through the medium of its language and literature.

Geography

Geography is concerned with understanding the spatial organization of the man-environment system of the earth. Introductory geography is concerned with the basic characteristics of this system and the principles of its organization. Advanced work emphasizes the development and application of theories to explain the more complex parts of this system and to predict changes in the spatial distribution of phenomena.

Geology

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.

Germanic Languages and Literatures

An integral segment of the liberal arts curriculum, the fundamental aim of linguistic-literary study is to broaden and deepen our acquaintance with the world about us by revealing aspects of its culture, ancient and modern, and therefore a more significant knowledge of its people.

The Department features German studies with supporting courses in several Scandinavian languages.

History

The Department of History 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.

Linguistics

The program in linguistics is an interdisciplinary enterprise utilizing resources from fields as varied as languages, anthropology, psychology, physics, computer science, and philosophy, to develop an understanding of the nature and implications of language. Students who major in linguistics can find solid foundations in phonology, morphology and syntax, together with the structure and history of a particular language; and can explore a number of rich and varied options among allied courses in several disciplines. These studies lay a basis for graduate work in linguistics, for correlation to work in such fields as foreign language, anthropology, philosophy, special education, and communications, and for an orientation to a general liberal arts education. Vocational opportunities for students with linguistic skills are many and varied. Students majoring in other fields will find in the program not only enrichment at the introductory level, but many courses at the advanced level correlated to their other academic interests.

Mathematics

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.

Second, the Department of Mathematics provides courses to fit the specialized needs to students in other departments and colleges: physical sciences, life sciences, philosophy, social sciences, engineering, and commerce.

The Department is concerned that all students in its various programs received accurate and intelligent advice. Therefore, there are three groups of advisers:

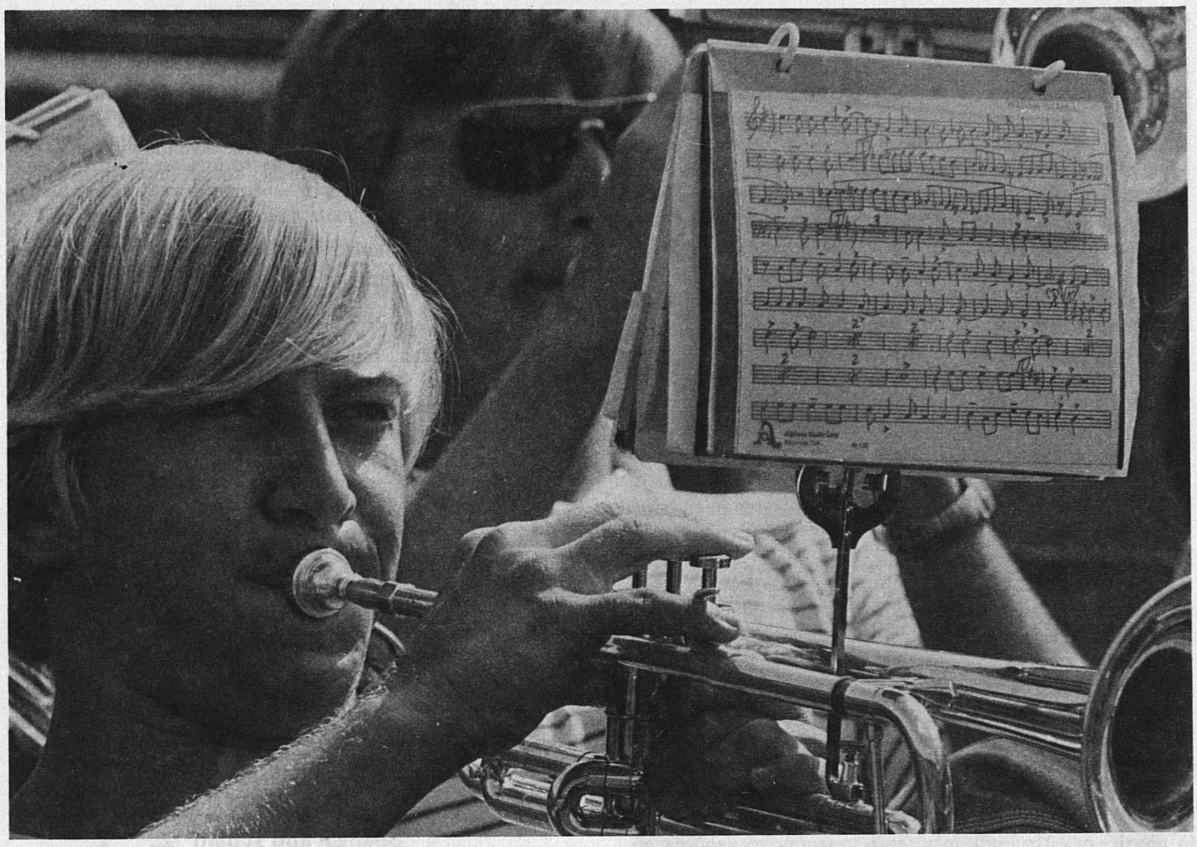
1. **Freshman-Sophomore.** Lower division students are usually assigned an adviser from this group.
2. **Junior-Senior.** At the end of his sophomore year, each student is asked to select his own adviser. In most cases this adviser will not be the same person who advised the student during his freshman and sophomore years.
3. **Certification Candidates.** Mathematics majors who wish to be certified to teach in Kentucky schools take a more structured curriculum than do non-certification candidates. For this reason the department has a special group of advisers to advise certification candidates. It is especially important that students in this category maintain close contact with their advisers.

Any student may select, change, or be assigned to an adviser by reporting to the departmental office, 715 Patterson Tower.

Military Science

The U.S. Army Reserve Officers' Training Corps

The objective of the Reserve Officers Training Corps at the University of Kentucky is to provide for students voluntarily enrolled in the Military Science program, the military components of the University curriculum 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 re-



serve as well as the regular components of the Army of the United States.

Educational Aim: The course of study is designed to give you preparation and standards which will be as valuable to you in your industrial or professional career as it would be should the nation call upon you to act as a leader in its defense forces.

SCHOOL OF MUSIC

Degrees

Three undergraduate degrees are offered by the School of Music (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.

Admission to any of the above undergraduate programs, either as an entering freshman or as a transfer student, will be granted only after you have completed an audition in your applied area and have taken the theory placement test.

The School of Music also offers courses leading to the Master of Music degree (in Applied Music, Composition, Music Theory, or Music Education), the Master of Arts degree, the Doctor of Musical Arts, and the Doctor of Philosophy in musicology.

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 School library, and 44 practice rooms including four 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 School of Music 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.

For further information on these and other music scholarships or application write to the Director of the School of Music.

The School of Music offers the University community opportunities to participate in and experience music through: the University Bands, the University choral ensembles, the University Orchestras, and the Collegium Musicum.

Philosophy

Philosophy is central to a liberal arts education and encourages you to inquire critically and systematically

about the fundamental questions of life, meaning, and the universe. Philosophical study encompasses problems and issues which are perennial and deeply embedded in history as well as newly emergent and specialized. The courses are designed to encourage discussion so that you may actively engage in the philosophical investigation of problems. Many advanced courses are of special interest to those of you not specializing in philosophy, and most of these are open with a background of only one introductory level course. The Department encourages the use of these courses to fulfill College and University requirements. The B.A. degree program with a major in philosophy requires foundations in history of philosophy and in logic, allows for a variety of work in most systematic areas of philosophical concern, and encourages integration and interaction with substantial studies in other disciplines. This program can be tailored to your needs when planning graduate work in philosophy, when using philosophical studies as pre-professional preparation for such fields as law, medicine and the ministry, and when viewing the B.A. as a terminal degree in a liberal arts education. The department also advises you in the development of B.G.S. programs, for which philosophical studies may serve as a coordinating hub around which other studies are oriented, or as a basis for reflection and integration for studies organized according to a variety of rationales.

Physics and Astronomy

The Department of Physics and Astronomy helps many students acquire a general understanding and appreciation of physics and astronomy. The undergraduate curriculum is complete and flexible enough that a graduate with a major in physics or astronomy may teach in secondary schools, go on to greater specialization in physics or astronomy, or use his or her major as a strong foundation for vocations. The Department provides graduate instruction and modern facilities for research activities of the staff of the Department.

Political Science

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 the necessary background and skills for undertaking graduate work in political science and related fields.

Psychology

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 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, social, experimental or general psychology.

Slavic and Oriental Languages and Literatures

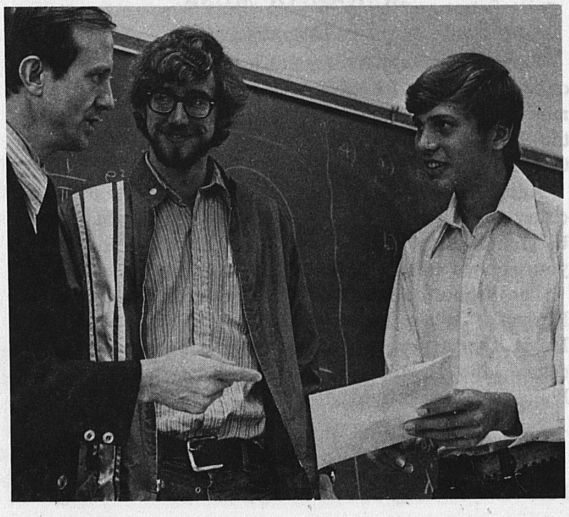
The Department of Slavic and Oriental Languages offers courses in Russian, Japanese, Hebrew, and Arabic, and in the literatures of these languages. Many students who major in Russian plan to teach Russian or to pursue careers in government service.

Sociology

The courses and other training offered in sociology supplement the work of the allied social sciences and have an important part in a broad liberal education. 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.

Spanish and Italian Languages and Literatures

The Department of Spanish and Italian has several aims: to develop the student's language skills, as well as to provide an understanding of the cultures and literatures of people who are natives of the Hispanic and Italian speaking worlds.



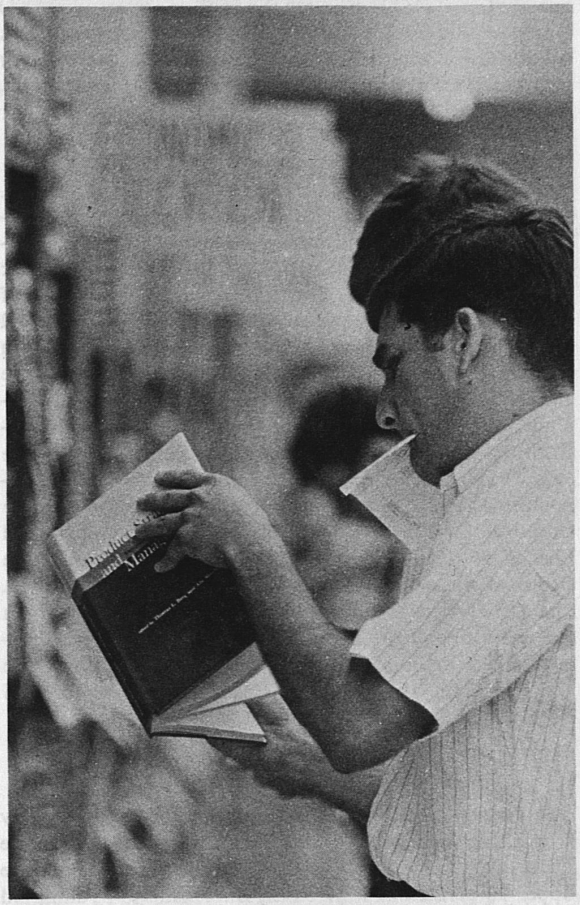
Statistics

The Department of Statistics at the University of Kentucky is concerned with three essential aspects: teaching, research and consulting. Consultation on the design, analysis and interpretation of experiments is provided to research workers on and off the campus. Particular attention is paid to the consulting needs of graduate students.

The Statistics Department does not offer an undergraduate degree at the present time, but requirements for an undergraduate major are presently under review. The Department does offer the Master of Science and the Doctor of Philosophy degrees.

Theatre Arts

The Department of Theatre Arts attempts to provide for artists and audiences experiences that can reaffirm imagination—experiences that can corroborate youth and joy by becoming, to quote Alexander Tairov, "wonderful flights into the fantastic region of the impossible." This attempt proceeds on the assumption that theatre lives only at the moment of contact between audience and actor, and it encourages both artists and audiences to approach that moment from several points: historical, critical, practical, theoretical and experimental. Special emphasis is placed on contemporary theatre and on exploration through dramatic art of social, political, individual, artistic and religious issues at work in our modern world.



Business and Economics

Charles F. Haywood, Ph.D., is Dean of the College of Business and Economics; Clyde L. Irwin, D.B.A., Associate Dean for Administration; H. K. Charlesworth, Ph.D., Associate Dean for Extension; John Douglas, Ph.D., Assistant Dean for Program Development; and Philip K. Berger, Ph.D., Assistant Dean for Administration.

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 Business Development and Government Services. 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 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. You may also obtain a Bachelor of Arts in Economics through a major in the College of Arts and Sciences.

The objective of the instructional program is to prepare you for a life-long career in business, government, or research and teaching. The program is structured to provide you with an opportunity to acquire a background in the basic areas of the arts and sciences, to obtain a broad knowledge of business and economics, and to study in depth one or more fields of special interest.

ADMISSIONS

Requirements for admission to the College of Business and Economics are the same as those outlined on preceding pages for the University.

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 Ad-

ministration, (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.

EXTENSION PROGRAMS

The extension arm of the College of Business and Economics is the Office of Business Development and Government Services. Included in this Office are three Bureaus: The Bureau of Business Extension, through a central staff and field officers, provides consulting services to small businesses. The Bureau of Government Services engages in technical assistance, training, and research projects for state and local governments. The Bureau of Business and Economic Research maintains a program of research on developments affecting the Kentucky economy. The Office serves as the secretariat for the Kentucky Council of Economic Advisers, and an advisory agency to the Office of the Governor. A journal of regional development, Growth and Change, is published quarterly under the auspices of the Office of Business Development and Government Services. The Office also administers a Labor Education Center in cooperation with the State AFL-CIO. Publications containing basic economic data on the Kentucky economy are available from the Office of Business Development and Government Services upon request.

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 Kentucky 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.

EMPLOYMENT

Graduates of the College can count upon the fullest possible cooperation of the University Placement Service and the faculty of the College in finding suitable career opportunities. Several hundred major corporations conduct on-campus interviews with interested students each year. Graduates of the College are in much demand, and a student may receive offers from several corporations. Students who feel a need for career counseling are encouraged to contact the Associate Dean for Administration.

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 60 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 College 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.

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.

In addition to the undergraduate dental program, the College also offers graduate and specialty training in several dental disciplines. For complete information on the College and its programs, see the College of Dentistry Bulletin.

ADMISSION–DOCTOR OF DENTAL MEDICINE

The College accepts 60 entering dental students yearly; it seeks to enroll those students whose academic backgrounds,

personalities and motivations indicate that they will make the best possible future dental practitioners. As a state-supported school, the College of Dentistry gives preference to qualified residents of Kentucky; however, a number of well-qualified out-of-state candidates will be admitted each year and are urged to apply.

Programs have been established to increase enrollment from under-represented groups such as women, minorities and individuals with rural backgrounds. The College also welcomes applications from persons qualified for advanced standing.

Recommended Pre-dental Preparation

At the meeting of the American Dental Association in November 1970, the traditional prerequisites required for admission to dental school were abolished. Each school may now establish for itself whatever prerequisites it feels are desirable. Admission to dental school is a competetive process, and so it is impossible to establish any list of specific qualifications that will ensure admission.

A misconception has developed on the part of some applicants with the elimination of prerequisites; that is, that it is now easier to gain admission. Just the opposite is true. Each year has resulted in more and better applicants. The competition is heightening, not lessening.

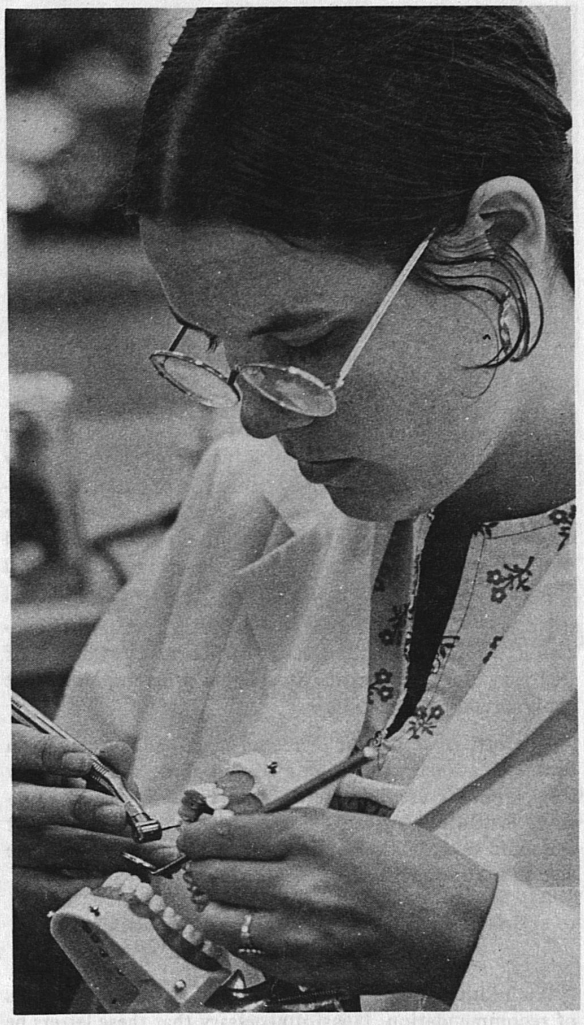
Quality of performance in academics is still a significant factor in making admissions decisions. The major area or the area of concentration selected by the applicant is immaterial, provided he performs well.

A specific number of undergraduate credits is no longer a requirement. However, because there are so many well-qualified applicants, only the most exceptional applicants will gain admission with two or less years of undergraduate preparation; about 10-20 percent of those accepted will probably be three-year applicants; the remainder will have four or more years of preparation. In general, the less academic preparation an applicant presents, the stronger his performance must be.

It is no longer necessary for an accredited school or college of dentistry to require every student to take four years to complete his dental education. The better students may be able to graduate in less time than the traditional four years. After a dental student has demonstrated exceptional ability, performance and interest, he will be considered, on an individual basis, for early graduation.

In the basic science courses, the superior student may be able to pass an exempting examination. Aptitude in a particular area and undergraduate courses completed successfully will be important in enhancing the chances of the applicant being able to pass such examinations. This is another means whereby the superior student may accelerate his progress through the dental curriculum.

It is recommended that the student contact the admissions office of the College of Dentistry at an early stage in his undergraduate career for individual guidance. It is recognized that the change in prerequisites has caused some confusion and it is thereby imperative that the student, his adviser and admissions personnel at the College of Dentistry work together closely to provide each applicant the best chance for gaining admission.



As of this time, it is still necessary for accepted applicants to complete the Dental Admission Test. It is administered in January, April and October of each year. It is advisable for the applicant to complete the test no later than October of the year preceding the year of anticipated admission.

Both potential applicants and advisers are cautioned that the above information applies to the University of Kentucky College of Dentistry **only**. Specific information should be sought from the dental school in which the student has an interest to determine any variation in requirements.

Any questions related to Admissions, including prerequisites, application materials, Dental Admission Test and academic counseling should be directed to:

Committee on Dental College Admission
Albert B. Chandler Medical Center
Room MN 106
University of Kentucky
Lexington, Kentucky 40506
Telephone 606 233-6071

Application

Application for admission to the College of Dentistry should be submitted after July 1 but no later than February 1 preceding the fall in which admission is desired. Candidates are advised to complete their applications **at the earliest possible date,** since no applicant can be considered until all parts of the application have been received. All applications should be sent to the Admissions Committee.

Forty-four dental schools have joined a centralized application service. The University of Kentucky College of Dentistry **does not** participate in this program. You must apply directly to the College.

One official transcript of record must be requested from **each educational institution** attended above the secondary level. Transfer credits entered on a transcript from a previous institution attended is not sufficient. The transcript of record must come from the original college in which the credits were earned.

Letters of Recommendation

Applicants are encouraged to submit two or more letters of recommendation. It is not necessary that these letters be written by specific individuals (e.g., pre-dental adviser, practicing dentist, etc.). Rather, letters should be requested from those who know the applicant well and can provide meaningful comments about the applicant's sense of responsibility, social sensitivity, community orientation, and awareness of social problems. Because transcripts and DAT results will provide ample evidence of academic potential, the letters of recommendation should not emphasize this area.

Dental Admission Test

The Dental Admission Test was developed and adopted by the Council on Dental Education of the American Dental Association as a means of determining an individual's potential for dentistry. It is a standardized examination required of all applicants by all dental schools and administered and graded by the Division of Educational Measurements of the American Dental Association. This examination is given three times a year (October, January, and April) at a number of locations throughout the nation. It is strongly recommended that the student complete the examination during the October testing period or, at the latest, in January preceding the fall in which he expects to enroll.

Education

George W. Denemark, Ed.D., is Dean of the College of Education.

OBJECTIVES

The College of Education is responsible for designing, developing, and implementing programs concerned with the professional preparation of personnel in educational roles in many types and levels of schools, colleges, and other social agencies.

Within this context the College:

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 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 in Education
Master of Science (Health, Physical Education and Recreation)
Master of Science in Education
Specialist in Education
Doctor of Education (Ed.D).
Doctor of Philosophy (Ph.D.)

ACCREDITATION

The University of Kentucky is accredited by the National Council for Accreditation of Teacher Education for the preparation of elementary and secondary teachers and school service personnel with the doctor's degree as the highest degree approved.

SPECIAL FACILITIES AND SERVICES

The Bureau of School Services is the research and survey arm of the College. It publishes a quarterly bulletin and performs studies for school districts and others on a contract basis.

The Diagnostic Center for Speech and Hearing serves as a training facility for students; services include free hearing and speech evaluation and therapy for all University students, speech, hearing, and language evaluations for children and adults who are Kentucky residents, and supervised out-patient speech, language, and hearing therapy services.

The Programmed Environment Preschool provides a model for early education for children whose development has been severely retarded. As part of a research training and curriculum development project, it serves as a focal point for the development of new training models and curricula for the developmentally retarded. Practicum experiences are available to students on a limited basis.

The Education Library contains more than 30,500 volumes, over 250 periodicals, and approximately 92,000 pieces of microfiche; a complete microfiche collection of all ERIC documents is on file. The facilities and resources of the other libraries on campus are also available to all students.

The Instructional Media Center contains audio-visual equipment and resources used in conjunction with courses in educational media. It includes a materials-preparation laboratory, a demonstration classroom, a photographic darkroom, a television studio, and an equipment operation laboratory. Media consulting services are provided to University faculty.

The Curriculum Development Center for Career Education provides ancillary services in the preparation of curricula and curricular materials in Career Education.

The Reading Center maintains a special collection of books, pamphlets and other materials relative to reading curricula.

The 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

Persons majoring in Elementary Education; Junior High; Health, Physical Education, or Recreation; or Special Education must enroll in the College of Education. Prospective Senior High School teachers may enroll either in the College of Education or in the college housing their academic major. Specific requirements for admission to the various professional programs in education are listed in the College of Education Brochure. In order to continue in professional programs, students pursuing certification must obtain admission to a Teacher Education Program



DEPARTMENTS

Administration and Supervision

The Department of Administration and Supervision seeks to improve the quality of American education through improved training and competence of its administrators. The Department is particularly mindful of its obligation to supply the needs of the State of Kentucky for high quality administrators in its public schools and in a variety of educational agencies.

Curriculum and Instruction

The Department of Curriculum and Instruction 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 21 fields.

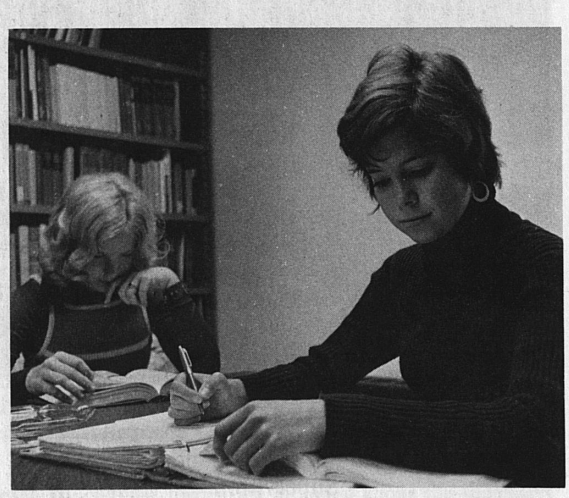
Educational Psychology and Counseling

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.

Health, Physical Education and Recreation

The majority of the men and women selecting health and physical education do so because they expect to teach these

subjects as well as coach athletic teams in our community schools. Since our students come from widely different backgrounds, 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 student. The general requirements for physical education and health majors are the same as for all other students in the College of Education.



All students are encouraged to take two years of physical education for one hour credit of each semester successfully completed. They may choose from a large variety of lifetime activities. (See Schedule of Classes for each semester.)

A standard uniform is required in most physical education classes. The cost of such uniform ranges from $5 to $12. A locker fee of $1 to $2 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.

Higher and Adult Education

The Department of Higher and Adult Education offers only graduate degrees, the Master of Science in Education and the Doctor of Education. These programs do not require certification and are open to qualified persons with backgrounds in the various university disciplines who are interested in preparing for a career in college and university teaching and administration.

Social and Philosophical Studies in Education

The faculty of this Department is engaged in the systematic and analysis and interpretation of educational phenomena, using appropriate knowledge and methodologies of the humanities and social sciences, directed to (1) the development of teachers and researchers with special competencies in social and philosophical studies, (2) assistance in the preparation of other educational personnel, (3) contributions of research based on the special competence of this faculty, and (4) change in education through active participation in redirection and reform.

Special Education

The Department of Special Education is vitally concerned with meeting the critical need for competent special education personnel in the United States. Particular emphasis is given to meeting the needs of programs in the Commonwealth of Kentucky serving the handicapped. Graduates serve in public school and special agency programs.

The undergraduate programs prepare personnel in the following certification areas: (1) educable mentally retarded; (2) trainable mentally retarded; (3) orthopedically handicapped; (4) neurologically impaired (learning disabilities); and (5) speech and hearing. Graduate programs are available in these preparation areas and the behaviorally disordered or emotionally disturbed.

Vocational Education

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 administrators, coordinators, and supervisors of local and area programs of vocational education. The Department of Vocational Education provides teacher education programs in all service areas of vocational education.

Engineering

James E. Funk, Ph.D., is Dean of the College of Engineering. John H. Lienhard, 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. Programs leading to the Associate in Applied Science degree are offered by the University's Community College System. These two-year programs are offered in civil engineering technology, mechanical engineering technology and electrical-electronics engineering technology on the main University campus at Lexington through the Lexington Technical Institute. Resting upon

the conviction that creative accomplishment in the career of an engineer will most often be derived from an education that stresses major ideas and fundamental concepts of engineering rather than specific technologies, the academic programs in engineering provide for wide experience in the mathematical, physical and engineering sciences blended with the social sciences and humanities in such a way that makes it possible for you to obtain both a thorough education in engineering and a liberal education. Such an approach provides the best preparation for the engineer who must envisage and develop the technologies of the future and deal with scientific advances at present unknown.

The various curricula in the College of Engineering are broad, so that no student is limited to a narrow field of specialized knowledge, but receives sufficient technical depth to provide a sound preparation for a career in engineering.

The first engineering degree from the University of Kentucky was granted in 1890. Since that time over 6,000 degrees have been awarded in the various fields of engineering. There are among these alumni of the College of Engineering those who have distinguished themselves in the major fields of industry, government and education.

Concern for the individual is a most important feature of education in the College of Engineering. Close faculty-student relationships are necessarily a meaningful part of the educational process. The faculty, in addition to their duties related to instruction and research, serve as advisers to the student in the preparation of the academic program best matched to the student's needs and intellectual capabilities.

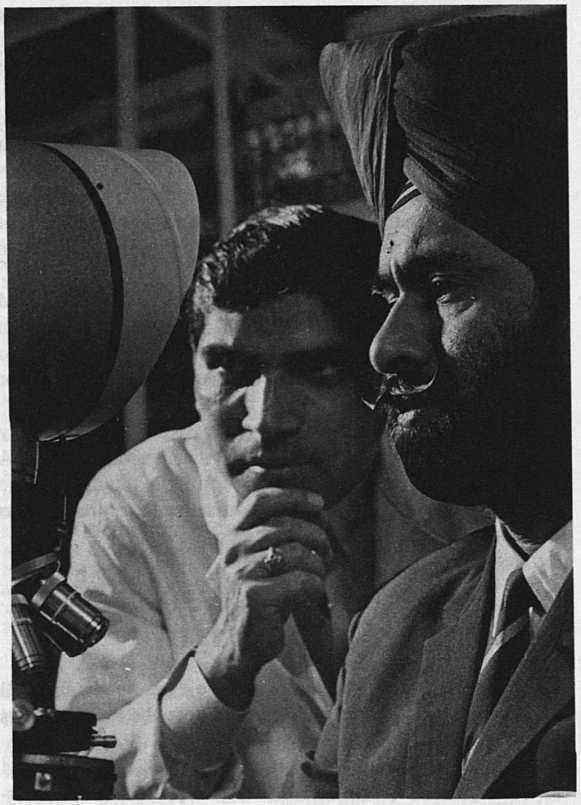
The College of Engineering is housed in Anderson Hall, a building consisting of a two-story quadrangle and an eight-story modern addition completed in 1966. The complex contains offices, classrooms, lecture halls, laboratories and the College of Engineering Library. Anderson Hall is centrally located 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 you may participate in modern experimental engineering as a significant part of their educational experience.

The College is engaged in a number of research projects, and those who are interested in such investigations have ample opportunity to engage in work along the lines of their special fields of interest.

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. You are encouraged to study the curriculum of the area of your choice. It is particularly important that those who plan to transfer to the College with advance standing carefully study their chosen curriculum to determine those courses acceptable as meeting degree requirements. You should ask your school to assign you to a pre-engineering adviser knowledgeable in your area of engineering requirements. Most schools have faculty members so designated. You are encouraged to contact the College of Engineering directly if you have questions which you cannot be answered by your pre-engineering adviser.

UNDERGRADUATE DEGREES

The College of Engineering offers instruction leading to the following bacalaureate 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

All of these programs are fully accredited by the Engineering Council on Professional Development.

Students interested in Mining Engineering should note that this is now an option in the Department of Civil Engineering. Graduates of this program are recognized as mining engineers by the coal mining industry.

A student in any department interested in biomedical engineering may make special arrangements with his adviser to include a limited amount of such studies in his undergraduate program. Biomedical engineering is primarily the application of engineering principles to the solution of medical problems, and it is an interdisciplinary program in the Graduate School.

The Department of Chemical Engineering has approved an optional program in pre-medicine. Students majoring in chemical engineering may arrange through their adviser to take courses which will satisfy the degree requirements for this program.

Each department lists one or more free electives. Only these free electives can be taken by the pass-fail option. A free elective is any University course excluding more elementary versions of required courses such as pre-calculus math or Physics 211.

REGULAR PROGRAM OF CONTINUOUS STUDY

The average student should realize that he or she will need nine semesters of study to complete the requirements for a degree.

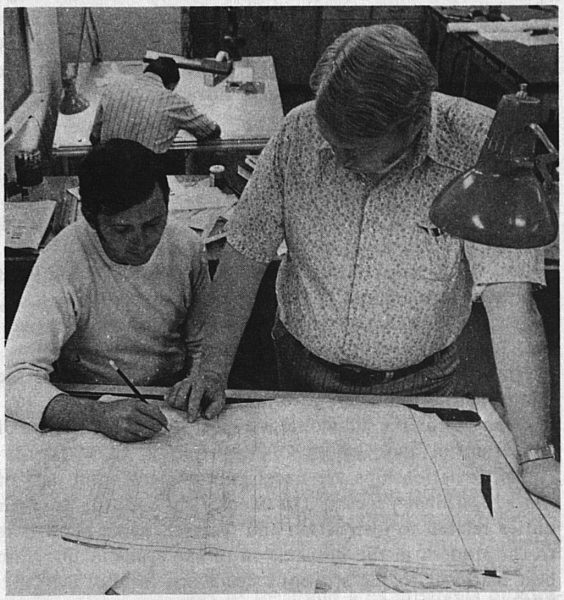
Students who are required to complete courses not listed in the degree programs of their choice will find it increasingly difficult to complete these requirements in nine semesters as the number of non-degree courses increases. This is particularly true of the transfer student who attends an institution 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 formally initiated 32 combination Liberal Arts-Engineering programs with four academic institutions throughout the State. Joint programs are presently being offered with Eastern Kentucky University, Georgetown College, Kentucky State University and Thomas More College. The program enables students to enroll in a prescribed pre-engineering curriculum for the first three years at their respective schools and then transfer to the College of Engineering for the final two years. Upon completion, they receive two degrees, one from the school with whom they originally enrolled and the other, a bachelor of science in engineering, from the University of Kentucky.

CO-OPERATIVE PROGRAM OF WORK-STUDY

The College offers a program of co-operative education for those who wish to participate in such a program. This plan allows the student to work for a selected company for a maximum of two semesters in addition to the summers,



generally in his 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 plan with his adviser to make sure that his rotation of study and work is compatible with any rotation of offerings his selected department may have.

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 the College cannot enter into a contract with any company, it likewise cannot guarantee placement for every student.

GRADUATE DEGREES

The College of Engineering offers graduate work leading to the following advanced degrees:

Master of Science in Agricultural Engineering
Master of Science in 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)

Under the auspices of the Colleges of Engineering and Medicine, the University offers graduate training in biomedical engineering. Engineering graduate students participating in the program are enrolled in the department of their major interest, and will earn the appropriate degree listed above.

A student intending to pursue graduate work in another institution should become informed regarding the requirements for entrance to that particular institution and plan undergraduate work accordingly.

For further information regarding graduate work, see the Graduate School Bulletin.

CONTINUING EDUCATION AND EXTENSION

The College recognizes the rapid changes occurring in modern engineering technology. Students in engineering are made aware of the need to continue their studies after graduation. One of the ways to keep "up-to-date" in engineering is for graduates to participate in Continuing Education programs now available through the engineering colleges throughout the country.

The responsibilities of the Office of Continuing Education and Extension at the University of Kentucky include the following:

1. Create and manage appropriate intensive non-credit technical courses of interest to and needed by practicing engineers.
2. Plan programs to aid other colleges in the University requiring engineering services to develop the economy of the State. This service will be provided as a cooperative effort with the practicing professional engineers in Kentucky.
3. Plan international programs to aid other offices in the University for the improvement of educational institutions of developing countries.

Graduate School

Wimberly C. Royster, Ph.D., is Dean of the Graduate School and Coordinator of Research.

The University of Kentucky began offering graduate work in 1870, and awarding graduate degrees in 1876. The Graduate School as a distinct unit was organized in 1912.

The Graduate School is concerned with advanced study and research carried on by the faculty and students of all colleges and departments. Under it the total graduate resources of the University are merged in order to promote the achievement of knowledge in an atmosphere of free and lively inquiry.

Graduate work is offered in most colleges in the University.

The following advanced degrees are conferred:

DOCTOR OF PHILOSOPHY
DOCTOR OF BUSINESS ADMINISTRATION
DOCTOR OF EDUCATION
DOCTOR OF MUSICAL ARTS IN MUSIC TEACHING
SPECIALIST IN EDUCATION
MASTER OF ARTS
MASTER OF SCIENCE
MASTER OF SCIENCE IN ACCOUNTING
MASTER OF SCIENCE IN AGRICULTURE
MASTER OF SCIENCE IN CLINICAL NUTRITION
MASTER OF SCIENCE IN COMPUTER SCIENCE
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
MASTER OF SCIENCE IN NURSING
MASTER OF SOCIAL WORK
MASTER OF ARTS IN EDUCATION
MASTER OF SCIENCE IN EDUCATION
MASTER OF BUSINESS ADMINISTRATION
MASTER OF MUSIC
MASTER OF FINE ARTS

The degree of Doctor of Philosophy is offered with major work in the following fields: Agricultural Economics, Agricultural Engineering, Anatomy, Animal Science, Anthropology, Biology, Biochemistry, Chemical Engineering, Chemical Physics, Chemistry, Civil Engineering, Crop Science, Diplomacy and International Commerce, Economics, Educational Psychology, Electrical Engineering, Engineering Mechanics, English, Entomology, French, Geography, Geology, Germanic Languages, History, Mathematics, Mechanical Engineering, Metallurgical Engineering and Materials Science, Microbiology, Musicology, Pharmaceutical Sciences, Pharmacology, Physics, Physiology and Biophysics, Plant Pathology, Plant Physiology, Political Science, Psychology, Sociology, Soil Science, Spanish, Statistics, Toxicology, and Veterinary Science. Minor work may be carried in any department offering graduate courses.

ORGANIZATION OF THE GRADUATE SCHOOL

The Graduate Faculty consists of the Dean of the Graduate School and all persons appointed thereto by the President of the University. As the chief University agency for the promotion of the ideals of graduate study, it determines the policies of the Graduate School and makes recommendations to the University Senate on such matters as require the approval of that body. All rules affecting graduate work and the inauguration of new graduate programs must be approved by the Graduate Faculty.

The Dean and His Office. The Dean of the Graduate School is charged with the administration of the policies adopted by the Graduate Faculty and the University Senate relating to graduate studies.

The Graduate Council is composed of eleven members of the Graduate Faculty, two graduate students and the Dean of the Graduate School.

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

Directors of Graduate Study. A director of Graduate Study is appointed for each program of graduate study. Among other duties, he serves as adviser to each student majoring in his area until the student has a thesis director.

ADMISSION

A student who has a baccalaureate degree from a fully accredited institution of higher learning and has an undergraduate grade-point standing on all work attempted of at least 2.5 on the basis of 4.0 or who, on the recommendation of the appropriate director of graduate study, can satisfy the Dean of the Graduate School that he has the equivalent of such a background may be considered for admission to the Graduate School. 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 (GRE) and other evidence acceptable to the department and the Dean of the Graduate School is submitted indicating that he is capable of doing satisfactory graduate work. Individual departments may establish higher requirements.

Students may apply for admission by submitting to the Graduate Admissions Office two official transcripts of all college courses and a written application. Consult the Graduate School Bulletin for application deadlines. Application blanks may be obtained from the Graduate Admissions Office, Room 304, Patterson Office Tower.

ADVANCED DEGREES FOR FACULTY MEMBERS

Members of the faculty, excepting those in the Community College System, having a rank higher than that of Instructor may not be considered as candidates for degrees in the discipline in which they are employed or as candidates for degrees above the master's degree in any discipline.

GRADUATING SENIORS AS PART-TIME GRADUATE STUDENTS

A senior in the University of Kentucky lacking no more than six credit hours for graduation and having an undergraduate average of at least 2.5 may register in the Graduate School with the consent of his or her college dean and the Dean of the Graduate School. Approval of the appropriate director of graduate study is required if you are to be an applicant for a degree. The total load in this case may not exceed 12 credit hours. Graduate credit will be allowed for each credit hour of graduate work beyond the six or fewer credit hours needed to complete undergraduate requirements. The incidental fee is that of a full-time student in the school in which more than half of the work is taken. In cases where the load is evenly divided between the schools, the larger fee is assessed. Requirements for the undergraduate degree must be completed during the semester in which the student is allowed to register for part-time graduate work. Students desiring to enroll in the Graduate School under these conditions must fill out in duplicate a petition listing the courses or courses to be taken in order to complete their undergraduate requirements. The petition must be approved by both deans concerned.



NON-DEGREE WORK

As many as six credit hours with the grade of A or B, earned in regular graduate courses by one enrolled as a non-degree student at the University of Kentucky, may be counted toward the requirements for a graduate degree. These credits must be earned in the year immediately preceding the student's acceptance and enrollment in the Graduate School and must be appropriate to his program of study for the graduate degree. The use of such credits must have the approval of the student's Director of Graduate Studies and the Dean of the 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. In order that Extension taken at another approved Graduate School be transferable, it must be taken while enrolled in that Graduate School. No graduate credit is given for courses taken by correspondence.

REGISTRATION AND CLASSIFICATION

All students expecting graduate credit must be enrolled in the Graduate School. Graduate students will conform to the general registration schedule of the University and may not enter later than the last allowable date set by the Registrar.

Before registering, a graduate student must obtain his or her adviser's approval of the proposed program.

THE GRADUATE RECORD EXAMINATION

All students working for graduate degrees must take the Aptitude Test of the Graduate Record Examination. In

addition, individual programs may require other portions of this examination. This must be done no later than the first term of graduate work.

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

FEES

Registration fees per semester are $265 for residents of Kentucky, $630 for non-residents. Part-time graduate students who are legal residents of the state pay $30 per semester credit; non-residents pay $70 per semester hour.

Detailed requirements for the various masters' degrees may be found 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, as well as a number of other non-service fellowship awards open to graduate students. 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 or she 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 which vary with the departments. Information concerning assistantships may be obtained from the various departments.

Home Economics

Marjorie S. Stewart, Ph.D., is Dean of the College of Home Economics. Doris A. Tichenor, Ph.D., is Associate Dean for Extension.

Home Economics is the field of knowledge and service primarily concerned with strengthening family living. Its focus is the home, the individual, the family, and the community. It draws knowledge from its own research, from research in the physical, biological, and social sciences and applies this knowledge to improve family living. Its subject matter includes:

- family relationships and human development
- personal, family and community health
- consumption and other economic aspects of personal and family living
- management in the use of resources so that values and goals of the individual, the family, or of society may be attained
- nutritional needs and the selection, preservation, preparation and use of food
- design, selection, construction, care, and merchandising of clothing, and its psychological and social significance
- textiles for clothing and for the home
- housing for the family and equipment and furnishings for the household
- art and design as a part of everyday life.

The resident teaching, research, and extension programs of the College of Home Economics are organized and administered through five departments: Housing and Interior Design; Human Development and Family Relations; Management and Family Economics; Nutrition and Food Science; and Textiles, Clothing and Merchandising.

Graduates of the College of Home Economics fill important positions in teaching; extension; research; community service agencies and organizations; business, marketing, and industry; dietetics and institution administration; and communications media—radio, TV, newspapers, and periodicals.

ADMISSION AND ADVISING

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 College of Home Economics faculty. The faculty adviser helps the student in planning educational goals and in planning a course of study to attain these goals.

SCHOLARSHIPS AND AWARDS

The College of Home Economics awards several scholarships each year to sophomore, junior, and senior students who are majoring in home economics. These scholarships are awarded primarily on the basis of academic performance, need and service while in college. Information about these scholarships and scholarship applications may be obtained from the office of the Dean, College of Home Economics, University of Kentucky.

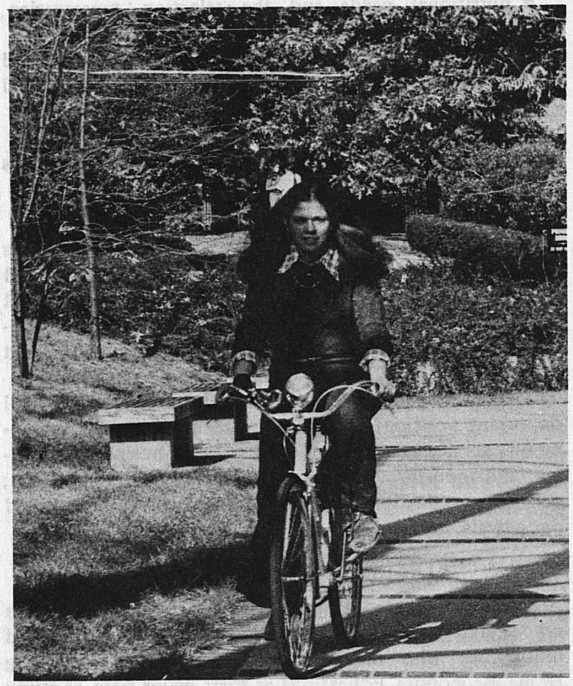
Each year the Kentucky Home Economics Association awards scholarships to four outstanding junior and senior majors in home economics attending one of the four-year colleges and universities in Kentucky.

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 College of Home Economics.

STUDENT ACTIVITIES

A student chapter of the American Home Economics Association has been chartered at the University of Kentucky. This professional organization conducts an interesting and varied program of activities planned in accordance with aims and objectives of the student chapters of the American Home Economics Association. Membership is open to all home economics majors.

Iota Chapter of Phi Upsilon Omicron, the student



honorary professional society for home economics majors, was chartered in 1922. It sponsors the annual Phi U convocation and the Cornell Award for the outstanding Home Economics Freshman. Members are elected after their third semester on the basis of scholarship, leadership, and activities.

The Foods and Nutrition Club aims to encourage and develop professional interest. It increases contacts among students, faculty and other professionals. Membership is open to students, faculty and staff interested in nutrition and food science.

The University of Kentucky student chapter of the National Society of Interior Designers was chartered in 1960 for the purpose of furthering professional interest in the area of interior design.

The Home Economics Coordinating Council is composed of representatives of each of the home economics student organizations. It sponsors the annual Home Economics Awards Banquet at which outstanding students are recognized and participate in service projects for the College.

GRADUATE WORK

The College of Home Economics offers graduate programs leading to the degree of Master of Science in Home Economics with specialization in Housing and Interior Design, Human Development and Family Relations, Management and Family Economics, Nutrition and Food Science, or Textiles, Clothing and Merchandising. Graduate assistantships are available for teaching or research assignments. For information on graduate programs or graduate assistantships contact the Dean of the College of Home Economics or Director of Graduate Studies for each respective Department.

THE FACULTY

The program of the College is conducted by 29.5 resident and research faculty and 12 Cooperative Extension Faculty. A listing of faculty is included in the Bulletin, Admission Policies and Course Descriptions. The faculty are graduates of a wide variety of fine institutions of higher education in the nation.

DEPARTMENTS

Housing and Interior Design

The efforts of the Department are directed toward providing a professional program for students concerned with the career aspects of the personal and public environment. All facets of shelter, furnishings, equipment, and function are weighed against the aesthetic and socio-economic needs of mankind. Studio experiences are directed toward data gathering, design resources, presentation graphics, using both theoretical and actual architectural enclosures. Historic and restoration aspects are included as support areas for the career program. Resource trips, field experiences, and contact with practicing professionals are included in the classroom/studio curriculum.

Human Development and Family Relations

The Department of Human Development and Family Relations includes six major subject matter areas: (1) child development, (2) early childhood programs, (3) human development, (4) marriage and family relationships, (5) disadvantaged children and families, and (6) the family and the environment. These subject matter areas form the foundation for training in the professional activities of teaching, research, extension service, and related activities which focus on the child and the family.

Management and Family Economics

The Department of Management and Family Economics is concerned with the areas of consumer economics, rehabilitation of the handicapped homemaker, resource management, personal and family finance, management involved in homemaking practices, work simplification and utilization of community resources. In designing courses offered in this Department, consideration has been given to the changing needs of families and individuals which have been created by contemporary social conditions.

Nutrition and Food Science

The Department of Nutrition and Food Science is comprised of teaching, research and extension. Courses are designed to offer to the general University student appreciations of the cultural and scientific aspects of nutrition and foods, and to the student majoring in this Department sound professional preparation in science, dietetics and food business professions. Students will choose necessary professional and specialty support courses from arts and sciences, agriculture, education, or business and economics.

Textiles, Clothing and Merchandising

The Department of Textiles, Clothing and Merchandising has the following purposes: to provide basic knowledge of textiles, clothing and merchandising for all home economic students as well as students from other areas on campus who take these courses as electives; to provide a specialized undergraduate program for students majoring in textiles, clothing and merchandising; to provide state-wide leadership in Extension Home Economics programs in clothing and textiles; and to provide opportunities for research by faculty and students in the areas of textiles, clothing and merchandising.

Law

George W. Hardy III, J.D., is Dean of the College of Law.

Since its establishment in 1908 as an integral part of the University, the College of Law has provided programs of legal instruction, research and service to the state and to the bar. Its programs are not limited in scope, however, and are designed so that graduates of the school can practice their profession on a local, regional or national level. The College is accredited by all agencies which establish standards for law schools, including the Association of American Law Schools, the American Bar Association and the bar admission authorities in all states.

The instructional program centers in a three-year general law curriculum designed to be completed in six 16-week semesters. 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 you in acquiring the myriad skills that solution of modern legal problems demand, to acquaint you with related and interdependent fields of knowledge, to make certain that you have an appreciation for and understanding of the legal, social, and political institutions on which the administration of justice rests, to prepare you for the policy and ethical decisions you must make on behalf of the community in practicing your profession; in short, to give you broad, practical, basic training of unmatched excellence that will permit unlimited development of your legal capacities throughout your career.

THE FACULTY

The program of the College is conducted by a full-time faculty and staff composed of 19 professors and 25 library and secretarial personnel. They are assisted by some part-time teaching associates and research associates. Members of the teaching faculty are well qualified by formal training and experience to teach law, to guide you 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 118,000 volumes, one of the larger law libraries in the South. It is housed in the Law Building as an integral part of the College 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 a rate of about 5,000 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 Intern and Legal Aid programs, the Student Bar Association and visiting attorneys and others who come to the Law School for research and study.

OTHER FACILITIES AND INFORMATION

The College has had a chapter of the Order of the Coif since 1931. This the academic honorary in law to which senior students are elected because of outstanding legal scholarship. 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 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 a part of the curriculum very soon after the College itself was created and the latter is provided through student-managed Law Clubs. Teams representing these clubs compete annually to qualify as the College representative in the National Moot Court Competition.

Instruction in legal research and writing is available to all students, not only in special courses designed for this purpose, but in an extensive program of seminars, drafting projects and opportunities for independent study. In cooperation with the Fayette County Bar Association the College operates a Legal Aid program to provide students with a variety of clinical learning experiences, including the representation of indigent clients in court by advanced students who qualify as Legal Aid Interns under the special rules of the Kentucky Court of Appeals. There is a modest

scholarship fund for College of Law students derived from annual gifts by alumni and members of the bar, and some financial assistance through federally guaranteed loans is available. Scholarship aid is awarded as funds permit by a Committee of the Faculty, based on need, character and scholarship. The loan programs are administered cooperatively with the University Student Finiancial Aid office. Information and applications for scholarships can be obtained from the Dean's Office, College of Law, while loan information and applications can be obtained from the University Student Financial Aid Office.

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 (recommended load: seven 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 applicant for admission to the College of Law must meet the following requirements:

1. The applicant must have received a bachelor's degree from an accredited institution.
2. The applicant must have taken the Law School Admission Test.
3. The applicant must have registered with the Law School Data Assembly Service and furnished the necessary transcripts which such registration requires.

Admissions Committee Consideration

The 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. For applicants seeking to enter in the fall of 1973, it is anticipated that the Committee will recommend that consideration be given to the applications of those persons who have at least a prelaw cumulative average of 3.0 on a 4.0 point scale and an LSAT score of at least 600. The Committee ordinarily denies admission if the cumulative grade-point average is less than 2.6 and the LSAT score is less than 525. Between these levels the Committee evaluates each application carefully and fully, giving special consideration where the upper division work in undergraduate study has shown a marked improvement. Any applicant who believes his application presents a special case for consideration by the Committee may request a Committee decision on it.

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 and initiated by submitting to the University Admissions Office a completed application form, which may be obtained from that office or the Office of the Dean, College of Law.

The Law School Admissions Test (LSAT), administered by the Educational Testing Service (ETS), is given in October, December, February, April and July of each year at testing centers throughout the country according to a schedule of dates and places published well in advance of the test by the ETS. The LSAT is also given in some foreign countries.

In addition to administering the LSAT, the ETS provides a transcript analysis and report for applicants to all of the principal law schools, known as the Law School Data Assembly Service (LSDAS). All applicants are required to register directly with ETS for this service, which is done at the time one applies to ETS to take the LSAT. For this reason, also, the applicant's transcripts of prelaw work are sent to ETS rather than the University Admissions Office except as is explained below. The LSAT application and the LSDAS registration form are available from ETS, the University Admissions Office and the Dean's Office, College of Law. Applicants accepted for admission before the completion and awarding of their undergraduate degree must submit two copies of their final transcript showing the degree conferral, directly to the University Admissions Office. Applicants still enrolled for undergraduate study who desire to have their academic records for the senior year considered should send an official transcript of these grades as soon as available to the University Admissions Office for attention of the Chairman, Law School Admissions Committee.

Submission Dates and Deadlines

The application for admission should be submitted well in advance and will be considered when all supporting materials (including the LSAT score report, the LSDAS transcript report and any other required transcripts) have been received.

To assure full and timely consideration of the applications of all applicants the following dates have been established for receipt of the application and all supporting materials:

March 1 of the year in which one expects to enter law school for the fall term is the deadline for the receipt of the admissions application and notice of LSDAS registration by the University Admissions Office. March 31 is the deadline for receipt of all materials, including LSAT scores and the LSDAS report by the University Admissions Office. Accordingly, the February administration of the LSAT in the year for which an applicant seeks admission is the last LSAT examination which will be accepted by the Admissions Committee. No notice of acceptance will be given by the College of Law prior to January 15 of the year in which the applicant seeks admission. Recommendation: To insure full and timely consideration, it is suggested that your transcripts be on file with LSDAS by February 1 since there is a time lag of some six weeks before the report of the LSDAS is received by the University Admissions Office. Only under extraordinary circumstances will the Committee consider applicants whose applications and credentials are not submitted within the above deadlines.

PRELEGAL STUDY

No special prescribed curriculum or course 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 for a vital role in the community once they have acquired their professional training. Thus they should pursue a degree program in prelaw in which they 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.

Library Science

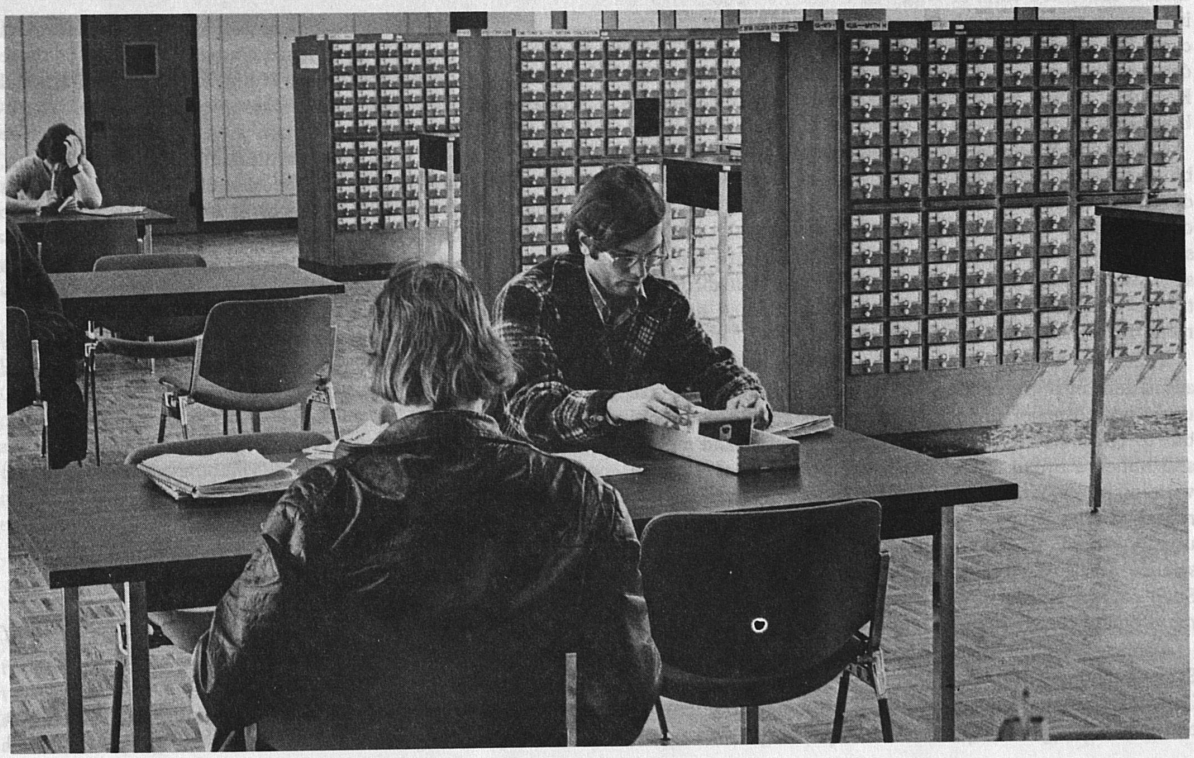
Lawrence A. Allen, Ph.D., is Dean of the College of Library Science.

The present College of Library Science began in 1933 as the Department of Library Science. Prior to that time some courses in library science were being offered as early as 1918. Only July 1, 1968, the department was reorganized into the School of Library Science, and on July 1, 1970, the School became the College of Library Science for purposes of University-wide uniformity. It is one of 57 library school programs in the United States and Canada accredited by the American Library Association.

Objectives of the College of Library Science are to:

- 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 a particular area of librarianship.
- 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 College of Library Science maintains flexibility and openness to change by means of participation of faculty, students, and administration in the decision-making process. The student body, numbering about 150 graduate students, each year elects a Student Committee to represent them in all deliberations of the College of Library Science. Students sit on all committees sharing significantly in the development of the College. Students also elect a representative to the University Senate each year. The Student Committee participates in orientation programs, publishes a newsletter, and sponsors social activities throughout the year. The diversity of the students, in terms of geography



(half from outside of Kentucky) and interests and backgrounds, helps to create an atmosphere where change and improvement in the program can happen.

The libraries of the university, M. I. King and the branch libraries, constitute the major "laboratory" facility for library science students. They are supplemented by other libraries in the area including those in Lexington Theological Seminary, a 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.

ADMISSION, REQUIREMENTS AND PROCEDURES FOR GRADUATE STUDY IN LIBRARIANSHIP

Applicants are urged to read the Bulletin of the Graduate School for detailed information on general requirements and procedures which apply to the College of Library Science academic program.

Admission

The admissions philosophy of the College is that we wish to admit students who are capable of satisfactory academic performance and who show promise of being able to function as competent and effective librarians. A basic requirement for admission is an undergraduate degree in any discipline (from an accredited institution) with a grade-point average of at least 2.75 on a 4.00 scale. In addition the applicant must present Graduate Record Examination scores on the aptitude sections (verbal and quantitative) with a combined total of 900. The Graduate Record Examination is offered on most university and many college campuses across the nation several times each year. Students wishing to take the examination at the University of Kentucky should register through the Testing Office of the University.

Students who do not meet these requirements may still be considered for admission. Such factors as patterns of development and achievement as indicated in the transcript or a Graduate Record Examination score above a 1000 for students with less than 2.75 GPA will enter into the consideration. While we keep admission standards high, we do try to remain flexible to account for individual development differences, and needs.

There are no specific library science prerequisites for admission into the College of Library Science. You are urged not to major in Library Science as an undergraduate but to concentrate on other subject area majors and minors and obtain a broad liberal arts background. Those students with many undergraduate library science courses do not repeat similar courses in the graduate program and are usually asked to take graduate courses in non-library science areas to strengthen backgrounds in subject areas. Such courses are, however, counted as part of the 36-hour requirement for graduation.

Application must be made both to the College of Library Science and the Graduate School. Forms for both the College of Library Science and the Graduate School may be obtained from the Assistant Dean, College of Library Science. The College of Library Science form should be returned directly to the College. The Graduate School application and two copies of all official transcripts must be returned to the Graduate School no later than 30 days prior to the opening of the term in which the student wishes to enroll. Early application is, however, encouraged to allow for any delays. Library Science students may enroll in any semester, though summer and fall terms are preferable for correct courses sequence. If you enter in the spring, you must accept the liability that you may not be able to take all of the courses you desire.

Previous students must also apply for readmission if they were not enrolled during the semester prior to that for which admittance is sought (or if for a summer session, the previous summer session).

Admission, Requirements and Procedures for Undergraduates

The College of Library Science does not offer any formal program of study on the undergraduate level. Students who are registered as undergraduates at the University of Kentucky may take library science courses at the 500 level as a general minor or as meeting the requirements for certification in Kentucky as a school librarian. Those students who are not working toward certification are encouraged not to take more than six credit hours of the 500 level core courses in library science if they plan to enter the College of Library Science.

Admission, Requirements and Procedures as a Non-degree Student

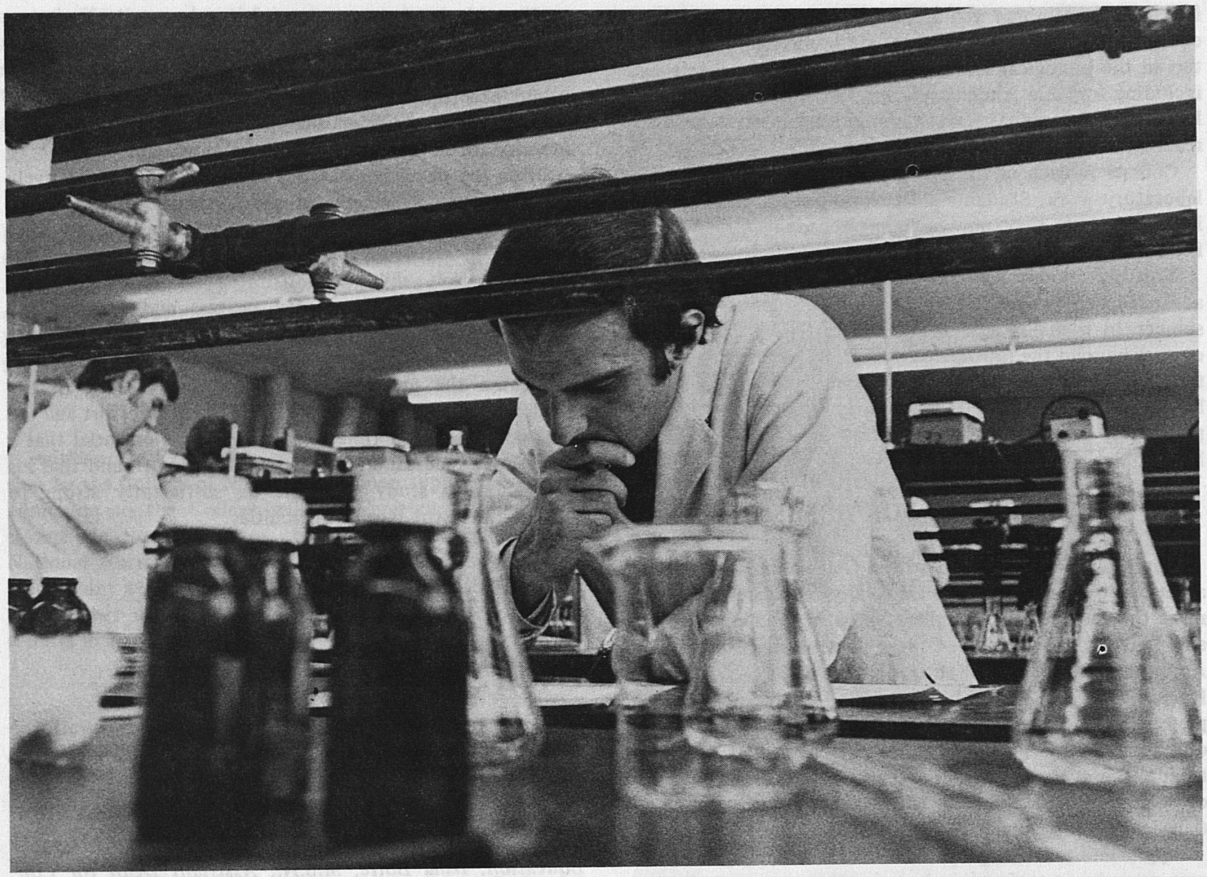
It is possible for you to register in a non-degree status and take certain library science courses. This may be those who already has a library degree but wish to take additional courses to bring their knowledge up to date or to strengthen their knowledge in a certain area. It may be a college graduate 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 College of Library Science who is taking one or two courses as a probationary student pending re-evaluation of records and new test scores.

Non-degree students should apply for admission both to the College of Library Science and the Dean of Admissions and Registrar, University of Kentucky.

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, Pharmacy, and a College of Allied Health Professions—the College of Medicine strives for programs of the highest possible quality. This means acquiring and keeping talented and outstanding faculty and administrative staffs, selecting the best possible student body, and creating an environment which fosters learning, investigation, and clinical excellence.

PHILOSOPHY AND PROGRAM

A major objective of the College of Medicine is to prepare students in the science and art of medicine which, with further training, can be applied in medical practice. Specialty training, including family practice, 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 humanistic behavior. In preparing for medical school, fundamental undergraduate college training in physics, chemistry, biology, and English

is essential. Minimal requirements are sitisfied 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 must include laboratory work. Students are encouraged to follow special interests which they may have in philosophy, psychology, literature, social sciences, or the fine arts.

You are strongly urged to demonstrate your capacity for advanced work through concentrated study of at least one subject in a major area of your interest by completing courses beyond the introductory level. In premedical education, courses in subjects such as human anatomy, medical biochemistry, medical bacteriology, and mammalian physiology are discouraged since they are now part of our Medical School curriculum.

REQUIREMENTS FOR ADMISSION

Applicants for admission to the College of Medicine, in addition to meeting general University requirements, must meet the requirements of the College of Medicine and be accepted by the Medical College Admissions Committee. Applicants normally will be required to have taken the Medical College Admission Test (MCAT) and to have completed a liberal arts degree program in an accredited college of arts and sciences. However, consideration may be given to applicants who have completed only two or three years of college if their academic background and other credentials demonstrate superior ability and maturity.

Applicants must be prepared with the following minimal requirements or their equivalent: two semesters of physics which include laboratory work; two full-year courses in chemistry with laboratory, including organic chemistry; two semesters of biology with laboratory; and one year of English with emphasis on communicative skills.

SELECTION CRITERIA

In admitting students to the College of Medicine, the University endeavors to select those students who show promise of making the best possible future physicians. Applicants are judged on the basis of their total qualifications and in comparison with other applicants.

As a State-supported school, the College of Medicine gives preference to qualified residents of Kentucky. Well qualified out-of-state candidates may apply, since a few non-residents are admitted.

Selection from among applicants who meet the general premedical educational requirements of the College of Medicine is based on a number of criteria.

A high level of academic performance in an undergraduate college is important It is recognized, however, that a meaningful evaluation of student performance must consider many factors in addition to the grades which a student has received. For example, experience in a health care system is usually considered to be an asset.

Scholastic aptitude as measured in certain objective tests also is considered.

Since the practice of medicine involves the physician in continual relationship with people—with his patients, and with other members of the health team—applicants are also judged according to 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.

Nursing

Marion McKenna, Ed.D., is Dean of the College of Nursing; Frances J. Thomas, Ph.D., Associate Dean; Loretta Denman, Ph.D., Assistant Dean for Graduate Education; Betty Rudnick, Ed.D., Assistant Dean for Undergraduate Education; Irma Bolte, M.S.N., Assistant Dean for Continuing Education.

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 pro-

motes 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. The deadline date for applying for admission to the College of Nursing for spring semester is October 15; the deadline date for applying for the fall semester is March 1.

Freshman Admission

Admission to the University does not guarantee admission to the College of Nursing. Freshman applicants seeking admission to the College will be admitted if their ACT Composite Score is at or above the 50th percentile on National Norms and if they have a minimum high school grade-point average of 2.0. However, continuation into the junior year of the nursing program will depend on the criteria in 3. Admission to the Junior Year.

Transfer Student Admission

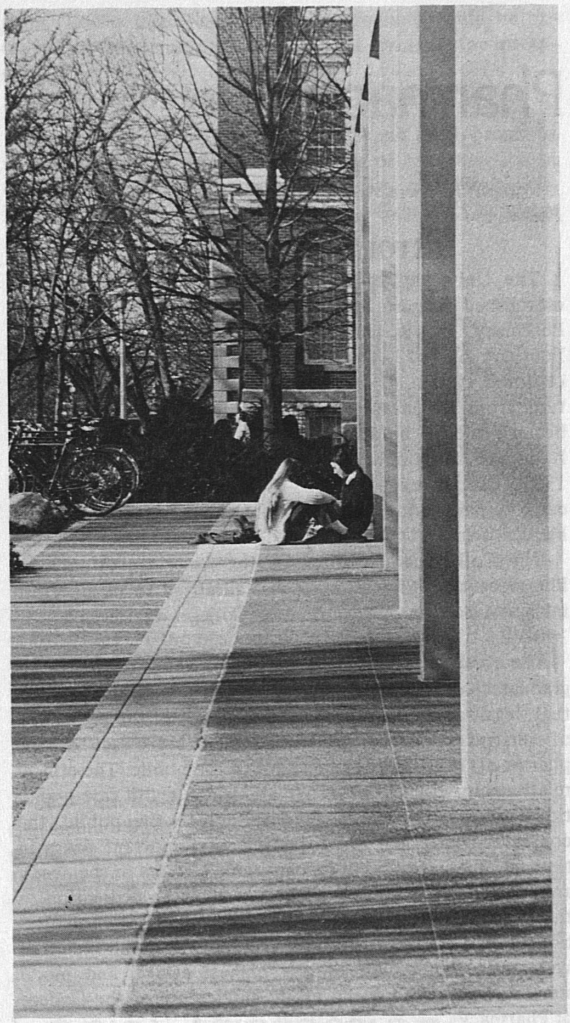
Admission to the University as a transfer student does not guarantee admission to the College of Nursing. In addition to meeting the University's requirements for admission from a University Community College or from another institution, and, in addition to the conditions stated in Senate regulations for changing from one University College to another, applicants seeking to transfer to the College of Nursing will be considered in order of priority on the basis of their cumulative collegiate grade-point average and, in addition, the criteria described in 3. Admission to the Junior Year.

Admission to the Junior Year

Completion of the freshman-sophomore Nursing program does not guarantee admission to the junior year. Admission to the junior year is dependent upon the availability of resources for implementation of quality instruction, and the number of students admitted will be limited by these considerations. Students will be admitted to the junior year in order of priority on the basis of their University cumulative grade-point average with consideration given to such other criteria as indicate potential for academic achievement (e.g., high school grade-point average, freshman entrance test score, grades in key science courses, and grade-point average in pre-professional courses).

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 College of Nursing Office of Student Services 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.

GRADUATE PROGRAM

The degree, Master of Science in Nursing, is granted upon successful completion of the College and University requirements.

Admission

The general University requirements for admission to the Graduate School will apply. (See Bulletin of Graduate School.) 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 have completed a National League for Nursing-accredited baccalaureate degree program. Current nurse licensure will be required. Personal interviews will be arranged with each applicant.

Pharmacy

Joseph V. Swintosky, Ph.D., is Dean of the College of Pharmacy.

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 1900.

The objective of the College of Pharmacy is to prepare its graduates to assume, with dignity and honor, the intellectual, legal, civic, and moral responsibilities of the profession of pharmacy. Every motivation and every act of the pharmacist must be in the interest of the public. The ethical relationship with the physician and other health care practitioners, the capacity as a consultant to the public, the constant availability for dispensing of important drugs in time of emergency, and the charitable services to the needy are but a few examples of the pharmacist's dedication 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.

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.

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 and social aspects of pharmacy rest.

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 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.

It is recommended that applications to the College for the fall admission be submitted as soon as possible after completion of the previous fall semester or quarter. All applications must be received before February 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.

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 to the University does not guarantee admission to the College of Pharmacy. The number of students admitted to the College of Pharmacy each year is dependent upon the availability of resources (faculty, clinical facilities, space) for implementation of a quality educational program. Consideration for admission to the College of Pharmacy will be based on: academic record and potential for academic achievement; an assessment of integrity, commitment, dedication, maturity, and emotional stability.

Any student may be denied permission to continue enrollment in the College of Pharmacy if, in the opinion of the Faculty, his knowledge, character or mental or physical fitness casts grave doubt upon his potential capabilities as a pharmacist.

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.

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 advisers on drug selection and use.

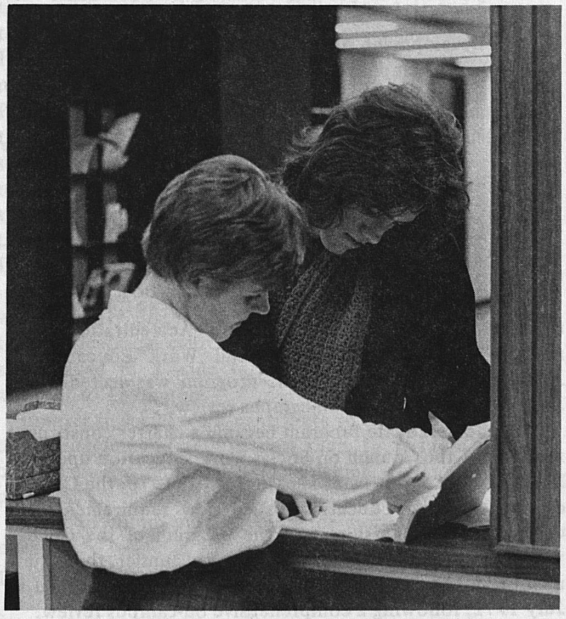
Due to the wide spectrum of activities available to pharmacists—e.g., community practice, hospital practice, industrial pharmacy, teaching, research, etc.—it is apparent that only a very flexible academic program can meet the educational needs of all pharmacists at the B.S. level. The College of Pharmacy 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 or her own wishes regarding professional, scientific, and educational goals.

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).

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 graduates. 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 130,000 volumes and 2,200 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 6,500 reference works plus 250 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.

Social Professions

Ronda S. Connaway, Ph.D., is Dean of the College of Social Professions.

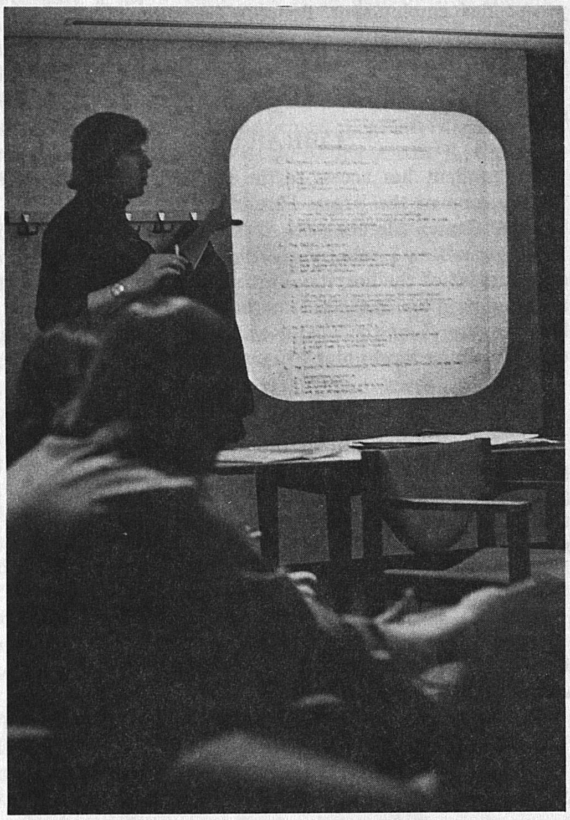
THE SOCIAL PROFESSIONS

The term **social profession** has been recently used to describe those helping services concerned with the social and developmental needs of people. Such services may be generally divided into two major kinds; namely, **restorative**, in which individuals who have serious social and related problems are helped to overcome these difficulties, and **preventive**, in which an effort is made to change those conditions in the environment and the institutions which serve people in ways which will help **prevent** so many individuals from becoming disabled or handicapped by such circumstances. These two aspects of social service plus a third, namely, social planning and policy development, are so closely related that to be effective, personnel prepared

for practice in the social professions must participate to some degree in all of these practice areas although they may have more responsibility in one than others by reason of the assignments they hold in the agency in which they are employed.

The social professions for which the College prepares qualified personnel includes those:

1. responsible for helping meet the needs of individuals and groups with serious social and related problems, such as: families, children, and the aged; the physically ill and disabled; the mentally ill and those with developmental disabilities; and juvenile delinquents and adult offenders;



2. responsible for providing leadership for the planning, organization, administration of social services for social planning and policy development, administration, supervision, consultations, teaching, and research.

THE SOCIAL SERVICES

Social work is one of the major social services within the social professions concerned with man's well-being, whether the help provided is in the prevention of social problems by making changes in the institutions and the environment of those circumstances which have been harmful or hindering to substantial numbers of individuals in their efforts to become fully participating and contributing members of the society; and/or in seeing that needed resources are made available to those who would otherwise not have the means to maintain life and health.

In attempting to achieve these goals, the tasks of personnel in the social professions 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.

ESTABLISHMENT OF THE COLLEGE 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 College of Social Professions on July 1, 1969.

The program of the College is steadily evolving. Its immediate goals are the:

- Further strengthening of the two-year graduate professional program leading to the degree of Master of Social Work which was initiated in the fall of academic 1970-71.
- Further strengthening of the undergraduate major in social work leading to the Bachelor of Arts in Social Work degree. The current B.A. curriculum and degree requirements have been revised and articulated with the graduate program. These changes are fully reflected in the current University General Catalog.
- Initiation of education for the preparation of personnel to provide social services for other vulnerable groups.
- Development of a doctoral degree program with a heavy emphasis upon program evaluation as resources and circumstances make this possible.

PROGRAM ACCREDITATION

The University itself is an accredited member of both the Southern Association of Colleges and Schools and the Kentucky Association of Colleges, Secondary and Elementary Schools.

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

The undergraduate program became a charter constituent member of the Council on Social Work Education upon the latter's organization in 1952. On July 1, 1970, the Council on Social Work Education issued new requirements for constituent membership, and the program of the College was one of the first to be approved under these new membership requirements. This approval was reaffirmed in July 1972, following a comprehensive on-campus review.

EMPLOYMENT OPPORTUNITIES IN THE SOCIAL SERVICES

There is a serious shortage of competent graduates holding the Master of Social Work and the B.A. in Social Work degrees in every part of the country. Graduates who have completed the Master of Social Work degree have a wide variety of positions in the social services open to them from which to choose, including administration, supervision, consultation, teaching, research, or clinical practice.

Graduates who have completed the B.A. in Social Work degree also have a variety of responsible positions open to them in a wide range of public and voluntary agencies which include among many others child welfare, public assistance, community mental health centers, community action programs, hospitals and clinics, and programs in the character building and leisure time agencies.

Many of these services are provided in both institutional non-institutional settings.

Salaries are competitive with those in other professional fields which have comparable educational requirements.

STUDENT STIPENDS

A number of student traineeships and assistantships are available to both undergraduate and graduate students. Information about these funds will be supplied at the time students apply for admission to the College. (See Social Professions Bulletin.)

THE UNDERGRADUATE PROGRAM OF EDUCATION FOR SOCIAL WORK

The undergraduate program in Social Work was inaugurated in 1944. Effective July 1, 1969, its administration was transferred from the College of Arts and Sciences to the newly established College of Social Professions. Freshmen and transfer students who elect social work as a major should arrange to register in the College of Social Professions. Each such student will be assigned a member of the faculty of the College as an adviser who will assist in the selection of appropriate courses and insure that the requirements for the B.A. degree are met. Students who wish special information or a personal interview prior to registration may make an appointment through the Office of the Dean of Social Professions.

All social work majors have actual experience in the field under faculty direction. These experiences are provided in teaching-learning centers in which graduate students are also placed 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 purposes:

1. To help the student develop effective interpersonal relations.
2. To enrich and broaden the knowledge and understanding of all students as they face the ever-changing and urgent social problems of our society.
3. To prepare students for immediate employment in social work jobs that require skills which can be acquired at the B.A. level.
4. To prepare students for graduate professional education in the social services.
5. To contribute basic knowledge of the social services to students who are preparing for careers in other helping professions (i.e., special education, rehabilitation, nursing, law, medicine, etc.).

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, flexibility, and relevance required to meet the urgent and complex social problems which confront social service workers in contemporary society.

For information about the Master's degree in Social Work, see the Social Professions Bulletin or the Graduate School Bulletin.

ADMISSION TO THE M.S.W. PROGRAM

1. Applications for admission to this program should be filed not later than April 15 preceding the academic year in which the applicant wishes to enroll. Applications are acted upon in the order received.
2. Application forms and instructions may be obtained upon request from the Dean, College of Social Professions, Patterson Office Tower, University of Kentucky, Lexington, Kentucky 40506.
3. Applicants for admission to the College 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. If admitted, they will be advised to apply for admission to the Graduate School of the University, which is a separate action.



University Extension

R. D. Johnson, Ed.D., is Dean of University Extension; Cornelius R. Hager, LL.D., Assistant Dean.

University Extension is administratively responsible for extending appropriate programs and services of an educational and professional nature beyond those regularly scheduled to individuals and organizations throughout Kentucky. In some instances these may be extended to any location in the world. An example is a student in the armed forces who may continue his education by Indepedent Study.

Other programs are Evening and Extension Classes, Conferences and Institutes, Council on Aging, Civil Defense and Continuing Education.

INDEPENDENT STUDY PROGRAM

Earl Pfanstiel, Ed.D., director
J. Reid Sterrett, Ph.D., editorial assistant

The Independent Study Program offers a wide variety of regular University courses by correspondence for University credit, as well as numerous non-credit courses oriented toward a particular vocation.

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.

The Independent Study Program also offers a series of non-credit courses that are designed to meet specific vocational needs. Courses are offered in the following areas:

Basic Technology of Diesel Engines (five courses)
Agricultural Economics
Basic Refrigeration and Air Conditioning
LP Gas Service Training (four courses)
Highway Engineering (12 courses)
Mathematics (two courses)
Photography (two courses)
Dental Assistant Program (seven courses)

Detailed information concerning these courses may be found in the current Independent Study Program Catalog.

Students must meet the enrollment requirements for a course, including any prerequisites specified for a particular course. An official transcript, however, is not requisite to enrollment, except for the Dental Assistant Program.

Some of the regulations governing independent study are as follows:

1. Not more than 25 percent or 32 semester hours of the requirements for a baccalaureate degree at the University of Kentucky may be earned by independent study.
2. A student may enroll for an independent study course any time during the calendar year.
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 10 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.

EXTENSION CLASS PROGRAM

James W. Brown, M.A., director

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: Classes are organized on the basis of needs as indicated by individuals or groups from a given community. Persons interested in organizing an extension class should contact the director of the Extension Class Program, University Extension, University of Kentucky.

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 five 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 two and one-half 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 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: Residents of Kentucky pay $20 per undergraduate credit hour and $30 per graduate credit hour. A $2 service fee will be added to the total of each class registration.

Payment of Tuition: It is preferred that all students pay tuition by check, made payable to the University of Kentucky. However, cash is acceptable.

Withdrawal and Refund of Fees: You may withdraw from an organized class and be refunded one-half of your tuition. Requests for refunds should be made at the office of 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: You may take Extension Courses for which you have 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 you have a bachelor's degree from an accredited college at the time you take a certified graduated level course, you will be able to use the credit for graduate school purposes under the following circumstances:

1. For transfer purposes it will be labeled "Extension." "Certified for graduate credit." Acceptance by another graduate school is entirely the prerogative of that school.
2. It may count for graduate credit at the University of Kentucky provided:
   a. The course grade is B or higher.
   b. 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.)
   c. The student's director or special committee recommends use of these credits and the recommendations are approved by the Graduate Dean.
   d. No more than six credits of extension courses are involved.

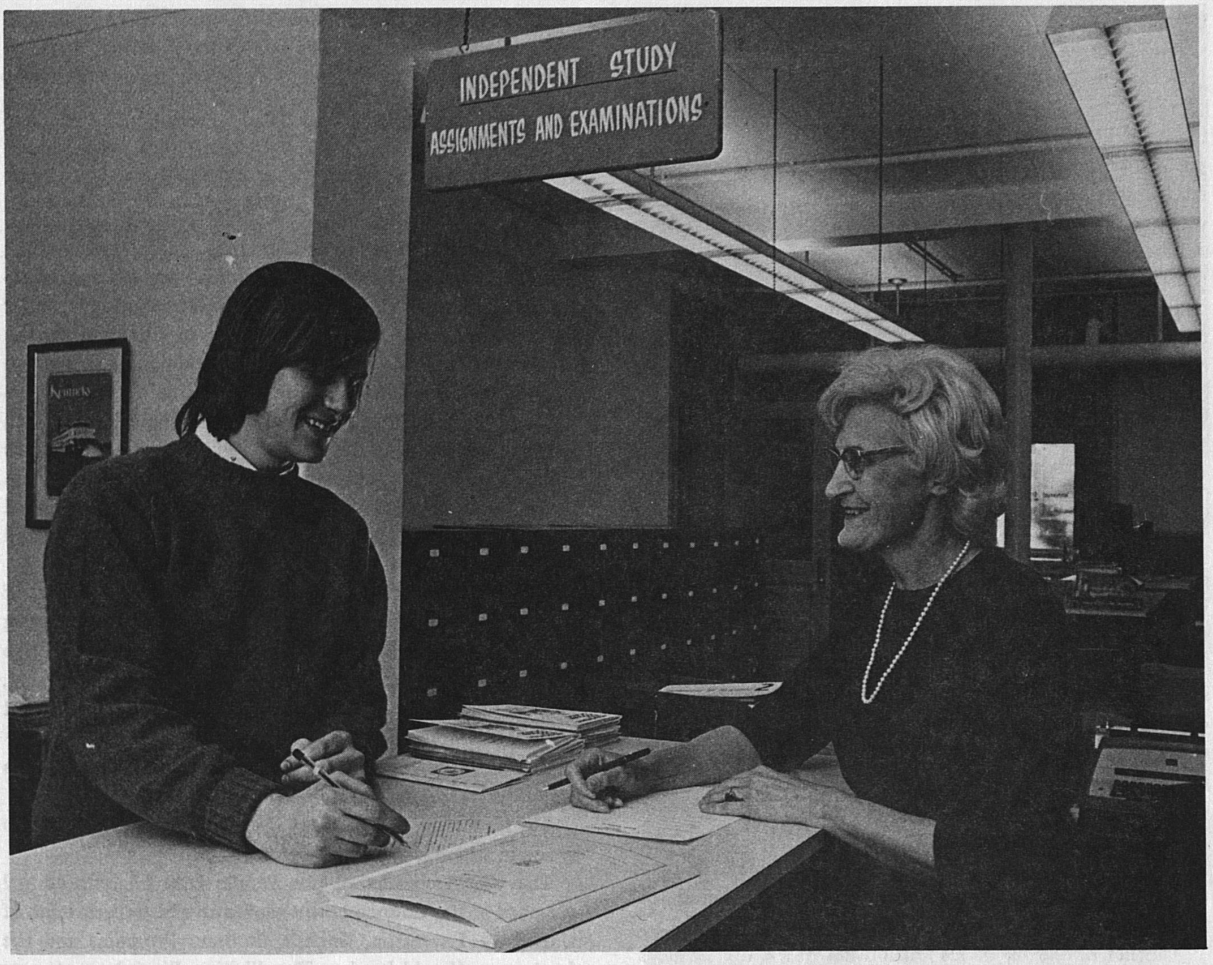
Credit Toward the M.A. Degree: Under certain conditions, up to six hours of the credits may be satisfied by extension courses given in person by University of Kentucky instructors.

EVENING CLASS PROGRAM

Millard F. Allen, Jr., M.B.A., director

The University's Evening Class Program provides an opportunity for continuing education to everyone in the Central Kentucky area. This program includes credit and non-credit classes in many fields taught by University staff members and qualified business and professional leaders of the community. Credit courses are offered under the same conditions as similar day-time campus classes. Non-credit classes are designed to meet all persons desiring to broaden their intellectual and cultural horizons.

Enrolling as a Non-credit Student: Non-credit classes are open to anyone desiring to enroll in them. Any person may enroll as a non-credit student in a credit class. However, the work in some credit classes, especially those numbered 300 through 599, is of an advanced nature, and non-credit students should consult with the instructor before enrolling.



Non-degree Students: Any person over 21 may enroll as a non-degree student provided he is not currently enrolled as a degree candidate and is eligible for admission. Non-degree students may apply for admission as degree candidates at a later date, at which time they must meet regular admission requirements as given in the University General Catalogue, Part 1. 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 fee for college credit evening classes is $20 per semester hour for undergraduates and $30 per semester hour for graduates. The fee for non-credit classes is on a proportional basis. Some courses will require a laboratory fee based on the type of materials required. A $2 service fee will be added to the total amount of class registration fees. All fees must be paid at the time of enrollment.

Non-Resident Fees: Students who have not resided in the state for 12 consecutive months preceding enrollment must pay out-of-state student fees if they register for college credit: $51 per semester hour for undergraduate credit, and $70 per semester hour for graduate credit.

CONFERENCES AND INSTITUTES

Robert G. Figg, M.A., director

The Conferences and Institutes Program serves as the agency through which the University's resources are coordinated to extend continuing educational services to citizens throughout the state.

In cooperation with the academic colleges, University-sponsored conferences, institutes and other types of continuing education programs can be organized for interested groups who desire specialized instruction. Each program must conform to University standards and have a clearly defined educational purpose related to the University's research and academic resources.

The meeting, housing, food service and other facilities of the University are made available whenever possible for visiting groups participating in these programs.

Another of the major responsibilities of the Conferences and Institutes Program is operation of Carnahan House, the University's residential conference center. The center, located near the main campus, provides an ideal setting for University-sponsored continuing education programs. It offers an unusual combination of facilities and accommodations, spacious learning. The center has meeting rooms to accommodate up to 125 persons and can provide overnight lodging for 20 conference participants.



COUNCIL ON AGING

Earl Kauffman, M.A., Ed.D., director

The University of Kentucky has a deep and abiding interest in people, including those who are nearing retirement and those who have fulfilled their obligations to their job or profession. To give substance to this concern the Board of Trustees has created the Council on Aging, an integral division of the University Extension.

The Council on Aging is a multiple discipline agency with representatives from the colleges and departments of the University. It also works with the Kentucky Commission on Aging, a division of state government, and the principal state, regional and national associations in gerontology and adult education.

The purposes of the Council include: the development of a high degree of sensitivity 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 his interest and knowledge outward from the campus to people everywhere.

The objectives of the Council are accomplished through a variety of programs. Notable among these are:

The Herman L. Donovan Senior Citizens Fellowship program which is described below.

The Writing Workshop for People Over 57 is an annual program of the Council co-sponsored by the departments of University Extension, English, Summer Programs and the *Lexington Herald-Leader.* The Writing Workshop attracts famous writers who teach in such genres as fiction, nonfiction, poetry, and special areas. The workshop produces an annual publication, *Second Spring.*

Several special interest seminars are offered by the Council on Aging. All entering Donovan Fellows are expected to enroll in the Vestibule Seminar which is an orientation to the scholarly life and the procedures of the University. Adults who are interested in traveling to other countries may elect the Study-Travel Seminar. Of special interest to graduate students as well as older adults is the seminar: The Sciences and Aging—this is one in a series entitled, "Great Issues."

The Council also assists the community colleges in developing continuing education programs for older persons.

THE HERMAN L. DONOVAN SENIOR CITIZENS FELLOWSHIP PROGRAM

The fellowship provides an opportunity for any person 65 and over, regardless of place of residence, to enroll for regular courses without the payment of fees. The fellowship is available at the Lexington campus and at each of the

community colleges. Courses may be taken for credit toward degrees or audited for no credit. All prerequisites and entrance requirements are waived for auditors.

Donovan Fellows attend regular classes and participate in the many intellectual, social, and cultural programs which characterize the University. They also are involved in special programs arranged for them by the DONOVEM Association—an organization of Donovan Fellows and University Emeriti.

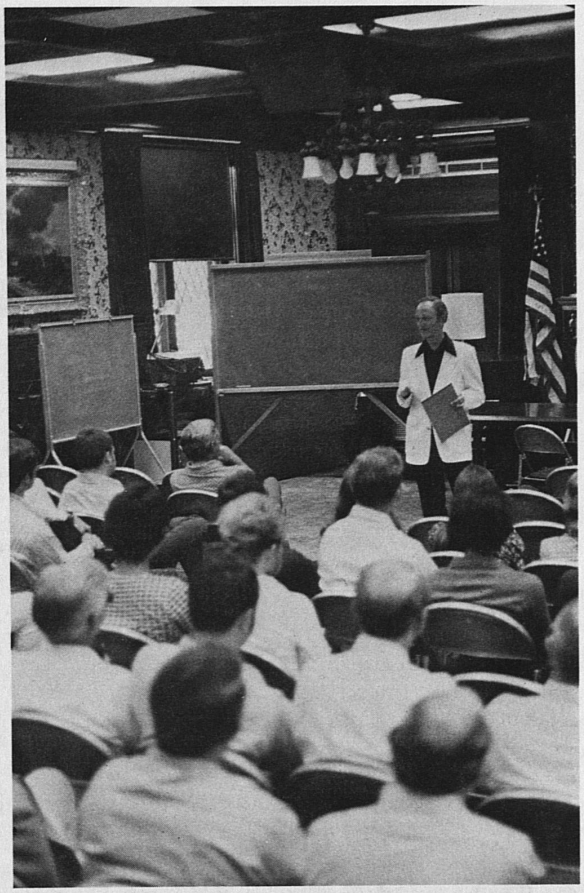
Inquiries about the Donovan Fellowship should be addressed to the Council on Aging, 345 Columbia Avenue, University of Kentucky, Lexington, Kentucky 40506.

CONTINUING EDUCATION

Cornelius R. Hager, M.A., LL.D., director

Continuing Education is the newest program in University Extension, but with one of the greatest opportunities. Classes for adults may be organized on either a credit or non-credit basis, but the interested groups are predominantly informal classes involving lectures and discussions for a specific number of sessions. The rapid changes taking place in the country, especially the technical changes, necessitate a program of continuing education with many aspects.

It is our major role to organize creative learning programs for adults on a broad scale in various sections of the state. The cost for a non-credit course to each individual is determined by the number of sessions necessary to complete the course. Certificates are awarded at the completion of the course. A record is made in the office of University Extension of all registrants for non-credit courses. The cost for credit courses in Continuing Education is the same as any other course in University Extension.



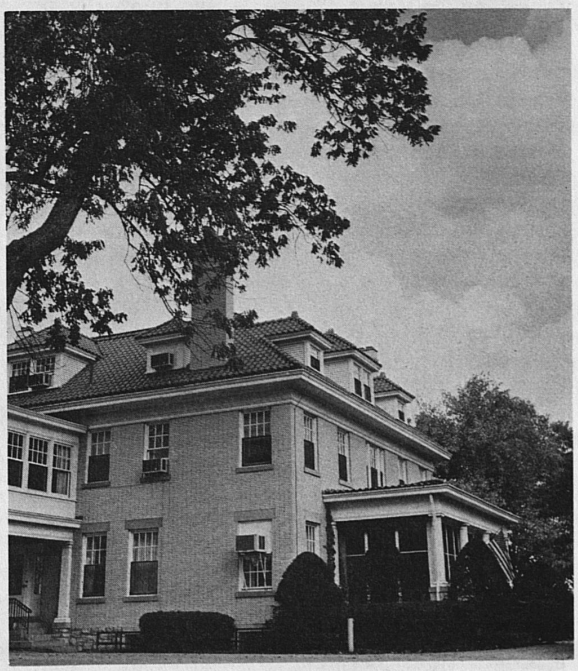
EXTENSION CIVIL DEFENSE PROGRAM

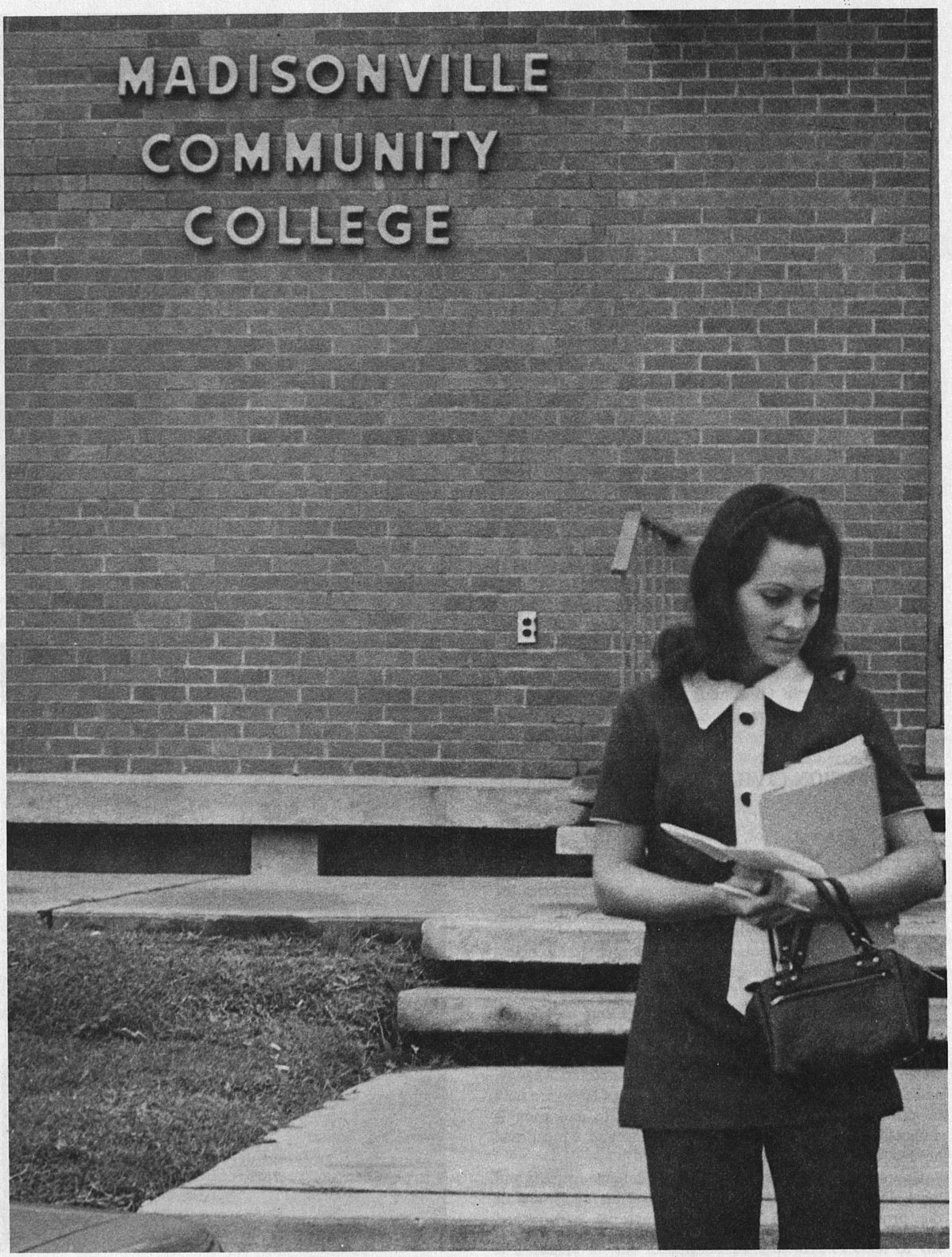
Wayne Berry, M.A., coordinator
Henry A. Vick, assistant coordinator

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 for Instructors, 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, Defense Civil Preparedness Agency, 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.




MADISONVILLE
COMMUNITY
COLLEGE

Community Colleges

Stanley Wall, Ed.D., is vice president for the Community College System.

COMMUNITY COLLEGE ADMINISTRATIVE STAFF

M. Stanley Wall, vice president
Ed.D., Kentucky, 1956

Charles T. Wethington, Jr., Ph.D., Kentucky, 1965; assistant vice president

B. J. Burnett, M.A., Kentucky, 1958; business officer

Edward A. Carter, B.S., Kentucky, 1962; fiscal affairs officer

A. J. Hauselman, Ed.D., Kentucky, 1971; coordinator, research and program planning

Marie L. Piekarski, M.S., Pennsylvania, 1957; coordinator, program planning and development

Larry Stanley, M.A., Kentucky, 1964; coordinator, faculty and instructional development

Keith Stephens, J.D., Kentucky, 1970; coordinator, federal programs

Dan Tudor, M.A., Kentucky, 1960; coordinator, student services

UNIVERSITY COMMUNITY COLLEGE SYSTEM

The University of Kentucky Community College System is a unique organization designed to realize the advantages of University membership on the one hand, and community orientation on the other. Each college, through its local advisory board and other ties, relates itself to the needs of the community.

Until the early 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 thirteen colleges, located at Ashland, Cumberland, Elizabethtown, Hazard, Henderson, Hopkinsville, Louisville, Madisonville, Maysville, Paducah, Prestonsburg, Somerset and Lexington Technical Institute at Lexington.

The community college have been charged with three functions:

1. To offer curricula for the first two years of a baccalaureate program. Courses parallel University offerings and are transferable to the main campus or to another four-year institution. At the conclusion of the two-year prescribed curriculum the Associate in Arts Degree or Associate in Science Degree may be awarded.
2. To offer career-oriented programs designed to prepare students for immediate technical or semi-professional employment. These programs are usually completed in two years, and are composed of about one-half general education courses and the other half in semi-professional or technical education. The Associate Degree in Applied Science is awarded upon completion of the two-year curriculum.
3. To provide general educational opportunities for citizens within their immediate areas. These include evening classes, workshops, seminars, short courses, concert series, exhibits, lectures, dramatic presentations and 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 transferable to the main campus, subject to the 67 credit hour limitation, or to another four-year institution.

Credits earned in curricula not offered on the University campus are chiefly of a technical or semi-professional nature, leading to an Associate Degree in Applied Science.

The community colleges also offer a variety of non-credit courses and services of a professional, vocational, or cultural nature for adults. These activities include evening classes, workshops, seminars, short courses, concert series, exhibits, lectures and dramatic productions expressed in the community to meet in-service, reeducation and cultural needs.

Complete information on the various programs may be obtained from the Community College Bulletin.

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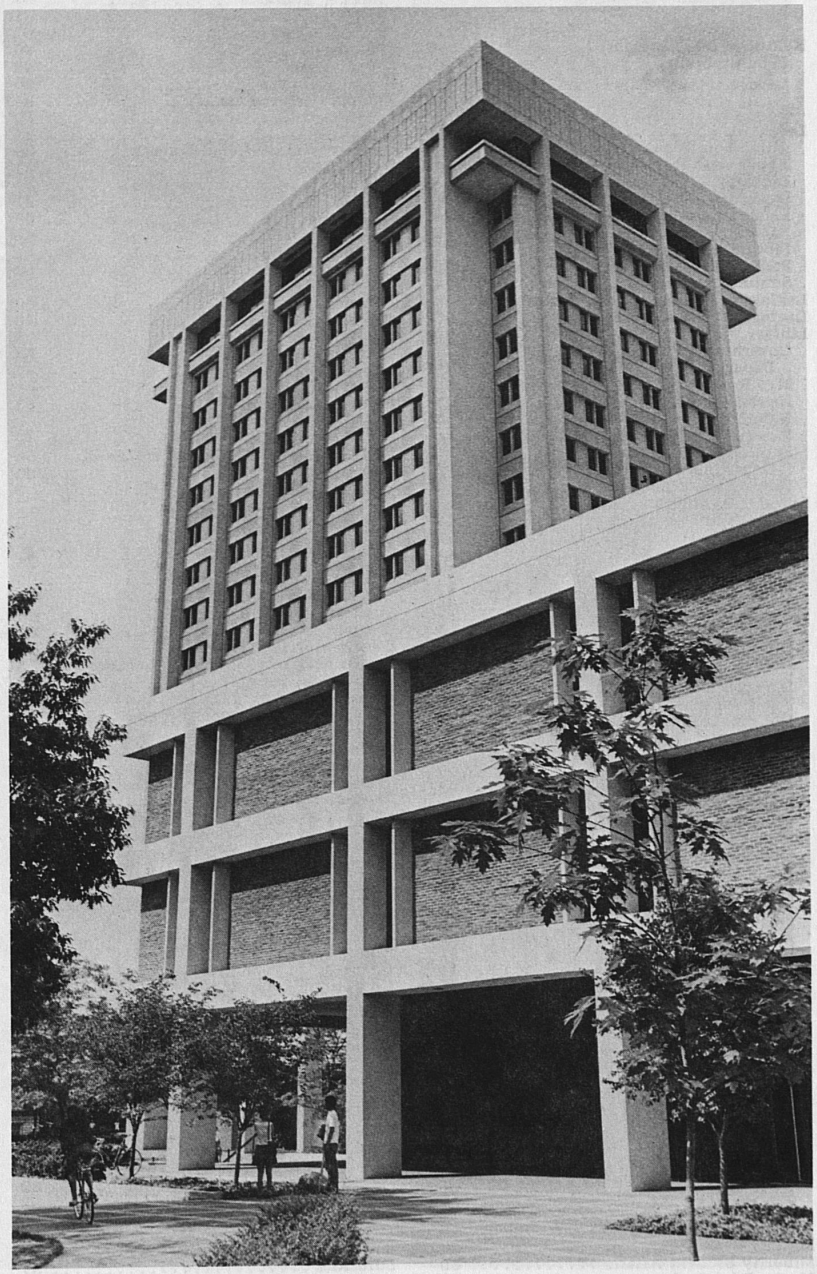

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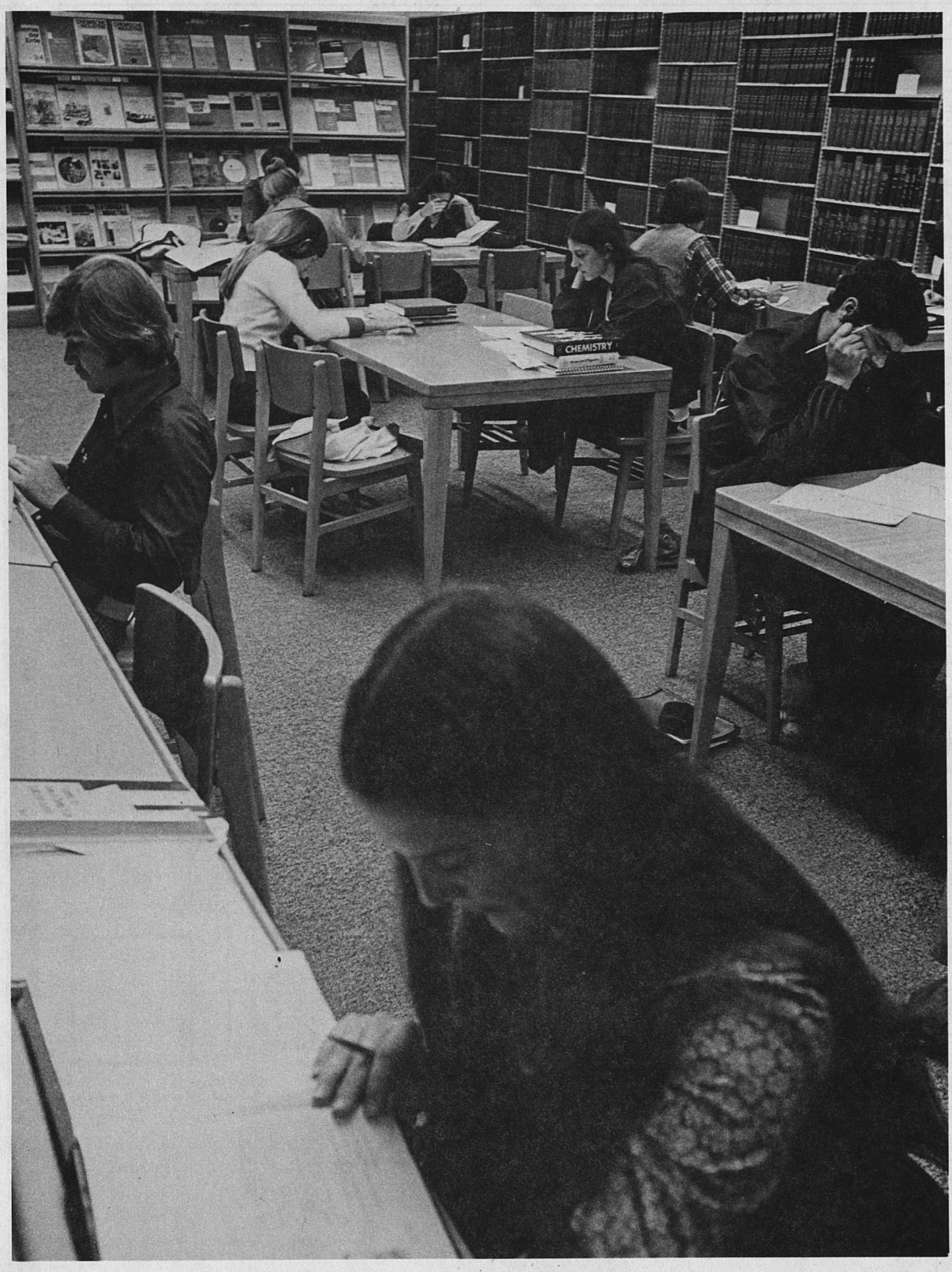
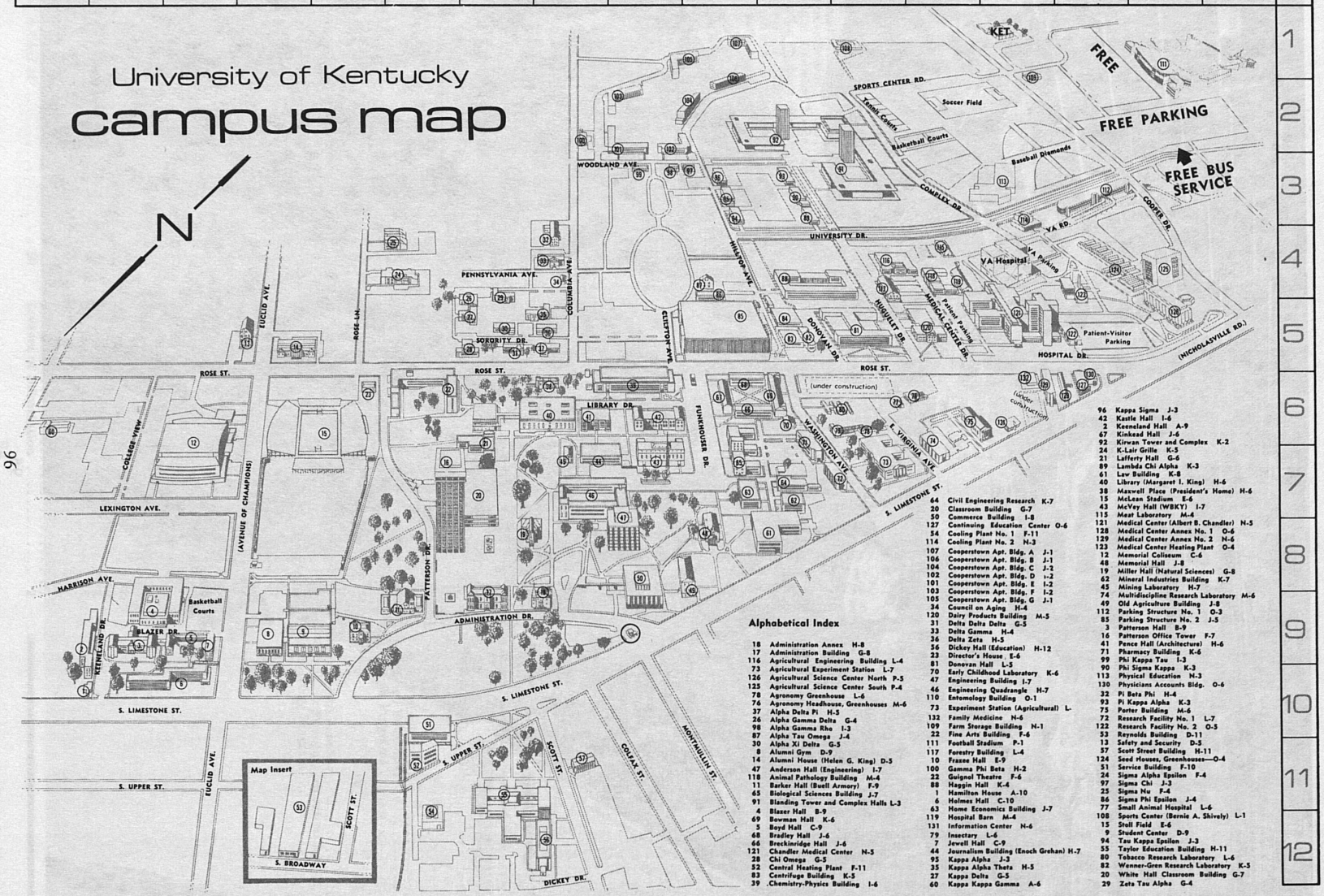

CHEMISTRY

University of Kentucky
campus map



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1974/75

Academic Policies and Course Descriptions

June 1974

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1974/75

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Volume 66 June 1974 Number 6

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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.

To help the student acquire a breadth of understanding, two semesters of freshman English or their equivalent are required of each student unless he demonstrates competency according to the exemption plans specified in the Bulletin. A full-time student must enroll in freshman English each semester until he has satisfied this requirement unless (1) he qualifies for a one-semester option, in which case he may enroll during either semester of his freshman year; or (2) the program of his college or department requires postponement of the second course.

In addition to the English requirement, the University requires each student to complete five areas of study chosen by the student from the following eight areas of general study:*

I MATHEMATICS-PHILOSOPHY
II PHYSICAL SCIENCES
III BIOLOGICAL SCIENCES
IV FOREIGN LANGUAGES
V HUMANITIES: LITERATURE, ART, AND MUSIC
VI HISTORY
VII SOCIAL SCIENCES
VIII BEHAVIORAL SCIENCES

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

***Because of accreditation or certification requirements some colleges require specific areas of study. See the requirements of your college.**

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.	Students choosing this option may *not* satisfy Area V with Option B	
	PHI 120 Introductory Logic	(3)
	plus one of the following:	
	PHI 100 Introduction to Philosophy	(3)
	PHI 130 Introductory Ethics	(3)

Area II. PHYSICAL SCIENCES

The general studies requirement may be satisfied by choosing one of the following 10 sequences:

A.	AST 191 Descriptive Astronomy	(3)
	AST 192 Descriptive Astronomy	(3)
B.	CHE 106 Elementary General Chemistry I	(3)
	CHE 108 Elementary General Chemistry II	(3)
C.	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)
D.	GLY 140 General Physical Geology or	(4)
	GLY 144 Introduction to the Earth	(3)
	plus one of the following:	
	GLY 142 General Historical Geology	(4)
	GLY 146 Earth History	(3)
	GLY 120 Elementary Field Work in Regional Geology	(6)
	GLY 200 Environmental Geology	(3)
	GLY 225 Field Studies in Geology	(3)
	GLY 210 Earth Resources	(3)
	GLY 360 The Mineral World	(3)
E.	PHY 151 Introduction to Physics	(3)
	PHY 152 Introduction to Physics	(3)
F.	PHY 211 General Elementary Physics	(5)
	PHY 213 General Elementary Physics	(5)
G.	PHY 231 General University Physics	(3)
	PHY 232 General University Physics	(3)
	PHY 241 General University Physics (Lab)	(2)
	PHY 242 General University Physics (Lab)	(2)

H. PHY 140 Acoustics of Music Instruments (3)
plus one of the following:
PHY 152 Introduction to Physics (3)
PHY 211 General Elementary Physics (5)
PHY 231 General University Physics (3)
I. PHY 201 and 203 General Elementary Physics (4 ea.)
J. CHE 101 and 103, Chemistry: A Cultural Approach I and II (6)

Area III. BIOLOGICAL SCIENCES

The general studies requirement in this area may be satisfied by choosing one of the following three 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)
Two of the following courses:
A & S 102 Human Ecology (2)
C. BIO 100 Biology (3)
BIO 103 Principles of Biology (3)
BIO 104 Principles of Animal Biology (3)
BIO 106 Principles of Microbiology (3)
BIO 108 Principles of Microbiology (3)
BIO 110 Introduction to Human Biology and Health (3)
(Addition of BIO 100 is approved for one year only.)

Area IV. FOREIGN LANGUAGES

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

A. *Choose one of the following:*
ENG 261 Survey of Western World Literature: from the Greeks through the Renaissance (3)
ENG 262 Survey of Western World Literature: from 1660 to the Present (3)
CLA 261 Survey of Greek Literature in Translation (3)
CLA 262 Survey of Latin Literature in Translation (3)
FR 261 Survey of French Literature in Translation (3)
SO 260 Classics of Near Eastern Literature (3)
SO 263 Survey of Russian Literature from its Beginning through the 19th Century (in English) (3)
SPI 261 A Survey of Spanish Literature in Translation from the Middle Ages to the Present (3)
GER 261 A Survey of German Literature in Translation (3)
SPI 263 Masterpieces of Italian Literature in Translation (3)
Plus one of the following:
A-H 100 Introduction to Art History (3)
A-H 210 Ancient Art (3)
A-H 220 Medieval Art (3)
A-H 230 Renaissance Art (3)
A-H 240 Modern Art (3)
MUS 200 Introduction to Music (3)
MUS 201 Music in Western Civilization (3)
MUS 300 History of Jazz (3)
B. Choose two of the following courses (students choosing this option may *not* satisfy Area I with Option C.):
PHI 260 History of Western Philosophy I (3)
PHI 270 History of Western Philosophy II (3)
PHI 100 Introduction to Philosophy (3)
PHI 130 Introductory 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 East Asia to 1800 (3)
HIS 296 East Asia Since 1800 (3)

AREAS VII AND VIII. SOCIAL AND BEHAVIORAL SCIENCES

Students who wish to satisfy *one* of these areas may do so by completing *any two* of the courses listed below, subject to the restrictions and prerequisites noted.

Students who wish to satisfy *both* areas may to so by completing *four* of the courses listed below. *Two* of these courses *must be in a single department* and the other two must be outside that department, but may be chosen from another single department or from two sepeaate departments:

ANT 120 Human Ancestry (3)
ANT 121 Introduction to Cultural Anthropology (3)
ECO 160 Contemporary Economic Issues (3)
ECO 260 Principles of Economics (3)
ECO 261 Principles of Economics (Prereq: ECO 260) (3)
GEO 152 Regional Geography of the World (3)
GEO 252 Elements of Human Geography (3)
PS 151 American Government (3)
PS 201 Introduction to Political Behavior (3)
PS 249 Introduction to Comparative Politics (3)
PS 265 World Politics (3)
PS 280 State Government (3)
PSY 104 Basic Psychology I (3)
PSY 106 Basic Psychology II (Prereq: PSY 104) (3)
PSY 210 General Psychology (May not be taken for credit if student has received credit for PSY 104 or 106) (3)
SOC 101 Introductory Sociology (3)
SOC 152 Modern Social Problems (Prereq: SOC 101 or consent of instructor) (3)
SOC 220 The Community (Prereq: SOC 101 or consent of instructor) (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.

Academic Requirements

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.

A student's academic record is considered a privileged document by the University of Kentucky and can be accessed and reviewed by that student during regular business hours. Within the University, release of the record is made for official advising and administrative use only. Release of the record outside the University structure is not allowed without the expressed consent of the student. Deviations from this policy are in accord with the exceptions listed in Kentucky Revised Statute 164.283, which includes release to the Council on Public Higher Education, the junior or secondary school from which the student came, and to courts of law by subpoena.

STUDENT LOAD

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

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 eight-week summer session.

The maximum load (including residence, correspondence and extension courses) for the eight-week summer session is nine credit hours, and that for the four-week intersession is four credit hours. The maximum load for any combination of the six and eight-week sessions is nine cred hours and the maximum load for undergraduate students for the summer and intersessions is 13 credit hours. The limits on maximum loads are waived in cases where the excess is due to special examination credits.

A student who has attained a grade-point average of 3.0 on a load of at least 15 credit hours for the preceding semester may be permitted by the dean of his college to carry extra credit hours provided the total does not exceed:

22 hours for a semester;

10 hours for the eight-week summer session;

A student on academic probation may take no more than 15 credit hours in a semester, three credit hours in the four-week intersession or seven credit hours in the eight-week session.

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

The Graduate School has established the maximum allowable load for graduate students for the summer sessions to be nine credit hours for the eight-week summer session, and four credit hours for the four-week intersession; and the maximum load for the summer term and intersessions for graduate students has been established as 12 credit hours.

A student may be registered simultaneously at the University and at another educational institution only with the approval of the dean of the college in which he is registered at the University of Kentucky; the credit hours obtained at the other institution 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 by the Registrar as a sophomore when he has completed 30 credit hours, a junior when he has completed 60 credit hours, and a senior when he has completed 90 credit hours.

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

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.

Credit granted by examination is included in determining a student's classification.

MARKING SYSTEM

The marking system (except for the Colleges of Law and Medicine) uses a series of letters, to which are assigned grade-point values. The system is based neither on an absolute numerical system nor on a distribution curve, but on the following descriptions:

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

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

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

Grade D represents the minimum passing grade (not to be used for graduate students). It is valued at one grade point for each credit hour.

Grade E represents unsatisfactory performance and indicates failure in the course. It is valued at zero credit hours and zero grade points. A student receiving this grade can obtain credit in the course only by repeating the entire work of the course in class. 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—means that part of the work of the course remains undone at the time that grades are due. It is given only when there is a reasonable possibility that a passing grade will result from completion of the work. The instructor will not give an I grade when the reason for incompleteness is unsatisfactory to him or when it is not feasible to complete the work.

An undergraduate student shall have the option of having the I grade as a permanent part of his record. If the student elects to complete the course in order to change the I grade to a letter grade, he must do so before graduation, but in no event after a lapse of two years from the date the I grade was awarded. If the student does complete the course under this condition, the instructor shall forward to the Registrar the appropriate letter grade to replace the I. If the student elects to retain the I grade in a course required for graduation, or is unable to complete such a course because of the two-year limitation or for any other reason, he must retake it and satisfactorily complete it with a letter grade in order to graduate.

Each department, school or college maintains a file record of incomplete grades recorded in courses of that department, school or college. This record, completed by the instructor, includes (1) the name of the student, (2) the course number and hours of credit, (3) semester and year of enrollment, (4) signature of the instructor, (5) a brief statement of the reason for recording the incomplete, and (6) an adequate guide for removal of the incomplete grade (with a suggested final grade).

Grade P represents a passing grade in a course taken on a pass-fail basis. It may also be assigned by the University Appeals Board in cases involving a violation of student academic rights.

Grade S—satisfactory work in progress or final grade in courses carrying no academic credit—may be recorded for students in courses of research, independent work, or seminar type, if at the end of a semester the student, because of the nature or size of the project, has been unable to complete the course.

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.

Grade W—withdrew passing—shall not be given if the student is failing at the time of his withdrawal and shall not be given unless the student withdraws officially or is assigned by the University Appeals Board. The University Appeals Board may assign a W in cases involving a violation of student academic rights. No grade will be recorded for a student who officially withdraws or is dropped from a class during the first 10 class days of a semester or the summer session. 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 officially 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 related 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 date of late registration and any change from credit to audit must be made by the last date to drop a course without a grade. No credit can be given for a class audited, nor is the student permitted to take an examination for credit. No instructor is authorized to admit anyone as an auditor to any of his classes unless the auditor has registered as such.

Repeat Option. A student has the option to repeat once as many as three different courses which have been completed with a grade of C, D, or E with only the grade, credit hours, and quality points for the second completion used in computing the student's academic standing and credit for graduation. (Note: The repeat option cannot be used to raise the student's standing for admission to the University of Kentucky Graduate School.) 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 constitutes the grade in that course for official purposes, and the second attempt constitutes exhaustion of one of the three options to repeat a course under this provision unless, at the time of withdrawal, the instructor and the dean of the college grant permission to attempt the same course again.

Pass-fail option. Undergraduate students above the freshman level and not on academic probation may select a maximum of four elective courses, with certain restrictions, to be taken on a pass-fail basis. Students in the Honors Program above the freshman level may, with advance written approval of the Director of the Honors Program, select additional elective courses to be taken on such a pass-fail basis. Credit hours successfully completed under this option will count toward graduation but will not be

used in calculating grade-point standing. Courses taken on a pass-fail basis are limited to those considered as elective in the student's program and such other courses or types of courses as might be specifically approved by the Senate Council for a college or department. Prerequisites for such courses may be ignored at the student's own hazard. The student is expected to 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. Courses offered *only* on a pass-fail basis shall not be included in the maximum number of elective courses which a student may take under these provisions.

GRADE-POINT AVERAGE

The grade-point average is the ratio of the number of points gained to the number of credits attempted, W, P, S, and I being ignored.

UNSATISFACTORY SCHOLARSHIP AND ATTENDANCE

A student who is doing unsatisfactory work or who is irregular in attendance in any course will be reported to the dean of the college in which he is registered. This student will be under the special supervision of his dean. If, after a suitable length of time it becomes apparent that no improvement is being made, the dean may drop the student from the course, reporting the action to the Registrar and to the instructor.

MARKING SYSTEMS FOR THE COLLEGES OF LAW, MEDICINE AND DENTISTRY

College of Law. The College of Law uses a special letter grading system in which the following grades are given with the respective quality point values indicated:

A+ 4.3	B+ 3.3	C+ 2.3	D+ 1.3
A 4.0	B 3.0	C 2.0	D 1.0
A- 3.7	B- 2.7	C- 1.7	D- 0.7
	E	O	

A student's academic grade record is expressed as a grade-point average computed by multiplying the semester hours of credit for each course by the quality point value of the grade received in the course. These products are added together, and the sum is divided by the total semester hours attempted. The grade-point average thus derived is the basis for each student's academic status as indicated in the published rules and policies of the Law Faculty.

Colleges of Medicine and Dentistry. Honors, Pass and Unsatisfactory are the designations for the College of Medicine and the College of Dentistry students. The H, P, U designations are utilized *only* for medical and dental students. The few graduate and/or undergraduate students in essentially medical and dental classes are graded as is the rest of the University.

OTHER REGULATIONS

Late Registration. After the sixth day of classes in either semester or the fourth day of that term of the summer session in which the student is enrolled no student may register for an organized class.

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

Special Examinations. Any full-time or part-time student enrolled in the University, and in good academic standing, may request a special examination for credit in any course offered in the University System, regardless of whether he has audited the course, is currently enrolled in it, or has studied it independently.

Application for a special examination must be made in writing. Undergraduates will address requests to the chairman of the department in which the course is given, or to the office of the academic unit responsible. Graduate students' requests should be addressed to the Director of Graduate Study in the department in which the course is given.

Credit for courses taken by special examination are considered residence credit.

CREDIT FOR STUDENTS WHO WITHDRAW TO ENTER MILITARY SERVICE

A student who, after completing the eighth week and before completing the 12th week of the semester, withdraws and within 10 days enters the Armed Services of the United States is entitled to receive credit and residence for one-half of each course in which he is passing at the time of his withdrawal. The grade reported will be that attained in the course up to the time of withdrawal. When such withdrawal occurs after the 12th week of the semester, or later, such students are entitled to receive full credit and residence. For the summer session the minimum attendance requirements are four and six weeks respectively. If, with the credit and residence time granted, the student has fulfilled all requirements for a degree, he will be recommended for that degree by the Senate of the University. If a comprehensive examination is required for graduation, this requirement will be waived.

SCHOLASTIC PROBATION, ACADEMIC SUSPENSION AND REINSTATEMENT

Undergraduate Colleges

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. The 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 may not be repeated for credit hours or quality points, except for those courses for which repeated registration is provided in the official course description.

2. **Scholastic probation:**
   a. The academic record of each freshman student will be reviewed after his first full semester. If a student has incurred a deficit of five or fewer quality points at the end of his first full semester, the dean shall place him on scholastic probation or warn him that he is making unsatisfactory progress. If he has demonstrated that he cannot or will not do satisfactory work, he shall be subject to academic suspension from the University, but the dean may place the student on scholastic probation if the individual case justifies it.
   b. The following undergraduate students are placed on scholastic probation by the dean of his college:
      1) Except for first semester freshmen, a student who, at the end of any semester or session, has a cumulative deficit in excess of five quality points.
      2) A student who has earned a total of 90 semester hours (senior standing) or more and has a cumulative grade-point standing less than 2.0.

3. **Removal from probation:**
   The following undergraduate students may 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 five 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 is subject to academic suspension from the University, but a dean may continue a student on scholastic probation if the individual case justifies it:
   a. A student who acquires an additional deficit in excess of five 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 academically suspended may be reinstated by the dean of the college in which he plans to enroll when he presents evidence that he is capable of performing at the level required to prevent being suspended a second time.

6. **General rules for reinstated students:**
   A student who has been academically suspended will, upon reinstatement, be placed on scholastic probation and be subject to final academic suspension from the University if:
   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 eight 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 will 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 will not be readmitted to the University except in unusual circumstances and then only upon recommendation of the dean of the college in which he plans to enroll and approval of the University Senate Council.
   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 will credit be given or transferred for baccalaureate courses taken during such period if the student is later reinstated in the University for the purpose of enrolling in a baccalaureate program.

8. **Readmission after two or more years (Academic Bankruptcy)**
   An undergraduate student who has been readmitted through the usual channels after an interruption of two or more years, and who has completed at least one semester with a grade-point standing of 2.0 or better after readmission may choose to have all or none of his previous University of Kentucky course work counted toward graduation and toward the computation of his grade-point standing.
   In addition, the dean of the student's college may permit such a readmitted student who has elected not to count his past work, to receive credit for selected courses without including those grades in the computation of his grade-point standing.

Professional Colleges

PHARMACY. Definition: Pharmacy standing in the overall grade-point average for all professional and non-professional work accomplished by the student while enrolled in the College of Pharmacy.

1. Any student who fails to achieve a pharmacy standing of 2.0 at the end of any semester will be dropped from the University or placed on academic probation.
2. Any student who fails to achieve a pharmacy standing of 1.5 at the end of any semester will have his record reviewed by the College of Pharmacy faculty and may be dropped from the University without a preliminary probationary semester.
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. A student beginning the study of law must achieve a cumulative grade-point average of at least 2.0 at the end of the first year of law study (his first and second semesters). Thereafter, the student must achieve a grade-point average of at least 2.0 for his second year of law study (his third and fourth semesters) regardless of the cumulative grade-point average for the two years (four semesters). A student failing to meet this academic requirement will be dropped from the University for poor scholarship.

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 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

Each student has access to rules that deal with scholastic probation, academic suspension, and reinstatement through the printed class schedule, the University Bulletin, and **Student Rights and Responsibilities**, published August 16, 1973.

GRADUATION REQUIREMENTS

To be eligible for any degree, a student must have completed the requirements as approved by the University Senate, except that curriculum substitutions may be made by the college affected if not inconsistent with these rules. Curriculum requirements must include, in addition to specified credits, a specified grade-point average which may in no case be less than 2.0. Every baccalaureate degree program shall include four divisions or components: (1) general studies, (2) pre-major or pre-professional, (3) major or professional, and (4) free electives.

The University requires demonstrated competency in English composition. Competency may be demonstrated in the following ways: (1) Students who have a standard score of 21 and below on the English section of the ACT must satisfactorily complete two semesters of composition: English 101 in their first semester of the University and either English 102, English 105 or English 203. If they elect English 102 or English 105, they must take it the second semester of their freshman year. (2) Students who have a standard score of 22 and above on the English section of the ACT may bypass English 101 and satisfactorily complete either English 102 or 105. If they receive a grade of B or better, they will have fulfilled the English composition requirement, but if they receive a grade of C, or D, they have the following options: (a) satisfactorily completing the other course or (b) satisfactorily completing English 203. Full-time students who qualify for the one-semester option may enroll in English composition either semester of their freshman year.

The student must file an application for graduation with the dean of his college within 30 days after the beginning of the semester or 15 days in the summer session in which he expects to complete his work. The degree applicant must pay his graduation fees within 60 days after the beginning of the semester or 30 days in the summer session in which he expects to complete his work. Graduation fees apply only to graduate and professional degrees. Credit in MA 110, 111, and 112, college algebra and trigonometry, respectively, is *not* counted toward degree requirements in the University.

Change in Program Requirements

When requirements for an undergraduate degree program are changed after a student has enrolled in it, the students shall have the option of fulfilling either the old or the new requirements.

In fulfilling the old requirements, if a student finds that necessary courses have been eliminated or substantially revised, he may substitute other courses with the approval of the dean of the college. In this eventuality, however, the student shall not be forced to comply with the new requirement.

However, if a student interrupts his work in the program or the University for more than two semesters, then the dean of the college shall determine which requirements the student shall fulfill.

The first paragraph of this rule shall not apply if the curriculum revision is required by an external accreditation or certification body, provided this body submits a written statement to the University that the accreditation of a

program or certification of its graduates is in jeopardy unless students fulfill the new requirements.

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 on the main campus of the University. This rule may be waived for veterans, provided they present at least 30 credits earned on the main campus.

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 courses done by correspondence.

Credit for work done while registered at a University community college is 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 registration in another institution or program. Grades, credits and quality points for baccalaureate degree courses taken in the Community College System shall be transferred when the community college student enrolls in the University System. The applicability of any given courses not offered in the University System towards a University degree shall be determined by the dean of the college in which the student enrolls. The grade-point standing, however, shall be determined solely by those courses which are common to the two systems.

COMMENCEMENT HONORS

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

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

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

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

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

A SECOND BACHELOR'S OR MASTER'S DEGREE

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

LIMITATIONS WHICH MAY PRECLUDE A COURSE OF STUDY

Limitations of space, personnel, and other facilities may preclude the completion of a course of study even though academic requirements are met.

ACCELERATED PROGRAMS

In the Spring of 1972 the University Senate of the University of Kentucky endorsed the concept of an accelerated program to enable superior students to complete their undergraduate college experience in less than the traditional four years. Inherent in the Accelerated Program concept is the opportunity for a student to receive credit by examination on course material which he may have mastered by non-traditional educational means.

In addition to the UK High School Juniors Summer Program and participation in the College Entrance Examination Board is Advanced Placement Program, there are several methods by which a student may accelerate his undergraduate program.

Special Departmental Examinations: Many courses in the College of Arts and Sciences are available for credit by Special Examination. These examinations are prepared and administered by the department which teaches the course and are usually equivalent to a final examination.

Any student who believes he is qualified to pass a Special Examination in a course should apply in writing to the chairman of the department. The application should include some evidence that the student is, in fact, reasonably prepared for the examination.

If the department chairman believes the student is reasonably prepared and if the course has been determined to be suitable, the student will be examined within a reasonable time. Some departments give special examinations once or twice per semester and anyone who wishes to take an examination must do so at the scheduled time.

English Exam: Credit can be earned by Special Examination in English 102. Entering freshmen with a standard ACT English Score of 25 or above qualify to take a special examination administered once each fall by the freshman English Office. For complete information contact the

Director of Freshman English
Office Tower 1219
University of Kentucky
Lexington, Kentucky 40506

Self-Instruction Courses for Credit (Package Courses): In February 1972 the University Senate defined Package courses as follows: "Independent or self-paced study which may require supervision by UK faculty, but does not include extension or correspondence courses at other schools."

Courses offered by other accredited institutions which are available in package form may be used by University of Kentucky students and accepted for credit upon approval of the course by the appropriate academic unit.

College Level Examination Program (CLEP): The University Senate has endorsed the University's participation in this national testing program of the College Entrance Examination Board. The CLEP tests are divided into two categories: General Examinations and Subject Examinations.

The General Examinations are broad examinations in the areas of Composition, Natural Sciences, Humanities, and Social Sciences and History. The University has not adopted a policy of accepting the General Examinations for credit.

The Subject Examinations cover specific material which is common to courses at many American Universities. The level of proficiency required to earn credit through CLEP is approximately equivalent to that required to earn a grade of C in the corresponding course. The CLEP examinations are administered by the University's Counseling and Testing Center, in addition to the many other centers across the country.

By scoring at or above the 50th percentile (national sophomore norms) on the appropriate CLEP test, students may earn credit in the following University courses:

AMERICAN GOVERNMENT—For a scaled score of 65 or above the student will earn three hours' credit in Political Science 151, with a grade of A; for a scaled score of 60 to 64 the student will earn three hours' credit in Political Science 151, with a grade of B; for a scaled score of 50 to 59 the student will receive three hours' credit for Political Science 151, with no letter grade.

BIO 100-103 Biology — 6 credits

CHEMISTRY—For a scaled score between 50 and 55 the student will earn a total of nine hours' credit in CHE 106, 108 and 115; for a scaled score between 55 and 60 the student will earn a total of nine hours' credit in CHE 110, 112, and 115. For a score above 60, the student earns credit in CHE 110, 112, and 115 and is awarded a grade of A in these courses.

ENG 101-102 Freshman Composition — 6 credits
Scaled score 50-64—3 hrs., ENG 101
65+—6 hrs., ENG 101 and 102*

GLY 140-142 General Physical and Historical Geology — 8 credits

HIS 108-109 History of the United States — 6 credits

MA 109 Pre-Calculus Mathematics — 3 credits

MA 113 Calculus — 4 credits

PSY 210 General Psychology — 3 credits

SOC 101 Introductory Sociology — 3 credits

STA 291 Statistical Method — 3 credits

Additional information concerning CLEP may be obtained from the Associate Dean for Student Academic Affairs, 257 Patterson Tower; The Dean of Undergraduate Studies, 321 Patterson Tower; or The Dean of Admissions and Registrar, Administration Annex.

***After fall 1974, CLEP will not be the official examination for credit in Freshman English. See Special Departmental Examinations.**

Curricula and Degree Requirements

Agriculture

CURRICULA AND MAJORS IN AGRICULTURE

Departmental majors are available in the following areas: Agricultural Economics, Agricultural Education, Agricultural Production, Agronomy, Animal Sciences, Entomology, Forestry, Horticulture, Individualized Programs, Plant Pathology and Rural Sociology. In addition, a Pre-Veterinary Medicine curriculum is available. Students of Agricultural Engineering are registered in the College of Engineering.

In Forestry, the student may select either the forest science or forest technology options.

Pre-Professional Component

Students seeking the B.S. in Agriculture or B.S. in Forestry are required to meet the English and General Studies requirements of the University.

For all candidates for the B.S. degree in Agriculture, GEN 102–Agricultural Social Science, GEN 104–Agricultural Plant Science, and GEN 106–Agricultural Animal Science, are required.

In addition to these College requirements, there are *pre-professional requirements* for students majoring in various phases of agriculture. They are as follows:

Agricultural Economics–ECO 260 and 261, MA 109 or 113, or MA 122 and 123

Agricultural Education–BIO 104 and BIO 106 or equivalent

Agronomy–BIO 103 and 106 or BIO 200, 201, 202, and 203 or equivalent, CHE 105, 106, 108, and 115 or equivalent, and MA 109 or ACT of 25 in Mathematics

Animal Sciences–BIO 104, 106, 108, plus one laboratory, BIO 105, 107, or 109 or BIO 200, 201, 202, and 203, CHE 105, 106, 108, and 115 or CHE 110, 112, and 115, MA 113 or 122 and 123, SP 181 or ENG 203

Entomology–BIO 200, 201, 202, and 203 or equivalent, CHE 106, 108, and 115 or equivalent

Forestry–MA 113, CHE 106, 108, and 115, or CHE 110, 112 and 115, BIO 106, 107 and BOT 303, ECO 260 and 261

Horticulture–A botany-oriented biology course, MA 109 or equivalent; those student specializing in production horticulture as well as those anticipating graduate school must complete two semesters of chemistry

Plant Pathology–AGR 366, BIO 200 and 202, CHE 110, 112, and 115, ENT 100, MA 113, and PHY 201 and 203

Production Agriculture–BIO 104, 106 or equivalent, CHE 105, 106, 108 and 115 or equivalent, ECO 260, and MA 109 or equivalent

Sociology–SOC 101 and 102

Undeclared in Agriculture–MA 122 and 123 or 113, CHE 105, 106 and 115 or equivalent, one year of approved biology in Area III, ECO 260 and 261, SOC 101, 152, or 220

Note: BIO 103, 104, 106, 200, 201, 202, and 203, CHE 106, 108, 110, 112, ECO 260 and 261, GLY 144 and 242, MA 113, 122, 123, PHY 201, 203, SOC 101 and 102 will all count toward fulfilling University General Studies Requirements. Therefore, it would be to the student's advantage to utilize these for two purposes.

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, a student must complete 120 credit hours of approved course work. Each candidate for the B.S. degree in Agriculture shall declare a major in an area of specialization.

The Bachelor of Science in Forestry requires the completion of 140 credit hours of approved courses. A grade-point average of 2.0 or better on the basis of A=4 is required for either degree. The student is also responsible for meeting all other departmental, college, and University requirements.

AGRICULTURE

I	University requirements including freshman composition and five general studies areas	34-43 cr
II	College requirements: GEN 102, GEN 104 and GEN 106	12 cr
III	Departmental major (may include courses from other departments within the College of Agriculture)	24 cr
IV	Specialty Support (outside major department)	21 cr
V	Electives	20-29 cr
		120* cr

* A minimum of 45 credit hours must be from upper division courses (300 or above).

FORESTRY

The curriculum in forestry has been designed to provide for a broad education in the physical, biological, social, and managerial aspects of forestry. It is in keeping with the requirements of the University and includes all of the professional forestry courses in accordance with the standards established by the Society of American Foresters for accreditation of professional forestry educational programs. The University of Kentucky is an Affiliated Institution of the Society of American Foresters.

FORESTRY CURRICULUM

I Complete five General Studies areas. Students completing courses in the pre-professional requirements may use these courses to fulfill the General Studies requirement when the requirements are the same.
Normally this means that the student will take six semester hours in General Studies areas beyond those which simultaneously satisfy the pre-professional and General Studies requirements 6 cr

II Complete the University requirement in English composition 3-6 cr

III Complete the pre-professional requirements

1. MA 113 4 cr
2. CHE 105, 106, 108, and 115 or CHE 110, 112, and 115 9-10 cr
3. BIO 106 and 107 and BOT 303 7 cr
4. ECO 260 and 261 6 cr

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

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

Professional Component (Forestry Courses)

FOR 219 Dendrology
FOR 300 Forest Measurements
FOR 305 Harvesting Timber Crops
FOR 310 Forest Management
FOR 315 Forest Policy and Administration
FOR 340 Forest Ecology
FOR 350 Silviculture
FOR 400 Wood Identification and Properties
FOR 412 Forest Economics
FOR 420 Forest Products
FOR 425 Forest Photogrammetry
FOR 430 Forest Wildlife and Range Management
FOR 440 Forest Resources for Recreation
FOR 445 Forest Fire: Control and Use
FOR 460 Forest Watershed Management

Forestry Summer Camp:
(Includes the following five courses. Requirements for enrollment in Forestry summer camp is restricted to Forestry students not on probation, who have completed the following courses with at least a C grade in each course: AGR 366, AGR 367, CE 100, FOR 219, FOR 300, FOR 340, and FOR 350.)

FOR 375 Taxonomy of Forest Vegetation
FOR 376 Silvicultural Practices
FOR 377 Forest Surveying
FOR 378 Forest Mensuration
FOR 379 Harvest and Utilization of Wood
Electives* 18 to 22

Total Credits Required 140

*Six hours of these electives are to be free electives, the remainder are to be selected with due consideration to student's academic objectives and must have the approval of the student's adviser.

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 FOR THE RURAL MINISTRY

Students preparing for service in developing nations or for careers in the rural ministry may meet their undergraduate needs in the College of Agriculture. Such students follow one of the programs with a major in rural sociology. These programs provide a good background in philosophy, social sciences, and humanities as well as an understanding of the principles upon which food and fiber production are based.

Any student planning to enter a theological seminary is advised to acquaint himself with the specific requirements of the seminary of his choice in order that he may plan the details of his curriculum in this college.

INDIVIDUALIZED PROGRAMS

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

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

Procedure for entering the individualized program:

1. Apply to the Associate Dean for Instruction. The student will receive an explanation of the program and its objectives, and the possible risks involved, including prospective employment and acceptance for advanced graduate degree work.

2. Students who continue their interest in the individualized program would, with the assistance of an adviser, develop the plan which they propose to follow.
3. This plan will be submitted to the College Committee for Individualized Programs for consideration and possible approval. (The basis for approval will be information from Counseling and Testing Service, interviews with the student and the soundness of the program for the student's stated academic goals.)
4. Approval of the student's program by the Committee and Associate Dean will admit the student to the individual program option.

There would be no required courses other than those required by the University—English composition and at least five of the General Studies Area options.

Although no specific communications courses are required in the program, the student must demonstrate skills in writing and speaking.

PRODUCTION AGRICULTURE

For those students who plan to return to the farm, a production agriculture program has been developed. This program does not involve departmental specialization, but will enable the student to generalize in agriculture.

This program, therefore, enables a student to take selected courses in all of the College's academic departments.

PRE-VETERINARY

Students interested in becoming veterinarians may enroll in the College of Agriculture at the University of Kentucky and complete their requirements for admission to veterinary school.

Although the state of Kentucky does not have a school of veterinary medicine it is a participating member of the Southern Regional Education Board plan under which legal Kentucky residents may attend Auburn University School of Veterinary Medicine. Each year 16 students are chosen from Kentucky to enter the Auburn Veterinary School on a competitive basis. There is also a plan whereby one legal Kentucky resident may be accepted by Tuskegee Institute School of Veterinary Medicine each year. In addition, Kentucky has a contract with the state of Ohio whereby up to six Kentucky residents may enter the Ohio State University College of Veterinary Medicine each year. Under all of the above programs the students selected are exempt from the out of state tuition that would normally apply to a Kentucky resident. Selection is on a competitive basis with the final selection being made by a committee composed of faculty members from each of the respective schools. Since a large number of students entering the pre-veterinary program eventually choose to obtain a Bachelor's Degree it is strongly recommended that all pre-veterinary students choose a degree goal early in their college career. Thus, if they are not accepted for admission to veterinary school they are able to obtain a Bachelor of Science Degree in four years.

A total of 80 semester hours are required by Auburn prior to consideration for admission with a grade-point average of 2.25 on a four point basis. Due to the high level of competition a student needs a 3.0 academic standing on all college work to be competitive for admission. He must have completed all of the required courses or an acceptable substitute. The Ohio State University requires three years of college work including the pre-professional requirements, plus a grade-point average of 3.0. A grade of D on required courses will not be accepted by either school. All course work must be completed by June 15 of the year of application. The following curriculum is designed for both Auburn and Ohio State and may be completed in three years. A student should work closely with his pre-veterinary adviser in making certain that all required courses are completed for consideration for acceptance.

	Crs.
ENG 101 English Composition	3
ENG 102 English Composition	3
CHE 110 General Chemistry (Lecture)*	3
CHE 112 General Chemistry (Lecture)	3
CHE 115 General Chemistry (Laboratory)	3
MA 113 Calculus**	4
GEN 106 Agricultural Animal Science***	4
HIS 104 or 108 History of Europe or U.S.	3
HIS 105 or 109 History of Europe or U.S.	3
CLA 131 Medical Terminology****	3
ASC 360 Genetics	3
ASC 282 Fundamentals of Animal Nutrition	3
ASC 380 Feeds and Feeding	3
PHY 211 General Elementary Physics	5
PHY 213 General Elementary Physics	5
CHE 230 Organic Chemistry	3
CHE 231 Laboratory for CHE 230	2
CHE 232 Organic Chemistry	3
CHE 233 Laboratory for CHE 232	2
BIO 200 Biology	3
BIO 201 Laboratory for BIO 200	2
BIO 202 Biology	3
BIO 203 Laboratory for BIO 202	2
MB 200 Principles of Bacteriology	4
Electives: Humanities and Social Studies*****	9
Total	84

*An alternate course of CHE 105, 106, 108 and 115 may be followed by some students, depending on high school background and ACT scores. Consult adviser.

**A pre-calculus mathematics course, MA 109, is necessary for some students.

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

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

*****Auburn students must complete a minimum of 9 hours of liberal education studies selected from the general studies area of Humanities (Area V), and Social Sciences (Area VII). No less than one course must be taken in both Areas V and VII. For Ohio State, courses in Humanities and Social Science are recommended plus additional courses in Biology, Microbiology and Biochemistry.

SUGGESTED ADDITIONAL ELECTIVES

ZOO 560 Embryology and Morphology of Vertebrates	3
ZOO 561 Laboratory for ZOO 560	2
ZOO 562 Embryology and Morphology of Vertebrates	3
ZOO 563 Laboratory for ZOO 562	2

CHE 550 Physiological Chemistry 4
CHE 552 Physiological Chemistry 4

Further inquiries may be directed to:

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

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 Soil Science and Coop Science; Master of Science in Agriculture with a major in any of the departments or sections excepting Veterinary Science and Forestry.
2. Doctor of Philosophy Degrees are available in these areas: Agricultural Engineering, Animal Sciences, Agricultural Economics, Crop Science, Entomology, Plant Pathology, Plant Physiology, Sociology, and Soil Science.

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.

Allied Health

COMMUNITY HEALTH

Academic Preparation for Professional Program

Students will register in the College of Allied Health Professions and be admitted to the Community Health curriculum in their junior year. The degree will require 120 semester hours for graduation.

General Studies Component: Same as approved by the University Senate.

Pre-Professional Requirements: Minimum of: Six semester hours, biological sciences. Six semester hours, social and/or behavioral sciences. CH 210, Introduction to Community Health Ecology (3). Electives, for a total of 30 semester hours.

(Note: the General Studies Component can, in part, be satisfied utilizing the Pre-Professional Requirements, and planning with the adviser is encouraged.)

For admission to the curriculum, students will be expected to have a minimum of 2.0 accumulative grade-point average and to have completed a minimum of 30 semester hours. Admission to the curriculum, of necessity, will be limited due to the limited number of faculty and the community experience required as part of the community health education courses.

The core requirements for the Community Health Curriculum are:

	Crs.
CH 210 Introduction to Community Health Ecology	3
CH 250 Introductory Epidemiology	3
CH 481 Community Health Practice	4-8
Total	10-14

Specific requirements for the Community Health Education area are:

AHE 855 Allied Health Colloquium	2
AHE 856 Allied Health Colloquium	2
CH 320 Community Health Education Methodology	3
CH 321 Seminar in Community Health Education	3
CH 420 Current Issues in Community Health Education	3
CH 500 Public Health (Sanitation)	3
CH 501 Public Health Administration	3
CH 841 Kentucky January	3
HPR 330 School Health Education	3
HPR 430 Methods in Teaching Health Education	3
PS 201 Introduction to Political Behavior*	3
CMO 101 Introduction to Communications, or	3
CMO 551 The Communications	3
BSC 221 Behavioral Factors in Health and Disease	3
Total	37

*** May be used to fulfill Area VIII Requirements.**

Majors must spend at least one year full time in Community Health courses only.

Selection Criteria

Admission to the curriculum is limited. Currently, a maximum of 20 students are admitted in the junior year. Selection is based on grades, interview, and a demonstrated interest in this field.

Graduate education is offered in conjunction with the College of Education to prepare teachers of Community Health. (See Department of Allied Health Education and Research.)

Professional Program

The Community Health Education Curriculum for the junior and senior year is given below in a sample program. These courses are not prescribed, however, in any one year, but must be completed before the end of the senior year:

Junior or Senior Year

First Semester	Crs.
AHE 855 Allied Health Colloquium	2
CH 210 Introduction to Community Health Ecology	3
CH 250 Introductory Epidemiology	3
CH 320 Community Health Education Methodology	3
CH 500 Public Health (Sanitation)	3
HPR 330 School Health Education	3
Total	17
Second Semester	
AHE 856 Allied Health Colloquium	2
CH 321 Seminar in Community Health Education	3
CH 515 Communicable Disease	3
CH 420 Current Issues in Community Health	3
CH 501 Public Health Administration	3
CH 841 Kentucky January*	3
HPR 430 School Health Education	3
BSC 221 Behavioral Factors in Health and Disease	3
Total	20

CH 481, 4-8 credits.
Summer or some other arrangement.

*CH 841 Completed in first three weeks of semester.

DENTAL HYGIENE

Academic Preparation for Professional Program

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 General Chemistry
1 semester of Microbiology
1 semester of Sociology
1 semester of Psychology
1 semester of Nutrition
1 semester of Anatomy
1 semester of Physiology
Current Advanced First Aid Certificate from the American Red Cross

Students selected for admission to the third year of the program must have accomplished the prerequisites stated above. During the third and fourth years of the dental hygiene curriculum, students will be expected to complete satisfactorily all of the specified courses listed.

Selection Criteria

In admitting students to the dental hygiene curriculum, the College of Allied Health Professions 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 College of Allied Health Professions gives preference to qualified residents of Kentucky.

Selection from among applicants who meet the prerequisites of the dental hygiene program is based on a high level of academic performance in the first two years of college. However, the college recognizes that a meaningful evaluation of student performance must consider many factors in addition to the grades which a student has received.

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.

Applicants to the undergraduate and graduate teacher education curriculum are selected on the basis of their total qualifications and potential as dental hygiene educators. Selection is based on a high level of academic performance and such factors as personal, social and intellectual maturity. A minimum of one year dental hygiene work experience is required for the undergraduate program. Preference will be given to applicants to the graduate program who have completed two to three years dental hygiene work experience.

Professional Curricula

Third Year	Crs.
811 Oral Biology I	2
812 Oral Biology II	4
814 Oral Pathology	2
815 Dental Morphology and Principles of Occlusion	2
816 Growth and Development	2
818 Dental Radiology	1
820 Introduction to Oral Examination and Hospital Procedures	3
823 Dental Physical Sciences	2
825 Clinical Dental Hygiene I	6
827 Clinical Dental Hygiene II	8
835 Community Clinical Dental Hygiene Laboratory	2

Fourth Year	
DH 855 Allied Health Colloquium	2
DH 856 Allied Health Colloquium	2
920 Dental Radiology II	2
922 Pedodontics I	3
923 Pedodontics II	4
925 Clinical Dental Hygiene III	4
926 Principles of Practice	2
927 Clinical Dental Hygiene IV	4
930 Restorative Dentistry	4
933 Public Health and Community Organization	1
937 Independent Study in Dental Hygiene	4
CH 841 Kentucky January	3

Baccalaureate Program for Dental Hygiene Educators

An experimental option to the baccalaureate dental hygiene curriculum described above is available to graduates of a two-year dental hygiene program. Students are admitted to the University of Kentucky with advanced standing to take courses in arts and sciences to complete sequences in five General Studies areas, for a Bachelor of Health Sciences degree.

The following suggested curriculum will meet the needs for most graduates of associate degree programs in dental hygiene:

	Crs.
Upper Division program in dental hygiene	64+
DH 940 Advanced Dental Hygiene	1-4
BSC 221 Behavioral Factors in Health and Disease, or	3
BSC 527 Society and Health	(3)
EDP 548 Educational Psychology	3

EDH 500 Clinical and Laboratory Teaching	4
EDH 501 Teaching Internship	6-12
DH 937 Independent Study in Dental Hygiene (Research)	4
Arts and Sciences courses to complete five sequences from the University's General Studies component	24-32
Electives	8+
Total	128+

Suggested Electives

BSC 212 Human Growth and Development	4
DH 937 Independent Study in Dental Hygiene (Private Practice)	4
EDC 544 Utilization of Educational Media	3
EDP 522 Educational Tests and Measurements	3
CH 250 Introductory Epidemiology	3
CH 320 Community Health Education Methodology	3
CH 321 Seminar, Community Health Education	3
CH 420 Current Issues in Community Health Education	3
CH 481 Community Health Practice	4-8
HPR 330 School Health Education	3
An introductory course to Computer Science	

Procedure for Application

Applications for admission to the Dental Hygiene Curriculum in the fall should be filed no later than January 1 of that year. Early submission of applications is recommended. Applications to the undergraduate and graduate teacher education curriculums must be filed by January 1 and September 1 for fall and spring semesters respectively.

In addition to filing a professional application, 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.

Requests for further information or for professional applications for the dental hygiene curriculum should be sent to:

University of Kentucky
College of Allied Health Professions
Office of Student Services
Medical Center Annex II
Lexington, Kentucky 40506

Applicants to the undergraduate and graduate teacher education programs should be sent to:

Coordinator
University of Kentucky
College of Allied Health Professions
Center for Learning Resources
Lexington, Kentucky 40506

Students considering admission for the fall of 1975 should be aware that changes are now being considered in the Dental Hygiene Program which may result in considerable alterations of the curriculum published herein. For information regarding the current status of the program please write to:

Office of Student Services
College of Allied Health Professions
University of Kentucky Medical Center
Annex 2, Room 226
Lexington, Kentucky 40506

MEDICAL TECHNOLOGY

Academic Preparation for Professional Program

Freshman Year

First Semester	Crs.
ENG 101 Freshman Composition*	3
CHE 105 and 106 or 110 General Chemistry	3-4
MA 113 Calculus, or	4
MA 122 Fundamental Concepts of Mathematics I**	(3)
Area Requirements	3-6
Total	12-17

Second Semester	
ENG 102 Freshman Composition*	3
CHE 108 or 112 General Chemistry	3
CHE 115 Chemistry Laboratory	3
MA 123 Fundamental Concepts of Mathematics II**	3
Area Requirements	3-6
Total	15-18

Sophomore Year

First Semester	
PHY 211 General Elementary Physics***	5
ANA 206 Elementary Anatomy	3
MB 200 Principles of Bacteriology	4
Electives or Area Requirements	3-6
Total	15-18

Second Semester	
PHY 213 General Elementary Physics***	5
CHE 236 Organic Chemistry	4
PGY 206 Elementary Physiology, or	3
PGY 812 Principles of Human Physiology Lectures	(4)
Area Requirements or Electives	3
Total	15-16

Note: MT 820 Introduction to Medical Technology (offered spring semester only), one credit hour, is recommended for second semester freshmen and sophomores. MT 830 Medical Technology Seminar (offered fall semester only), one credit hour, is recommended for sophomores or juniors.

***See University English Options.**
****Both MA 122 and MA 123 are required to fulfill Area I requirements.**
*****Physics 201 and 203 may be substituted, four hours each.**

Selection Criteria for Professional Program

Because of the limitations of facilities of the Medical Center for this type of specialized education, it is necessary for students to apply for admission to the professional program. For admission, a minimum of 60 hours must be completed including the courses outlined for the first two years or their equivalent. Selection will be on a competitive basis and will include consideration by a review committee

of over-all grade-point standing, performance in selected courses, evidence of improvement, degree of motivation and recommendations.

The professional program comprises the third and fourth years. Most of the required courses of the junior year are offered by the College of Arts and Sciences, but certain ones, e.g., MB 500, Pathogenic Bacteriology, and MB 550, Immunology and Serology, are clinically applicable. The senior year consists of two semesters of clinically-related education, as outlined, plus four months of clinical practicum.

The professional instruction and practicum (senior year) required at the University of Kentucky Medical Center meet the requirements of the Board of Schools of Medical Technology (ASCP) and the Council on Medical Education of the American Medical Association. Graduates of this program are eligible for national certification by the Registry of Medical Technologists (ASCP) as well as receiving a Bachelor of Health Science degree.

Professional Curriculum

Junior Year

First Semester	Crs.
MB 500 Pathogenic Bacteriology	4
BCH 401 Fundamentals of Biochemistry	3
MT 832 Introduction to Laboratory Methodology	4
MT 854 Medical Parasitology	2
Elective	3
	16

Second Semester	
CHE 226 Analytical Chemistry	5
MB 550 Immunology and Serology	5
MT 845 Electronics and Instrumentation*	3
Elective	3
Total	16

Senior Year

First Semester (Fall)	Crs.
MT 843 Clinical Hematology Lectures	2
MT 844 Clinical Chemistry Lectures	3
MT 846 Urinalysis and Miscellaneous Microscopy	3
MT 853 Medical Laboratory Organization and Management*	1
MT 860 Blood Collection*	1
MT 863 Clinical Hematology Laboratory	3
MT 864 Clinical Chemistry Laboratory	3
AHE 855 Allied Health Colloquium	2
	18

Advanced Topics in Medical Technology	
MT 895 Independent Study	1 or 2
(By permission, second semester of clinical)	

Second Semester (Spring)	
MT 855 Clinical Serology	2
MT 856 Clinical Bacteriology Lectures	3
MT 857 Mycology	2
MT 858 Immunohematology and Blood Banking	2
MT 860 Blood Collection*	1
MT 866 Clinical Bacteriology Laboratory	3
CH 841 Community Health Clerkship	3
AHE 856 Allied Health Colloquium	2
Total	18

*Pass-fail grading only.

Followed by four months of clinical practicum in laboratories of the University of Kentucky Medical Center and affiliated facilities. (For fulfillment of National Certification requirements.)

PHYSICAL THERAPY

Academic Preparation for Professional Program

The first two years of the pre-professional curriculum may be completed either at the University of Kentucky or at another accredited college or university. Applicants are expected to complete a total of 60 hours (exclusive of physical education or ROTC) and a sequence of two courses in at least five of the general studies areas.

The physical therapy curriculum requires the completion of the following as prerequisites:

English Composition, 6 semester hours
General College Chemistry, 8-10 semester hours
General College Physics, 8-10 semester hours
General Zoology or Biology, 8-10 semester hours
General Psychology, 6 semester hours.

Selection Criteria

The Physical Therapy Curriculum is limited to 22 students in the Professional Program which was selected from approximately 100 applicants. Preference will be given to in-state students (maximum of 10 percent out-of-state applicants). Admission to the professional program is based on the applicant's academic performance (minimum 2.8 grade-point average based on 4.0 scale), personal interviews, aptitude, and initiative.

Professional Curricula

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	5
AHE 855 Allied Health Colloquium	2
PT 845 Medical Lectures I	2
PT 835 Introduction to Physical Therapy	3
PT 815 Basic Clinical Skills	3
	18

Spring Semester	
AHE 856 Allied Health Colloquium	2
PAT 826 Human Pathology	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	4
Total	20

Summer	
PT 816 Summer Clerkship (optional)	2

Fourth Year

Fall Semester	
PT 817 Electro-Diagnosis	2
PT 837 Clinical Clerkship II	2
PT 847 Medical Lectures III	2
PT 857 Therapeutic Exercise II	3-6
PI 858 Therapeutic Exercise III	2
PT 867 Research Methodology	3-4
PT 807 Introduction to Physical Therapy Administration	1
Total	15-19
Spring Semester	
PT 868 Research Problems	3
PT 838 Clinical Clerkship III	
Spring Semester	
CH 841 Community Health Clerkship	3
PT 868 Research Problems	3
PT 838 Clinical Clerkship III	2
PT 818 Advanced Clinical Problems	2
PT 808 Advanced Physical Therapy Administration	3
PT 898 Independent Study	1-2
Total	14-15
Professional Credits (third and fourth years)	68
Total Credits at time of graduation	128
Summer Semester (Post Graduate—Non Degree)	
PT 839 Clinical Internship	9

CLINICAL PASTORAL COUNSELING

All programs in this Department are integrated with the program of patient care in University Hospital, where a full-scale program of chaplaincy service and clinical pastoral education is already operational. This program is accredited through the Association for Clinical Pastoral Education. Departmental students also admitted to the Graduate School may study towards the degree, Master of Arts in Education, with major work taken in the Department of Educational Psychology and Counseling in the College of Education. A master's degree in Counseling is required for certification as a Fellow of the American Association of Pastoral Counselors.

While no students in the Department will be required to seek professional certification, and while such certification is a matter for the certifying organization and not the University of Kentucky, the Department will assist candidates desiring one or more certifications in the field. The primary certifications available are those of hospital chaplain, chaplain supervisor and pastoral counselor.

A statement of current departmental offerings may be obtained from the chairman of the program.

CLINICAL NUTRITION

The advanced degree program in clinical nutrition is described in the Graduate School Bulletin and in the Bulletin for the College of Allied Health Professions.

HEALTH RADIATION SCIENCES

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. For further information about these programs refer to the Graduate School Bulletin or the College of Allied Health Professions Bulletin.

EXPERIMENTAL BACCALAUREATE PROGRAM CENTER FOR LEARNING RESOURCES

The graduate of a typical associate degree program in the allied health technologies will have had approximately half of his post-secondary education in arts and sciences and half in his allied health specialty. This curriculum allows the graduate of such a program after one year's work experience to take approximately two additional years of a combination of (1) courses related to his allied health specialty, (2) courses designed for the teacher or administrator of an allied health program, and (3) arts and sciences courses to satisfy the University's requirement for completion of five general studies areas. At the conclusion of this program, the student will be awarded the degree of Bachelor of Health Science.

The Program

The following curriculum is proposed:	Sm. Hrs.
Associate degree program in the student's allied health specialty	maximum 67
General studies requirements	15-32
Electives	25+
Total	120+

Selection Criteria

Applicants must possess an associate degree in an allied health discipline, have had at least one year's work experience in that discipline following completion of the associate degree program, and have made a commitment to teaching or administering in an allied health education program. Additionally, he must meet the entry requirements for the College and the University.

Architecture

ADMISSION

Effective fall semester, 1975, the College of Architecture will admit freshman and transfer students on a selective basis. For details of requirements for admission to the College of Architecture, refer to UK Bulletin, General Information for Undergraduates.

THE DEGREE OF BACHELOR OF ARCHITECTURE

No student enrolled in the College of Architecture as a regular student will be admitted as a candidate for the professional degree of Bachelor of Architecture (B.Arch.) until he has successfully completed the requirements of the first four years of the five-year curriculum.

To be eligible for the professional degree of Bachelor of Architecture a student must meet the following requirements:

1. Complete the University requirements relating to English and General Studies.
2. Complete a minimum of 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.

LOWER DIVISION STUDIES

Students admitted to the University directly from high school, and those who transfer from other colleges and universities, will be assigned an academic adviser from the College of Architecture to assist in programming an appropriate selection of courses to fulfill the Lower Division Studies and the Professional Studies requirements.

Lower Division

Year One

	Crs.
ARC 101 and 102 Introduction to Architecture	2
ENG 101 and 102 English Composition	6
MA 113 Calculus*	4
Elective or General Studies Component	18
Total	30

Year Two

ARC 201 and 202 Basic Architectural Studies	10
PHY 201 and 203 General Elementary Physics*	8
Elective or General Studies Component	16
Total	34

*Satisfies General Studies Requirement in this area.

PROFESSIONAL STUDIES

Students should complete a minimum of 60 semester credits before entering the professional studies program. These 60 semester credits should include the requirements in English, mathematics, physics (MA 113 and PHY 201 and 203 are prerequisites for ARC 830) and the elective and general studies. Students must also have successfully completed the required architectural studies. Equivalent work at other institutions will be considered for fulfillment of the architectural studies requirement 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
Environmental Controls	8
ARC 840 Theories of Urban Form	3
ARC 850 Professional Practice	3
Elective or General Studies Component	6
Total	34

Year Two

ARC 812 and 813 Architectural Studio	8
ARC 822 and 823 History of Architecture	6
ARC 832 and 833 Structures and Environmental Controls	8
Elective or General Studies Component	12
Total	34

Year Three

ARC 910 and 911 Advanced Architectural Problems	10
Professional Elective Component	24
Total	34

CREDITS REQUIRED FOR BACHELOR OF ARCHITECTURE DEGREE

Professional and Related	102
General Studies	30
Electives	34
Total	166

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 College of Archi-

tecture. 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 the related professions of landscape architecture and planning.

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.

Arts and Sciences

DEGREES

The College of Arts and Sciences provides two basic degree programs: (1) the experimental Bachelor of General Studies, (2) the traditional Bachelor of Arts or Bachelor of Science. The Bachelor of Arts or Science program is typical of liberal arts programs offered at most universities. The Bachelor of General Studies is essentially an unstructured program which requires that each student plan and justify his own course of study.

Whichever degree program a student selects it is likely to have far reaching implications for the future. A decision should be made only after serious thought and discussion with an academic adviser.

THE BACHELOR OF GENERAL STUDIES DEGREE

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

The Bachelor of General Studies is an experimental program at the University of Kentucky. Although several other institutions have similar degrees, it is not known whether graduate and professional schools will accept the degree without prejudice. For this and other reasons students who wish to enter the Bachelor of General Studies should discuss its advantages and disadvantages with an academic adviser. *Freshmen and students on scholastic probation may not enter this program.*

Requirements

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

To receive the degree the student must:

1. Complete the University requirement in English composition.
2. Complete at least 30 credits after officially entering the program.
3. Complete at least 120 hours (exclusive of physical education service courses) and have a 2.0 standing.
4. Complete at least 45 hours in courses at or above the 300 level.
5. Earn at least 90 of the 120 hours in the College of Arts and Sciences
6. Complete and submit the form for application to the Bachelor of General Studies Program, stating degree objectives with specific courses listed. Obtain approval from academic adviser. File a copy of this academic program with adviser and Associate Dean for Student Academic Affairs.
7. In the final semester prepare a statement which indicates in depth the results, values, and cohesiveness of the student's program. This is to be used in the eventual evaluation of the BGS program and should be prepared with this in mind. However, it is not intended that this be a conventional "senior thesis." It must be filed with the Associate Dean for Student Academic Affairs.

Remarks:

1. The University General Studies requirements are waived for students in the Bachelor of General Studies program.
2. Students who wish to declare their intention to enroll in the Bachelor of General Studies program may do so by completing a Notice of Change of Major in the office of the Associate Dean for Student Academic Affairs, Room 257 Patterson Tower.
3. In order for the credit earned in any semester or summer session to count toward the 30 hours specified in requirement 2, the student must declare his intention to enroll in the Bachelor of General Studies by the last day to enter an organized class. This deadline occurs approximately one week after the beginning of a regular semester and approximately three days after the beginning of a summer session.

THE BACHELOR OF ARTS AND BACHELOR OF SCIENCE DEGREES

The requirements for these two degrees are not stated in terms of specific courses which must be taken. Rather they are written as guidelines for the student and his adviser to follow. The structure of these degrees places upon each student a large share of the responsibility for planning his course of study so as to constitute an integrated whole and not simply a random collection of courses.

These degrees are divided into three components, Basic Skills, Breadth of Study and Depth of Study. This division is not meant to imply that these are separate and disjoint areas. Rather, the intent is to focus the student's attention on various aspects of his education and, at the same time, make him aware of the opportunities afforded in each component.

Requirements for the Bachelor of Arts and Bachelor of Science Degrees

1. **BASIC SKILLS**

   a. **Composition and expression.** Each student must demonstrate his ability to write coherent English according to basic standards of form and style. In addition the student must demonstrate his ability to use these composition skills in his expression. The level of proficiency expected is that required

   b. **Translation and interpretation.** Each student must demonstrate his understanding of the structure and content of linguistic systems foreign to his own and exhibit his ability to translate from one to another. The level of proficiency expected is that required to *complete four units* of one foreign language or three units of one foreign language and two units of a second.*

   c. **Abstraction and inference.** Each student must demonstrate his ability to work within a formal system, to abstract from data, and to systematize abstractions according to their inherent logic. The level of proficiency expected is that required to *complete four units* in formal sciences such as computer science, logic, mathematics, or statistics.***

***One unit is considered equivalent to one year of high school or one semester of college work.**
****High school courses in general mathematics or business mathematics may not be used to satisfy this requirement.**

2. **BREADTH OF STUDY.** The student seeking the Bachelor of Arts degree must complete at least 12 hours in each of the following three broad areas of disciplined inquiry.

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

   a. Natural Sciences** At least six hours must be in a single discipline
   b. Humanities
   c. Social and Behavioral Sciences**

   Study in a single discipline may not serve to fulfill breadth requirements in more than one area.

***The Bachelor of Science degree requires the completion of 60 credits in biological, mathematical and physical sciences. This 60 credits may include freshman level courses and courses used to satisfy the natural science breadth requirement.**
****At least one course in the natural or social and behavioral sciences must include some laboratory or field experience.**

3. **DEPTH OF STUDY.** Each student must complete at least 46 hours, 40 of which must be in courses not open to freshman, of concentrated study in either of the following ways:

   a. *Discipline focus.* At least 18* hours of work at or above the 200 level in a departmental or interdepartmental program, at least six of pre-major work, and at least 14 hours in work related to but outside the major program. At least 24 hours must be courses at or above the 300 level.

   b. *Topical focus.* A systematic and coherent study of a single topic that cuts across lines of existing programs, with the advice of a member of the College faculty and consent of the Dean of the College.

***This minimum may be set at 15 hours for a departmental or interdepartmental program with the approval of the Arts and Sciences Faculty Council and the Undergraduate Council if there are special reasons for a lower minimum.**

4. **GENERAL.** Each student must complete 120 hours of course work (exclusive of physical education service courses) or its equivalent with a grade-point average of at least 2.0. At least 90 of these credits must be in Arts and Sciences courses. The Bachelor of Arts degree shall include at least 40 credits in upper division courses.

The University requirements for English composition and the General Studies must be satisfied. The composition requirement is the same as Basic Skills, section a. The General Studies requirement will usually be satisfied as the remainder of the Basic Skills and the Breadth of Study requirements are completed.

DISCUSSION OF COMPONENTS

1. **BASIC SKILLS**

   a. **Composition and expression.** At present this requirement may be satisfied only by the completion of the freshman composition requirement:

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

      2) For students with a Standard score of 22 or above on the English ACT test: ENG 102 or 105 with a grade of A or B. If the grade

received in one of these courses is C or D, the requirement may be satisfied by successfully completing the other course or ENG 203.

3) Students with very high ACT scores (28 or above) may be qualified to complete this requirement by examination.

b. **Translation and Interpretation.** Four units in a single foreign language or three units in one language and two units in a second language.

Duplication of Credit is not Allowed Toward Satisfaction of this Requirement. For example, a student who presents three units of high school work in a single language may complete this requirement by passing the fourth semester of the four semester sequence in the same language but may not complete the requirement by passing the first, second or third semester of that sequence. With this restriction, high school and college units may be combined as the student chooses.

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

The four semester sequences in the various languages are:

French: FR 104 (or 111-114), 105, 201 and 202. Students with previous experience in French may be assigned to FR 106.
German: GER 121, 122, 221, 222 or GER 121, 122, 201, 202. Students with previous experience in German may be assigned to GER 125.
Greek: Classics 150, 151, 251, 252.
Italian: SPI 191, 192, 291, 292.
Latin: Classics 101, 102, 203, 204.
Russian: Slavic and Oriental 161, 162, 261, 262.
Spanish: SPI 101, 102, 201, 202 or SPI 141, 142, 241, 242. Students with previous experience in Spanish may be assigned to SPI 103.

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

High school and college units may be combined as the student chooses. Appropriate college courses for this requirement include: CS 150, 221, 235, 250; PHI 120, 520; MA 101, 109, 113, 122, 123; STA 291 or 292-294, 370.

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

Students who wish to use high school units to satisfy all or part of Basic Skills component b or c, must furnish evidence from the high school that units were actually earned. This proof may be provided by the submission of high school transcripts or by having the appropriate school officials certify the credit by writing:

The Associate Dean for Student Academic Affairs
College of Arts and Sciences
University of Kentucky
Lexington, Kentucky 40506

2. BREADTH OF STUDY

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

One means to satisfy a breadth area that many students may find attractive is to plan a program around a topic of interest. For example, it is possible to satisfy the natural sciences requirement by choosing courses of an ecological or environmental awareness nature. Students who are interested in classical civilizations have a wide variety of courses in anthropology, art, classics, and philosophy to choose from in the humanities requirement. Even if a student does not have an interest in an academic area, the planning of a breadth area around a topic may be as valuable as a random selection of courses.

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

The Breadth of Study component should not be construed as a concern of just the freshman and the sophomore years. As a student grows in intellectual maturity and sophistication he will bring a mode of thought to academic endeavors that will make courses outside his major increasingly important to his education.

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

NATURAL SCIENCES

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

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

These sciences have in common a long history of methodologies based upon empirical observations, syntheses of the observations, and deductions of relationships and laws. The study of these sciences, therefore, is important

not only because it teaches the student a way of thinking relevant in present day society, but is also exposes the student to an important body of knowledge in the above specified disciplines.

Recommendations. At least six hours must be taken in a single discipline chosen from: astronomy, biology, chemistry, geology, or physics. The remaining Natural Sciences courses may be satisfied by courses in the disciplines listed above or from the following specific courses: ANT 120, 232, PSY 512, GEO 151, 251. Specifically excluded are courses in the history or philosophy of science.

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

CHE 103, 115 GLY 140, 142, 144
BIO 105, 107, 109, 201, 203 PHY 211, 213, 241, 242.

HUMANITIES

Definition. The formal study of the Humanities focuses on man's conscious response to himself as an individual in relation to verbal and non-verbal interpretations of human experience in order that he may expand his sense of self-identity as well as his awareness of values shared by other men both now and in the past. To promote this end humanistic study is concerned with the emotions and the intellect, with broad systematic generalization along with factual data, with normative joined with descriptive principles.

The aims which a program in the Humanities ideally promotes are the following: to strengthen the powers of rational discrimination in areas that involve many non-rational elements, to appreciate the non-intellectual or a rational dimensions of discursive thought, to develop a sense of perspective in one's approach to inquiry and evaluation, to relate one's own thought to former times and to see its implications for future growth in cultural, aesthetic, and moral sensitivity.

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

1. **English Department:** All literature courses. Specifically excluded are composition courses such as ENG 101, 102, 105, 203 and 207 and linguistics courses.
2. **Foreign Language Departments:** All literature and civilization courses in the departments of Classics, French, German, Slavic and Oriental, and Spanish and Italian. Specifically excluded are composition, conversation, basic language study (i.e., the first four semester sequences) and linguistic courses.
3. **Philosophy Department:** All courses except PHI 120 (Introductory Logic).
4. **Art Department:** All art-history courses.
5. **Music Department:** Courses in music appreciation and the history of music: MUS 200, 202, 203, 300, 500, 501, 502, 503, 505, 506.
6. **Theatre Arts Department:** TA 590 History of the Theatre I, TA 591 History of the Theatre II.
7. **Sociology Department:** SOC 525 Religion and Culture.
8. **Anthropology Department:** ANT 512 Comparative Civilizations, ANT 524, Mythology.
9. **College of Architecture:** ARC 820, 821, 822, 823 History of Architecture. (Note: undergraduate students must have the approval of the Dean of Arts and Sciences and the Dean of Architecture to enroll in these courses.)
10. **Health, Physical Education and Recreation Department:** HPR 290 History and Philosophy of the Dance.
11. **History:** All undergraduate courses.

SOCIAL AND BEHAVIORAL SCIENCES

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

1. **Sociology Department:** All undergraduate courses.
2. **Political Science Department:** All undergraduate courses.
3. **Psychology Department:** All undergraduate courses except PSY 336, 509, 512, 530 and 531. The excluded courses are statistical or biological in nature.
4. **Anthropology Department:** All undergraduate courses except the following physical anthropology courses: ANT 120, 420, 500.
5. **Geography Department:** All undergraduate courses except GEO 151, 205, 251, 505 and 551. The excluded courses are courses in physical geography, climatology or cartography.
6. **History Department:** All undergraduate courses.
7. **Economics Department:** All undergraduate courses except the following statistical method courses: ECO 291, 391, 592.
8. **School of Communications:** All undergraduate courses which bear the CMO prefix.
9. **Journalism Department:** Only JOU 535, History of Journalism and JOU 537, Seminar in Public Opinion.
10. **Speech Department:** Only SP 280, Discussion; SP 581, Communications Processes in Discussion; and SP 582, Persuasion.
11. **Philosophy Department:** Only PHI 535, Social and Political Philosophy; PHI 537, Philosophy of Law; PHI 562, Philosophy of the Social Sciences; PHI 565, Philosophy of Language; PHI 570, Philosophy of History; PHI 575, Philosophy of Mind.

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

PSY 104 and PSY 106, Basic Psychology
ANT 550, Field Studies in Anthropology
ANT 585, Field Laboratory in Archeological Research

GENERAL STUDIES

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

these areas will be satisfied as the student completes the College Basic Skills and Breadth of Study components, but each student must be careful to insure this is the case.

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

Upper division courses in the same department may be substituted for listed courses with the approval of the dean of the student's college and the chairman of the department in which the courses are taught. Arts and Sciences students are encouraged to make liberal use of this substitution option.

*See UK Bulletin—General Information for Undergraduates.

DEPTH OF STUDY

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

In outline, general requirements are as follows:

1. A prerequisite of at least six credits.
2. A total of 40 credits in the field of concentration, including credits in the major.
3. A standing of 2.0 in this 40 credits is required for graduation.
4. A minimum of 18 credits in the department, exclusive of prerequisites.
5. At least 14 credits in the field must be outside the major department.
6. At least 24 credits must be in courses above the 200 level.
7. No course open to freshmen may be counted in the field of concentration.

The student is required to gain at least 40 credits in a field of concentration, most of which must be taken during the junior and senior years. These 40 credits are to be elected subject to the approval of the student's adviser and the Associate Dean for Student Affairs 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 Student Academic Affairs. 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 Student Academic Affairs.

TOPICALLY RELATED FIELDS (TOPICAL MAJORS)

If a student has an interest which does not fall into a departmental area he may select a topic for concentration instead of a departmental major. The topical major offers great flexibility and allows the student to cut across departmental and College lines in constructing a meaningful and imaginative program. 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, Women's Studies, 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 Student Academic Affairs. A student who has interests that he thinks could fit into the topical major should come first to the Associate Dean for Student Academic Affairs. 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 Student Academic Affairs.

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 Student Academic Affairs. 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 Student Academic Affairs as to the proper procedure. If the change is drastic, or delayed until well into the student's career, he must acept 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 and by the Dean of his college. Students majoring in those departments that require the final comprehensive examination are automatically candidates for department honors.

INDEPENDENT WORK COURSES

A junior or senior, if his particular excellence in the department warrants it, may, with the approval of his adviser, the instructor who would direct the work, and the dean, register for an independent work course in his major department. Normally, a standing of 3.0 in the major would be required. In exceptional circumstances a non-major or topical major might be permitted to enroll in a departmental independent work course. Such a course is characterized by special assignments for study, regular conferences, reports, and usually involves preparation of a paper. Independent work courses are defined by their larger scope, wider content, advanced point of view, and by a more rigorous demand of reading, writing, and thinking. The instructor in each case must file with the department evidence of the nature of the work achieved. Credit for such courses may be granted to undergraduates to an amount of not more than 12 credits.

ELECTIVES IN OTHER COLLEGES

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

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

Students taking the combined Arts-Law course must, before taking Law courses, complete the first three years of Arts and Sciences work under the conditions specified below.

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, (after the Spring Semester, 1971, no student may enter the Arts-Law combined program for admission to the University of Kentucky College of Law), Medicine, and

Dentistry gaining the A.B. or B.S. degree after three years in this College and one or more years in the professional school.

1. He must gain at least 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, or an accredited College of Dentistry as rated by the Dental Educational Council of America.
4. He must, in his professional courses, secure sufficient credits to bring his total in the arts and professional work up to 120 credits exclusive of physical education, and must secure a standing of at least 2.0, or its equivalent, in the professional work. Professional courses duplicating arts and sciences courses, or duplicating courses elected in other colleges of the University by the student while registered in the College of Arts and Sciences, will not be counted in the total.

PRE-LAW COURSES

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

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
(1) general chemistry (3) quantitative analysis
(2) qualitative analysis (4) organic chemistry
Electives sufficient for junior classification

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

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

The number of students applying annually for admission to medical colleges exceeds the number which can be admitted. Boards of admission consequently fill their quotas from those who are best prepared, or who have had three or four years' of college work, or even a college degree. Furthermore, these boards seldom select a student who does not have a satisfactory standing, regardless of the number of years spent in college.

RECOMMENDATIONS FOR PROSPECTIVE MEDICAL STUDENTS

1. Consider the study of medicine only if you have a serious desire to follow this profession, and if you are capable of demonstrating this by successfully and satisfactorily completing your college courses. An applicant for entrance to medical school should have at least a 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 **contact the pre-medical office in the College of Arts and Sciences at U.K.**
3. There is no pre-medical major as such. The pre-medical student is strongly urged to work toward a departmental major as soon as he can make such a choice. For some students of above average promise as pre-medical students, a topical major is sometimes appropriate.
4. The College of Arts and Sciences has a pre-medical office on the second floor of the Patterson Office Tower. General questions should be directed to this office.

RECOMMENDED COURSES PREPARATORY TO THE STUDY OF MEDICINE

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

Freshman Year

First Semester	Crs.
CHE 110 General College Chemistry I	3
MA 113 Calculus	4
ENG 101 Freshman Composition	3
Electives (Liberal Arts)*	3
Electives (Liberal Arts)*	
Second Semester	
CHE 112 General College Chemistry II	3
CHE 115 General Chemistry Lab	3
ENG 102 Freshman Composition	3
Electives*	7-9

Sophomore Year

First Semester	
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	
ZOO 220 Comparative Anatomy	4
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 six semester hours)
1 year of biology (at least six semester hours)
1 year of physics (at least six semester hours)
1 year of inorganic chemistry (at least six semester hours)
½ year of organic chemistry (at least three semester hours)

All science courses must include both class and laboratory instruction.

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

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

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

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

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

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

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

PRE-OPTOMETRY CURRICULUM

By means of contract 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 institution 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	8 or 10
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	9-11
Total	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 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	Crs.
CHE 110 General College Chemistry I	3
ENG 101 English Composition	3
CHE 112 General College Chemistry II	3
CHE 115 General Chemistry Lab.	3
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
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 Elementary Physics	5
BIO 202 General Biology II	3
BIO 203 General Biology Lab II	2

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

AEROSPACE STUDIES
(Air Force ROTC)

General Military Course: The General Military Course, taken during the freshman and sophomore years in the four-year program, consists of four one-credit hour courses (AS 111, AS 112, AS 211, and AS 212). The General Military Course is elective for any full-time male or female students at the University. Each course meets twice weekly, once in academic session and once for Corps Training (leadership laboratory).

Professional Officer Course: Admission to the Professional Officer Course (junior and senior years) is competitive and by application of the individuals completing the General Military Course, or in the case of students in the Two-Year Program, through successful completion of a six-week summer camp. The Professional Officer Course consists of four three-credit hour courses (AS 331, AS 332, AS 341, AS 342). The four courses, normally taken consecutively, meet four times weekly, three times in academic session and once for Corps Training (leadership laboratory). In addition, a four-week summer camp is offered for those students in the four-year program.

Field Training: Field Training, offered at Air Force bases across the country, is usually the high point on the student's road to an Air Force Commission. Normally this is the student's first extended exposure to an Air Force envi-

ronment. It is here that the student receives junior officer training and leadership development with other students. Also at this time the Air Force has an opportunity to evaluate personally each student as a potential member of its officer corps. The primary difference between the six-week Field Training, taken by the two-year student, and the four-week Field Training, taken by the four-year cadet, is that the students attending the six-week course receive substantial classwork in "World Military Systems." Subject matter here focuses on American military power and its implications. This compensates for the classwork given those in the four-year program during their first two years on campus. Both Field Training courses include cadet orientation, survival training, junior officer training, aircraft and aircrew indoctrination, physical training, organization and function of an Air Force base, career orientation, small arms familiarization, first aid, and other supplemental training.

Flight Instruction Program: The wings of an Air Force pilot are earned only after many months of concentrated study and dedicated work. The Air Force ROTC cadet takes his first big step in winning his wings through the Flight Instruction Program (FIP). An addendum to the regular AFROTC curriculum, FIP training is given at no cost to the cadet. In the year prior to commissioning, male cadets who are physically and mentally qualified and who have been selected to receive Air Force pilot training, participate in the FIP. The Flight Instruction Program (AS 323) includes 45 hours of ground instruction and 35 hours of dual and solo flight instruction under the supervision of a Federal Aviation Agency (FAA) certified flight instructor. On successful completion of the FIP, the cadet receives a FAA private pilot's license. This flying program is highly motivational for those cadets who participate in it. More importantly, it serves as a test of the cadet's aptitude and interest in flying.

Base Visits: Classroom instruction is made more meaningful for the student through visits to Air Force bases. To bring the vast scope of Air Force operations into a clearer perspective, Air Force ROTC strives to enable every student to make at least one such visit each year. Many students have the opportunity to make more. On such trips the student sees and learns much about the operating Air Force and returns to the classroom with a better understanding of the Air Force's global mission. Base visits add substance and significance to the student's studies. These visits may range from a few hours in duration to an entire weekend. Usually students travel by Air Force aircraft. Briefings and tours by base personnel, with further explanations by the AFROTC instructor who accompanies each group, give added dimension to these trips.

Emoluments: An Air Force ROTC cadet is entitled to many of the same benefits that regular Air Force personnel receive. Social and other extra-curricular activities, along with the leadership and academic training, are intrinsic to the Air Force ROTC. But there are also more tangible pay and other benefits which include:

1. All cadets enrolled in the Professional Officer Course receive $100 each month in nontaxable subsistence allowance.
2. Scholarship cadets receive the nontaxable $100 each month while on scholarship status along with paid tuition, laboratory fees, incidental expenses, and textbooks.
3. Cadets in the Professional Officer Course may travel free on military aircraft on a space available basis.
4. General Military Course and Professional Officer Course cadets may travel by rail at special reduced rates on a space available basis when in uniform, and when they have leave orders from the AFROTC detachment.
5. Cadets in the Flight Instruction Program receive free flight training on campus and may qualify for a Private Pilot's Certificate.
6. Cadets attending the four-week Field Training receive pay at the rate received by an Air Force Academy Cadet. Students attending the six-week Field Training receive pay at the rate received by an airman basic. Cadets/students attending Field Training also receive a travel allowance to and from the Air Force bases where the training is taking place.
7. All AFROTC uniforms and textbooks are provided by the Air Force both for on-campus courses and at Field Training. All Professional Officer Course cadets receive an individually tailored Air Force Officer's uniform which they retain upon commissioning. General Military Course cadets are furnished uniforms and equipment on a loan basis. Each cadet is required to deposit $10 as a surety to the Business Office of the University against loss or damage of uniforms or equipment for which the University is accountable to the Government. The deposit is refunded upon return of the items.
8. Cadets who have completed the program and have received active duty orders may purchase additional uniforms and accessories at Air Force base exchanges and clothing sales stores prior to active duty.
9. Notable cadet achievements are recognized by a variety of awards to include recognition by both military and civilian organizations.

The Aerospace Studies program sponsors the following organizations:

1. Arnold Air Society: Named in honor of General H. H. Arnold, commanding general of the Army Air Forces in World War II, the Arnold Air Society is a national honorary organization composed of outstanding Air Force ROTC cadets.
2. Angel Flight: A national auxiliary of the Arnold Air Society. It is composed of highly select coeds who are interested in enhancing the esprit, morale, and appearance of the Air Force ROTC Cadet Corps.
3. Escorts Squadron: A part of the AFROTC Cadet Corps. Members of this unit are selected on the basis of the candidate's interest in the Air Force, bearing, ability, and extracurricular activities. The Air Force ROTC drill team for parades and drill competitions consists of members of the Escorts Squadron.

Graduate Education Before Active Duty: Cadets who complete Air Force ROTC and are commissioned may request delay from entry onto active duty to complete

graduate work. This advanced education is pursued at the individual's own expense. Air Force ROTC graduates may also apply for graduate education at Air Force expense under the Air Force Institute of Technology (AFIT) program. They too may pursue advanced degrees without interruption. Those selected receive all pay and allowances of a lieutenant and have their tuition and expenses paid by the Air Force.

Once on active duty the Air Force officer continues to have other enviable opportunities for graduate and advanced professional education both by correspondence and through in-residence programs.

Academic Program Requirements

For University requirements: See Academic Program section.

For college requirements: See individual college.

ANTHROPOLOGY

Department Rrequirement

For University requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

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 the senior year, ANT 582 is required.

Field of Concentration Requirements: Same as College.

ART

Departmental Requirements

For University requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

It is recommended that the Art Major choose German, French or Italian to satisfy Area IV, Foreign Language Requirement.

Students choosing a major in the Department of Art must meet the following requirements:

Studio Major

1. Satisfactory completion of a substantial number of the Lower Division requirements of the College of Arts and Sciences.
2. Satisfactory completion of the Pre-Major requirements of the Department of Art. A grade below C in the Department offerings will not be accepted as a fulfillment of the requirements.
3. Submission of a satisfactory portfolio of work from either the Lower Division offerings in the Department of Art or from the school from which the applicant has transferred, as proof of willingness and competency. This portfolio will be reviewed by a jury of faculty in the area of the applicant's indicated major.

Art History Major

Basic Skills: Same as College. In (b) Translation and Interpretation, French and German are most strongly recommended.

Breadth of Study: Same as College. Courses offered by the Art Department may not be used by art majors to satisfy this requirement.

Depth of Study:

1. Prerequisites to major:
   a. Two art history courses at the 100 or 200 level
   b. Four art studio courses
   c. Art 001-004
2. Major and Field of Concentration Requirements:
   a. A–H 450, Art History Senimar
   b. ART 005–008
   c. Fifteen additional hours of art history or museum training
   d. Satisfactory completion of a Senior Comprehensive Examination
   e. In addition to the 18 hours in the major, at least 22 hours more in non-freshman courses, subject to the following:
      1) At least 14 hours must be outside the Art Department, but in courses related to the major. Students are encouraged to elect courses in Anthropology, Classics, History, Philosophy, Literature, the Arts, and most particularly, languages, especially French and German and other languages relevant to special period or regional studies.
      2) At least 24 hours must be in courses at or above the 300 level.

Major and Field of Concentration Requirements

1. **Studio Major:** An Art Studio Major may, with discretion, develop into any of several fields of endeavor. Sculpture, painting, drawing, ceramics, textiles, and printmaking are presently the major fields in the studio areas in the Department. The Studio Major requirements are: 18 hours in the area of concentration; six hours in related, but not allied area (if a student is enrolled in a three-dimensional discipline, he will take 18 hours in this area. The six hours, related, must be taken in a two-dimensional area such as painting or printmaking); six hours in the history of art, one at the 300 level and one at the 500 level, and one Senior Seminar. Also required is submission of a satisfactory portfolio. At least 14 hours in the Field of Concentration must be in 200 level and above courses outside the Art Department, but related to the major.
2. **Art History Major:** twenty-four hours in art history, nine hours at the 300 level and 15 at the 500 level–nine hours at the 500 level must be in an area of concentration; three hours of criticism to be taken in the first semester of the junior year; a Senior Seminar in art history; and one additional Seminar course. At

least 14 hours in the Field of Concentration must be in 200 and above courses outside the Art Department, bur related to the major. Also required is satisfactory performance in a Senior Comprehensive Exam.

Major in Art Education

The major in art education is the joint concern of the Department of Art and the College of Education.

Area Requirements: The General Studies Component in every baccalaureate degree program shall consist of five areas of study chosen by the student. Possible change is pending. See the Dean of the College.

Pre-Major Requirements: ART 001-004, any two of A-H 210, 220, 230 or 240; A-S 102, 103, 180, 215, 255; 20 hours total.

Major Requirements: ART 005-008; six credits in Upper Division art history courses: A-E 575, 577, 579; studio electives (half in two- and half in three-dimensional media), 15 hours; 29 hours total.

Field of Concentration: Including the major, must include a minimum of 40 credits of nonfreshman work, with at least 24 credits above the 200 level. At least 14 credits must be outside the department, selected with the approval of the adviser from courses generically related to the major field of study. Normally, courses would be selected from one or more of the following: music, theatre arts, history, literature or languages, architecture, philosophy. Six hours of education courses may be counted.

Certification Requirements for Major in Art Education:

1. BIO 110 and PSY 104 or 210.
2. (1) Area II; (2) Area III; (3) Area IV or V; (4) Area VI; (5) Area VII. Students who do not choose these component areas may need to take more than the minimum number of required hours in order to satisfy these requirements.
3. One speech course (or proficiency in speech demonstrated).

Professional Education Requirements: EDF 301, EDP 202; EDC 342; EDC 344; EDC 564. EDC 325 is additional requirement if 12-grade certification is to be obtained.

The Graduate Program in Art for the M.A. degree allows for emphasis in any one of two broad fields: (1) art history and criticism; (2) research and planning in art education. In each case a written thesis is required. Masters' candidates in art education continue to balance their course work between studio classes for creative work and class in the history of art, criticism, aesthetics, and educational theory.

The degree Master of Fine Arts is also offered by the Art Department. For further information see the Graduate School Bulletin.

THOMAS HUNT MORGAN SCHOOL OF BIOLOGICAL SCIENCES

Botany Major Requirements

For University requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

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 (one 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 nonfreshman work, with at least 24 credits above the 200 level. At least 14 credits must be outside the program and related to the major field of study. Appropriate courses in zoology, microbiology, geology, chemistry, biochemistry, agronomy, horticulture, and plant pathology are suitable.

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

Microbiology Major Requirements

For University requirements and General Studies Areas: See Academic Program section.

For College Requirements See individual college.

Pre-Major Requirements: BIO 200, 201, 202, 203; PHY 211 and 213; MA 113; CHE 110, 111, 112, 113 and 226 or 444.

Major Requirements: A minimum of 18 hours including MB, 350, 500, and 550. Courses in other departments dealing primarily with microorganisms may be considered as a part of the major with the permission of the Department. MB 105, 106, 200 and 400 will not fulfill major requirements.

Field of Concentration: Including the major, at least 40 credits of nonfreshman work, with at least 20 credits above the 200 level; at least 14 credits outside the major and related to the major field of study, including CHE 230, 231, 232, and a course in genetics.

Zoology Major Requirements

University Requirements: Two semesters of freshman composition. See **Graduation Requirements** in UK Bulletin—General Information for Undergraduates for the patterns available.

For General Studies Areas: See Academic Program section.

For college requirements: See individual college.

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 the following list: BIO 404 (Genetics), BIO 450 (Ecology), ZOO 508 (Evolution), ZOO 530 (Vertebrate Zoology), ZOO 550 (Comparative Physiology), ZOO 560-561 (Embryology and Morphology of the Vertebrates), ZOO 570 (Invertebrate Zoology), and at least one credit of ZOO 509 (Senior Seminar). Fifteen additional upper division credits from the biological sciences or related areas.

Field of Concentration Requirements: Same as College requirements.

Additional Requirement: The Undergraduate Record Examination is to be taken and scores received before graduation.

CHEMISTRY

Requirements for B.S. Degree

Summary of Requirements for B.S. Degree with a Major in Chemistry.

1. Basic Skills
   a. Composition and Expression: ENG 101 and 102
   b. Translation and Interpretation: GER 121, 122, 201, 202
   c. Abstraction and Inference: MA 113, 114, 213, 214
2. Breadth of Study
   a. Natural Sciences: Chemistry and Physics
   b. Humanities: General Studies and Electives
   c. Social and Behavioral Sciences: General Studies and Electives
   d. Completion of sixty credits:

	Crs.
PHYS 231, 232, 241, 242	10
MA 113, 114, 213, 214	15
CHE 110, 112, 115, 226, 230, 231, 232, 233, 440, 442, 443, 395, 572, major field options	53
Total	78

3. Depth of Study
   a. Discipline focus:

Pre-major work	9 Credits (6 req.)
200 level or above	44 Credits (18 req.)
300 level or above	31 Credits (24 req.)
outside, related	25 Credits (14 req.)

   b. Total credits: 120
4. General Studies

Area I Mathematics and Philosophy
MA 113
Area II Physical Sciences
PHYS 231, 232, 241, 242
Area IV Foreign Language
GER 121, 122, 201, 202
Area III Biological Sciences
Area V Humanities
Area VI History
Area VII Social Sciences
Area VIII Behavioral Sciences
One sequence in each of two of these areas

Curriculum Leading to the Degree of Bachelor of Science with a Major in Chemistry

Freshman Year

First Semester	Crs.
CHE 110 General	3
ENG 101 Composition	3
MA 113 Calculus	4
General Studies	3
Total	13

Second Semester	
CHE 112 General	3
CHE 115 Laboratory	3
ENG 102 Composition	3
MA 114 Calculus	4
General Studies	3
Total	16

Sophomore Year

First Semester	
CHE 226 Analytical Lecture and Lab.	3-4
CHE 230 Organic Chemistry	3
MA 213 Analysis	4
PHY 231 General	3
PHY 241 Laboratory	2
Total	15-16

Second Semester	
CHE 232 Organic Chemistry	3
CHE 231 Organic Laboratory	2
MA 214 Analysis	3
PHY 232 General	3
PHY242 Laboratory	2
Elective	3
Total	16

Junior Year

First Semester	
CHE 233 Organic Laboratory	2
CHE 440 Physical	3
GER 121*	4
General Studies	3
Major Field Option**	3
Total	15

Second Semester	
CHE 442 Physical, or	3
CHE 547 Advanced Physical	(3)
CHE 443 Physical Laboratory	3
GER 122	4
General Studies	3
Major Field Option	3
Total	16

Senior Year

First Semester	
CHE 395 Independent Work***	3
GER 201	3
Major Field Options	6
Elective	3
Total	15

Second Semester	
CHE 395 Independent Work	3
CHE 572, Seminar	1
GER 202	3

Major Field Option	3
Electives	4
Total	14

*Two Years of Russian may be substituted for German.

**Major Field Options must total 15 credits to be chosen among the following: up to three additional credits in CHE 395; CHE 442 (if not used to fulfill regular requirement); any CHE 500 level course other than CHE 572; BCH 401 or 502 (credit cannot be counted for both CHE 550 and BCH 401 or for both CHE 552 and BCH 502).

***Strongly recommended (six credits) for students having a minimum 3.0 grade-point average in the Department. Students electing CHE 395 will be required to present both a written and an oral report on their work during their final semester or registration in CHE 395. Students not electing CHE 395 must substitute six credits in 300 or higher level courses in fields related to their professions' goals, as approved by their advisers.

CLASSICAL LANGUAGES AND LITERATURES

Major for the Bachelor of Arts degree with a major in Classics.

Lower Division:
1. Two semesters, freshman composition
2. For **General Studies Areas:** See Academic Program section.
   For College Requirements: See individual college.

Upper Division:
1. **Pre-Major Requirements:** CLA 151, 152, 201, 202 or equivalent.
2. **Major Requirements:** Twenty-four credits appropriately divided between Latin and Greek languages courses. Sixteen additional credits in courses above Freshman level within the field of concentration. Fourteen of these must be outside the Department of Classics.

Major for the Bachelor of Arts degree with a major in Latin.
Lower Division:
1. Two semesters, freshman composition
2. **For General Studies Areas:** See Academic Program section.
   For College Requirements: See individual colleges.

Upper Division:
1. **Pre-Major Requirements:** CLA 201, 202 or equivalent.
2. **Major Requirements:** Eighteen additional credits in Latin language courses, 14 credits in courses above the freshman level outside the Department of Classics, but within the field of concentration, eight additional credits above the freshman level either in the Department of Classics or in other departments within the field of concentration.

Major for the Bachelor of Arts degree with a major in Greek.
Lower Division:
1. Two semesters, freshman composition
2. **For General Studies Areas:** See Academic Program section.
   For College Requirements: See individual college.

Upper Division:
1. **Pre-Major Requirements:** CLA 151, 152 or equivalent.
2. **Major Requirements:** Eighteen additional credits in Greek language courses, 14 credits in courses above the freshman level outside of the Department of Classics, but within the field of concentration. These courses will normally be taken in the following areas of study: ancient history, ancient art, Greek philosophy, Latin literature. Eight additional credits above the freshman level either in the Department of Classics or in other departments within the field of concentration.

Major for a Bachelor of Arts degree with a major in Classical Civilization.
Lower Division:
1. **Two semesters,** freshman composition
2. **For General Studies Areas:** See Academic Program section.
   For college requirements: See individual college.

Upper Division:
1. **Pre-Major requirements:** CLA 101, 102 or CLA 151, 152 or equivalent
2. **Major requirements:** Eighteen credits within the Department of Classics above the freshman level. Six of these credits must be in language courses. Fourteen credits in courses above the freshman level outside the Department of Classics and normally selected from the following:
   ANT 241 Beginnings of Civilization (3)
   ANT 512 Comparative Civilization (3)
   ANT 548 European and Near Eastern Archaeology (3)
   A-H 210 Ancient Art (3)
   A-H 220 Medieval Art (3)
   A-H 510 Studies in Ancient Art (3)
   A-H 520 Studies in Medieval Art (3)
   ENG 560 Comparative Literature I (Greek and Latin Literature from Homer to Middle Ages) (3)
   HIS 229 Ancient Near East and Greece to Death of Alexander (3)
   HIS 230 Hellenistic World (3)
   HIS 500 Pre-Classical and Classical Greece (3)
   HIS 501 Fourth Century Greece and Hellenistic World (3)
   HIS 502 Roman Republic (3)
   HIS 503 Roman Empire (3)
   HIS 547 Byzantine Empire (3)
   PHI 260 History of Western Philosophy I (3)
   PHI 502 Plato and Aristotle (3)
   SO 324, 325 Hebrew Civilization (3 ea.)
   SO 328 Islamic Civilization in: The Rise of Islam to 1798 (3)
   SO 401, 402 Hebrew Grammar and Syntax (3 ea.)

   Eight additional credits above the freshman level either in the Department of Classics or in other departments within the field of concentration.

Certification Requirements for a Major in Latin.
Lower Division:
1. Two semesters, freshman composition.

2. Two semesters, physical education.
3. BIO 110 and PSY 104 or 210.
4. General Studies Requirement: Areas II, III, IV or V, VI and VII. Students who do not choose these component areas may need to take more than the minimum number of required hours in order to satisfy these requirements.
5. One speech course (or proficiency in speech demonstrated).

Major Requirements: Thirty credits in Latin.

Minor Requirements: Eighteen 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.

SCHOOL OF COMMUNICATIONS

The communications sequence is designed for students who want to study human communication as an academic discipline–its philosophy, theories and systems. This sequence primarily is intended to lay a foundation for the advanced study of communication. It is taught by faculty members of the three departments.

Students desiring to major in the communication sequence of the School should inquire at the office of the School Director, 107 Journalism Building, where an adviser will be assigned. Undergraduates seeking to major in one of the departmental sequences (Journalism, Speech, or Telecommunications) should come to the office of the appropriate department chairman for the assignment of an adviser. These offices are: Journalism, 116 Journalism Building; Speech, 1415 Patterson Office Tower; Telecommunications, 325 McVey Hall.

Requirements for the communication sequence follow. Those for departmental sequences are listed with the description of the department.

Communication Sequence

General Studies Requirements:

The General Studies Component in every baccalaureate degree program shall consist of five areas of study chosen by the student. Possible change is pending. See the Dean of the College.

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 three hours from the following:

PSY 336 Applications of Statistics in Psychology (3)
ECO.291 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 of Modern Society
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, TEL, or SP, from courses above the 200 level. Nine hours of this 12-hour requirement may be met by substituting courses in linguistics. Courses from the above list not used to meet requirements are recommended as electives.

JOURNALISM

Advertising-Public Relations Sequence

For University Requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

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 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 (3)
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 Introduction to Press Photography (3)
TEL 500 Program and Audience Analysis (3)
TEL 510 Radio and Television Advertising (2)

plus at least 15 hours from the following:

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 Modern English Grammar (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 540 Collective Behavior (3)
ENG 510 American English (3)
SP 283 Argumentation and Debate (3)

General Editorial

For University Requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

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 (3)
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 Letters and Languages and/or 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."

SPEECH

For University Requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

Pre-Major Requirements: SP 181, CMO 101.

Major Requirements: SP 581, SP 582, SP 583; *plus* nine credits chosen from: SP 280, SP 283, SP 285, SP 287, SP 288; *plus* six 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: Same as College.

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, or V, VI, and VII. Students who do not choose these component areas may need to take more than the mimimum number of required hours in order to satisfy these requirements.

Pre-Major Requirements: SP 181, SP 285.

Major Requirements: SP 288, SP 581, SP 582, SP 583, SP 584; **plus** nine 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 16 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 six 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: Same as College of Education.

TELECOMMUNICATIONS

For University requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

General Studies: The General Studies Component in every baccalaureate degree program shall consist of five areas of study chosen by the student. See the Dean of the College.

Pre-Major:

CMO 101 Introduction to Communications	3
TEL 101 Broadcasting Today	3
	6

Major Requirements:

TEL 305 Telecommunications Program Analysis	3
TEL 312 Signs, Images, and Symbols	3
TEL 530 Pro-seminar	2
	8

Major Electives:

Eighteen hours from the following courses:

CMO 250 Mass Media-Mass Culture	3
TEL 395 Independent Study	1-3
TEL 432 Film Production	2
TEL 500 Telecommunications Audience Analysis	3
TEL 501 Telecommunications Regulations	3
TEL 504 Telesystems	3
TEL 505 Telecommunications Program Policies	2

TEL 507 The Public Affairs Program	2
TEL 510 Broadcast Advertising	3
TEL 511 Telecommunications Instructional Systems	3
TEL 512 Teletectonics (May be repeated once)	3
TEL 599 Telecommunications Topical Seminar (Repeatable twice)	2
TEL 599 Telecommunications Topical Seminar (Repeatable twice)	2

Under specific conditions other courses may be substituted with approval of the Department.

Cognates: Fourteen hours, 200 level or above, 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, history, computer science and statistics.

COMPARATIVE LITERATURE

The major in comparative literature requires a minimum of 39 hours of course work; the student will plan his general program in consultation with the chairman, who will then assign him advisers in the particular literature departments.

Requirements for a Major in Comparative Literature

For University requirements and General Studies Areas: See Academic Program section.

The comparative literature major must demonstrate proficiency in at least two foreign languages.

Major Requirements:

1. General: CLT 300 and any one of ENG 560, 561, 562, 563.
2. First Literature: Six literature courses. (The term course refers to a three-credit hour course.)
3. Second Literature: Three literature courses. (Normally, French 204 and 205 shall not qualify as "literature courses" in this area.)
4. Third Literature: Two literature courses.
5. Electives: To be chosen in consultation with the student's adviser.

Field of Concentration Requirements: Same as College.

Courses in Comparative Literature and Literature in Translation

CLT 300 Seminar: Comparative Literature Methodology.(3) A study of the philosophy and methodology of Comparative Literature.

(Comparative Literature)

CLA 235, 236, 261, 262, 390, 424, 425

ENG 261, 262, 361, 362, 363, 366, 367, 368, 380, 473, 560, 561, 562, 563, 566, 568, 569, 570

FR 261, 421, 422, 423, 435, 436, 437, 438, 439, 440, 460, 461, 462

GER 261 412, 501, 505, 510, 511

SO 263, 264, 555, 556, 563

SPI 261, 315, 316, 318, 319, 420, 543, 544, 591

COMPUTER SCIENCE

The courses offered by the Department of Computer Science serve two distinct purposes.

First, for students concentrating in computer science, there are courses leading either to a B.A. or a B.S. degree in Computer Science and a Master of Science 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 requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

Prerequisites to Major: CS 150, 250, MA 113, PHY 231, 232, 241, 242.

Major Requirements: A minimum of 23 credits in computer science courses, including MA/CS 421 and at least two credits in CS 472. A minimum of 23 credits in mathematics and statistics including MA 114, 213, 214, and STA 421, 422. The remaining six hours are to be chosen from MA 361, 432, 462, MA/STA 423, MA/CS 482.

Field of Concentration Requirements: Same as College.

For information on the Master of Science degree in Computer Science see the Graduate School Bulletin.

PATTERSON SCHOOL OF DIPLOMACY AND INTERNATIONAL COMMERCE

The Patterson School of Diplomacy and International Commerce offers an interdisciplinary master's degree and serves in an advisory capacity with respect to the Ph.D. programs in international studies within the four departments primarily related to the Patterson School.

For further information consult the Graduate School Bulletin.

ECONOMICS

Departmental Requirements

For University Requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

Pre-Major Requirements: ECO 260, 261 and ECO/STA 291 which has a prerequisite of MA 113 or 122.

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.

Field of Concentration Requirements: Same as College.

ENGLISH

Departmental Requirements

For University Requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

Pre-major Requirements: ENG 221 and 222; ENG 105 is strongly recommended for students who receive advanced placement or who complete ENG 101 with a grade of C or higher; ENG 251 and 252 are not recommended, even as free electives.

Major Requirements:

The English Major requirements will include a minimum of eight courses. The following recommendations regarding course distribution are intended to be flexible and to allow for a program suited to the needs of the individual student.

1. Normal course distribution includes at least one course from each of the five groups which follow.
2. In addition to period distribution, courses should be distributed among the modes (fiction, drama, poetry). For this purpose, special attention should be given the courses in Group V.
3. Certification candidates must take ENG 414 and, normally, 509.
4. A Shakespeare course should be taken: ENG 425, 526, or 527.
5. In Groups III and IV, the courses should normally be distributed between 19th and 20th Century courses.

Group I
205 Advanced Composition
207 Imaginative Writing
501 Workshop in Imaginative Writing
509 Composition for Teachers
414 Introduction to Linguistics
510 American English
512 Modern English Grammar
514 Descriptive Linguistics: Phonetics
515 Descriptive Linguistics: Phonemics
516 Descriptive Linguistics: Morphemics
518 History of the English Language
519 Introduction to Old English

Group II
421 Chaucer
425 Shakespeare Survey
428 Milton
440 English Novel I
490 English Drama I
521 Middle English Literature
522 English Renaissance: 1500-1600
523 English Renaissance: 1600-1660
526 Shakespeare Studies I
527 Shakespeare Studies II
530 Restoration and Early 18th Century: 1660-1730
531 Later 18th Century: 1730-1780

Group III
441 English Novel II
442 English Novel III
491 English Drama II
535 The Romantic Movement: 1780-1815
536 The Romantic Movement: 1815-1830
538 Victorian Period: 1830-1860
539 Victorian Period: 1860-1900
541 Contemporary British Novel
542 Twentieth Century British Literature

Group IV
356 Studies in Black American Literature
370 Black Folklore of North America
454 American Novel before 1900
455 Modern American Novel
474 American Folklore
550 American Literature Before 1800
551 American Literature: 1800-1860
552 American Literature: 1860-1900
553 American Literature Since 1900

Group V
226 Introduction to the British Novel
264 Major Black Writers
270 Literature of the Old Testament
271 Literature of the New Testament
361 The Comic Mode
362 The Tragic Mode
363 Literary Studies in Intellectual Movements
364 Contemporary Fiction of England and America
365 Contemporary Poetry of England and America
366 Studies in Fiction
367 Studies in Poetry
368 Studies in Drama
473 General Introduction to Folklore
560 Comparative Literature I
561 Comparative Literature II
562 Comparative Literature III
563 Comparative Literature IV
566 Modern Drama
568 History of Literary Criticism I
569 History of Literary Criticism II
572 Studies in English for High School Teachers

Note: ENG 390, Junior Seminar, and 395, Independent Work, may be included in the eight required courses but not as a part of any of the five courses chosen to represent the groups.

Field of Concentration: Majors in English enrolled in the College of Arts and Sciences must have a minimum of 16 hours of related courses above the freshman level from outside the Department. For certification candidates, a maximum of six hours from the professional education sequence may be counted.

FRENCH LANGUAGE AND LITERATURE

Departmental Requirements

Basic Skills: See Academic Program Section.

Breadth of Study: Same as College. The General Studies component in every baccalaureate degree program shall consist of five areas of study chosen by the student. In Area I, option C is recommended. In Area V, option A is recommended. In Area VII, option C is recommended.

Depth of Study:

1. Prerequisites to major:
   a. FR 203, 204, 205
   b. A minimum of six credits in a second foreign language
   c. A minimum of six credits in Western European history
   d. A minimum of three credits in a second literature—if not English or American, either in the original foreign language or in translation.
   e. A minimum of three credits in the history of Western European art or music

NOTE: Students completing the recommended General Studies Areas will in some part fulfill the prerequisites to the major.

2. Major Requirements:
   Option I (Language Oriented) major French requirements
   a. FR 306, French Conversation and Composition, 3 credits
   b. FR 406, Advanced French Grammar and Composition, 3 credits
   c. FR 407, French Phonetics, 3 credits
   d. One course chosen from the 435-440 literature sequence, 3 credits
   e. Two other French courses on the 400 and 500 levels, excluding FR 412, 6 credits

   Option II (Literature Oriented) French major
   a. FR 306, French Conversation and composition, 3 credits
   b. Three courses chosen from the 435-440 literature sequence, 9 credits
   c. Two courses chosen form the 460-462 genre sequence and the 435-440 sequence, 6 credits
3. **Field of Concentration Requirements:** Must contain 40 credits, including the major requirements listed under Major Requirements with at least 24 credits above the 200 level. At least 14 credits (with a minimum of eight credits at the 300 level or above) must be outside the French Department and will be selected with the help of the departmental adviser from courses clearly related to the major.

NOTE: FR 412 (Advanced Conversation, 2 credits) does not count in the French major, but may be taken in addition to the minimum of 18 credits in upper-division work.

Certification Requirements:

1. ENG 101 and 102 or ENG 105 with a grade of B or better. The student who satisfies this requirement with ENG 105 must take three extra credits in the English-Communications field.
2. Two semesters of physical education.
3. BIO 110 and PSY 104 or 210.
4. General Studies Areas II, III, IV or V, VI, and VII. Students who do not choose these component areas may need to take more than the minimum number of required hours in order to satisfy these requirements.
5. Major and minor requirements: Must meet the State Certification requirements. For specific course requirements, consult Professor Theodore Mueller.
6. Other requirements: FR 553, EDF 101 or EDF 301, EDP 202, EDC 344, EDC 564 and student teaching.

GEOGRAPHY

Departmental Requirements

For University Requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

General Studies: In Area I, MA 113 or MA 122 and 123 are recommended.

Prerequisite to Major: GEO 151 or GEO 251 or equivalent; choose three courses from the following: GEO 201, 205, 210, 251, 252, 255 or equivalent.

Major Requirements: Minimum of 18 credits in upper division courses in geography, distributed among the following three areas:

1. **Topical Geography** (Choose one course from each group):
   a. Environmental studies: GEO 550, 551, 560 or 565
   b. Human-Political-Urban: GEO 540, 542, 544, 560 or 565
2. **Regional Geography** (choose two courses): GEO 520, 522, 524, 526, 528, 530, 532, 534, 536, 560 or 565
3. **Techniques and Methodology** (choose two courses): GEO 501, 505, 560 or 565.

Field of Concentration Requirements: Fourteen credits of nonfreshman courses outside geography, but in related fields in consultation with the student's adviser. Examples are: anthropology, agriculture, economics, education, engineering, mathematics, political science, sociology, statistics, computer science, history, etc.

To be eligible for the Bachelor of Science degree the geography major must earn at least 60 hours in the physical, biological and mathematical sciences. These 60 hours may include freshman courses.

GEOLOGY

University and College of Arts and Sciences Requirements: English Composition (to satisfy University English and College Basic Skills requirement); Language (Area IV and Basic Skills); Humanities (Area V and Breadth of Study); and Social and Behavioral Sciences (Area VI, VII, or VIII, and Breadth of Study). Approximately 35 credit hours.

The remaining University requirement (Areas I and II) and College requirements (Abstraction and Inference under Basic Skills and Natural Sciences under Breadth of Study) are satisfied by the Pre-Major and Major (Area of Concentration) requirements listed below.

Pre-Major Requirements: GLY 144, 146; CHE 106, 108, 115 or CHE 110, 112, 115; MA 113, 114. Approximately 23 credit hours.

Major (Area of Concentration) Requirements:

Core Subjects Required of all Majors: GLY 225 or 227, and 360, 420, 424, 450, 461, 540; PHY 201, 203, or PHY 231, 232; STA 291 or STA 370. Students emphasizing

paleontology may substitute a course in biology for the second semester of physics with Department approval. Students emphasizing geophysics should take PHY 231, 232 and will substitute GLY 571, 572; MA 213 for GLY 450, 462; and Statistics. Approximately 34 credit hours.

Additional Major Requirements: Four additional courses in GLY, of which at least one must be at the 500 level and no more than two below the 400 level. GLY 401 highly recommended. With Department approval, one or more courses in supporting sciences (such as MA 213, 214; CHE 440, 442) may be substituted for one or more of these courses. The College requirement of at least 14 credit hours in related fields may be satisfied by taking STA 370 and by either substituting PHY 211, 213 for PHY 201, 203 or by adding PHY 241, 242. Students emphasizing geophysics will normally take MA 214, 432, 433; PHY 404; and two additional courses selected in consultation with their adviser. Approximately 17 credit hours.

GERMANIC LANGUAGES AND LITERATURES

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

Attention is invited to accelerated courses (GER 121-122 or GER 221-222) offered during summer sessions or during the regular academic year which provide opportunities for students to complete during one semester the equivalent of one year's study, or two semesters.

Placement tests are not required.

Departmental Requirements

For University Requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

Major for the Bachelor of Arts degree with a major in German.

Lower Division:

1. Two semesters, Freshman composition
2. **For University Requirements and General Studies Areas:** See Academic Program section.
3. **For College Requirements:** See individual college.

Upper Division:

1. **Pre-major Requirements:**
   a. GER 121, 122, 221, 222
   b. A second foreign language (French, Greek, Italian, Latin, Russian, Scandinavian, Spanish, or comparable language), six to eight credits.
2. **Major Requirements:**
   a. GER 205 and 206, six credits
   b. A selection of four courses from the group GER 300, 302, 304, 306, 308, 310, 312; 12 credits
   c. GER 536, 538, and 533*; nine credits
   d. One additional GER 500-level course; three credits
3. **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 (teaching) in German:

Lower Division:

1. Two semesters, freshman composition
2. BIO 110 and PSY 104 or 210
3. General Studies Requirements: Areas II, III, IV or V, VI and VII. Students who do not choose these component areas may need to take more than the minimum number of required hours in order to satisfy these requirements.
4. One speech course (or proficiency in speech demonstrated)

Major Requirements:

thirty 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:

Twenty-four credits (including basic and intermediate German). Recommended courses include GER 205, 206, and 538.

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 any recent changes in requirements.**

***Non-teaching major may substitute another GER 500-level course for GER 553.**

HISTORY

Departmental Requirements

For University Requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

General Studies: 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 300-599 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: Same as College.

LINGUISTICS

Basic Skills: Same as College Requirements. See Academic Program section also.

Breadth of Study: Same as College requirements. Consult academic adviser for aid in planning this component of the degree requirements.

Depth of Study:

1. Prerequisites to major: successful completion of the fourth semester of a foreign language.
2. Major requirements:
   Core Courses:
   a. LIN 301, 515, 516, 517
   b. One course in the structure of a language, chosen from: ENG 414, FR 417, GER 539, SPI 534, SO 401, 440
   c. One course in the history of a language, chosen from: ENG 518, FR 603*, GER 536, SPI 501
   Correlated Courses:
   At least three additional courses selected from the Core Courses and from the following: ANT 518, ENG 510, 512, 519, FR 407, 516, 517, SPI 502, 535, 536, CS 575, LIN 395, and with special permission, ANT 614, FR 610, 603, GER 635, SO 402, 441, SPI 601, 602.
3. Field of Concentration: Including the major, must include a minimum of 40 credits on non-freshman work, with at least 24 credits of course work relevant for linguistics, beyond the scope of the Core and Correlated Courses, from such disciplines as anthropology, communications, computer science, mathematics, foreign language, psychology and symbolic logic.

Each student must complete 120 hours of course work (exclusive of physical education service courses) or its equivalent with a grade point average of at least 2.0. A least 90 of these credits must be in Arts and Science course. The Bachelor of Arts degree shall include at least 40 credits in upper division courses.

NOTE: Additional work in the language of the prerequisite, and a year or more of an ancient or a non-Indo-European language is recommended.
*With special permission

MATHEMATICS

Departmental Requirements

For University Requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

General Studies Requirements: In Area IV French, German, or Russian is recommended.

Major Requirements: The Mathematics Department grants a B.A. or B.S. in Mathematics to those students who complete one of the following two programs.

Program I

1. MA 113-114, 213, 214 or equivalent
2. A minimum of 18 credits in upper division courses in mathematics, to include a semester of at least four of the following six sequences, and a year of at least one sequence:
   MA 351, 352 Topology
   MA 361, 362 Algebra
   MA 441, 442 Geometry
   MA 471, 472 Analysis
   MA 481, 482 Applied Mathematics
   MA 481, 483 Differential Equations
3. **Field of Concentration Requirements:** Fourteen credits of nonfreshman 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:

1. Teaching in secondary schools: MA 361, MA 341 or 441, MA 471, MA 472, MA 371, MA 261.
2. 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.
3. Preparation for graduate work: MA 352, MA 362, MA 442, MA 472, MA 433.

Program II

1. Be enrolled in the Department of Education's Teacher Training Program and complete the requirements for a secondary school teaching certificate in the field of mathematics.
2. **General Studies Requirements:** See College of Education for certification requirements. In Area IV, French, German or Russian is recommended.
3. **Major Requirements:**
   a. Complete MA 213, 215, or 217
   b. Complete MA 341, MA 361, and MA 371
   c. Complete four additional courses in mathematics numbered 214 or greater, but not including MA 215 or 217.
4. **Field of Concentration Requirements:** Fourteen credits of nonfreshman courses outside mathematics but in related fields. Any field to which mathematics has been significantly applied is acceptable. Six hours of Student Teaching will count as upper division work related to mathematics in this requirement.

MIDDLE EAST CIVILIZATION

Departmental Requirements

English Composition: Same as University requirement

General Studies: Same as University Senate Requirements (five of eight—student choice)

Pre-major Requirements: SO 260 and ANT 121

Major Requirements:

1. Twenty-four hours in the Department of Slavic and Oriental Language:
   a. SO 324 and 325 or 328 and 330 (6 hours)
   b. SO 440, 441, 442, 443 (6 hours) or SO 401 and 402 (6 hours)

c. SO 444, 445, 456, 457 (6 hours)
d. Six hours in two additional courses in the Middle East area within the Department

2. Sixteen hours normally chosen from the following: ANT 438, 512, 548, ART 334, CLA 390, HIS 229, 230, 247, 248, 501, 510, 511, 528, 548, 557.

MILITARY SCIENCE
(Army ROTC)

General Policy: The policy adopted by the Department of the 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, to instill in them a responsiveness to lawful authority, and to acquaint each student with the fundamentals of leadership and management within the military service.

The primary purpose of all instruction 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 to society as the real measurement of accomplishment and success.

Discipline: The following self-imposed characteristics of an officer and a gentleman are expected of each student: adherence to acceptable standards of appearance, dress, dignity and bearing expected of a public official, the cultivation of the manners and habits of a gentleman, recognition and appropriate exercise of responsibility, authority, devotion to duty and consideration of others, and subscription to the codes and ethics which characterize a profession.

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 with the Billings and Collections Office of the University to cover the cost of any lost or damaged article. 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 uniform systems. The University acts as the agent for the advanced course student on whose behalf a monetary allowance for 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 with the Billings and Collections Office of the University prior to receipt of the uniform. Refund of this deposit during the period between academic years is governed by the same rules as for the basic student.

Retainer Pay: Advanced course enrollees and scholarship students receive retainer pay at the current rate authorized by Congress of $100 per month.

Basic Course: The miltary program offers a two-year basic course in Military Science and Tactics. Enrollment in the basic course is open to 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. Field Training laboratories are included in the curriculum to apply classroom instruction to field conditions.

Non-enrolled students: Any of the courses within the general military science program are open to all University students, men and women, who desire to pursue military studies, with academic credit as may be granted for such study by the various colleges of the University. Non-enrolled students are not issued uniforms, do not receive retainer pay and may participate in on and off-campus leadership laboratories and field trips on a voluntary basis.

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 sucessfully 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 of qualifying for a commission in the United States Army Reserve. An advanced course student, who achieves and maintains a minimum grade-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. Field Training Laboratories are included in the curriculum to apply classroom instruction to field conditions.

Two-Year Program: A student already enrolled at the University of Kentucky or at another college may qualify for a commission through the two-year program. Applicants must apply at an Army ROTC office in January preceding the year of desired enrollment. Applicants must have two years of undergraduate school or graduate school remaining. Those accepted after successful completion of a Basic Summer Camp in lieu of the basic course will be enrolled in the Advanced Course. For further details, contact the Army ROTC office at the University of Kentucky.

Compression: Students entering the program after the start of the basic course may compress, or pursue simultaneously, two semesters of the basic course.

Advanced Standing: Veterans, entering students who have completed high school ROTC or junior military school curricula, may be credited with portions or all of the basic course.

Academic Program Requirements

Major Requirement: 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 Military Science. In addition, the student will complete a topical program of courses totaling at

least 40 hours and chosen with the approval of Military Science 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.

SCHOOL OF MUSIC

Degrees

Three undergraduate degrees are offered by the School of Music: (1) the Bachelor of Arts with a concentration in music; (2) the Bachelor of Music in Music Education; (3) the Bachelor of Music with a concentration in Voice, Piano, Organ, or other instrument. A brief description of each undergraduate degree is given below.

Admission to any of the above undergraduate programs, either as an entering freshman or as a transfer student, will be granted only after the applicant has completed an audition in his applied area and has taken the theory placement test.

The School of Music also offers courses leading to the Master of Music degree (in Applied Music, Composition, Music Theory, or Music Education), the Master of Arts degree, the Doctor of Musical Arts, and the Doctor of Philosophy in musicology. For further information on advanced degrees in music, see the Graduate School Bulletin or contact the Director, School of Music, University of Kentucky, Lexington, Kentucky 40506.

Special Fees

Music Performance Courses (MUP)

$25 per semester for one course for one credit (or non-credit)

$50 per semester for one course for two credits (or non-credit)

$50 for two or more courses (credit or non-credit)

Bachelor of Arts Degree in Music

The Bachelor of Arts in Music 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 elective hours 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. Admission to this program will be granted only after completing the theory placement test and the audition in the student's applied area.

The requirements for this degree are presently under review. A detailed statement of these requirements may be obtained from the Chairman of the School of Music.

Requirements for Degree of Bachelor Of Arts, Music

University Requirements:

1. Two semesters of English composition (for exception in case of demonstrated proficiency see Academic Program section). 6 hours
2. Five areas of study chosen from the eight General Studies Components. (See School of Music recommendations under College Requirements). These recommendations are based on degree requirements of the National Association of Schools of Music (of which the School of Music is a member). 30 hours

College of Arts and Sciences Requirements:

1. **Basic Skills:**
   a. Composition and Expression. Complete University composition requirement.
   b. Translation and Interpretation. Four units of one foreign language or three units of one foreign language and two units of a second. A unit is equivalent to one year of high school or one semester of college work. (The School of Music recommends Area IV—Foreign Languages.)
   c. Abstraction and Inference. Four units in computer science, logic, mathematics and statistics. High school courses in general or business mathematics may not be used to satisfy this requirement.
2. **Breadth of Study**: The student seeking the Bachelor of Arts degree must complete at least 12 hours in each of the following three broad areas of disciplined inquiry. At least one course in the Natural Sciences or Social and Behavioral Sciences must include some laboratory or field experience.
   a. Natural Sciences—At least six hours must be in a single discipline. (The School of Music recommends Area II—Physical Sciences—sequence H; Area III—Biological Sciences.)
   b. Humanities—(School of Music recommends Area V—Humanities-Art, Literature, and appropriate Music courses.)
   c. Social and Behavioral Sciences—(School of Music recommends Area VI—History, with additional courses as advised.)
3. **Depth of Study**: Each student must complete at least 46 hours (40 of which must be in courses not open to freshmen) of concentrated study in the following way:
   a. At least 18 hours of work at or above the 200 level in a Departmental or interdepartmental program.
   b. At least six hours of pre-major work.
   c. At least 14 hours in work related to but outside the major program.

d. At least 24 hours must be in courses at or above the 300 level. (See Specific Depth of Study Requirements for more specific information on Depth of Study.)

Specific Depth of Study Requirements of the School of Music

1. **Pre-Major**
   a. Major musical instrument or voice performance course of two credits each semester. 8 hours
   b. MUS 102, 103, 170, 171, 173, 202, 203, 270, 271, 272, 273. 25 hours
   c. Ensemble 4 hours
   d. Piano–MUP 101 (1 credit) or MUP 150, etc. (All students in the BA music degree program must pass the departmental piano proficiency examination to satisfy the piano requirement.) As needed
2. **Major**
   a. Continuation of major musical instrument or voice performance course above sophomore level 4 hours
   b. MUS 372 2 hours
   c. Ensemble 4 hours
   d. Electives
      To include hours necessary to complete 37 hours
      1) College of Arts and Sciences
         a) Basic skills and
         b) Breadth of Study and
         c) The 14 hours in work related to but outside of major program required under Depth of Study. (Note: the 14 hours may include any course, or courses, completed under the Basic Skills or Breadth of Study requirement provided it is "related" and "at or above the 200 level.")
      2) Music electives chosen from upper division courses appropriate to the area of specialization in music. The following courses are those which a student in the AB program is likely to find appropriate:
         a) Theory and Composition (18) MUS 370 (2), 371 (2), 570 (2), 571 (2), 572 (2), 573 (2), 574 (2), 575 (2), 578 (2)
         b) History (21 hrs.): MUS 500 (3), 501 (3), 502 (3), 503 (3), 504 (3), 505 (3), 506 (3).
         c) Literature (15 hours): MUS 520 (3), 521 (3), 522 (3), 524 (3), 530 (3).
         d) Other: 395 (3) Independent work in Music, 358 (2), 359 (2), 565 (2).

General Information concerning the Bachelor of Arts Degree: Each student must complete 120 hours of course work (exclusive of physical education service courses) or its equivalent with a grade-point average of at least 2.0. At least 90 of these credits must be in Arts and Sciences courses. The Bachelor of Arts degree shall include at least 40 credits in upper division courses. (Note: courses completed to satisfy Basic Skills, Breadth of Study, and Depth of Study may be included in the 40 credits.)

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 school. 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 degree includes a core program in liberal arts, music theory, music history and literature, performance, education, and music education, and prepares the student for graduate study in music education.

A half recital or the equivalent must be presented on the major instrument during the last semester of study of the instrument in partial fulfillment of the degree requirements. A student must have a grade-point average of no less than 2.0 to graduate. Total requirement to graduate is 129 hours.

Admission to this program will be granted only after completing the theory test and the audition in the student's applied area.

University Requirements: Two semesters of English composition. (For exception in case of demonstrated proficiency see University Bulletin.)–6 hrs. Five areas of study chosen from the eight General Studies Components–30 hrs. (Note: General Education requirements for Kentucky Teacher Certification will be partially fulfilled by the following five areas of study of the General Studies Component: (a) Area II–Physical Sciences (6 hrs); (b) Area III–Biological Sciences including BIO 110-Hygiene (6 hrs); (c) Area V–Humanities (Art and Literature) (6 hrs); (d) Area VI–History (6 hrs); (e) Area VII–Social Sciences (6 hrs). PSY 104 or PSY 210 is also required for purposes of certification. Students may substitute either of these courses for satisfaction of three hours of the six hours' requirement in Area VII. This substitution has the approval of both the College of Arts and Sciences and the College of Education.)

Professional Education Courses: EDP 202, EDF 301, EDC 325, EDC 344, EDC 377–22 hrs.

Music Courses–Vocal Emphasis: (students whose major instrument is voice, piano or organ)

Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 371, 372 — 18 hrs
Music History: MUS 102, 103, 202, 203 — 11 hrs
Music Performance Courses: — 24 hrs
- Major instrument MUP (2 cr) - voice, piano or organ — (12 hrs)
- MUS 120 (2 semesters) — (2 hrs)
- Ensemble — (6 hrs)
- Voice majors* Class Instruction-piano MUS 150 etc., or private instruction (MUP 101 etc.,) or — (4 hrs)
- Keyboard majors* MUC 176, MUS 522 — (4 hrs)

Music Education Courses: MUS 262, 264, 360, 362, 364, 568 — 12 hrs
Free electives (except ensembles) — 6 hrs

Music Courses–Instrumental Emphasis (students whose major instrument is a band or orchestral instrument)

Music Theory: MUS 170, 171, 172, 173,

270, 271, 272, 273, 371, 372	18 hrs
Music History: MUS 102, 103, 202, 203	11 hrs
Music Performance Courses:	26 hrs
Major instrument MUP (2 cr)	(12 hrs)
Piano* MUC 150, 151, 152, 153	(4 hrs)
Secondary instruments: MUC 157, 158, 161, 163	(4 hrs)
Ensembles	(6 hrs)
Music Education Courses: MUS 263, 265, 363, 365, 568	10 hrs
Free electives (except ensembles)	6 hrs

***All students in the Bachelor of Music in Music Education degree program must pass the departmental piano proficiency examination to satisfy the piano requirement.**

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 and/or teaching performance of music. Structured on the premise that the student enters college with above-average talent and with considerable performing experience, the program provides a heavier concentration of music courses than any other undergraduate music degree. At the conclusion of the sophomore year, all students in the degree program must perform before the music faculty for 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. A student must have a grade-point average of no less than 2.0 to graduate and a total of 128 hrs.

Admission to this program will be granted only after completing the theory placement test and the audition in the student's applied area.

University Requirements: Two semesters freshman English, completion of one sequence in a minimum of five areas of General Studies component. (36 hrs.)

College Requirements: Field of Concentration Requirements including the major, must include a minimum of 40 credits of nonfreshman work, with at least 24 credits above the 200 level. At least 14 credits must be outside the Department, selected with the approval of the adviser from courses generally related to the major field of study. Normally courses would be selected from one or more of the following: art, theatre arts, history, literature, languages, or philosophy. (The Field of Concentration hours are included in the following.)

Music Requirements of the Various Concentrations—

Concentration in an Instrument (92 hrs)

Major instrument study (MUP) 3 cr each semester	24 hrs
Piano (or piano class) (1 cr): MUP 101* (or MUC 152 and 153)	4 hrs
Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 370, 371, 372, 572, 573	24 hrs
Conducting: MUS 358	2 hrs
Music History: MUS 102, 103, 202, 203. Plus one course elected from MUS 500, 501, 502, 503, 504, 505, 506	14 hrs
Music Ensemble: each semester (such as MUC 190, 191)	8 hrs
Electives	16 hrs

Concentration in Piano (92 hrs)

Piano 3 credits each semester: MUP 101*, 201*, 301*, 401*	24 hrs
Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 370, 372, 572, 573	22 hrs
Music History: MUS 102, 103, 202, 203. Plus one course elected from: MUS 500, 501, 502, 503, 504, 505, 506	14 hrs
Piano Literature: MUS 522	3 hrs
Music Ensemble: each semester (such as MUC 192)	8 hrs
Electives	21 hrs

*repeated once

Concentration in Organ (92 hrs)

Organ 3 credits each semester: MUP 103*, 203*, 303*, 403*	24 hrs
Piano (1 credit courses): MUP 101*, 201*	4 hrs
Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 370, 372, 572, 573	22 hrs
Music History: MUS 102, 103, 202, 203. Plus one course elected from: MUS 500, 501, 502, 503, 504, 505, 506	14 hrs
Organ Literature: MUS 521	3 hrs
Music Ensemble: each semester (such as MUC 192)	8 hrs
Electives	17 hrs

Concentration in Voice (92 hrs)

Voice 3 credits each semester: MUP 102*, 202*, 302*, 402*	24 hrs
Piano (1 credit courses): MUP 101* (or MUC 150, 151), MUP 201* (or MUC 152, 153)	4 hrs
Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 370, 372, 572, 573	22 hrs
Music History: MUS 102, 103, 202, 203. Plus one course elected from: MUS 500, 501, 502, 503, 504, 505, 506	14 hrs
Vocal Solo Literature: MUS 520	3 hrs
Conducting: MUS 358	2 hrs
Music Ensembles: each semester (such as 192, 195)	8 hrs
Electives	15 hrs

*repeated once

PHILOSOPHY

Director of Undergraduate Studies, Student Liaison and Advisers

The Department of Philosophy each year appoints a faculty member who serves as Director of Undergraduate

Studies, a student who serves as a liaison on academic matters, and faculty to serve as advisers on program planning. Names of those persons are available from the Department office, 907 Office Tower. A major in philosophy may choose the adviser he wishes or request assignment to an adviser by the Director of Undergraduate Studies or the Chairman.

Departmental Requirements

For University requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

General Studies: French or German is highly recommended in Area IV; Greek is recommended if the student plans to concentrate on ancient philosophy.

Pre-Major Requirements: PHI 260 and 270.

Major Requirements: A minimum of 21 credits above the 200 level including PHI 520 and at least one course chosen from each of the groups (A, B, C) of courses in philosophy. Distribution of courses within the major will be determined by the student and adviser with care being taken to establish a program related to the student's interests and educational goals.

Field of Concentration Requirements: Forty semester hours, including a minimum of 21 credits in the major and a minimum of 14 credits outside the major. The 40 credits must be in courses not open to freshmen. At least 24 credits must be in courses above the 200 level. The field of concentration will be established by the student and adviser with care exercised to select courses related to the student's total program and his aims.

PHYSICS AND ASTRONOMY

Departmental Requirements For a Major in Physics

For University requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

Pre-Major Requirements: PHY 231 or 250; 232 or 251; 241, 242; MA 113, 114, 213; CHE 110, 111, 112, 113.

Major Requirements: Three courses chosen from PHY 512, 530, 535, 538 and EE 402. Five courses chosen from PHY 404, 416, 417, 504, 508, 510, 514, 522, 524, 525, 554, 555, 598. This may be reduced to two by the consent of the faculty.

Field of Concentration Requirements: Same as College.

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	Crs.
ENG 101 Freshman Composition	3
CHE 110 General College Chemistry I	3
CHE 111 General Chemistry Laboratory 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 Laboratory II	2
MA 114 Calculus	4
PHY 231 General University Physics	3
PHY 241 General University Physics Laboratory	2

Sophomore Year

Fall Semester	
Foreign Language*	3
MA 213 Analysis	4
PHY 232 General University Physics	3
PHY 242 General University Physics Laboratory	2
General Studies	3
Spring Semester	
Foreign Language*	3
MA 214 Analysis	3
PHY 260 Principles of Modern Physics	3
PHY 508 Optics	3
General Studies	3

Junior Year

Fall Semester	
Foreign Language*	3
MA 432 Methods of Applied Math I	3
PHY 404 Mechanics	3
PHY 416 Electricity and Magnetism	3
General Studies	3
EE 402 Electronic Instrumentation and Measurements	3
Spring Semester	
Foreign Language*	3
PHY 417 Electricity and Magnetism	3
PHY 404 Mechanics	3
PHY 512 Experimental Physics: Electricity and Magnetism or	2
PHY 514 Electronics	3
Electives	3

Senior Year

Fall Semester	
MA 485 Fourier Series and Boundary Value Problems	3
PHY 522 Heat and Thermodynamics	3
PHY 538 Experimental Physics: Light	2
PHY 554 Fundamental Atomic and 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 and Nuclear	2
PHY 555 Fundamental Atomic and Nuclear Physics	3
Electives	6

Departmental Requirements for a Major in Astronomy

For University requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

Pre-Major Requirements: PHY 231 or 250, 232 or 251, 241, 242; MA 113, 114, 213, 214; AST 191, 192.

Major and Field of Concentration Requirements: Eighteen hours of astronomy beyond the 100-level courses; 15 hours of physics beyond the 200-level courses; nine hours of mathematics beyond the 200-level courses.

Freshman Year

Fall Semester	Crs.
ENG 101 Freshman Composition	3
MA 113 Calculus	4
PHY 231 General University Physics	3
PHY 241 General University Physics Laboratory	2
Foreign Language***	3
General Studies	3

Spring Semester	
ENG 102 Freshman Composition	3
MA 114 Calculus	4
PHY 232 General University Physics	3
PHY 242 General University Physics Lab	2
Foreign Language***	3
General Studies	3

Sophomore Year

Fall Semester	
AST 191 Descriptive Astronomy	3
MA 213 Analysis	4
Foreign Language I***	3
Behavioral Science	3
History or Social Science	3
Elective	3

Spring Semester	
AST 192 Descriptive Astronomy	3
MA 214 Analysis	3
PHY 260 Principles of Modern Physics	3
Foreign Language***	3
Behavioral Science	3
History or Social Science	3

Junior Year

Fall Semester	
MA 432 Methods Applied Math I	3
PHY 416 Electricity and Magnetism	3
PHY 404 Mechanics	3
AST 292 Galactic Astronomy I*	3
Electives**	3-6

Spring Semester	
MA 433 Methods Applied Math II	3
PHY 417 Electricity and Magnetism	3
AST 391 Celestial Mechanics*	3
AST 492 Galactic Astronomy II*	3
Electives**	3-6

Senior Year

Fall Semester	
AST 495 Elementary Astrophysics I*	3
PHY 554 Fundamental Atomic and Nuclear Physics	3
Electives **	9-12

Spring Semester	
AST 496 Elementary Astrophysics II*	3
AST 291 Spherical Astronomy*	3
PHY 555 Fundamental Atomic and Nuclear Physics	3
Electives **	6-9

*Interchangeable in junior-senior years.
**It is recommended that PHY 530 (Spectroscopy) be elected in the junior or senior year.
***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 Lower Division College requirements.

POLITICAL SCIENCE

Departmental Requirements

For University requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

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. Undergraduate courses are divided into the following fields:

1. Comparative Government–PS 250, PS 520, PS 521, PS 550, PS 554, PS 555, PS 556, PS 557, PS 565, PS 568, PS 569
2. International Relations–PS 265, PS 501, PS 530, PS 531, PS 541, PS 551, PS 566
3. Political Process–PS 550, PS 570, PS 573, PS 576
4. Public Administration–PS 577, PS 578, PS 579, PS 580.
5. Public Law and Judicial Behavior–PS 559, PS 561, PS 563.
6. State and Local Government PS 280, PS 540, PS 552, PS 553, PS 574.
7. Theory and Methodology–PS 200, PS 290, PS 505, PS 571, PS 572, PS 575.

The field for PS 390 varies with the topic covered.

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

PSYCHOLOGY

Departmental Requirements

For University Requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

Pre-Major Requirements: PSY 104 and 106, or PSY 210 and PSY 201 or equivalent.

If a student wishes to major in psychology, it is *recommended* that he also take Areas I, II, III, IV, and V of the General Studies Requirements.

Major Requirements: Eighteen credits in psychology including PSY 336; two of the following courses: PSY 330, 505, 507, 509, 511, 570; one of the following: PSY 501, 521, 535; one of the following: PSY 544, 545. Senior comprehensive examination.

Field of Concentration Requirements: Same as College.

SLAVIC AND ORIENTAL LANGUAGE AND LITERATURES

Requirements in Russian For an Undergraduate Major

Proposed Revision for the Undergraduate Major in Russian.

For University Requirement and General Studies Areas: See Academic Program section.

For College Requirements.

1. SO 201 and 202 or their demonstrated equivalent
2. SO 280 (Russian Civilization)

Major Requirements:

1. A minimum of 21 credit hours of study in courses numbered 300 and above. At least 12 credit hours must be from 300 level courses; at least nine credit hours must be from 400 or 500 level courses.
2. Fourteen credit hours in 200 level and above courses outside the Department but which are demonstrably related to the study of Russian. Six hours of the 14 must be in History 285 and 286. The remaining eight hours are to be selected with the aid of a departmental adviser.

SOCIOLOGY

Departmental Requirements

For University Requirements and General Studies Areas: See Academic Program Section.

For College Requirements: See individual college.

Pre-Major Requirements: SOC 101 and 102 (or their equivalents).

Major Requirements: Eighteen to 26 hours of sociology including SOC 220 or SOC 201, SOC 365, and SOC 551. Prior to graduation every sociology major is required to take either the Graduate Record Examination or the Undergraduate Record Examination. These examinations are administered by the Testing and Counseling Service.

Field of Concentration Requirements: Same as College.

SPANISH AND ITALIAN LANGUAGES AND LITERATURES

Departmental Requirements

REQUIREMENTS FOR THE MAJOR IN SPANISH

For University requirements and General Studies Areas: See Academic Program section.

For College Requirements: See individual college.

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 credits in another foreign language.

Major Requirements:

1. Eighteen credits in 300-500 level courses in Spanish (major courses). At least nine credits of these 18 must be from the 400 and/or 500 level courses.
2. Fourteen 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 eight credits, in 200 level and above courses. These may be taken in Spanish or in other departments within the field of concentration.

Field of Concentration:

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, Philosophy, Slavic and Oriental Languages, Linguistics, Political Science, Music, and Theatre Arts. These specific courses from outside the Spanish Department must be related to the major in Spanish, selected with the help of an adviser.

Graduation Requirements:

1. A total of 120 credits (exclusive of physical education service courses).
2. At least 24 credits in 300-500 level courses in the field of concentration.
3. All courses in the field of concentration must be in 200 level and above courses.

Requirements for Teacher Certification

Thirty credits in Spanish, including elementary and intermediate Spanish; minor subject, 18-24 credits; EDP 202, EDV 301, EDC 344, EDC 564 and student teaching.

Requirements for the Major in Italian

General Requirements: Same as those for the College of Arts and Sciences and for the University General Studies.

Pre-major Requirements: SPI 292, and six hours of another language.

Major Requirements: a) either SPI 295 or SPI 296; b) fifteen credits in 500-level courses in Italian, including

either SPI 543 or SPI 544; c) 22 credits in 200 level and above courses in field of concentration. Eight of these credits may be elective Italian courses. Courses which may be used to satisfy Field of Concentration requirements should be selected from among those offered in the Departments of Anthropology, Art History, English, French, Geography, German, Classics, History, Music, Philosophy, Political Science, Slavic and Oriental Languages, and Theatre Arts, as well as Spanish courses within the Spanish and Italian Department. Comparative literature courses within the Comparative literature Program, and approved Linguistics courses offered by any of the above departments. These specific courses from outside the Department must be related to the major in Italian, selected with the help of an adviser.

STATISTICS

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 does offer the Master of Science and the Doctor of Philosophy degrees.

THEATRE ARTS

Departmental Requirements

Basic Skills: (University Requirements and General Study Areas) See Academic Program section.

Breadth of Study: See individual college.

Depth of Study:

Pre-Major Requirements: TA 120 and 121. Theatre lives at the moment of contact between actor and audience. This Department expects its majors to approach that moment from several points: historical, critical, practical, theoretical and experimental. Within this framework, each student majoring in theatre arts is expected to complete a full range of academic and artistic work, including a minimum of 24 credits in theatre arts at or above the 200 level, together with TA 395 during his junior or senior year and TA 587 during his senior year.

Both curricular and co-curricular experiences are necessary for graduation, and the Department expects its majors to achieve basic proficiency in the following areas: acting, directing, design, costuming, technical theatre, theatre history, current trends in theatre and theatre theory and criticism. It further expects that its majors will be able to relate that proficiency to an over-all concept of theatre art. Each student, in close and continuing consultation with his adviser, shall decide whether his proficiency shall be measured on the basis of courses completed, co-curricular activity, competency exams, practical demonstrations or some further method. Relationship of these proficiencies to a concept of theatre art will be determined by a comprehensive exam during a student's senior year.

When a student declares a major in theatre arts, he will consult with his adviser and prepare a prospectus of his major courses, his methods of determining proficiency in the prescribed areas and his courses in related departments. Approval of this prospectus by the department chairman is required for the student to receive his degree. Students seeking to meet certification requirements for the State of Kentucky should consult with their advisers to distribute course selection accordingly.

Field of Concentration Requirements: Minimum of 14 credits chosen from courses not open to freshmen from anthropology, architecture, communications, art, music, philosophy, English, psychology, classics, history and languages.

Business and Economics

CURRICULA

The College of Business and Economics offers three programs of study leading to the degrees of Bachelor of Science in Accounting, Bachelor of Business Administration, and Bachelor of Science in Business and Economics. (The Department of Economics also offers a program of study leading to a major in economics through the College of Arts and Sciences.)

The curriculum of each of the three degree programs includes a component for (1) English, (2) Pre-Major, (3) General Studies, (4) College Core, (5) Departmental Major, and (6) Baccalaureate Electives. The first three components, which should be completed during the freshman and sophomore years, are the same for all three degree programs. They consist of the following:

1. **English**
   - ENG 101, Freshman Composition (will be waived for students scoring 22 or better on English Component of ACT)
   - ENG 102, Freshman Composition (will be waived for students scoring below 22 on ACT but receiving an A or B in ENG 101)
   - ENG 203, Writing for Business and Industry
2. **Pre-Major**
   - MA 122 and 123, Fundamental Concepts of Mathematics I and II or
   - MA 113, Calculus
   - ACC 201 and 202, Principles of Accounting*
   - ECO 260 and 261, Principles of Economics
   - STA 292, 293, 294, Statistical Method

***Students who have indicated their intention to work for the degree of Bachelor of Science in Accounting are permitted to take ACC 301, Intermediate Accounting, upon completion of ACC 201, the first semester of Principles of Accounting, and completion of ACC 301 will result in waiver of ACC 202 as a degree requirement.**

3. **General Studies**

For General Studies Area: See Academic Program section.

The fourth and fifth components comprise the major portion of the College of Business and Economics work and should be completed during the junior and senior years. The College Core is the same for all three degree programs and consists of the following courses:

4. **College Core**
   - BA 330 Marketing Management
   - BA 335 Business Management
   - BA 340 Legal Environment of Business
   - BA 345 Corporation Finance
   - ECO 391 Economic and Business Statistics
   - ECO 360 Intermediate Macroeconomic Theory
   - ECO 361 Intermediate Microeconomic Theory

The primary difference among the three degree programs is determined by the selection of the Departmental Major. The Bachelor of Business Administration requires the Departmental Major from the Department of Business Administration, the Bachelor of Science in Accounting requires the Departmental Major from the Department of Accounting, and the Bachelor of Science in Business and Economics requires the Departmental Major from the Department of Economics. The courses included in the Departmental Major for each of the three-degree programs are as follows:

5. **Departmental Major**

Department of Accounting

ACC 301 Intermediate Accounting	3
ACC 324 Data Processing in Accounting Systems	3
ACC 408 Cost Accounting	3
ACC 417 Income Taxation	3
Two of the following:	
ACC 302 Advanced Accounting	
ACC 401 Accounting Theory	
ACC 403 Auditing	
ACC 410 Accounting for Institutions and Regulated Industries	
ACC 416 Accounting for Business Combinations	
ACC 418 Controllership	
ACC 517 Tax Accounting Problems	9
	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

Eighteen hours in the Department including two seminar-type courses	18

6. **Baccalaureate Electives**

Each of the three degree programs affords the student considerable opportunity and freedom of choice to take

elective courses. At least 15 semester hours must be upper division courses and not more than 21 semester hours can be taken in courses offered by the College of Business and Economics. 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.

REQUIREMENTS FOR GRADUATION

Each of the three degree programs of the College of Business and Economics requires the completion of (a) 120 semester hours including the six specific components described previously and excluding lower division military science, physical education service courses, and performance-type courses; (b) 24 semester hours of University of Kentucky residence from the College Core plus the Departmental Major; and (c) a grade-point average of 2.0 on all residence work at the University of Kentucky as well as a grade-point average of 2.0 on all University of Kentucky residence work in the College Core plus the Departmental Major.

GRADUATE PROGRAMS

The College of Business and Economics offers the following graduate degrees through the Graduate School at the University: (1) Master of Science in Accounting, (2) Master of Business Administration, (3) Doctor of Business Administration, (4) Master of Science in Economics, (5) Master of Arts in Economics, (6) Ph.D. in Economics and (7) Master of Public Administration. Additional information may be obtained from the Director of Graduate Studies, College of Business and Economics. and from the Graduate School Bulletin.

Dentistry

The College seeks students of diverse backgrounds. Although most applicants are residents of Kentucky, well-qualified non-residents are encouraged to apply.

Special emphasis is placed on the social accountability and maturity required of practitioners of the healing arts. Students develop their professional competency through work both on campus and in the community.

In planning the flexible curriculum the intent is to create an environment that will permit each individual student to work and learn at his own rate and select the methods by which he learns. The flexibility of the curriculum not only encourages self-pacing but develops in the student the capacity for an interest in an in-depth study of a particular discipline. Specifically students can choose from a variety of electives or pursue an individual study project. It is also possible to fulfill the College objectives and graduate in less than four years.

Emphasis is placed on identifying behavioral objectives that will prepare a dentist with the skill and knowledge needed by today's dental graduates to meet the present and future responsibilities in the dental profession. It was determined that these items of content could be grouped into five major divisions which would reflect the objectives "biologically oriented, technically capable, and socially sensitive"—characteristics hoped for in the dental graduate. Clinical dentistry and preclinical dentistry are particularly directed toward technical capability; basic sciences and conjoint dental sciences, toward biological orientation, with the latter group being a medium specifically designed for correlation among all the sciences; and finally, dental social sciences, directed toward social sensitivity.

In addition to the undergraduate dental program, the College also offers graduate and specialty training in several dental disciplines. For complete information, see the College of Dentistry Bulletin.

Education

ADMISSION TO THE TEACHER EDUCATION PROGRAM

All students, regardless of the college in which they enroll, must apply for and be admitted to the Teacher Education Program if they expect to complete the program and be recommended 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 University of Kentucky, if they have completed EDP 202 or its equivalent.

In order to be admitted to a Teacher Education Program, a student must meet specific criteria with reference to (1) grade-point averages in over-all college work, in major teaching field, in minor teaching field, and in professional education courses; and (2) tests and examinations specified by the major program areas; and (3) the student must be approved by the Undergraduate Admissions and Standards Committee in the College of Education and present satisfactory scores on examinations that may be required by the Committee. Criteria relating to the various programs are listed in the College of Education Brochure.

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 Undergraduate Admissions and Standards Committee of the College of Education is final.

***All entering freshmen and students transferring from other universities are subject to the new admission policies of the various Teacher Education Programs. Entering freshmen and transfers from other universities should contact the Associate Dean for Teacher Education and Certification to obtain admission criteria for any Teacher Education Program.**

Students currently enrolled in the University of Kentucky system may enter a Teacher Education Program under the old criteria for admission to a Teacher Education Program.

After the Spring Semester 1976, all students will be expected to meet the new criteria for admission to a Teacher Education Program.

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 satisfied the following requirements:

1. Has spent one semester in residence on campus;
2. has completed all prerequisites in professional education;
3. has achieved a prescribed grade-point average (presently 2.0) for his entire undergraduate program;
4. has achieved a prescribed grade-point average (presently 2.0) in his area of concentration or his major, minor and support areas.
5. has achieved a prescribed grade-point average (presently 2.0) in professional education courses;
6. has completed a minimum of 75 percent of the required hours in the area of concentration or the major (this 75 percent must include all courses required in the minor). All of the minor must be completed if student teaching is to be done in that field;
7. has applied and been accepted for enrollment in student teaching the semester prior to the one in which he plans to do student teaching;
8. has been accepted by the school system and supervising teacher where he plans to do student teaching;
9. has a schedule of not more than 15 hours of college work to be carried during student teaching with no college classes scheduled to interfere with the teaching assignment; and
10. has presented evidence of having had a thorough physical examination.

An additional factor considered in the review of applications for student teaching is the availability of acceptable school classroom placement opportunities.

Students must be prepared to accept a student teaching assignment in any available location. Some schools in which student teaching is done are away from the Lexington campus and out of the Central Kentucky area.

The student teacher is expected to follow the calendar of the school where he will do his student teaching. Typically the student will be involved for the full school day.

Student teaching during the summer session is open only to students who have had a minimum of one year's 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 2.5 over-all standing.

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 with specified grade-point averages in professional education; in an area of concentration, or major and minor, or major and support area; and in over-all university work. Specific GPA requirements are listed in the College of Education Brochure.

CERTIFICATION

The University of Kentucky offers curriculums for most certificates issued by the State Department of Education.

Based on four years of college work and upon meeting the requirements of the College of Education, the student is eligible for either the Provisional High School Certificate, the Provisional Junior High School Certificate, or the Provisional Elementary Certificate. Application for the desired certificate is made during the Student Teaching Seminar.

Curriculums are also offered for the following: Fifth-year programs for renewal of provisional certificates for elementary and secondary teachers, Master's degree programs leading to Standard Certificates for elementary and secondary teachers, Master's degree programs leading to provisional certification for School Guidance Counselors, programs above the Master's degree which lead to certification in school administration and supervision, and Rank I programs for all graduate certification areas.

Recommendations for all the above are made to the State Department of Education by the Office of Teacher Education and Certification. Specific information pertaining to certification may be obtained by inquiry at the Office of Teacher Education and Certification, 166 Taylor Education Building.

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 expecting to receive certificates as elementary or junior high school teachers are required to be enrolled in the College of Education and to have an adviser in the College of Education.

Students expecting to receive certificates as senior high school teachers may be enrolled either in the College of Education or in the College of Arts and Sciences, the College of Business and Economics, the College of Agriculture, or the College of Home Economics. If they are enrolled in a college other than Education, they must meet the requirements of the College of Education, as well as the requirements of the college in which they are enrolled. They must also have an adviser in the College of Education.

CURRICULA

Students who wish to earn teaching certificates must satisfy the following requirements, regardless of the college in which they are enrolled:

	Senior & Junior High	Elementary
Communications and Humanities	18	21
Physical Science and Biological Science	12	12
Social Science	12	21

The five General Studies Components which best fit into the above requirements are:

1. Area II Physical Sciences
2. Area III Biological Sciences
3. Area IV Foreign Languages, or
   Area V Humanities: Literature, Art, and Music
4. Area VI History
5. Areas VII and VIII Social and Behavioral Sciences

Students who do not choose these component areas may need to take more than the minimum number of required hours in order to satisfy the requirements mentioned above.

Students who offer mathematics as a teaching major or minor may substitute Area I, Mathematics-Philosophy, for Area II, physical sciences. However, if this substitution is made, at lease one Physical Science course must be taken to meet teacher certification requirements. Students other than mathematics majors or minors may not make this substitution.

In addition to the five areas of General Studies Components listed above, it is recommended that all students take at least two courses in psychology. Students preparing to be teachers in junior or senior high school may substitute PSY 104 and 106 from Areas VII and VIII for Area III, Biological Sciences. However, if this substitution is made, at least one biological science course must be taken to meet teacher certification requirements. (BIO 110 will meet this requirement.) Students in elementary education may not make this substitution.

Students majoring in physical education are advised to take Area II and to complete PSY 104 and 106 in place of Area III. Students in health and safety education are advised to take Option B or Option C from Area II and to

complete Area III. Students in recreation (a non-certification program) are advised to complete PSY 210 and PS 201 in lieu of Area III. (Other students MAY NOT make this substitution.)

Students are urged to obtain a College of Education brochure and to confer with an adviser in the College of Education concerning other specific requirements for graduation and/or certification.

REQUIREMENTS FOR TEACHING IN ELEMENTARY SCHOOLS

The requirements for preparation to teach in the elementary schools are outlined below:

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 330 Diagnostic Teaching of Reading and Language Arts in the Elementary School**	3
(This second reading course shall be required of all elementary majors beginning a program during the 1974-75 term.)	
EDC 331 Teaching Arithmetic in the Elementary School**	3
EDC 333 Student Teaching in the Elementary School	12

Students wishing to have their provisional elementary certificates endorsed for kindergarten teaching are required to complete: EDC 543, Teaching in the Kindergarten, three hours and EDC 546, Introduction to Early Childhood Education, three hours. Half of the student teaching must be done in the elementary school and half in the kindergarten.

Students wishing to have their provisional elementary certificates endorsed for special education are required to do half of their student teaching in special education and half in the elementary school, in addition to completing all the required courses in the special education program they are following.

Electives in professional education (May be taken upon recommendation of adviser.)

EDC 325 Teaching in the Elementary School	3
EDC 544 Utilization of Educational Media	3
EDP 548 Educational Psychology	3

In addition to the requirements in the General Studies Components, the following Special Studies requirements must be met:

SPECIAL STUDIES COMPONENT REQUIREMENTS	57-60
BIO 110 Introduction to Human Biology and Health	3
ENG 101, 102 Freshman Composition	6
ENG (This nine hours is in addition to Area IV or Area V)	9 hours
Speech course (required)	3
Literature course (If Area IV is taken, a literature course is required; if Area V is taken, this 3 hours may be any communications second humanities elective.)	3
English elective (If only the two beginning courses are taken in a foreign language, they may be used to fulfill the elective requirement)	3
PHY 104 Basic Psychology I and Laboratory or PSY 210 General Psychology	3
A-E 271, 272 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	3
MA 201, 202 Fundamentals of Elementary Mathematics	6
HPR 360 Physical Education in the Elementary School	3
Social Science elective in Sociology, Geography, History, etc.***	3-6
GENERAL STUDIES COMPONENT REQUIREMENT	30-37
Needed to Graduate (including all elective and required courses).	128

Upon request, the Office of Teacher Education and Certification will send you the College of Education brochure, which deals specifically with details of the Elementary Education Program. Please send your request to:

Office of Teacher Education
and Certification
Taylor Education Building 166
University of Kentucky
Lexington, Kentucky 40506

***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.**

****Any two of the four methods courses may be taken concurrently.**

*****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 three-hour course will be needed in order to meet the 21-hour requirement.**

REQUIREMENTS FOR TEACHING IN JUNIOR HIGH SCHOOLS

The junior high school certificate is valid in grades five through nine and may be endorsed for teaching at the high school level for any subject assignment in which the teacher holds a regular high school teaching major or minor.

Teachers of art, music, physical education, and all vocational subjects will be eligible to teach in junior high school provided they hold a certificate valid for high school or 12-grade teaching.

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	12

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	18
BIO 110 Introduction to Human Biology and Health	3
ENG 101, 102 Freshman Composition	6
ENG (This six hours is in addition to Area IV or Area V)	6
Speech course (required)	3
Literature course (If Area IV is taken, a literature course is required; if Area V is taken, this 3 hours may be any communications and humanities elective).	3
PSY 104 Basic Psychology and Laboratory 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).	128

***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 520 are taken concurrently the semester immediately preceding student teaching.**

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, MINORS, AND SEMI-MAJORS MAY BE CHOSEN FOR JUNIOR HIGH TEACHING

Upon request, the Office of Teacher Education and Certification will send you the College of Education brochure, which deals specifically with details of each of the majors, minors, and semi-majors for the Junior High School Teacher Education Program. Please send your request to:

Office of Teacher Education and Certification
Taylor Education Building 166
University of Kentucky
Lexington, Kentucky 40506

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 12, are outlined below:

PROFESSIONAL EDUCATION REQUIREMENTS

Total hours required	25

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:

EDP 202 Human Development and the Curriculum*	4
EDF 301 Education in American Culture	3
EDC 344 Principles and Techniques of Teaching in the Secondary School**	3

Special methods courses to be taken where appropriate:

EDC 521 Materials and Methods in Teaching Mathematics in the Secondary School (required of Mathematics majors)	3
EDC 522 Materials and Methods in Teaching Social Studies in the Secondary School (required of all majors included in the Social Studies group)	3
EDC 524 Materials and Methods for Teaching Science in the Secondary School (required of all majors included in the Science group). Prereq: EDC 344	3
EDC 525 Materials and Methods of Teaching English in the Secondary School (required of all English majors)	3
EDC 564 Modern Educational Problems (Seminar for student teachers)	3
Student Teaching	9-12

The professional semester work load may be no more than a total of 15 credit hours.

***Prerequisite to ALL other required professional education courses. Students must apply and be admitted to the Teacher Education Program while enrolled in EDP 202. 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 344 must be taken prior to student teaching and should be taken the semester immediately preceding student teaching. EDP 202, and EDF 301 and the special methods courses where appropriate are prerequisite courses for EDC 344.**

During the professional semester, students majoring in the sciences will take the appropriate special methods course during the first four and one-half weeks for three credit hours, and student teaching for 10 and one-half weeks for nine credit hours. Also, EDC 564 Modern Educational Problems (seminar for student teachers, three credit hours) will be taken concurrently with student teaching.

All other students will take student teaching for 12 credit hours. In these programs all special methods courses are completed prior to student teaching.

Students majoring in special education and another major will take student teaching in special education for six credit hours and in the other major for six credit hours.

Professional Education Requirements for Business Education Majors

The following courses should be taken in sequence:	
EDV 210 Introduction to Vocational Education	3
EDP 202 Human Development and the Curriculum	4
EDV 511 Teaching Secretarial Subjects	3
EDV 512 Teaching Bookkeeping and Accounting*	3
EDV 513 Teaching Typewriting and Clerical Practice**	3
EDV 514 Teaching General Business Subjects in the Secondary Schools	3
EDC 393 Student Teaching in Business Education	9

*Required of general business majors.
**Required for secretarial majors.

Professional Education Requirements for Distributive Education Majors

The following courses should be taken in sequence:	
EDV 210 Introduction to Vocational Education	3
EDP 202 Human Development and the Curriculum	4
EDV 516 Problems of the Coordinator in Distributive Education	3
EDV 528 Techniques of Teaching Distributive Education	3
EDV 380 Student Teaching in Distributive Education	9
EDV 517 Determining Teaching Content in Distributive Education	3
SPECIAL STUDIES COMPONENT REQUIREMENTS FOR ALL SECONDARY MAJORS	
Total hours required	18-21
In addition to the requirements in the General Studies Components, the following Special Studies requirements must be met:	
BIO 110 Introduction to Human Biology and Health	3
HPR Activity Courses Required only of HPR majors	2
ENG 101 and 102 Freshman Composition	6
ENG (This six hours is in addition to Area IV or Area V)	6
Speech course (required)	3
Literature Course (if Area IV is taken, a literature course is required; if Area V is taken, this 3 hours may be any communications and humanities elective).	3
EDC 534 Teaching Reading and Study Skills in English. (Required in all English areas, majors, and minors, in addition to the required courses in English.)	
PSY 104 Basic Psychology I or	3
PSY 210 General Psychology	3
GENERAL STUDIES COMPONENT	
Total hours required	30-37
(See section on General Studies Component requirements)	
For best use of electives, consult adviser.	
Needed to graduate (including all electives and required courses exclusive of physical education service courses)	128
HPR majors (including required service courses)	130

REQUIREMENTS FOR VOCATIONAL–INDUSTRIAL AND TECHNICAL TEACHER EDUCATION

GENERAL STUDIES COMPONENT	37 crs
It is recommended that Areas II, V, VI, VII, VIII be considered in order to shorten the students' time in the program.	
PROFESSIONAL EDUCATION REQUIREMENTS	25
EDV 106 Occupational Analysis	2
EDV 109 Instructional Materials in Industrial Education	2
EDV 110 Principles of Industrial Teaching	2
EDP 202 Human Development and the Curriculum	2-4
EDF 301 Education in American Culture	3
EDV 224 Techniques of Teaching Industrial Education	3
EDV 352 Student Teaching Industrial and Educational Training Directors	9
	18
SPECIAL STUDIES COMPONENT	
HPR 126 Concepts of Health, Fitness, and Leisure or equivalent	3
ENG 101 Freshman Composition	3
ENG 102 Advanced Freshman Composition	3
SP 181 Basic Public Speaking	3
ENG 262 Survey of Western Literature from 1660 to Present or equivalent	3
PSY 210 General Psychology	3
	48
AREA OF CONCENTRATION	
IND 222 Occupational Internship for Industrial Teachers	1-3
IND 226 Basic Competencies in Industrial Occupations	3
IND 228 Advanced Competencies in Industrial Occupations	3
IND 525 Supervised Work Experience in Business or Industry	3
Twelve semester hours in appropriate colleges to meet specific needs of the occupational teacher.	
TOTAL	128

REQUIREMENTS FOR MAJORS, MINORS, AND AREAS OF CONCENTRATION

Senior high school curriculum majors must prepare themselves by intensive study in selected areas. All students admitted to the Teacher Education Program after September 1, 1972 are expected to meet one of the following options in the choice of a curriculum leading to certificates for teaching in special subject fields. **Please Consult Your Adviser.**

There are six different formats for programs leading to graduation and certification:

1. An Area of Concentration (minimum of 48 hours) in subject areas where this is permissible.
2. A major of 30 to 36 hours and a minor of 21 to 24 hours chosen from a related field.
3. A major of 30 to 36 hours and supporting courses from two related subject fields (12 hours each).
4. A major of 30 to 36 hours and 24 hours from appropriate related subject fields (chosen from the courses listed in the minors). If the student chooses this plan, he will be certified in the major only and the related courses cannot be combined for a minor.
5. A major of 30 hours with three support areas of 12 hours each.*
6. A major of 30 hours, a minor of 21 hours, and a support area of 12 hours.*

*These options are available only in social studies (history major).

Since there is an over-supply of teachers in most fields and since the College is making every effort to improve quality and selectivity, it is recommended that basic subjects be chosen as major fields and that the supporting courses or minors be in related fields. The student will be certified in only one field if he presents a major and two or three supporting fields of 12 hours each. He will be certified in two fields if he presents a major and a minor.

An **area of concentration** from an approved subject field shall consist of 48 semester hours unless otherwise specified.

A **major** from an approved single subject field shall consist of 30 semester hours with the following exception: English (36 hours). One course in linguistics or equivalent required.

A **minor** from an approved single subject field shall consist of 21 semester hours with the following exceptions:

1. English (24 hours). One course in linguistics or equivalent required.
2. Spanish, French or German (24 hours in one language). The Teaching of Modern Foreign Languages (553) is recommended as one of the courses.

SUBJECT FIELDS FROM WHICH AREAS OF CONCENTRATION, MAJORS, MINORS, AND SUPPORT COURSES MAY BE CHOSEN

Upon request, the Office of Teacher Education and Certification will send you the College of Education brochure which deals specifically with details of each of the areas of concentration, majors, minors, and support areas for the Secondary Education Program. Please send your request to:

Office of
Teacher Education and Certification
Taylor Education Building 166
University of Kentucky
Lexington, Kentucky 40506

TWELVE-GRADE CERTIFICATION IN MUSIC OR ART

Students seeking a 12-grade certificate in music or art, must take EDC 325, Teaching in the Elementary School, after they have earned junior classification. This means that EDC 325 may be taken concurrently with other courses in the professional sequence, but the course should be completed prior to student teaching. Also required is a course in materials and methods in the special subject at the elementary and/or twelve-grade level. Half of the student teaching must be done in an elementary school and half in a secondary school.

TWELVE-GRADE CERTIFICATION IN PHYSICAL EDUCATION

Students seeking a 12-grade certificate in Physical Education must take EDC 325, Teaching in the Elementary School, after they have earned junior classification. Also, there are specific required physical education courses in addition to the major which must be taken. Half of the student teaching must be done in an elementary school and half in a secondary school.

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 or senior high school programs. Thus, within the framework of the undergraduate program the student can earn certification in elementary 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.

REQUIREMENTS FOR TEACHING VOCATIONAL AGRICULTURE (SUMMARY)

College of Agriculture	
General component	36
Pre-professional component (Agriculture)	12
Department major	24
Specialty Support	21
Electives	27
Total credits required for graduation	120

1. EDV 370, 580, 581 and 583 are required for certification. EDV 580, 581, and 583 may be taken as an undergraduate or as a graduate.
2. When EDV 370, 580, 581, and 583 are taken as an undergraduate, the 18 credits are to be used as electives at the undergraduate level.
3. The student should complete a minimum of 50 semester hours in technical agriculture, with at least six credits in each of the following areas: animal science, plant and horticulture science, soil science, agricultural economics, and agricultural mechanics.

REQUIREMENTS FOR TEACHING VOCATIONAL HOME ECONOMICS (SUMMARY)

College of Home Economics	
Pre-Major Studies	36
Major	27
Basic Home Economics	15
Electives*	33
Professional Support	19
EDP 202 Human Development and the Curriculum	
EDV 586 Teaching Home Economics in the Secondary School	
EDV 362 Student Teaching in Home Economics	
EDV 588 Adult Education in Home Economics	
Total credits required for graduation	130

*To include three hours each in TCM, NFS, and HID. All electives are subject to the approval of the student's adviser.
EDV 586 and 362 are taken concurrently.

1. EDV 362, 588, and 586 must be scheduled in the same semester of the senior year.
2. The student and the adviser should consult the College of Home Economics' Handbook for Students and Advisers for specific courses in each block which will meet certification requirements.

STUDENT TEACHING IN VOCATIONAL AGRICULTURE, AND VOCATIONAL HOME ECONOMICS

Transient students and graduate students in agricultural education may take student teaching without having a semester in residence on the campus. They take 18 semester hours of work—the semester student teaching is done—in agricultural education, which includes student teaching.

In order to take student teaching in home economics, a student must have completed three hours in techniques of teaching home economics in the secondary school. Student teaching and adult education are experienced in off-campus teaching centers. Students may elect to live in the community for approximately 12 weeks and perform the activities of a teacher in the community under the guidance of a trained supervising teacher.

GRADUATE PROGRAMS

The College offers the following advanced degrees in Education: Master of Arts in Education with specialization in Elementary Education, Secondary Education, Reading, Business Education, Distributive Education, Industrial Education, Special Education, Guidance and Counseling, Psychometry, Rehabilitation Counseling, Social and Philosophical Studies, Master of Science in Higher Education, Master of Science in Health, Physical Education and Recreation, Master of Science in Education with specialization in Agricultural Education or Home Economics Education, Specialist in Education, Doctor of Education (Ed.D.), and Doctor of Philosophy (Ph.D.).

Engineering

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 18 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."

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.

Area I **Mathematics-Philosophy**

The engineering student will satisfy this area when he completes his first required mathematics course MA 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**

Choose one of the following:

A. ENG 261 Survey of Western World Literature from the Greeks through the Renaissance (3)
ENG 262 Survey of Western World Literature: from 1600 to the Present (3)
CLA 261 Survey of Greek Literature in Translation (3)
CLA 262 Survey of Latin Literature in Translation (3)
FR 261 Survey of French Literature in Translation (3)
SO 260 Classics of Near Eastern Literature (3)
SO 263 Survey of Russian Literature from its Beginning through the 19th Century (in English) (3)
SPI 261 A Survey of Spanish Literature in Translation from the Middle Ages to the Present (3)
GER 261 A Survey of German Literature in Translation (3)
SPI 263 Masterpieces of Italian Literature in Translation (3)

Plus one of the following:

A-H 100 Introduction to Art History (3)
A-H 210 Ancient Art (3)
A-H 220 Medieval Art (3)
A-H 230 Renaissance Art (3)
A-H 240 Modern Art (3)
MUS 200 Introduction to Music (3)
MUS 201 Music in Western Civilization (3)
MUS 300 History of Jazz (3)

B. Choose two of the following courses (students choosing this option may not satisfy Areas I with Option C.):
PHI 260 History of Western Philosophy I (3)
PHI 270 History of Western Philosophy II (3)
PHI 100 Introduction to Philosophy (3)
PHI 130 Introductory 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 East Asia to 1800 (3)
HIS 296 East Asia since 1800 (3)

Areas VII and VIII **Social and Behavioral Sciences:**

Students who wish to satisfy one of these areas may do so by completing any two of the courses listed below, subject to the restrictions and prerequisites noted.

Students who wish to satisfy both areas may do so by completing four of the courses listed below. Two of these courses must be in a single department and the other two must be outside that department, but may be chosen from another single department or from two separate departments:

ANT 120 Human Ancestry	(3)
ANT 121 Introduction to Cultural Anthropology	(3)
ECO 260 Principles of Economics	(3)
ECO 261 Principles of Economics (Prereq: ECO 260)	(3)
GEO 152 Regional Geography of the World	(3)
GEO 252 Elements of Human Geography	(3)
PS 151 American Government	(3)
PS 201 Introduction to Political Behavior	(3)
PS 249 Introduction to Comparative Politics	(3)
PS 265 World Politics	(3)
PS 280 State Government	(3)
PSY 104 Basic Psychology I	(3)
PSY 106 Basic Psychology II (Prereq: PSY 104)	(3)
PSY 210 General Psychology (May not be taken for credit if student has received credit for PSY 104 or 106)	(3)
SOC 101 Introductory Sociology	(3)
SOC 152 Modern Social Problems (Prereq: SOC 101 or consent of instructor)	(3)
SOC 220 The Community (Prereq: SOC 101 or consent of instructor)	(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

All of these programs are fully accredited by the Engineering Council on Professional Development.

While these are the official degrees granted at the bachelor's level in the College, the prospective student is encouraged to study the wide variety of options available to him through technical electives, some of which are listed following the degree requirements of each department. This is designed to allow him to apply the fundamentals of a particular department in an area of special interest to him during his senior year.

Students interested in mining engineering should note that this is now an option in the Department of Civil Engineering. Graduates of this program are recognized as mining engineers by the coal mining industry.

A student in any department interested in biomedical engineering may make special arrangements with his adviser to include a limited amount of such studies in his undergraduate program. Biomedical engineering is primarily the application of engineering principles to the solution of medical problems, and it is an interdisciplinary program in the Graduate School.

The Department of Chemical Engineering has approved an optional program in pre-medicine. Students majoring in chemical engineering may arrange through their adviser to take courses which will satisfy the degree requirements for this program. Each department lists one or more free electives. Only these free electives can be taken by the pass-fail option. A free elective is any University course excluding more elementary versions of required courses such as pre-calculus math or PHY 211.

MINIMUM REQUIREMENTS FOR GRADUATION

To be awarded the Bachelor of Science degree in any of the fields of engineering a student must meet the following requirements:

1. Complete the University and College requirements relating to English and General Studies.
2. 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.
3. Complete the required curriculum for the engineering area of his choice of major.

GRADUATE DEGREES

For information concerning graduate programs in the College of Engineering, please refer to the Graduate School 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
ME 105 Basic Engineering Graphics	2
General Studies*	3
	15

Second Semester	
ENG 102 Advanced Freshman Composition***	3
MA 114 Calculus	4
CHE 112 General College Chemistry II	3

CHE 115 General Chemistry Laboratory	3
General Studies*	3
	16

Sophomore Year

First Semester	
MA 213 Analysis	4
PHY 231 General University Physics	3
PHY 241 General University Physics Laboratory	2
Biological Science Sequence**	3-4
General Studies*	3
	15-16

Second Semester	
MA 214 Analysis	3
EM 221 Statics	3
PHY 232 General University Physics	3
PHY 242 General University Physics Laboratory	2
Biological Science Sequence**	3-4
General Studies*	3
	17-18

Junior Year

First Semester	
EM 313 Dynamics	3
EE 305 Electric Circuits and Machinery	3
ME 220 Engineering Thermodynamics I	3
AGR 366 Fundamentals of Soil Science	3
AEN 405 Properties of Soils and Biological Materials as related to Engineering	3
CS 221 First Course in Computer Science for Engineering	2
	17

Second Semester	
EM 302 Mechanics of Deformable Solids	3
EM 303 Strength of Materials Laboratory	1
ME 330 Fluid Mechanics	3
AEN 406 Physics of Plant and Animal Environment	3
EE 306 Electric and Electronic Circuits	3
General Studies*	3
	16

Senior Year

First Semester	
AEN 007 The Engineering Profession	0
AEN 417 Energy Sources and Machinery for Agriculture	3
AEN 437 Soil and Water Conservation Engineering	3
General Studies*	3
Technical Elective**	3
Free Elective**	3
	15

Second Semester	
AEN 505 Engineering Analysis	3
AEN 427 Functional Design of Agricultural Structures	3
AEN 447 Agricultural Processing and Electrification	3
Elective (Mathematics, Statistics or Computer Science)**	3
Elective in Communication Skills	3
Free Elective**	3
	18

***Select from General Studies areas IV, V, VI, VII, or VIII in consultation with academic adviser. One of these sequences should be in economics and one in foreign language, humanities, or history.**

****Free electives are any University courses, excluding more elementary versions of required courses, such as pre-calculus math or PHY 211. To be selected in consultation with academic adviser.**

*****The University English requirement can be satisfied in several ways—see Academic Program Section.**

CHEMICAL ENGINEERING

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
ENG 101 Freshman Composition***	3
MA 113 Calculus	4
General Studies*	3
General Studies*	3
	16

Second Semester	
CME 002 The Engineering Profession	0
CHE 112 General College Chemistry II	3
CHE 115 General Chemistry Laboratory	3
ENG 102 Advanced Freshman Composition***	3
MA 114 Calculus	4
General Studies*	3
	16

Sophomore Year

First Semester	
CME 200 Process Principles	3
CHE 230 Organic Chemistry	3
MA 213 Analysis	4
PHY 231 General University Physics	3
PHY 241 General University Physics	2
	15

Second Semester	
CME 220 Engineering Thermodynamics	3
CHE 231 Organic Chemistry Laboratory	1
CHE 232 Organic Chemistry	3
EM 221 Statics	3
MA 214 Analysis	3
PHY 232 General University Physics	3
	16

Junior Year

First Semester

CME 412 Staged Mass Transfer Process	2
CHE 440 Physical Chemistry	3
CME 462 Process Control	3
CS 221 First Course in Computer Science for Engineers	2
ME 330 Fluid Mechanics	3
Elective (Mathematics)	3
	16

Second Semester

CME 006 The Engineering Profession	0
CME 422 Rate Mass Transfer Process	3
CHE 441 Physical Chemistry Laboratory	2
CHE 442 Physical Chemistry	3
ME 325 Elements of Heat Transfer	3
MET 201 Materials Science	3
Free Elective***	3
	17

Senior Year

First Semester

CME 007 The Engineering Profession	0
CME 430 Advanced Problems in Chemical Engineering	2
CME 431 Chemical Engineering Laboratory I	2
CME 455 Chemical Engineering Process Design	4
CME 550 Chemical Reactor Design	3
Free Elective***	3
General Studies*	3
	17

Second Semester

CME 008 The Engineering Profession	0
CME 432 Chemical Engineering Laboratory II	2
EE 305 Electrical Circuits and Machines	3
Technical Elective	3
Free Elective***	3
General Studies*	3
General Studies*	3
	17

*Select from General Studies areas IV, V, VI, VII, or VIII in consultation with academic adviser.
**To be selected in consultation with academic advisers.
***Free Electives are any University courses, excluding more elementary versions of required courses, such as pre-calculus math or PHY 211.

TECHNICAL ELECTIVES

Courses recommended as Chemical Engineering electives are listed below. Other courses will be considered, each on its individual merit.

CME 395 Independent Study
CME 505 Analysis of Chemical Engineering Problems
CME 515 Air Pollution Control
CME 520 Equilibrium Thermodynamics
CME 530 Transport I
CME 552 Polymeric Materials
CME 570 Chemical Separation and Measurement for Chemical Engineers
CME 580 Rate and Equilibrium Processes in Water Quality Engineering I

CIVIL ENGINEERING

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
ENG 101 Freshman Composition	3
MA 113 Calculus	4
ME 105 Basic Engineering Graphics	2
General Studies*	3
	15

Second Semester

CHE 112 General College Chemistry II	3
ENG 102 Advanced Freshman Composition	3
MA 114 Calculus	4
PHY 231 General University Physics	3
PHY 241 General University Physics Laboratory	2
	15

Sophomore Year

First Semester

CE 206 Descriptive Geometry	2
EM 221 Statics	3
MA 213 Analysis	4
PHY 232 General University Physics	3
PHY 242 General University Physics Laboratory	2
General Studies*	3
	17

Second Semester

CE 100 Plane Surveying	3
ME 220 Engineering Thermodynamics I	3
EM 302 Mechanics of Deformable Solids	3
EM 303 Strength of Materials Laboratory	1
GLY 240 Elementary Geology for Engineers	4
MA 214 Analysis	3
	17

INTERSESSION

4 weeks (4 crs.)

CE 215 Route Control and Topographic Surveying	4

Junior Year

First Semester

CE 380 Structural Mechanics I	3
CE 340 Transportation Engineering I	3
CS 221 First Course in Computer Science for Engineers	2
ME 330 Fluid Mechanics	3
Elective (Mathematics)†	3
General Studies*	3
	17

Second Semester

EM 313 Dynamics	3
CE 351 Hydraulics Laboratory	1
CE 355 Water Quality Engineering	3
CE 425 Soil Mechanics	3
CE Elective**	3
General Studies*	3
	16

Senior Year

First Semester

CE 301 Civil Engineering Materials I	2
EE 305 Electric Circuits and Machinery	3
MET 201 Materials Science	3
CE Elective**	3
Free Elective***	3
General Studies*	3
	17

Second Semester

CE 371 Seminar	1
CE Elective**	3
CE Elective**	3
Engineering Design Elective††	3
General Studies*	3
Free Elective***	3
	16

*Three areas from either areas IV, V, VI, VII or VIII.

**The Civil Engineering electives can be chosen from any courses offered by the Department.

***Free electives are any University courses, excluding more elementary versions of required courses such as pre-calculus math or PHY 211.

†The mathematics elective is to be chosen from the following: STA 381, MA 432, 433, 462, 262, 481, CS/MA 421.

††Engineering design elective must be chosen from the following: CE 399, 328, 435, 533, 540, 543, 550.

TECHNICAL ELECTIVES

The courses recommended as technical electives are listed below. Other courses will be considered, each on its individual merit.

CE 231 Elements of Mining
CE 302 Civil Engineering Materials II
CE 328 Foundation Engineering
CE 342 Transportation Engineering II
CE 356 Water and Sewage Treatment
CE 385 Timber Structures
CE 399 Design of Structures
CE 435 Mine Plant and Machinery
CE 480 Structural Mechanics II
CE 515 Geometronics
CE 523 Photogrammetry
CE 531 Coal Preparation I
CE 533 Rock Mechanics
CE 540 Pavement Analysis and Design
CE 543 Development of Transportation Facilities
CE 550 Engineering Hydraulics
CE 553 Hydrology
CE 555 Engineering Economy
CE 566 Public Health Engineering
CE 568 Sanitary Engineering Laboratory
EM 503 Introduction to Continuum Mechanics
EM 513 Mechanical Vibrations
EM 531 Advanced Strength of Materials
EM 532 Experimental Stress Analysis

ELECTRICAL ENGINEERING

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
ME 105 Basic Engineering Graphics	2
ENG 101, 102, or 105 Freshman Composition***	3
General Studies*	3
	15

Second Semester

MA 114 Calculus	4
CHE 112 General College Chemistry II	3
CHE 115 General Chemistry Laboratory	3
PHY 231 General University Physics	3
PHY 241 General University Physics Laboratory	2
	15

Sophomore Year

First Semester

CS 221 First Course in Computer Science for Engineers	2
MA 213 Analysis	4
PHY 232 General University Physics	3
PHY 242 General University Physics Laboratory	2
EE 211 Circuits I	3
General Studies*	3
	17

Second Semester

MA 214 Analysis	3

EM 221 Statics	3
EE 221 Circuits II	3
EE 222 Electric Engineering Laboratory I	2
ENG 203 Writing for Business and Industry (Preferred over ENG 102)****	3
General Studies*	3
	17

Junior Year

First Semester	
EE 420 Engineering Analysis I	3
EE 461 Electronics Circuits I	3
EE 462 Electric Engineering Laboratory II	2
EE 467 Electric and Magnetic Fields	3
EM 313 Dynamics	3
MET 412 Electronic Properties of Materials	3
	17

Second Semester	
EE 415 Electromechanics I	3
EE 416 Electric Engineering Laboratory III	2
EE 435 Circuits III	3
EE 468 Fields and Waves	3
ME 220 Engineering Thermodynamics I	3
General Studies*	3
	17

Senior Year

First Semester	
EE 371 Seminar	1
EE 471 Linear Feedback Control Systems	3
EE 401, 508, 565 or 569 (Laboratory elect)	2-3
General Studies*	3
Free Elective***	3
Technical Elective**	3
	15-16

Second Semester	
EE 372 Seminar	1
Technical Elective**	3
Technical Elective**	3
Technical Elective**	3
Free Elective***	3
General Studies*	3
	16

*Select from General Studies areas IV, V, VI, VII, or VIII in consultation with academic adviser.

**All electives are to be selected in consultation with the academic adviser.

***Free electives are any University courses, excluding more elementary versions of required courses, such as pre-calculus math or PHY 211.

****If the student elects ENG 102 rather than ENG 203, he must take it in his freshman second semester.

TECHNICAL ELECTIVES

The courses recommended as technical electives are listed below. Other courses will be considered, each on its individual merit.

EE 401 Electronic Analog Computation
EE 402 Electronic Instrumentation
EE 511 Information Theory
EE 512 Digital Communication Systems
EE 517 Electrical Machinery II
EE 520 Engineering Analysis II
EE 523 Electrical Equipment Problems
EE 528 Electromagnetic Radiation and Wave Propogation
EE 529 Fields in Biological Media
EE 537 Electric Power Transmission I
EE 538 Electric Power Transmission II
EE 560 Semiconductor Device Design
EE 562 Electronics Circuits II and Communications II
EE 563 Communications Circuits Design
EE 564 Electronics Circuits III
EE 567 Introduction to Lasers and Masers
EE 569 Microwave and Coherent Optics Measurements
EE 572 Nonlinear Feedback Control Systems
EE 580 Logical Design of Analog and Digital Systems
EE 581 Advanced Logical Design
EE 584 Computer Aided Design
EE 585 Molecular Engineering
EE 595 Independent Problems

May use up to six hours of upper division mathematics, statistics, computer science, physics or other technically related fields.

ENGINEERING MECHANICS

The Department of Engineering Mechanics provides formal advanced training and an active research program leading to the M.S. and Ph.D. degrees. There is no baccalaureate degree program in engineering mechanics; see the Graduate School Bulletin for complete information.

MECHANICAL ENGINEERING

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

Freshman Year

First Semester	Crs.
ME 001 The Engineering Profession	0
ME 105 Basic Engineering Graphics	2
CHE 110 General College Chemistry I	3
ENG 101 Freshman Composition***	3
MA 113 Calculus	4
General Studies*	3
	15

Second Semester	
ME 002 The Engineering Profession	0
ME 151 Manufacturing Engineering	3
CHE 112 General College Chemistry II	3
CHE 115 General Chemistry Laboratory	3
ENG 102 Advanced Freshman Composition***	3
MA 114 Calculus	4
	16

Sophomore Year

First Semester

CS 221 First Course in Computer Science for Engineers	2
ECO 260 Principles of Economics	3
MA 213 Analysis	4
PHY 231 General University Physics	3
PHY 241 General University Physics Laboratory	2
General Studies*	3
	17

Second Semester

EM 221 Statics	3
MA 214 Analysis	3
ME 220 Engineering Thermodynamics I	3
PHY 232 General University Physics	3
PHY 242 General University Physics Laboratory	2
General Studies*	3
	17

Junior Year

First Semester

EM 302 Mechanics of Deformable Solids	3
EM 313 Dynamics	3
ME 321 Engineering Thermodynamics II	3
ME 330 Fluid Mechanics	3
MET 201 Materials Science	3
	15

Second Semester

ME 310 Engineering Experimentation I	3
ME 344 Mechanical Design	3
EE 305 Electric Circuits and Machinery	3
Elective (Mathematics)**	3
Technical Elective**	3
General Studies*	3
	18

Senior Year

First Semester

ME 007 The Engineering Profession	0
ME 311 Engineering Experimentation II	3
ME 325 Elements of Heat Transfer	3
ME 343 Control Theory	3
ME 371 Seminar	1
EE 306 Electrical and Electron Circuits	3
Technical Elective**	3
	16

Second Semester

ME 008 The Engineering Profession	0
ME 312 Engineering Experimentation III	3
Technical Elective**	3
Free Elective*** or General Studies*	3
Free Elective***	3
General Studies*	3
	15

*Select from General Studies areas IV, V, VI, VII, VIII in consultation with academic adviser.

**All electives to be selected in consultation with academic adviser.

***Free electives are any University courses, excluding more elementary versions of required courses, such as pre-calculus math or PHY 211.

TECHNICAL ELECTIVES

Courses recommended as mechanical engineering technical electives are listed below. Other courses will be considered, each on its individual merit.

ME 341 Machine Design
ME 346 Mechanical Systems Design
ME 347 Dynamics Analysis of Design Problems
ME 350 Safety Engineering
ME 352 Plant Layout
ME 356 Motion and Time Study
ME 358 Economic Analysis of Mechanical Systems
ME 359 Management Engineering
ME 360 Internal Combustion Engines
ME 364 Direct Energy Conversion
ME 366 Thermal Power Systems
ME 395 Independent Work in Mechanical Engineering
ME 475 Introduction to Nuclear Engineering
ME 480 Thermal Environmental Design
ME 514 Nuclear Reactor Analysis I
ME 515 Fuel Management and Economics of Nuclear Engineering
ME 517 Instrumentation for Research
ME 530 Gas Dynamics
ME 540 Dynamic Simulation of Mechanical Systems
ME 564 Propulsion System Design
ME 567 Air Pollution Engineering and Economics
ME 583 Biotechnology
ME 590 Elements of Aero-Space Technology
ME 592 Aero-Space Component Design

Of the three technical electives provided for in the undergraduate program, students are required to select at least one from the above list. The other two technical electives, chosen with the approval of the student's adviser, can be often used to fulfill specific educational goals.

MATHEMATICAL ELECTIVES

The mathematical elective may be chosen from a number of advanced courses, some of which are listed below:

MA 432 Methods of Applied Mathematics
MA 462 Matrix Analysis
MA 481 Differential Equations
MA/CS 421 Elementary Numerical Methods
STA 381 Introduction to Engineering Statistics

METALLURGICAL ENGINEERING

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
General Studies**	3
General Studies**	3
	16

Second Semester

ENG 102 Advanced Freshman Composition*	3
MA 114 Calculus	4
CHE 112 General College Chemistry II	3
CHE 115 General Chemistry Laboratory	3
PHY 231 General University Physics	3
PHY 241 General University Physics Laboratory	2
	18

Sophomore Year

First Semester

MET 003 The Engineering Profession	0
MA 213 Analysis	4
PHY 232 General University Physics	3
PHY 242 General University Physics Laboratory	2
ECO 260 Principles of Economics	3
ME 105 Basic Engineering Graphics	2
CS 221 First Course in Computer Science for Engineers	2
	16

Second Semester

MA 214 Analysis	3
CME 220 Engineering Thermodynamics	3
ECO 261 Principles of Economics	3
CHE 236 Organic Chemistry	4
General Studies**	3
	16

Junior Year

First Semester

MET 311 Materials Science I	3
MET 361 Structure and Properties of Alloys I	4
CHE 440 Physical Chemistry	3
EE 305 Electrical Circuits and Machinery	3
EM 221 Statics	3
	16

Second Semester

MET 312 Materials Science II	3
MET 362 Structure and Properties of Alloys II	4
MET 442 Extractive Metallurgy	3
ME 325 Elements of Heat Transfer	3
EM 302 Mechanics of Deformable Solids	3
	16

Senior Year

First Semester

MET 371 Seminar	1
MET 413 Materials Science III	3
MET 435 Mechanical Metallurgy	3
Metallurgical Elective	3
Technical Elective	3
Free Elective**	3
	16

Second Semester

MET 314 Metallurgical Analysis	2
MET 436 Structure and Properties of Alloys III	3
General Studies**	3
Matallurgical Elective	3
Technical Elective	3
Free Elective***	3
	17

*The University English requirement can be satisfied in several ways—see Academic Program Section.

**Select from General Studies area IV, V, VI, VII or VIII in consultation with academic adviser.

***Free electives are any University courses, excluding more elementary versions of required courses, such as pre-calculus math or PHY 211.

TECHNICAL ELECTIVES

The courses recommended as technical electives are listed below. Other courses will be considered, each on its individual merit.

CHE 580 Polymer Chemistry
MET 372 Seminar
MET 395 Independent Work in Metallurgical Engineering
MET 421 Ferrous Alloys Processing
MET 425 Solidification and Casting
MET 426 Non-Ferrous Alloys Processing
MET 443 Minerals Beneficiation
MET 451 Metallurgical Thermodynamics
MET 531 Powder Metallurgy
MET 536 Ceramic Engineering
MET 539 Nuclear Metallurgy
MET 541 Advanced Extractive Metallurgy
MET 550 Corrosion
MET 551 Advanced Chemical Metallurgy
MET 552 Polymeric Materials
MET 566 Crystallography and X-ray Metallography

Graduate School

The Graduate School is concerned with advanced study and research carried on by the faculty and students of all colleges and departments. Under it the total graduate resources of the University are merged in order to promote the achievement of knowledge in an atmosphere of free and lively inquiry.

Graduate work is offered in most colleges in the University.

For detailed descriptions of graduate programs and degree requirements. See the Graduate School Bulletin.

ADVANCED DEGREES FOR FACULTY MEMBERS

Members of the faculty, excepting those in the Community College System, having a rank higher than that of Instructor may not be considered as candidates for degrees in the discipline in which they are employed or as candidates for degrees above the Masters degree in any discipline.

GRADUATING SENIORS AS PART-TIME GRADUATE STUDENTS

A senior in the University of Kentucky lacking no more than six credit hours for graduation and having an undergraduate average of a 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 12 credit hours. Graduate credit will be allowed for each credit hour of graduate work beyond the six or fewer credit hours needed to complete undergraduate requirements. The incidental fee is that of a full-time student in the school in which more than half of the work is taken. In cases where the load is evenly divided between the schools, the larger fee is assessed. Requirements for the undergraduate degree must be completed during the semester in which the student is allowed to register for part-time graduate work. Students desiring to enroll in the Graduate School under these conditions must fill out in duplicate a petition listing the course or courses to be taken in order to complete their undergraduate requirements. The petition must be approved by both deans concerned.

NON-DEGREE WORK

As many as six credit hours with the grade of A or B, earned in regular graduate courses by one enrolled as a non-degree student at the University of Kentucky, may be counted toward the requirements for a graduate degree. These credits must be earned in the year immediately preceding the student's acceptance and enrollment in the Graduate School and must be appropriate to his program of study for the graduate degree. The use of such credits must have the approval of the student's Director of Graduate Studies and the Dean of the 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. In order that extension taken at another approved Graduate School be transferable, it must be taken while enrolled in that Graduate School. No graduate credit is given for courses taken by correspondence.

REGISTRATION AND CLASSIFICATION

All students expecting graduate credit must be enrolled in the Graduate School. Graduate students will conform to the general registration schedule of the University and may not enter later than the last allowable date set by the Registrar.

Before registering, a graduate student must obtain his adviser's approval of his proposed program.

Home Economics

THE CURRICULUM

To attain the objectives of professional home economics, curricula in the College are organized in two parts: Pre-Major Studies and Major Studies.The Pre-Major Studies are composed of lower division courses and in 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.

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.

GRADUATION REQUIREMENTS

To receive the degree, Bachelor of Science in Home Economics, a student is required to earn 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, except for those students majoring in home economics education, 48 hours are required. 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 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.

HOME ECONOMICS CURRICULA

UNIVERSITY REQUIREMENTS:

1. **English Composition** 6 hours
2. Five areas of study chosen from the eight General Studies Components. (See Department recommendations below. These recommendations are based on certification requirements within the specific department.)

COLLEGE OF HOME ECONOMICS REQUIREMENTS:

Physical Education	2 hours
Natural Science (3 hours in Chemistry or Physics; 3 hours in Biological Sciences)	6 hours
Humanities	3 hours
Social and Behavioral Sciences (including 3 hours each in Psychology, Sociology and Economics)	9 hours
Mathematics MA 122 or equivalent with ACT score of 50 percentile (National norm) or below.	
Communications To be selected from SP 181, ENG 203, 205, JOU 201, 203 or other approved courses	6 hours
HID 102 Basic Design for Home Economics	2 hours
NFS 101 Food and Nutrition for Man	4 hours
TC 120 Introduction to Textiles	3 hours
HF 153 Family Development I	3 hours
MFE 161 Management of Family Resources	3 hours

REQUIREMENTS FOR THE MAJOR IN HOME ECONOMICS FOR THE FIVE DEPARTMENTS

DEPARTMENT OF HOUSING AND INTERIOR DESIGN

Professional Specialization

Lower Division:
AH 201: PSY 104, 106; SOC 101; ECO 260, 261; ME 105

Pre-Major
HID 261

Major Requirements 25 hours

1. HID 261, 330, 332, 339, 537, 538
2. Seven hours to be selected from HID 520, 530, 532, 534, 536.
3. Professional Support 15 hours
   One course each from any of the following areas:
   Art, Architecture, Horticulture, Sociology, and Business Administration.

General Electives 9 hours
From any area of the University so recommended by the HID Department.

4. Home Economics Electives 9 hours
To include at least one course at a 200 level or above in at least three departments of home economics other than HID.
General Electives 9 hours
5. Unrestricted electives are to be chosen from architecture, art, horticulture, theatre arts, or other areas as recommended by the HID department.

***The requirements for HID majors are in line with accreditation requirements for F.I.D.E.R.**

DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY RELATIONS

Pre-Major
HF 255
This is the only required pre-major course. It is believed that this course as well as the core requirement in the College will give the student a background for choice of in-depth courses in the major.

DEPARTMENT OF MANAGEMENT AND FAMILY ECONOMICS

Business Specialization
Major Requirements 18 hours.
1. MFE 362, 363, 364, 368, 462, 596
2. Professional Support 15 hours
BA 330, 332
nine credits to be selected from ACC 201, SOC 441, TEL 500, TEL 510, JOU 507, JOU 541.

DEPARTMENT OF NUTRITION AND FOOD SCIENCE

1. Science Specialization
General Studies Requirements, Area II, Physical Sciences, Sequence B or C are required for the Science option. Area III, Sequence C - BIO 104 and 108

Major Requirements 18-30 hours
Professional Support 15 hours
1. PGY 206, CHE 230 or 236, PHY 211, BIO 109
2. Business Specialization
Major Requirements
a. Professional Support
ACC 201, CHE 105-106
3. Professional Specialization (Dietetics)
Persons choosing the professional options must take specific courses to meet minimum academic requirements for the American Dietetic Association (ADA) membership. Students must choose:
a. Twenty-two hours of subjects required including human physiology, bacteriology, nutrition, chemistry-8 hours, foods–6 hours, and nutrition.
b. Nine hours in one of three emphases: Emphasis I–Food Service Management, Emphasis II–Education (Business and Industry, Clinic, College, Extension, School, and Public Health); Emphasis III–Foods Experimental and Development. (Choose appropriate courses to meet area of emphasis as outlined by ADA).
c. Choice of one concentration–15 hours minimum in Concentration A–Therapeutic and Administrative Dietetics; Concentration B–Business Administration or Concentration C–Science-Foods and Nutrition (Choose appropriate courses to meet area concentration as outlined by ADA).

DEPARTMENT OF TEXTILES, CLOTHING, AND MERCHANDISING*

Business Specialization
Pre-Major Requirements 15
ECO 260, 261, PSY 210 (or PSY 204 and 206), PS 201 (or PS 151, 249, 265, 280), SP 181 (it is recommended that the student take Area VII and VIII to meet above requirements).
Major Requirements 38 hours
Professional Support 15 hours
One course from each of the following areas:
Accounting, Communications, Sociology.
Two courses from:
Business Administration

Note: To be selected with guidance and approval of the adviser.

***The program requirements are as suggested by the HEIB section of American Home Economics Association for future accreditation.**

Subject Matter in Textiles, Clothing and Merchandising 23 hours
Fourteen credit hours required:
TC 227 Principles of Clothing, Construction and Selection (Credit by Examination available) 3 hours
TC 327 Family Apparel 2 hours
TC 422 Economics of Clothing 3 hours
TC 520 Textiles II 3 hours
TC 523 Socio-Psychological and Economic Aspects of Apparel 3 hours
Three credit hours to be selected from:
TC 325 Draping 3 hours
TC 328 Flat Pattern Design 3 hours
TC 420 Tailoring 3 hours
Six credit hours to be selected from:
TC 524 History of Costume 3 hours
TC 532 Retail Job Analysis 5 hours
TC 534 Decorative Textiles 2 hours
TC 535 Textile Design Study Tour (May be repeated for a total of 6 credits) 1-3 hours
TC 592 Special Problems in Clothing, and Costume Design* 1-3 hours
TC 597 Special Problems in Textiles* 1-3 hours

***By special permission only.**

Note: The program requirements areas suggested by the HEIB Section of Home Economics Association for future accreditation.

VOCATIONAL HOME ECONOMICS EDUCATION

Lower Division: 27 hours
Three hours in art, to be selected from AH 100, 210, 220, 230, 240

Three hours in literature, to be selected from ENG 261, 262
Three hours in sociology, to be selected from SOC 101, 152, 220
Three hours in economics to be selected from ECO 260, 261
Three hours in SP 181 and three hours in English, to be selected from: ENG 203, 205, JOU 203
Three hours in psychology to be selected from PSY 104, 210
Three hours in biological science, to be selected from BIO 100, 103 or 104, BIO 108, PGY 206
Three to five hours in chemistry

Major Requirements 25 hours

1. TC 227, MFE 463, HF 255, 350, 358, NFS 204, HID 261, 330
2. Professional Support 19 hours
   EDP 202, EDV 362, 586, 588
3. Electives 9 hours
   To include three hours each in TCM, NFS, and HID

Electives—All electives are subject to the approval of the student's adviser.

Honors Program

The Honors Program is an educational system for superior students. The instructional aspects are three-fold:

1. The Honors colloquia. Six courses in history of ideas (HON 101, 102, 103, 201, 202, 203) and two pro-seminars, also in history of ideas but with the content varying from semester to semester (HON 301, 302). Also HON 300, an experimental course in special subjects, usually divided into three one-hour credit segments each, usually taught by departmental faculty who contribute to the Honors effort. Four of the six lower division colloquia are required of students who enter the program as freshmen. Students who enter the Honors Program after the freshman year will be required to take at least 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.

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	
ANT 120-99: Human Ancestry	3
ANT 121-99: Introduction to Cultural Anthropology	3
CHE 115-99: General Chemistry Lab	2
CS 150-99: Introduction to Algorithmic Processes	3
ECO 260-99: Principles of Economics	3
ECO 261-99: Principles of Economics	3
GEO 152-99: Regional Geography of the World	3
GLY 140-99: General Physical Geology	4
GLY 142-99: General Historical Geology	4
MA 115-99: Elementary Analysis I	3
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 100-99: Introduction Philosophy	3
PHY 231-99: Honors University Physics	3
PHY 232-99: 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
SP 181-199 Basic Public Speaking	3

Law

THE DEGREE OF JURIS DOCTOR

Students admitted to the College of Law as regular students on or after the beginning of the 1971 Fall Semester 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 87 semester hours of courses, in the College of Law with a grade-point average of at least 2.0.

The 87 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.

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 generally are the same each year, but the courses taught in the summer session will vary. Except when special permission is granted to make a particular schedule, all of the courses in the first year are required courses. In the second and third years 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.

Library Science

The College of Library Science offers three degrees: M.A., Plan A; M.A., Plan B; and M.S.L.S. For complete information on these programs, consult the Graduate School Bulletin or the Bulletin of the College of Library Science.

ADMISSION, REQUIREMENTS AND PROCEDURES FOR UNDERGRADUATES

The College of Library Science does not offer any formal program of study on the undergraduate level. Students who are registered as undergraduates at the University of Kentucky may take library science courses at the 500 level as a general minor or as meeting the requirements for certification in Kentucky as a school librarian. Those students who are not working toward certification are encouraged not to take more than six credit hours of the 500 level core courses in library science if they plan to enter the College of Library Science.

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 College 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 both to the College of Library Science and the Dean of Admissions and Registrar, University of Kentucky.

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 501 Library Operations
   LS 502 Reference and Information Science
   LS 509 Instructional Materials Centers
   LS 510 Children's Literature and Related Material
   LS 511 Literature and Related Materials for Young People
   LS 512 School Library Practice

The following additional course is recommended:

LS 586 Utilization of Educational Media (Same as EDC 544) 3 credit hours.

It is possible for school librarians to qualify in both the elementary and secondary programs by taking additional education courses. Students should consult the College of Education for information on specific requirements.

Library Science courses needed for school library certification may be taken in any of three programs:

1. As a graduate student working toward an M.S. or M.A. in Library Science;
2. As an undergraduate student in the College of Education;
3. As a special non-degree student.

Medicine

Course listings for the College of Medicine may be found under the appropriate departmental headings: Anatomy, Anesthesiology, Behavioral Science, Biochemistry, Cell Biology, Community Medicine, Diagnostic Radiology, Family Practice, Neurology, Obstetrics and Gynecology, Pathology, Pediatrics, Pharmacology, Physiology and Biophysics, Psychiatry, Radiation Medicine, Rehabilitation Medicine, and Surgery.

For specific information about programs in the College of Medicine, see the Graduate School Bulletin or the College of Medicine Bulletin.

COMBINED MEDICAL AND GRADUATE STUDIES

Medical students who wish to work toward a combined medical and graduate degree (masters or doctorate) may do so by enrolling both as a graduate student and as a medical student. Details of the combined degrees are available from basic science department chairmen, the Office of Student Services or the Dean's Office, College of Medicine.

BIOMEDICAL ENGINEERING

Under the auspices of the Colleges of Engineering and Medicine, the University offers graduate training in biomedical engineering. The program is operated by a committee, representing both colleges, which is appointed by the Dean of the Graduate School. Doctoral programs are available in the areas of physiology and biophysics, electrical engineering, mechanical engineering, chemical engineering, and metallurgical engineering and materials science.

Further information may be obtained from the Director of Graduate Studies in the student's area or to the Chairman of the Biomedical Engineering Program.

Nursing

REQUIREMENTS FOR GRADUATION

The curriculum requirements for the degree, Bachelor of Science in Nursing, include general studies, prerequisites to nursing, and nursing courses.

For University requirements and General Studies Areas: See Academic Program section.

Prerequisites: The following courses are considered essential to the understanding of Nursing content:

ENG 101-102 English Composition
CHE 105-106-108 and 115 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 Human Growth and Development
BSC 221 Behavioral Factors in Health and Disease
NUR 201 Fundamentals of Health and Nursing

GRADUATE PROGRAM

See the Graduate School Bulletin or the College of Nursing Bulletin for further information.

Pharmacy

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. For complete information see the Graduate School Bulletin or the College of Pharmacy Bulletin.

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.

GENERAL STUDIES COMPONENT

The University of Kentucky requires, in addition to other requirements, that all baccalaureate degree programs include four components or general divisions. These are (1) general studies, (2) pre-major or pre-professional, (3) major or professional, and (4) free electives.

The general studies component also must include course sequences in five of the eight general areas of study listed below:

I. Mathematics-Philosophy
II. Physical Science
III. Biological Science
IV. Foreign Language
V. Humanities: Literature, Art, Music
VI. History
VII. Social Science
VIII. 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 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 and Second Years

	Crs.
CHE 110 General College Chemistry I	3
ENG 101 Freshman Composition	3
CHE 112 General College Chemistry II	3
CHE 115 General Chemistry Laboratory	3

ENG 102 Freshman Composition	3
MA 113 Calculus	4
MB 200 Principles of Bacteriology	4
CHE 230 Organic Chemistry	3
CHE 231 Organic Chemistry Laboratory	1
PHY 211 General Elementary Physics	5
BIO 104 Animal Biology	3
BIO 105 Animal Biology Laboratory	1
ECO 260 Principles of Economics	3
CHE 232 Organic Chemistry	3
CHE 233 Organic Chemistry Laboratory	1
PHY 213 General Elementary Physics	5
BIO 106 Principles of Plant Biology	3
BIO 107 Plant Biology Laboratory	1

These specific requirements plus additional electives must total at least 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 B.S. Program in Pharmacy

The Core Curriculum:

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 80 of the 103 hours required for the total professional program.

Third Year

	Crs.
PHR 815 Introduction to Pharmaceutical Systems	4
PHR 334 Physiology and Pharmacodynamics	5
PHR 310 Pharmaceutical Analysis and Control	5
PHR 810 Pharmacy and the Health Care System	2
	16
PHR 825 Physical Pharmacy	4
PHR 346 Physiology and Pharmacodynamics	5
PHR 340 Principles of Medicinal Chemistry	3
PHR 400 Biochemistry	4
	16

Fourth Year

PHR 814 Patient Services and Clinical Pharmacy Practice	2
PHR 862 Pharmacotherapeutics I	7
PHR 845 Biopharmaceutics	4
PHR 330 Pharmacognosy	3
Electives	3
	19
PHR 824 Human Pathology	4
PHR 863 Pharmacotherapeutics II	7
PHR 820 Prescription Compounding and Dispensing	4
PHR 342 Pharmacognosy	4
	19

Fifth Year

PHR 870 Clinical Orientation Clerkship	6
PHR 830 Pharmacy Administration	3
PHR 835 Pharmaceutical Law	2
PHR 380 Environmental Toxicology	2
Professional Electives	20
	33

ELECTIVE PROGRAM

1. A student must elect a minimum of 23 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:

	Crs.
ACC 201 Principles of Accounting	3
BSC 527 Society and Health	3
PHR 838 Community Pharmacy Practice	3
PHR 872 Non-prescription Pharmaceutical Products and Supplies	3
PHR 874 Drug Literature Evaluation	3
PHR 880 Introduction to Institutional Practice	3
PHR 540 Industrial Pharmaceutical Technology	4
PHR 881 Pharmacy Practice Clerkship	3-12
CHE 440 Physical Chemistry	3
CHE 442 Physical Chemistry	3
MA 114 Calculus II	4
MA 213 Calculus III	4
CHE 520 Radiochemistry	3
PHR 335 Microscopic Pharmacognosy	2
STA 370 Introduction to Statistics	4

3. A student in preparation for graduate studies should choose scientific electives, including physical chemistry and additional calculus courses.
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.

REQUIREMENTS FOR PHARMACY LICENSURE IN KENTUCKY

In order to qualify for licensure in Kentucky, the aspirant should thoroughly familiarize himself with the registration specifications. Prior to admission to the Kentucky Board of Pharmacy examination, he 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, and must satisfy an internship requirement as determined by Board of Pharmacy regulations.

Internship*

Presently, 1600 hours of internship must be obtained under the direct personal supervision of a Registered Phar-

macist. Regulations of the Kentucky Board of Pharmacy state that "... every person who desires to become a Pharmacy Intern in Kentucky shall register as an intern with the Kentucky Board of Pharmacy. No credit for internship shall be recognized by the Board for periods prior to such registration."

Boards of pharmacy will allow credit for claims of internship required under the pharmacy laws provided:

1. The period of internship is earned after completing the pre-pharmacy curriculum in an accredited college.
2. The period of internship is not concurrent with college attendance.
3. The claim is coroborated 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.
4. 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 may 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 40651, for final decisions on internship problems.**

Social Professions

DEPARTMENTAL REQUIREMENTS

For University requirements and General Studies Areas: See Academic Program section.

1. **Undergraduate Social Work Program**

The curriculum in social work at the undergraduate level has been designed to provide for a broad education base in the humanities, the biological sciences, the social and behavioral sciences, human growth, and communication; together with a well-planned program of social work courses. This content is designed to provide students with the knowledge base and the professional skills necessary to qualify them for practice at appropriate levels in the field of social work, or for graduate study in social work or related areas.

a. Complete five General Studies areas. Students completing courses in the pre-major requirements may use these courses to fulfill the General Studies requirements when the requirements are the same.

b. Complete the University requirements in English composition. (3-6 hrs)

c. Complete the Pre-Major Requirements.* (27 hrs)
Anthropology—Three hours, normally chosen from the following: ANT 121, ANT 201, ANT 232
Biology—Three hours, normally chosen from the following: BIO 110, BSC 212
Economics—Three hours, normally ECO 260
Political Science—Six hours, normally chosen from the following: PS 151, PS 152, PS 200, PS 201, PS 280, PS 290
Psychology—Six hours, normally chosen from the following: PSY 210, PSY 200, PSY 201
Sociology—Six hours, normally chosen from the following: SOC 101, SOC 102, SOC 152, SOC 201, SOC 220
Other Preferred Areas—Community Health: CH 210; Geography: GEO 210, GEO 252; Philosophy: PHI 100, PHI 120, PHI 130

d. Complete the Pre-Professional Requirements (12 hours for freshmen and sophomores; seven hours for junior transfers)
SW 124 Introduction to the Social Services
SW 126 Social Work Values in a Contemporary Society
SW 222 Development of Social Welfare
SW 225 Skills in Social Work
SW 322 The Social Work Profession and Social Welfare (for junior transfers only; substitutes for SW 124, SW 126, SW 222)

e. Complete Professional Requirements for the Major (21 hours)
SW 327 Senior Seminar
SW 328 Senior Seminar
SW 444 or
SW 445 Field Instruction
SW 516 Social Work Research and Statistics
SW 520 Interventive Methods in Social Work
SW 521 Interventive Methods in Social Work

f. Complete Field of Concentration Requirements (15 hours)
Fifteen hours of upper division level courses in no more than three of the the five listed areas:
Anthropology
Economics
Political Science
Psychology
Sociology

g. Electives
Complete at least 12 hours of upper division level elective courses
Courses from other departments, schools, and/or colleges
Undergraduate social work electives
Graduate social work electives (normally for seniors with at least a 3.0 GPA, and with permission of Dean).

2. **Credit Hours Required for Graduation**

The College of Social Professions requires students to earn a minimum of 120 hours for the B.A. degree in Social Work with a minimum grade-point average of C. Students may take additional credits in accordance with stated University policy.

***Other courses in the same areas may be substituted for those listed, on approval by the dean of the college and by the department offering the courses.**

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.

For requirements for the Master's degree in Social Work, see the Graduate School Bulletin or the Bulletin of the College of Social Professions.

University Extension

University Extension is administratively responsible for extending appropriate programs and services of an educational and professional nature beyond those regularly scheduled to individuals and organizations throughout Kentucky. In some instances these may be extended to any location in the world. An example is a student in the armed forces who may continue his education by Independent Study.

Other programs are Evening and Extension Classes, Conferences and Institutes, Council on Aging, Civil Defense and Continuing Education.

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.

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.

INDEPENDENT STUDY PROGRAM

Courses offered by independent study are listed by number only. The course description may be found in the listing of courses.

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, 103 Frazee Hall
University of Kentucky
Lexington, Kentucky 40506

The following courses are offered for University credit through the Independent Study Program:

Accounting
ACC 201 ACC 301 ACC 408
ACC 202 ACC 302 ACC 416

Agricultural Economics
AEC 310

Agriculture
GEN 104 GEN 106

Agronomy
AGR 510

Allied Health
CH 210 CH 515

Animal Science
ASC 380

Biology
BIO 100 BIO 104 BIO 110
BIO 101 BIO 106 BIO 404
BIO 103 BIO 108

Botany
BOT 219

Business Administration
BA 330 BA 345
BA 335 BA 446

Business and Office Education
BOE 112 BOE 117 BOE 445
BOE 113 BOE 118

Classical Languages and Literatures
CLA 101 CLA 201 CLA 236
CLA 102 CLA 202 CLA 301
CLA 150 CLA 235

Economics
ECO 260 ECO 261 ECO 485

Education
EDV 210 EDV 512 EDC 544
EDF 317 EDP 522 EDP 548

Engineering
ME 105 ME 350

English
ENG 101 ENG 221 ENG 271
ENG 102 ENG 222 ENG 425
ENG 161 ENG 261 ENG 527
ENG 203 ENG 262 ENG 551
ENG 205 ENG 270 ENG 552

Forestry
FOR 100

Geography
GEO 151 GEO 251 GEO 520
GEO 152 GEO 255 GEO 522

German
GER 123 GER 202 GER 222
GER 124 GER 221 GER 500
GER 201

History
HIS 104 HIS 240 HIS 558
HIS 105 HIS 260 HIS 561
HIS 108 HIS 285 HIS 563
HIS 109 HIS 500 HIS 566
HIS 202 HIS 501 HIS 572
HIS 203 HIS 502 HIS 573
HIS 229 HIS 503 HIS 578
HIS 230 HIS 547 HIS 579

Journalism
JOU 509

Mathematics
MA 110 MA 114 MA 123
MA 111 MA 121 MA 201
MA 112 MA 122 MA 202
MA 113

Philosophy
PHI 100 PHI 260 PHI 545
PHI 120 PHI 440
PHI 130 PHI 505

Physics and Astronomy
AST 191 AST 192 AST 193

Political Science
PS 151 PS 265 PS 570
PS 201 PS 280

Psychology
PSY 200 PSY 521 PSY 541
PSY 210 PSY 540

Social Work
SW 222

Sociology
SOC 101 SOC 409 SOC 521
SOC 152 SOC 436 SOC 538
SOC 220 SOC 437 SOC 551

Spanish
SPI 141 SPI 201 SPI 202
SPI 142

Theatre Arts
TA 597

Zoology
ZOO 508

The Independent Study Program also offers a series of non-credit courses that are designed to meet specific vocational needs. Courses are offered in the following areas:

Basic Technology of Diesel Engines (5 courses)
Agricultural Economics
Basic Refrigeration and Air Conditioning
LP Gas Service Training (4 courses)
Highway Engineering (12 courses)
Mathematics (2 courses)
Photography (2 courses)
Dental Assistant Program (7 courses)

Detailed information concerning these courses may be found in the current Independent Study Program Catalog.

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 specific course during a given semester. Courses with the same number are not considered to be the same course if different identifying titles are an integral part of the record.

Unless indicated in the course description, the number of credits for a course indicates the number of lecture or discussion or class hours.

Exceptions to the requirements for admission to courses may be made as follows:

Freshman may be admitted to courses numbered between 200 and 499, and sophomores to courses numbered between 300 and 499, upon approval of the instructor and the dean of the student's college. Such approval shall be limited to students who have demonstrated superior ability or preparation.

Seniors with superior ability or preparation may be admitted to courses numbered between 600 and 799, upon approval of the instructor, the dean of the student's college and the dean of the Graduate School.

No students, other than those registered in the professional schools, may be admitted to courses numbered between 800 to 999 except by permission of the Dean of the college.

ABBREVIATIONS

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

ACC—Acounting
A-E—Art-Education
AEC—Agricultural Economics
AEN Agricultural Engineering
AGR—Agronomy
A-H—Art-History
AHE—Allied Health Education and Research
ANA—Anatomy
ANS—Anesthesiology
ANT—Anthropology
ARC—Architecture
ART—Art
A&S—Arts and Sciences
AS—Aerospace Science
A-S—Art-Studio
ASC—Animal Sciences
AST—Astronomy
BA—Business Administration
BCH—Biochemistry
BIO—Biology
BOE—Business and Office Education
BOT—Botany
BSC—Behavioral Science
CBI—Cell Biology
CD—Community Dentistry
CDS—Conjoint Dental Science
CE—Civil Engineering
CEX—Cooperative Extension
CH—Community Health
CHE—Chemistry
CLA—Classical Languages and Literatures
CLT—Comparative Literature
CM—Community Medicine
CME—Chemical Engineering
CMO—Communications
CNU—Clinical Nutrition
CON—Conjoint—Medicine
CPC—Clinical Pastoral Counseling
CS—Computer Science
DH—Dental Hygiene
DR—Diagnostic Radiology
DIP—Patterson School of Diplomacy
ECO—Economics
EDA—Administration and Supervision
EDC—Curriculum and Instruction
EDF—Social and Philosophical Studies
EDH—Higher and Adult Education 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
FP—Family Practice
FR—French Language and Literature
GEN—General Agriculture
GEO—Geography
GER—Germanic Languages and Literatures
GLY—Geology
GS—Graduate School
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
HRS—Health Radiation Sciences
IND—Industrial Education (Listed under Education-Vocational)
JOU—Journalism
LAW—Law
LS—Library Science
LIN—Linguistics
MA—Mathematics
MB—Microbiology
ME—Mechanical Engineering
MED—Medicine
MET—Metallurgical Engineering
MFE—Management and Family Economics
MS—Military Science
MT—Medical Technology
MUC—Music Performance
MUP—Music Performance (Special fee)
MUS—Music
NEU—Neurology
NFS—Nutrition and Food Science
NUR—Nursing
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
PDO—Pedodontics
PED—Pediatrics
PER—Periodontics
PGY—Physiology and Biophysics
PHA—Pharmacology
PHI—Philosophy
PHR—Pharmacy
PHY—Physics and Astronomy
PLA—Planning
PPA—Plant Pathology
PR—Prosthodontics
PS—Political Science
PSC—Psychiatry
PSY—Psychology
PT—Physical Therapy
RM—Radiation Medicine
RSD—Restorative Dentistry
SO—Slavic and Oriental Languages and Literatures
SOC—Sociology
SP—Speech
SPI—Spanish and Italian Languages and Literatures
STA—Statistics
SUR—Surgery
SW—Social Work
TA—Theatre Arts
TC—Textiles, Clothing and Merchandising
TEL—Telecommunications
UK—University Wide
UYA—University Year for Action
VS—Veterinary Science
ZOO—Zoology

CROSS INDEX OF ABBREVIATIONS WITH COLLEGES AND DEPARTMENTS

College of Agriculture

Agriculture—General	GEN
Agricultural Economics	AEC
Agronomy	AGR
Animal Sciences	ASC
Cooperative Extension	CEX
Entomology	ENT
Forestry	FOR
Horticulture	HOR
Plant Pathology	PPA
Veterinary Science	VS

College of Allied Health

Allied Health Education and Research	AHE
Clinical Nutrition	CNU
Clinical Pastoral Counseling	CPC
Community Health	CH
Dental Hygiene	DH
Health Radiation Sciences	HRS
Medical Technology	MT
Physical Therapy	PT

College of Architecture ARC

Planning	PLA

College of Arts and Sciences

Arts and Sciences	A&S
Aerospace Studies (Air Force ROTC)	AS
Anthropology	ANT
Art	ART
Art Education	A-E
Art History	A-H
Art Studio	A-S
Astronomy	AST
Biology	BIO
Botany	BOT
Chemistry	CHE
Classical Languages and Literatures	CLA
Communications	CMO
Journalism	JOU
Speech	SP
Telecommunications	TEL
Comparative Literature	CLT
Computer Science	CS
Patterson School of Diplomacy	DIP
English	ENG
French Language and Literature	FR
Geography	GEO
Geology	GLY
Germanic Languages and Literatures Scandinavian	GER
History	HIS
Linguistics	LIN
Mathematics	MA
Microbiology	MB
Military Science (Army ROTC)	MS
Music	MUC
	MUP
	MUS
Philosophy	PHI
Physics	PHY
Political Science	PS
Psychology	PSY
Slavic and Oriental Languages and Literatures	SO
Sociology	SOC
Spanish and Italian Languages and Literatures	SPI
Statistics	STA
Theatre Arts	TA
Zoology	ZOO

College of Business and Economics

Accounting	ACC
Business Administration	BA
Economics	ECO

College of Dentistry

Community Dentistry	CD
Conjoint Dental Sciences	CDS
Endodontics	EN
Oral Biology	OB
Oral Diagnosis and Oral Medicine	ODM
Oral Pathology	OP
Oral Surgery	OS
Orthodontics	ORT
Pedodontics	PDO
Periodontics	PER
Prosthodontics	PR
Restorative Dentistry	RSD

College of Education

Administration and Supervision	EDA
Curriculum and Instruction	EDC
Educational Psychology and Counseling	EDP
Health, Physical Education and Recreation	HPR
Higher and Adult Education	EDH
Social and Philosophical Studies in Education	EDF
Special Education	EDS
Vocational Education	EDV

College of Engineering

Agricultural Engineering	AEN
Chemical Engineering	CME
Civil Engineering	CE
Electrical Engineering	EE
Engineering Mechanics	EM
Mechanical Engineering	ME
Metallurgical Engineering and Materials Science	MET

College of Home Economics	
Housing and Interior Design	HID
Human Development and Family Relations	HF
Management and Family Economics	MFE
Nutrition and Food Science	NFS
Textiles, Clothing and Merchandising	TC
Honors Program	HON
College of Law	LAW
College of Library Science	LS
College of Medicine	
Anatomy	ANA
Anesthesiology	ANS
Behavioral	BSC
Biochemistry	BCH
Cell Biology	CBI
Community Medicine	CM
Conjoint-Medicine	CON
Diagnostic Radiology	DR
Family Practice	FP
Medicine	MED
Neurology	NEU
Obstetrics and Gynecology	OBG
Opthalmology	OPH
Otolary	OT
Pathology	PAT
Pediatrics	PED
Pharmacology	PHA
Physiology and Biophysics	PGY
Psychiatry	PSC
Radiation Medicine	RM
Surgery	SUR
College of Nursing	NUR
College of Pharmacy	PHR
College of Social Professions	SW
Graduate School	GS
University Year for Action	UYA
University Wide	UK

Course Descriptions

ACCOUNTING

ACC 201 PRINCIPLES OF ACCOUNTING. (3)
An introduction to accounting concepts and principles involved in the preparation of financial reports for internal and external use. Prereq: Sophomore standing.

ACC 202 PRINCIPLES OF ACCOUNTING. (3)
An introduction to the analysis and interpretation of accounting data and its use in management planning and control. Prereq: ACC 201.

ACC 301 INTERMEDIATE ACCOUNTING. (3)
An in-depth study of the valuation theory for balance sheet accounts and related effects on income determination. Prereq: ACC 201 and consent of instructor.

ACC 302 ADVANCED ACCOUNTING. (3)
A comprehensive treatment of selected accounting problems, including statements from incomplete data, cash and funds flow, price level adjustments, partnership accounting, consignments, installment sales, and home office-branch accounting. Prereq: ACC 301.

ACC 303 PROFESSIONAL ETHICS. (2)
A study of the Code of Professional Ethics as it relates to the practice of accountancy, with some emphasis on the general concept of ethics in business. Prereq: ACC 301.

ACC 324 DATA PROCESSING IN ACCOUNTING SYSTEMS. (3)
Fundamentals of data processing for business organizations, including manual and automated applications, with emphasis on unit records, flow charts and control procedures, in relation to both financial and non-financial data. Prereq: Six hours of accounting and ECO 391.

ACC 395 INDIVIDUAL WORK IN ACCOUNTING. (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits. Class hours and laboratory hours by appointment. Prereq: Consent of instructor.

ACC 401 ACCOUNTING THEORY. (3)
An investigation into earlier attempts to develop a coordinated statement of accounting theory; a critical examination of selected current accounting practices; and discussion of recent developments in accounting research. Prereq: ACC 301.

ACC 403 AUDITING. (3)
The attest function of accounting with both internal and independent application. Emphasis is placed on the ethics, standards, and objectives of auditing and management's responsibilities in implementing internal control. Prereq: Senior standing.

ACC 408 COST ACCOUNTING. (3)
Concepts of costs in developing information for management use in the determination of income, the selections of activities (or projects) and the measurement of performance. Prereq: Six hours of accounting.

ACC 410 ACCOUNTING FOR INSTITUTIONS AND REGULATED INDUSTRIES. (3)
The requirements of adequate accounting systems for various governmental units, including the recording of usual transactions and the form and content of reports. Prereq: ACC 301.

ACC 416 ACCOUNTING FOR BUSINESS COMBINATIONS. (3)
Accounting records for consolidations and mergers, preparation of consolidated statements. Insolvency and receivership records and statements. Accounting for estates and trusts. Prereq: ACC 301.

ACC 417 INCOME TAXATION. (3)
A comprehensive study of the federal income tax structure with emphasis on its application to individuals. Prereq: ACC 301.

ACC 419 INTERNSHIP IN ACCOUNTING. (3)
Students are placed with cooperating firms for on-the-job training in accounting. Written reports to be submitted by the firm and the student to the instructor. Prereq: ACC 301 and consent of instructor.

ACC 422 FUNCTIONS OF ACCOUNTING. (3)
Introduction to the basic concepts and uses of accounting data. Prereq: Consent of instructor. (Not open to students who have ACC 202 or its equivalent.)

ACC 515 C. P. A. PROBLEMS. (3)
The application of generally accepted principles to representative problems from CPA examinations. Prereq: Senior standing and consent of instructor.

ACC 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 417 or consent of instructor.

ACC 518 CONTROLLERSHIP. (3)
A comprehensive study of the controller's objectives, responsibilities, functions, organizational roles, etc. Prereq: ACC 408 and at least senior standing, or consent of instructor.

ACC 601 RESEARCH IN ACCOUNTING THEORY. (3)
Critical examination of accounting concepts and standards. Study of current problems and contemporary developments reflected in accounting literature and reports. Prereq: Consent of instructor.

ACC 603 ATTEST FUNCTION. (3)
A critical examination of contemporary professional attestation theory and practice including a comprehensive review of AICPA audit case studies, statements on audit procedure, and their application in simulated business situations. Prereq: ACC 403 or consent of instructor.

ACC 608 ADVANCED MANAGERIAL ACCOUNTING. (3)
Accounting procedures for the evaluation of performance in business, including the analysis of revenues and costs by projects and responsibilities and the use of budget cost studies and rates of return. Prereq: ACC 408.

ACC 615 ADVANCED PROFESSIONAL PROBLEMS. (3)
The application of generally accepted principles to advanced problems of a professional level, including an analysis and study in depth of problems from professional examinations. Prereq: Consent of instructor.

ACC 617 INCOME TAX DEVELOPMENT. (3)
A theoretical and historical approach to the study of federal income taxation with emphasis upon the public finance, legal and accounting aspects of its development. Considerations will be given to tax research and planning as well as to the critical appraisal of the current law and proposals for its revision. Prereq: ACC 417 or consent of instructor.

ACC 619 INDEPENDENT STUDY IN ACCOUNTING. (1-3)
Designed for students undertaking special studies to be conducted in regular consultation with the instructor. Prereq: Consent of instructor.

ACC 622 ANALYSIS OF ORGANIZATIONS: FINANCIAL CONTROL METHODS. (4)
A study of accounting systems and the information they provide as an aid to the decision-making process involved in the planning and control functions within an organizational framework. Consideration will be given to the underlying assumption of the data base and the models used in not-for profit institutions as well as for profit-oriented organizations. Special emphasis will be given to budgetary concepts and fund accounting. Prereq: MPA student or consent of instructor.

ACC 624 ACCOUNTAMETRICS. (3)
A study of the techniques and methods available to measure and evaluate the response of sub-systems to stimuli within the total systems concept. Both the analytical and computer simulation approaches are used to displace uncertainty associated with typical business problems in which the data are generated by the accounting system. A knowledge of FORTRAN is advisable. Prereq: Six hours of accounting and ECO 391 or equivalent.

ACC 628 ACCOUNTING FOR CONTROL AND PLANNING. (3)
A study of the application of accounting information and services in the recognition or solution of management problems in business. Prereq: Six hours of accounting.

ACC 701 SEMINAR IN ACCOUNTING. (3)
A study of accounting history and contemporary problems. Prereq: Consent of instructor.

ACC 703 TOPICAL SEMINAR IN AUDITING. (1)
A study of contemporary issues in auditing. Prereq: ACC 603 or consent of instructor.

ACC 704 TOPICAL SEMINAR IN DATA PROCESSING. (1)
An evaluation of the current literature dealing with cultural and technical shocks created by implementing changes in information systems.

ACC 705 TOPICAL SEMINAR IN STATISTICAL AND MATHEMATICAL APPLICATION IN ACCOUNTING. (1)
Examination of the current empirical research applying statistical techniques and mathematical models.

ACC 706 TOPICAL SEMINAR IN ACCOUNTING THEORY. (1)
A study of current developments in accounting theory with emphasis on the source of authority and pronouncements of the Accounting Principles Board and the Financial Accounting Standards Board. Prereq: D.B.A. student.

ACC 707 TOPICAL SEMINAR IN TAXATION. (1)
A study of current legislative regulatory, and judicial developments in the area of federal taxation. Consideration will also be given to proposals for federal tax reform. Prereq: Consent of instructor.

ACC 708 SEMINAR IN MANAGEMENT ACCOUNTING. (3)
A study of contemporary literature in the field of management accounting, with emphasis on the need for additional research into uses of techniques and concepts. Prereq: Consent of instructor.

ACC 709 TOPICAL SEMINAR IN NOT-FOR-PROFIT AND REGULATORY ACCOUNTING. (1)
A study of the unique characteristics of not-for-profit and regulated industries as they relate to the practice of Accountancy. Prereq: D.B.A. student.

ACC 795 INDEPENDENT STUDY IN ACCOUNTING. (1-6)
Designed for students undertaking special studies to be conducted in regular consultation with instructor. Class hours by appointment. Prereq: Consent of instructor.

AEROSPACE STUDIES

AIR FORCE ROTC GENERAL MILITARY COURSE

FIRST YEAR

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

AS 112 AEROSPACE STUDIES I, AFROTC. (1)
A course designed to provide the student with a basic understanding of the contribution of aerospace power to the total U. S. strategic offensive and defensive military posture. The student also develops leadership abilities by participating in a military organization, the cadet corps, which offers a wide variety of situations demanding effective leadership. One lecture and one leadership laboratory per week.

SECOND YEAR

AS 211 AEROSPACE STUDIES II, AFROTC. (1)
Introduces the study of air power from a historical perspective; focuses on the development of air power into a primary element of national security. Leadership experience is continued through active participation in the cadet corps. One lecture and one leadership laboratory per week. Prereq: AS 111, 112 or PAS approval.

AS 212 AEROSPACE STUDIES II, AFROTC. (1)
Provides a foundation for understanding how air power has been employed in military and non-military operations to support national objectives. Examines the changing mission of the defense establishment, with particular emphasis on the United States Air Force. Leadership experience is continued through participation in the cadet corps. One lecture and one leadership laboratory per week. Prereq: AS 111, 112 or PAS approval.

THIRD YEAR

AS 331 AEROSPACE STUDIES III, AFROTC. (3)
A study of the military profession, civil-military interaction, communicative skills, framework of defense policy, and formulation of defense strategy. Students refine their leadership abilities by organizing and managing a military unit, the cadet corps, which offers a wide variety of situations requiring effective leadership. Prereq: AS 212 or approval of PAS.

AS 332 AEROSPACE STUDIES III, AFROTC. (3)
Continues the study of strategy and the management of conflict, formulation and implementation of U.S. defense policy, defense organization, and case studies in defense policymaking. 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.

FOURTH YEAR

AS 341 AEROSPACE STUDIES IV, AFROTC. (3)
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.

AS 342 AEROSPACE STUDIES IV, AFROTC. (3)
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.

AS 323 AEROSPACE STUDIES—FLIGHT INSTRUCTION PROGRAM. (3)
An integrated program of classroom instruction and flight instruction in which the student earns an 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.

AS 395 INDEPENDENT WORK. (2-6)
A study of an advanced problem on subject area in aeronautical science under the guidance of a departmental staff member. One discussion per week; term paper required. Prereq: Senior standing in AFROTC Program; major and 3.0 standing in aerospace science.

AGRICULTURAL ECONOMICS

AGRICULTURAL MARKETING

AEC 300 AGRICULTURAL MARKETING. (3)
Principles and methods of marketing farm products with attention to systems and agencies at both country and central markets. Prereq: ECO 260, GEN 102.

AEC 401 MARKETING TOBACCO. (2)
Special emphasis on the marketing of and the market systems for tobacco. Application of marketing principles and methods to tobacco. Prereq: AEC 300.

AEC 402 TOBACCO MARKET GRADES AND GRADING. (1)
Procedures and problems in establishing market standards for tobacco, including practice in grading. Prereq or concur: AEC 300, or approval of instructor.

AEC 403 MARKETING LIVESTOCK AND LIVESTOCK PRODUCTS. (2)
Analysis of livestock and dairy markets; market organization, agencies, institutions, services; and public regulations. Prereq: AEC 300.

AEC 501 ECONOMICS OF AGRICULTURAL MARKETING. (3)
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.

AEC 505 STRUCTURE AND ORGANIZATION OF AGRICULTURAL BUSINESSES. (3)
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.

AEC 606 ADVANCED AGRICULTURAL MARKETING. (3)
A critical examination of objectives and results of various types of research in market organization, marketing functions, market management, and price analysis. Prereq: Approval of instructor.

AGRICULTURAL POLICY AND LAND ECONOMICS

AEC 540 AGRICULTURAL POLICY. (3)
Historical development of principles underlying agricultural policy; objectives of agricultural policy; appraisal of current and proposed agricultural programs. Prereq: AEC 300.

AEC 545 NATURAL RESOURCE AND ENVIRONMENTAL ECONOMICS. (3)
Economic analysis of technological, institutional and ecological factors affecting development, conservation, and efficient utilization of soil, water, mineral and environmental resources. Introduction to relevant concepts and techniques for evaluation of public policies and individual projects relating thereto. Prereq: ECO 261 or equivalent.

AEC 640 ADVANCED AGRICULTURAL POLICY. (3)
Influences of policies upon economic progress, efficiency in resource use, distribution of income, and welfare in agriculture. Prereq: Approval of instructor.

FARM MANAGEMENT

AEC 310 FARM MANAGEMENT. (3)
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.

AEC 409 DECISION MAKING IN AGRICULTURAL BUSINESS FIRMS. (3)
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.

AEC 415 FARM ACCOUNTING AND RECORD ANALYSIS. (3)
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.

AEC 511 ADVANCED FARM MANAGEMENT. (3)
An advanced analysis of management and managing farms. Prereq: AEC 310.

AEC 516 LAND VALUE AND APPRAISAL. (3)
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.

AEC 518 FARM LABOR UTILIZATION. (3)
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 concur: AEC 310.

PRODUCTION ECONOMICS

AEC 320 INTRODUCTION TO THE ECONOMICS OF AGRICULTURAL PRODUCTION. (3)
Application of economic production principles to agricultural problems, resource and enterprise combinations and economic determination of optimum levels of output. Prereq: ECO 260.

AEC 520 PRODUCTION ECONOMICS. (3)
Economic analysis of agricultural production. A theoretical treatment of land and capital returns, costs and related functions of agricultural production at an elementary level. Prereq: AEC 310.

AEC 620 ADVANCED PRODUCTION ECONOMICS I. (3)
An advanced treatment of production economics with emphasis on flexible product and factor price situations, factor demand functions, multiple product production, and poly-periodic production theory. Prereq: AEC 520 or equivalent and MA 113 or ECO 590.

AEC 621 ADVANCED PRODUCTION ECONOMICS II. (3)
A continuation of 620 with emphasis on production function estimation, aggregate production and supply relations, factor distribution theories and implications for agricultural policies and programs. Prereq: AEC 620. Offered even-numbered years. Alternates with AEC 661.

AGRICULTURAL PRICES AND FINANCE

AEC 455 AGRICULTURAL AND FARM FINANCE. (3)
Credit needs of agriculture; problems connected with farm and market agency financing; organization and operation of agricultural credit agencies. Prereq: ECO 260, AEC 310.

AEC 550 AGRICULTURAL PRICES. (3)
Price behavior of agricultural products including supply-price relationships and their relation to the general price level. Prereq: ECO 260.

AEC 650 ADVANCED AGRICULTURAL PRICES. (3)
Advanced study of agricultural price behavior by the application of economic theory and statistical analysis. Prereq: Approval of instructor.

ECONOMIC DEVELOPMENT

AEC 370 INTERNATIONAL AGRICULTURE, WORLD FOOD NEEDS AND U.S. TRADE IN AGRICULTURAL PRODUCTS. (3)
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 repercussions to American agriculture. Prereq: GEN 102.

AEC 626 AGRICULTURE AND ECONOMIC DEVELOPMENT. (3)
Analytical consideration of the role of agriculture in economic development in relation to over-all development strategy at various stages of growth. Theoretical and policy issues of particular relevance to the agricultural development in underdeveloped agrarian economies with various resource, social, political and economic systems. Prereq: ECO 475 or approval of instructor. (Same as ECO 674.)

GENERAL AGRICULTURAL ECONOMICS

AEC 580 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS. (1-3)
Directed independent study of a selected problem. Prereq: Approval of instructor and chairman of Department.

AEC 590 INTRODUCTION TO MATHEMATICAL ECONOMICS. (3)
An introduction to mathematical approaches to economic theory. Emphasis on linear models, constrained optimization, and techniques used in comparative statics. Prereq: ECO 361; MA 113; or consent of instructor. (Same as ECO 590.)

AEC 660 RESEARCH METHODS IN AGRICULTURAL ECONOMICS. (3)
An analytical examination of research methods and techniques used in agricultural economics. Prereq: Approval of instructor.

AEC 661 PROGRAMMING MODELS IN AGRICULTURAL ECONOMICS. (3)
A study of some programming models useful in agricultural economics; includes an examination of the structure of the models themselves, economic interpretation of their components and their use in research in agricultural economics. Prereq: Consent of instructor. Offered odd-numbered years. Alternates with AEC 621.

AEC 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated once. Prereq: Consent of adviser and chairman of Department. (1-6 credits equivalence.)

AEC 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. Prereq: Consent of adviser and chairman of Department. (1-12 credits equivalence.)

AEC 770 AGRICULTURAL ECONOMIC SEMINARS. (0)
Analysis of economic problems which affect agriculture. May be repeated three times.

AEC 780 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS. (1-3)
Open to graduate students who have the necessary training and ability to conduct research on a selected problem. May be repeated for a total of nine credits. Prereq: Consent of instructor and Department chairman.

RESOURCE ECONOMICS

AEC 645 NATURAL RESOURCE ECONOMICS. (3)
Economic analysis of resource utilization and development with emphasis on natural resources. Discussion of criteria for public investment, welfare economics, benefit-cost analysis and cost-effectiveness as applied to natural resources. Prereq: ECO 361 and MA 113 or ECO 590.

AGRICULTURAL EDUCATION

(For course offerings see Vocational Education.)

AGRICULTURAL ENGINEERING

AEN 001 THE ENGINEERING PROFESSION (Freshman). (0)

AEN 007 THE ENGINEERING PROFESSION (Senior). (0)
Lectures on professional growth, conduct, and ethics. Activities of the student branches of the corresponding professional societies. May be repeated indefinitely.

AEN 212 TRACTOR AND FIELD MACHINERY. (3)
Principles governing the selection and application of tractors and power-driven machines. Operating principles of engines, including valves, carburetion, ignition and lubrication. Mechanical principles of machines and preventive maintenance. Lecture, two hours; laboratory, two hours.

AEN 252 FARM SHOP. (3)
Wood and metal work, including blueprint reading, oxy-acetylene and arc welding, power woodworking tools, soldering and pipe work. Lecture, one hour; laboratory, four hours.

AEN 400 FARMSTEAD PLANNING AND MECHANIZATION. (3)
Analysis of systems for handling of feed, water, and waste products in agriculture. The processing and storage of farm products. Farmstead layout and design. Structural and environmental design. Lecture, two hours; laboratory, two hours. Prereq: Junior standing or consent of instructor.

AEN 405 PROPERTIES OF SOILS AND BIOLOGICAL MATERIALS AS RELATED TO ENGINEERING. (3)
A study of the properties of soil and biological materials which are needed in the engineering design of systems to produce, store, and process agricultural products. Lecture and recitation, two hours; laboratory, two hours. Prereq: Junior standing in agricultural engineering or consent of instructor.

AEN 406 PHYSICS OF PLANT AND ANIMAL ENVIRONMENT. (3)
A study of the thermal, moisture, light, and gaseous components of plant and animal environment with emphasis on interactions between these biological systems and their environment. Lecture and recitation, two hours; laboratory, two hours. Prereq: AEN 405 or consent of instructor.

AEN 410 FARM POWER AND MACHINERY. (3)
A study of farm tractors and implements. Operating principles of valves, carburetion, ignition, and lubrication of the engine. Use and care of selected tractor-mounted implements. Emphasis on maintenance. Class and laboratory work on tractors and implements. Lecture, two hours; laboratory, two hours.

AEN 417 ENERGY SOURCES AND MACHINERY FOR AGRICULTURE. (3)
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; laboratory, two hours. Prereq: Senior standing in engineering or consent of instructor.

AEN 427 FUNCTIONAL DESIGN OF AGRICULTURAL STRUCTURES. (3)
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, two hours; laboratory, two hours. Prereq: AEN 406, ME 220, MET 301.

AEN 430 FARM WATER MANAGEMENT. (3)
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; laboratory, two hours.

AEN 431 WATERSHED HYDROLOGY. (3)
A study of that part of the hydrologic cycle pertaining to the principles of water movement into and through agricultural and forest watersheds. The effects of natural and man induced changes in watersheds on their hydrology and that of downstream areas. Prereq: Three hours of college mathematics; three hours of college physics.

AEN 437 SOIL AND WATER CONSERVATION ENGINEERING. (3)
Application of engineering principles to the management of surface and soil water in agricultural and urban areas. Design and construction of facilities for runoff and erosion control, water storage, drainage, and irrigation. Lecture, two hours; laboratory, two hours. Prereq: ME 330.

AEN 447 AGRICULTURAL PROCESSING AND ELECTRIFICATION. (3)
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, two hours; laboratory, two hours. Prereq: AEN 406, EE 305, ME 330.

AEN 450 SPECIAL PROBLEMS. (1-3)
An intensive study of some phase of agricultural engineering in which the student is particularly interested. Approval of the instructor is required. May be repeated to a maximum of six credits.

AEN 505 ENGINEERING ANALYSIS. (3)
A study of the professional method of dealing with engineering problems and the application of this method to problems encountered in the agricultural industry. Lecture, two hours; laboratory, two hours. Prereq: Senior standing in engineering or consent of instructor.

AEN 519 PLANT, SOIL AND MACHINERY RELATIONSHIPS. (3)
Advanced concepts in the use of biological and soil parameters in the design of machinery for agriculture and agriculturally related industries. Lecture, two hours; laboratory, two hours.

AEN 525 ENVIRONMENTAL DESIGN FOR BIOLOGICAL SYSTEMS. (3)
The influence of environmental factors on biological efficiency, design and selection of equipment and controls for providing environmental requirements of biological systems. Lecture, two hours; laboratory, two hours. Prereq: AEN 427 or consent of instructor.

AEN 535 ADVANCED SOIL AND WATER CONSERVATION ENGINEERING. (3)
Consideration of elements of hydrology related to agriculture; functional analysis, economic analysis and design of more complex systems for soil and water control and management. Prereq: AEN 437 or consent of instructor.

AEN 548 ADVANCED AGRICULTURAL PROCESSING. (3)
Analytical study of engineering problems dealing with the handling and processing of agricultural products, such as grading, sorting, drying, and curing, and the preparation of plans for these operations. Lecture, three hours. Prereq: AEN 447.

AEN 606 MICROMETEOROLOGY. (3)
A study of the processes occurring at the earth-atmosphere boundary, including heat and energy balance, which are important to biological systems. Lecture, three class hours per week. Prereq: one course in thermodynamics, or physical chemistry.

AEN 618 ADVANCED PLANT, SOIL, AND MACHINERY RELATIONSHIPS. (3)
A consideration of fundamental concepts of energy and materials in the identification and mensuration of parameters needed in the development of new machines for agriculture. Lecture, two hours; laboratory, two hours. Prereq: AEN 417 and 505.

AEN 628 ADVANCED DESIGN OF STRUCTURES FOR BIOLOGICAL SYSTEMS. (3)
The use of similitude, dimensional analysis, and statistical theory in the analysis of selected agricultural structural problems. The prediction of system performance as environmental conditions change; and the analysis of system reliability. Lecture, two hours; laboratory, two hours. Prereq: AEN 525 or consent of instructor.

AEN 635 APPLIED STATISTICAL METHODS IN WATER RESOURCES. (3)
Frequency analysis, stream flow predictions through regression and

techniques, simulation of water resources systems, time series analysis of hydrologic data. Prereq: MA 214, STA 670, or equivalent or consent of instructor.

AEN 645 ELECTROMAGNETIC RADIATION IN AGRICULTURAL ENGINEERING. (3)
An advanced study of the theory and engineering aspects of electromagnetic radiation as applied to the agricultural sciences. Consideration is given to the ultraviolet, visable, infrared and radiofrequency types of electromagnetic radiation. Prereq: AEN 548 or consent of instructor.

AEN 648 ENERGY AND MASS TRANSFER IN AGRICULTURAL PROCESSING. (3)
A 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.

AEN 658 INSTRUMENTATION IN AGRICULTURAL ENGINEERING RESEARCH. (3)
The principles and applications of measuring instruments and devices for obtaining experimental data. Prereq: Consent of instructor.

AEN 660 SIMILITUDE IN ENGINEERING. (3)
An advanced approach to engineering problems through the theory of similitude and its application to models. The use of geometrically similar, distorted, and dissimilar models will be discussed. Prereq: Graduate standing.

AEN 750 SPECIAL PROBLEMS IN AGRICULTURAL ENGINEERING. (1-3)
Independent work on selected research problems in one of the various fields of agricultural engineering. Consultation and laboratory by appointment. Prereq: Approval of chairman of Department.

AEN 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

AEN 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

AEN 775 SEMINAR. (0)
Weekly meetings with members of the staff for reports and discussions on research and current trends and practices in agricultural engineering. May be repeated twice. One class hour.

AEN 795 THESIS. (0)
May be repeated twice.

AGRICULTURE – GENERAL

GEN 100 DEVELOPMENT OF AGRICULTURAL SCIENCE. (1)
A survey of the nature and scope of modern agricultural science with emphasis on its significance to mankind. Two laboratory hours per week.

GEN 102 AGRICULTURAL SOCIAL SCIENCE. (4)
A lecture and problems course involving the major concepts of the social sciences and their usefulness in agriculture.

GEN 104 AGRICULTURAL PLANT SCIENCE. (4)
To develop an appreciation of the plant and soil sciences as they relate to agriculture and to develop an understanding of crop plant morphology, physiology, genetics and ecology and the relation of these to soil properties, soil management and utilization for growth of crop plants.

GEN 106 AGRICULTURAL ANIMAL SCIENCE. (4)
The basic principles of animal nutrition, physiology, genetics, breeding, food processing and distribution as they apply to animal science.

GEN 300 SPECIAL COURSE. (1-3)
Interdisciplinary, topical or experimental courses to be approved by the Dean of the College of Agriculture. A particular course may be offered at most twice under the GEN 300 number, and no GEN 300 course may be given for more than three credits per semester. Open to all University students, subject to such limits or prerequisites as set by the instructor. Hours are variable with each special course. Prereq: as specified by the instructor.

AGRONOMY

GENERAL COURSES

AGR 360 GENETICS. (3)
The basic principles of heredity as currently understood from evidence accumulated in classical, cytogenetic, bio-chemical-molecular, physiological and quantitative genetic experiments. Emphasis is placed on a thorough understanding of genetic principles and the relationship of genetics to all biological disciplines. Prereq: Six credits in biological sciences and one course in general chemistry. (Same as ASC 360.)

AGR 361 GENETICS LABORATORY. (1)
Breeding studies with Drosophila and interpretation of results; probability; segregation rations in corn and tobacco; mitosis and meiosis in selected plant and animal species; Drosophila salivary preparations; inheritance of selected human characteristics. Laboratory, two hours. Prereq: ASC/AGR 360 or taken concurrently at student's option. (Same as ASC 361.)

AGR 399 SPECIAL PROBLEMS IN AGRONOMY. (1-4)
May be repeated for a maximum of nine credits. Prereq: Consent of instructor.

AGR 554 ADVANCED CROP SCIENCE. (3)
Discussion of physiological aspects associated with crop growth and production with emphasis on plant growth and maturation, dry matter production, and components of yield and yield quality. Prereq: AGR 206 and BOT 501 or consent of instructor.

AGR 556 SEED TECHNOLOGY. (3)
Advanced study of seed formation, development, viability and longevity; techniques of seed quality germination; principles of producing, processing and storage of varietally pure crop seeds. Lecture, two hours; laboratory, two hours. Prereq: AGR 406.

AGR 560 SOIL-PLANT RELATIONSHIPS. (3)
The soil-plant system with emphasis on the soil as an environment for plant roots; nutrient requirements of plants; and nutrient behavior in soils. Prereq: AGR 206 and 366, or consent of instructor.

AGR 599 SPECIAL PROBLEMS IN AGRONOMY. (1-4)
May be repeated for a maximum of nine credits. Prereq: Consent of instructor.

AGR 620 GENETIC STRUCTURE OF POPULATIONS. (3)
A discussion of the development, theory and practice of experimental and theoretical population genetics, including the basic dynamics and integrating properties of populations, factors which produce changes in populations and their effects on population structure and evolution. Prereq: An introductory course in genetics and in statistics, and consent of instructor. (Same as BIO 620.)

AGR 658 ADVANCED WEED SCIENCE. (3)
Taxonomical, ecological, physiological, chemical and bio-chemical aspects of cultural and chemical weed control, and herbicide toxicity and selectivity. Prereq: AGR 404 or equivalent, one plant physiology course, one biochemistry course or consent of instructor.

AGR 666 ADVANCED PLANT BREEDING. (3)
Advanced study of gene action in commonly used plant breeding procedures, expansions and modifications of existing plant breeding procedures and new approaches to solution of plant breeding problems. Prereq: AGR 406, STA 670, or consent of instructor.

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

AGR 697 SPECIAL TOPICS IN CROP SCIENCE. (1-3)
Selected topics in related areas of crop science. Example topics include: (1) Cytogenetic Methods in Plant Breeding, (2) Chemical Evaluations of Crop Quality, and (3) Plant Stress as Related to Crop Yield. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

AGR 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
(1-6 credits equivalence.) May be repeated once.

AGR 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
(1 to 12 credits equivalence.) May be repeated indefinitely.

AGR 770 AGRONOMY SEMINAR. (1)
Reports and discussion of problems and investigations of problems in soils, crops and plant pathology. May be repeated for a maximum of four credits.

AGR 799 RESEARCH IN AGRONOMY. (1-4)
May be repeated for a maximum of 12 credits. Prereq: Consent of instructor.

CROP SCIENCE

AGR 206 PRINCIPLES OF FIELD CROP PRODUCTION. (3)
A course in scientific fundamentals underlying the production of cereal, fiber, forage and tobacco crops. Lecture and discussion, two hours; laboratory, two hours. Prereq: BIO 101 or consent of instructor.

AGR 404 WEED SCIENCE. (3)
Identification, dissemination, growth, and ecology of weeds; techniques and principles of cultural and chemical weed control. Lecture, two hours; laboratory, three hours. Prereq: AGR 206 or consent of instructor.

AGR 406 PLANT BREEDING. (3)
The application of genetic principles to the improvement of crop plants. Methods and techniques used in breeding self-and cross-pollinated species. Release, distribution and the maintenance of genetic purity of improved varieties. Lecture, two hours; laboratory, one hour and 50 minutes. Prereq: AGR 206, 360, or consent of instructor.

AGR 408 TOBACCO. (3)
History, botany, pathology, entomology, breeding, and culture of tobacco with special emphasis on burley. Lecture, two hours; laboratory, two hours. Prereq: AGR 206 or consent of instructor.

AGR 412 GRAIN CROPS. (3)
A study of the grain crops of the world in respect to adaptation, culture and uses. Lecture and recitation, two hours; laboratory, two hours. Prereq: AGR 206 or consent of instructor.

AGR 502 ECOLOGY OF ECONOMIC PLANTS. (3)
Critical study of the response of economic plants to natural and man-modified environment. Two lectures and one two-hour laboratory period each week. Prereq: BOT 101 and AGR 206, or consent of instructor.

AGR 510 ECOLOGY AND UTILIZATION OF GRASSLANDS. (4)
Critical study of grassland plants and the biological and physical factors operative in utilization of natural and cultivated grasslands by domestic animals. Lecture, three hours: laboratory, two hours. Prereq: BIO 201 and 203, or consent of instructor.

AGR 630 EXPERIMENTAL TECHNIQUES IN PLANT PHYSIOLOGY. (3)
Presentation of theory and experimental techniques for the study of chemical constituents by centrifugation, chromatography, spectroscopy and electrometry. Discussion of methods and design to culture, sample and prepare plant material for use in physiological experiments. Two class hours per week; laboratory three hours. Prereq: BOT 501, CHE 232, 233, or consent of instructor. (Same as BIO 630.)

AGR 730 GRASSLAND RESEARCH. (3)
The conduct and interpretation of grassland experiments with emphasis on pasture research and the plant-animal complex. Prereq: Approval of instructor.

AGR 732 MINERAL NUTRITION OF PLANTS. (3)
Discussion of accumulation, translocation, and utilization of mineral elements by higher plants. Emphasis will be placed on the relationships between these processes and plant metabolism. Prereq: BOT 701 or BCH 515 or consent of instructor. (Same as BOT 732 and HOR 732.)

AGR 734 PHYSIOLOGY OF GROWTH AND DEVELOPMENT. (3)
A critical evaluation of research in selected aspects of plant growth and development. Emphasis will be on effects of growth environment. Prereq: BOT 701 or consent of instructor. (Same as BOT 734 and HOR 734.)

AGR 736 PHYLOGENY OF CULTIVATED PLANTS. (3)
Lecture and discussion of concepts and experimental techniques concerned with the origin and phylogeny of cultivated plant species. Lecture, two hours; laboratory, two hours per week. Prereq: AGR 506, BIO 620 or consent of instructor. (Same as HOR 736.)

SOIL SCIENCE

AGR 366 FUNDAMENTALS OF SOIL SCIENCE. (3)
Development of concepts and understanding of the properties and processes that are basic to the use and management of soils. Prereq: CHE 108 or equivalent, or consent of instructor.

AGR 468 SOIL CONSERVATION AND MANAGEMENT. (3)
The application of principles of conservation in planning the use and management of land and associated resources. Prereq: AGR 366 or consent of instructor.

AGR 470 FERTILIZERS AND SOIL FERTILITY. (3)
Sources and manufacture of fertilizer materials; soil reaction of elements essential for plant growth; effective use of fertilizers for various soil situations. Prereq: AGR 206 and 366 or consent of instructor.

AGR 473 SOIL MORPHOLOGY AND MAPPING. (3)
Study of concepts of soil horizons and soil profiles, and the chemical, physical and mineralogical parameters useful in this characterization. Use of soil survey equipment, preparation of soil maps, and development of a land use plan for an assigned area. Prereq: AGR 366, 367 and GLY 140 or consent of instructor.

AGR 562 FOREST SOILS. (3)
The physical, chemical and biological properties of soils as they relate to forest tree growth and the forest community. A study of the genesis, morphology, classification and utilization of soils for forestry. Three class hours per week with occasional extended field trips. Prereq: AGR 366 and 367 and consent of instructor (Same as FOR 562.)

AGR 566 SOIL BIOLOGY. (3)
The nature and biochemical activities of soil microflora; their significance in soil genesis and structure and their role in soil fertility. Lecture, two hours; laboratory, two hours. Prereq: AGR 366, MB 200.

AGR 575 SOIL PHYSICS. (4)
Physical properties of soils and their relationship to chemical, mineralogical, and biological soil properties and to plant growth. Lecture and discussion, three hours; laboratory, two hours. Prereq: AGR 366 and approval of instructor.

AGR 581 CHEMICAL ANALYSIS OF SOILS AND PLANTS. (4)
Laboratory emphasis on instrumental methods and techniques used in quantitative and qualitative chemical analysis of soil and plant materials and relation of these analyses to physical, chemical and biological systems. Lecture, one hour; discussion, one hour; laboratory, four hours. Prereq: AGR 366 or equivalent, or consent of instructor.

AGR 652 SOIL CLASSIFICATION AND GEOGRAPHY. (3)
A critical evaluation of the concepts of soil classification, with particular reference to the current U.S. scheme. Study of geographic locations and the nature of their soil associations as related to gross considerations of soil genesis. Prereq: AGR 573, 581 or consent of instructor. (Same as GEO 652.)

AGR 660 ADVANCED SOIL BIOLOGY. (2)
A critical evaluation of the current research status in selected aspects of soil biology. Prereq: AGR 566 or consent of instructor.

AGR 671 SOIL CHEMISTRY. (4)
A study of the chemical characteristics of the soil and of the more important chemical processes in the soil. Lecture and discussion, three hours; laboratory, two hours. Prereq: AGR 470, 581; CHE 442, or consent of instructor.

AGR 675 ADVANCED SOIL PHYSICS. (3)
Relation of physical properties of soil to transfer of water, air, plant nutrient ions, and heat in soil and factors affecting such movement. Prereq: AGR 575, 576, MA 214 and consent of instructor.

AGR 681 MINERALOGICAL AND CHEMICAL ANALYSIS OF SOILS. (4)
Laboratory emphasis on instrumental methods and techniques used in quantitative and qualitative mineralogical and chemical analysis of soils and relation of these analyses to physical, chemical, and biological systems. Lecture, one hour; discussion, one hour; laboratory, four hours. Prereq: AGR 581 or equivalent or consent of instructor. (Same as GLY 681.)

AGR 690 TOPICS OF SOIL CHEMISTRY. (1-4)
The soil chemistry of plant nutrients, with special emphasis on reactions of nitrogen, phosphorus and potassium in the soil. Soil acidity and alkalinity also are studied in detail. May be repeated for a maximum of six credits. Prereq: Consent of instructor.

AGR 691 TOPICS IN SOIL MINERALOGY. (1-4)
Selected topics which may include applied mineralogy, surface chemistry of clays, clay mineral morphology, genesis of soil clays, mineralogy of Kentucky soils, and recent advances in mineralogy. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

AGR 712 ADVANCED SOIL FERTILITY. (3)
An integration of the effects of soil, climatic and physiological factors on the nutrition and dry matter accumulation of plants. Lecture and discussion, two hours; laboratory, two hours. Prereq: AGR 570 or consent of instructor.

AGR 721 SOIL GENESIS. (3)
Critical study of theories and concepts in soil genesis and their

relationships to soil morphology and classification. Analysis of soil properties and soil forming processes responsible for the development of unique soil pedons. Prereq: Consent of instructor.

AGR 741 CLAY MINERALOGY. (3)
A comprehensive study of the crystal structures of clay minerals commonly found in soils and sediments. Lecture and discussion, two hours; laboratory, two hours. Prereq: GLY 212 and 213, AGR 581, 681 or equivalent or consent of instructor. (Same as GLY 741.)

BOTANY

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

BOT 501 PLANT PHYSIOLOGY. (3-5)
See course description under Botany.

BOT 634 CYTOGENETICS. (4)
See course description under Botany.

BOT 701 PLANT METABOLISM. (3)
See course description under Botany.

ALLIED HEALTH EDUCATION AND RESEARCH

AHE 500 ORGANIZATION AND SUPERVISION IN HEALTH CARE DELIVERY. (3)
An analysis of the structure, functions and operations of systems for health care delivery. Emphasis is placed upon interrelationships among health care agencies; the role of the health care professional in supervision; human relations in health care delivery, and recent developments and trends in health care delivery. May be repeated to a maximum of six credits. Prereq: Consent of the instructor.

AHE 501 COMPUTER APPLICATIONS TO ALLIED HEALTH EDUCATION. (3)
Computer applications in medical record keeping, patient care, research and instruction. Lecture, programmed study materials and computer assisted instruction. Programming as a skill is desirable but not prerequisite for admission. (Recommended for non-computer science majors, the course does not satisfy requirements for a computer science major.) Prereq: Consent of the instructor. (Same as CS 401.)

AHE 595 DIRECTED STUDIES. (1-3)
Independent work devoted to research on specific problems, to challenge the student to synthesize concepts from his total program and relate them to his allied health specialty. Conference, one to three hours per week. May be repeated to a maximum of six credits. Prereq: Consent of the instructor.

AHE 660 ADVANCED CLINICAL PRACTICUM IN ALLIED HEALTH. (1-6)
Offers advanced supervised clinical experience appropriate to the student's specialty. Forty clinical hours for one semester hour credit. Prereq: Graduate standing; consent of the instructor. May be repeated for a maximum of six credits.

AHE 670 ADVANCED SEMINAR IN ALLIED HEALTH. (1-3)
Content of this course is determined by the clinical department(s) offering the seminar. It includes in-depth consideration of recent research and its application to health care delivery. Prereq: Graduate standing; consent of the instructor. May be repeated for a maximum of nine credits.

AHE 690 RESEARCH PROBLEMS IN ALLIED HEALTH. (3)
An independent research course for the study of special problems in allied health education. May be repeated to a maximum of 12 credits. Prereq: Graduate standing; consent of instructor.

AHE 850 PHYSICAL DIAGNOSIS. (6)
This course is designed to provide the general principles of obtaining medical histories and performing physical examinations. Prereq: Enrollment in the Clinical Associate program. Offered on a pass/fail basis.

AHE 851 INTRODUCTION TO THE PROFESSION-CLINICAL ASSOCIATE. (1)
To create an image for the new profession of Clinical Associate. Prereq: Enrollment in the Clinical Associate Program. Offered on a pass/fail basis.

AHE 852 MEDICAL ETHICS FOR CLINICAL ASSOCIATES. (1)
A study of medical practice presented in lecture format. Prereq: Enrollment in the Clinical Associate program. Offered on a pass/fail basis.

AHE 853 MEDICAL TERMINOLOGY FOR CLINICAL ASSOCIATES. (2)
The basic language of medical practice. Prereq: Enrollment in the Clinical Associate program. Offered on a pass/fail basis.

AHE 854 BIOLOGY OF DISEASE FOR CLINICAL ASSOCIATES. (5)
A study of the concept and process of disease. Prereq: Consent of instructor.

AHE 855 ALLIED HEALTH COLLOQUIUM. (2)
Joint session for Allied Health Professions students and faculty. This innovative course is designed to promote cohesiveness and interaction among various health professionals in order better to meet the challenge of health care demands. Content of the course will include identification of major health care issues and problems, concepts of health care teams, human relations psychology, health care delivery systems and a scientific-technical series on subjects of mutual interest. Offered on a pass/fail basis only.

AHE 856 ALLIED HEALTH COLLOQUIUM. (2)
Continuation of AHE 855. Offered on a pass/fail basis only.

Two other core-type courses are offered through the Department of Higher and Adult Education:

EDH 500 CLINICAL AND LABORATORY TEACHING. (4)
Includes learning theories, motivational concepts, review of research, developing instructional objectives, human relations in the classroom, teaching methodologies, clinical instruction, performance evaluation and preparation of instruction units. This course is designed primarily for students in allied health, education, library science, home economics and social professions.

EDH 501 TEACHING INTERNSHIP. (6-12)
Supervised practice under competent leadership. Observation, instruction, independent study which parallels field experience, and conferences with supervising instructor included. (May be repeated for a total of 12 hours.) This course is designed primarily for students in allied health, education, library science, home economics and social professions. Prereq: EDH 500, or permission of instructor.

ANATOMY

ANA 206 ELEMENTARY ANATOMY. (3)
The objectives of the course include: A familiarization with the terminology applying to the major parts of the body; the organs, systems and regions, and the terminology applying to motion in the various parts of the body. Information is given on the constituents of cells, the ways in which cells are united with each other and with intercellular substances to form tissues, organs and regions of the body. Students will be informed about the structure of the body in such a way that the functions of the body can be better understood. Lectures, three hours per week with occasional optional demonstrations. Prereq:Introductory course in biology, zoology, or botany and consent of the chairman.

ANA 503 INDEPENDENT WORK IN ANATOMY. (3)
Reading and laboratory work in a defined area of anatomy are carried out under the direct supervision of one staff member. Hours of discussion and laboratory work by individual arrangement. May be repeated three times for a maximum of 12 credits. Prereq: An introductory course in biology, zoology, or botany and consent of the instructor.

ANA 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.

ANA 512 MICROSCOPY AND ULTRASTRUCTURE. (3)
The organization of cells, tissues and organs are presented through lectures and in the laboratory, through the microscopic study of in vivo materials, histological sections and illustrations. Prereq: Some background in biology, including one or more such courses as biology, zoology, botany, histological techniques, comparative anatomy or embryology, and consent of the instructor.

ANA 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.

ANA 516 ANATOMY OF THE NERVOUS SYSTEM. (3)
The gross and microscopic structure of the central and peripheral nervous systems and their blood supply will be studied. The course will include the functional interpretation of anatomical structures. Lecture, two hours; laboratory, two hours per week. Prereq: ANA 511, 512, 513; PGY 511; consent of instructor.

ANA 529 CONCEPTS OF MORPHOLOGY. (2)
The objective of this course is to present concepts of morphology as they concern cells, tissues, or organs, systems and/or regions of the human body. Necessarily, the history of the development of ideas about the selected topic will be surveyed. Inherent also in the presentation of concepts of structure will be the presentation of controversies which have resulted from differing methods and interpretations. Four class hours per week. May be repeated once for a total of four hours. Prereq: Advanced work in biology, preferably a major or minor in a biological science, and consent of the staff.

ANA 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 laboratory 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.

ANA 532 COMBINED HISTOLOGY, EMBRYOLOGY, AND SPECIAL ORAL MICROANATOMY. (6)
The course consists of an analysis of the histological organization and embryological development of the human body and includes an especially detailed treatment of the tissues and organs related to the oral cavity. Prereq: Admission to the College of Dentistry or some background in biology and consent of the instructor. (If a student has taken ANA 532, he cannot take ANA 533.)

ANA 533 ORAL HISTOLOGY. (2)
A detailed study of the microscopic organization and ultrastructure of the several gross structures of the oral cavity and tooth development. Texts and original articles are assigned. Discussion will be carried out within the laboratory periods. ANA 533 may not be taken by students who have completed ANA 532. Prereq: ANA 512, 513, and 531 or their equivalent, and consent of instructor.

ANA 611 REGIONAL GROSS ANATOMY. (8)
The course will include: (1) a detailed dissection of the human body, (2) study of specific relations of the systems within major regions, (3) a familiarization with reference sources in the field of gross human anatomy. Prereq: Courses in comparative anatomy and embryology and ABA 511 or the equivalent and consent of instructor. Available as elective course for senior medical students.

ANA 629 TECHNIQUES OF ANATOMICAL RESEARCH. (2)
The objective of this course is the familiarization of students with research techniques in anatomy. The relationship will be tutorial. Students will work under the direction of given staff members for determined periods of time, usually on a problem. The exact length of time will depend upon the student's purposes, progress and the techniques. The problem may be new research or a repetition of previous work. Prereq: Previous senior college or graduate level work in biology and consent of chairman.

ANA 631 ADVANCED GROSS ANATOMY. (3-5)
The objective of this course is to meet individual student needs for increased knowledge in particular areas of gross human morphology. Investigations of problems involving gross morphology will be carried out. One or several defined areas of the body will be studied in considerable detail by dissection, by intensive use of the pertinent literature, by the use of visual aids, prosected materials and other appropriate learning aids. May be repeated at the discretion of the student's committee. Prereq: A background in gross human anatomy equivalent to a medical school course in regional anatomy and consent of instructor.

ANA 633 ADVANCED DEVELOPMENTAL ANATOMY. (2-5)
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.

ANA 634 ADVANCED ENDOCRINOLOGY. (2-5)
The objectives of this course include interrelating the microscopic and ultrastructural morphology of endocrine glands with the functions of these glands. Emphasis will be placed on functional aspects, chemistry and mode of action of specific hormones. All endocrine organs will be studied and given equal importance. The relationship between the central nervous system and the endocrine system will be covered in detail. Prereq: Fundamental background in biology including some previous work in endocrinology; consent of instructor.

ANA 636 ADVANCED NEUROANATOMY. (3-5)
The objectives include specific and detailed correlation of anatomical materials with clinical data particularly in the areas of the sub-specialties of neurology, psychiatry, ophthalmology, otolaryngology, internal medicine, and neurosurgery. Clinical data from these sub-specialties will be related to the location of nuclei, the precise patterns of fiber tracts, and to blood supply. The detailed content and emphasis will depend upon both the background and the purposes of the students. Prereq: ANA 511, 512, 513, 516, or their equivalent and consent of instructor.

ANA 638 THE GENETIC BASIS OF HUMAN MORPHOLOGY. (2-5)
The course will provide an historical survey of human genetics as background for current concepts. The genetics of man will be studied together with the problems of data gathering which are unique and are inherent in this field. The interrelations of known errors of human metabolism to alterations of cell and system morphology will be presented. Prereq: Elementary genetics and consent of instructor.

ANA 651 SPECIAL PROJECTS IN ANATOMY OF HEAD AND NECK CORRELATED WITH NEUROANATOMY. (3-5)
The objective of the course is to provide the opportunity for the learning of detailed information about gross anatomical relations in the head and neck. Prereq: A course in regional gross anatomy and neuroanatomy and consent of instructors.

ANA 662 ULTRASTRUCTURAL ANATOMY. (2-5)
The objectives of this course are to advance the student's knowledge of the mammalian tissues and the human body. Those students registering for more than two hours of credit will do advanced laboratory work in electron microscopy and micro-radiographic 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.

ANA 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
(1-6 credits equivalence.)

ANA 769 RESIDENCE CREDIT FOR DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

ANA 811 GROSS ANATOMY.
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 laboratory, especially pertinent to physical therapy.) Prereq: Comparative anatomy and consent of instructor.

ANESTHESIOLOGY

ANS 831 ANESTHESIA CLERKSHIP. (1-4)
The clerkship provides limited clinical and didactic instruction in anesthesiology. Students learn the fundamentals of preoperative evaluation, anesthetic management, and postoperative recovery. Techniques of resuscitation and airway management are emphasized. Prereq: Admission to third year, College of Medicine.

ANIMAL SCIENCES

ASC 108 BEGINNING EQUITATION. (1)
May be repeated for a maximum of six credits. Only two credits for service courses 100-125 may count in the minimum degree requirement of 130 credits. Same as HPR 108.

ASC 109 INTERMEDIATE EQUITATION. (1)
May be repeated for a maximum of six credits. Only two credits for service courses 100-125 may count in the minimum degree requirement of 130 credits. Same as HPR 109.

ASC 185 JUMPING (HORSEBACK). (1)
Practice in jumping over different obstacles for show and hunting. Prereq: Horsemanship or consent of instructor. Same as HPR 185.

ASC 286 EQUESTRIAN DRESSAGE. (2)
The technique of training dressage. One hour lecture and two hours laboratory. Prereq: Horsemanship. Same as HPR 286.

ASC 202 INTRODUCTORY HORSE HUSBANDRY. (3)
A brief study of the breeds of horses and their uses; introduction to feeding, disease and parasite control; management practices for pleasure horses; elementary horsemanship. Lecture, two hours; laboratory, two hours. Prereq: GEN 106 or consent of instructor.

ASC 204 LIVESTOCK MANAGEMENT. (1)
Intensive training in approved livestock management practices. Students may elect to work with meat animals or dairy animals. Laboratory, two hours.

ASC 282 FUNDAMENTALS OF ANIMAL NUTRITION. (3)
The fundamental study of the nutrients, their utilization and their role in the animal. Prereq: CHE 230 or 236.

ASC 300 LIVE ANIMAL AND CARCASS EVALUATION. (3)
Correlation of live animal and carcass chacteristics of beef cattle, hogs and sheep; relation of live animal and carcass traits to the economic value of the carcass; laboratory exercises in grading and evaluating meat animals; lectures on environmental and genetic effects on live animal and carcass merit. Lecture, one hour; laboratory, four hours.

ASC 301 LIVESTOCK SELECTION AND EVALUATION. (3)
Evaluation of purebred and commercial beef cattle, sheep, and swine. Practice in writing reasons and giving reasons orally. Laboratory, six hours. Prereq: GEN 106. Not open to freshmen.

ASC 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.

ASC 303 EVALUATION AND GRADING OF MEATS. (2)
A detailed consideration of the factors involved in the selection, grading and evaluation of carcasses and wholesale cuts of beef, pork and lamb. Specific emphasis will be given to cutability, shape, quality and maturity as they relate to palatability and acceptance by the consumer. Laboratory, four hours. Prereq: ASC 304 or 306.

ASC 304 MEATS AND MEATS PROCESSING. (4)
The relationship of production, slaughtering, processing and marketing of meat and meat products to the over-all livestock and meat industry. Specific emphasis will be given to such topics as inspection, grading, cut-out, pricing, cooking, preserving, and composition as each relates to the wholesomeness, economy and palatability of meat. Anatomical study of the location and structure of muscles, organs and glands and physiological functions of organs and glands will be included in laboratory exercises. Lecture, two hours; laboratory, four hours. Prereq: GEN 106.

ASC 306 SELECTION 'EVALUATION' AND USE OF ANIMAL FOOD PRODUCTS. (4)
History and growth of dairy, meat and poultry processing; physical and chemical composition and nutritive value of dairy, meat and poultry products; identification, selection, evaluation and use of meat, dairy and poultry products; grading, processing and freezing methods; wholesale and retail sales methods. Lecture, three hours; laboratory, two hours.

ASC 310 FARRIER'S PRINCIPLES AND PRACTICES. (2)
Anatomy and physiology of the legs and hooves of horses with emphasis on corrective trimming and proper shoeing. Lecture, one hour; laboratory, two hours.

ASC 312 ADVANCED LIVESTOCK SELECTION AND EVALUATION. (2)
Evaluation of purebred and commercial beef cattle, sheep and swine; both market and breeding classes. Practice in writing reasons and giving of reasons orally. Laboratory, six hours. Prereq: GEN 106.

ASC 321 DAIRY CATTLE EVALUATION. (2)
Selection of sires, cows, and heifers with due consideration for breed and dairy type. Application of principles involved in herd improvement. Laboratory, four hours.

ASC 323 ADVANCED DAIRY CATTLE EVALUATION. (1)
Open only to those who have consent of instructor. Laboratory, two hours.

ASC 335 CHEMICAL ANALYSIS OF ANIMAL FOOD PRODUCTS. (3)
Purpose, principles, technique and interpretation of results of chemical testing procedures essential to the control of animal food processing operations. Laboratory, six hours. Prereq: CHE 104.

ASC 346 INCUBATION AND AVIAN EMBRYOLOGY. (3)
Principles involved in operating incubators and brooders; hatchery operation and management; factors influencing the avian embryo; operation of commercial incubators. Lecture, two hours; laboratory, two hours. Prereq: GEN 106; approval of instructor.

ASC 360 GENETICS. (3)
The basic principles of heredity as currently understood from evidence accumulated in classical, cytogenetic, bio-chemical-molecular, physiological and quantitative genetic experiments. Emphasis is placed on a thorough understanding of genetic principles and the relationship of genetics to all biological disciplines. Prereq: Six credits in biological sciences and one course in general chemistry. (Same as AGR 360.)

ASC 361 GENETICS LABORATORY. (1)
Breeding studies with Drosophila and interpretation of results; probability; segregation ratios in corn and tobacco; mitosis and meiosis in selected plant animal species; Dorsophila salivary preparations; inheritance of selected human characteristics. Laboratory, two hours. Prereq: ASC/AGR 360 or taken concurrently at student's option. (Same as AGR 361.)

ASC 370 ANIMAL SCIENCE SEMINAR. (1)
Presentation and discussion of current topics by students, staff, and guests. Students may elect their specialization interest group to participate. May be repeated once for a maximum of two credits.

ASC 380 FEEDS AND FEEDING. (3)
The composition and nutritional characteristics of common feedstuffs. The digestive systems, nutritional requirements, formulated rations and economical feeding programs for farm animals. Lecture, two hours; laboratory two hours. Prereq: ASC 282 or consent of instructor.

ASC 386 APPLIED DRESSAGE. (1)
The principles and practice of dressage movements in training for position and collection. Two hours laboratory. Prereq: HPR/ASC 286. (Same as HPR 386.)

ASC 388 EQUITATION TEACHING. (3)
The techniques of horsemanship and methods of instruction. Two hours lecture and two hours laboratory. Prereq: Horsemanship and ASC 202. (Same as HPR 388.)

ASC 395 SPECIAL PROBLEMS IN ANIMAL SCIENCE. (2)
Approval of instructor required. May be repeated for a maximum of four credits. Prereq: Consent of instructor.

ASC 404 SHEEP SCIENCE. (3)
History and importance of the sheep industry; selection, breeding, feeding, and management of sheep for lamb and wool production. Lecture, two hours; laboratory, two hours. Prereq: GEN 106, ASC 380.

ASC 406 BEEF CATTLE SCIENCE. (3)
Scope and importance of the beef cattle industry; selection, breeding, feeding and management of beef cattle. Lecture, two hours; laboratory, two hours. Prereq: GEN 106, ASC 280.

ASC 408 SWINE SCIENCE. (3)
History and importance of the swine industry; selection, breeding, feeding, and management of swine. Lecture, two hours; laboratory, two hours. Prereq: GEN 106, ASC 280.

ASC 410 HORSE SCIENCES. (3)
Detailed study of nutrition, reproductive physiology, equine psychology, diseases and parasites, and animal breeding programs as these relate to horse production, management and training. Relationships between anatomy, athletic ability and unsoundness. Lecture, two hours; laboratory, two hours. Prereq: ASC 202, ASC 280, ASC 360, VS 351.

ASC 412 ADVANCED HORSE HUSBANDRY. (3)
Housing, facilities, animal management, equine control and transportation, agronomic practices, economics and marketing, records, and legal implication applied to commercial horse production. Advanced training techniques for young horses. Exhibition and evaluation of horses. Lecture, two hours; laboratory, two hours. Prereq: ASC 410.

ASC 420 DAIRY CATTLE SCIENCE. (2-3)
Feeding and management of dairy cattle contributing to profitable production of quality milk. Lecture, two hours; laboratory, two hours. Prereq: GEN 106 and ASC 280 or consent of instructor.

ASC 430 SENSORY EVALUATION OF FOODS. (3)
An intensive study of methods of sensory evaluation of foods by taste, smell, feel and sight. Physiological and psychological problems involved. Research and commercial implications. Statistical handling of data. Lecture, one hour; laboratory, four hours. Prereq: STA 370 or consent of instructor.

ASC 436 DAIRY PROCESSING AND PLANT MANAGEMENT. (6)
Methods used for processing milk, butter, ice cream, cheese, and concentrated milks; fundamentals of dairy plant management. Lecture, two hours; laboratory, eight hours. Prereq: ASC 335.

ASC 442 POULTRY SCIENCE. (3)
A general study of avian anatomy, physiology, embryology, genetics and nutrition in relation to modern technology and management. Special emphasis on feed formulation, disease prevention,

environmental control and product technology. Lecture, two hours; laboratory, two hours. Prereq: GEN 106.

ASC 460 ANIMAL BREEDING. (3)
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. (Equivalent of ASC 360 may be substituted.) Prereq: ASC 360.

ASC 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 laboratory. Prereq: ASC/HPR 386. (Same as HPR 486.)

ASC 526 REPRODUCTION AND ARTIFICIAL INSEMINATION OF FARM ANIMALS. (3)
A course designed to acquaint students with the processes of reproduction in farm animals, methods of artificial insemination, and the management of breeding animals. Prereq: GEN 106, ASC 360, or consent of instructor. Lecture, two hours; laboratory, two hours.

ASC 530 ANIMAL FOOD MICROBIOLOGY. (4)
Enumeration, identification and classification of microorganisms important in the dairy, meat, poultry and egg industries. Means of entrance, effect of growth and methods of limiting growth of microorganisms in these foods. Lecture, two hours; laboratory, four hours. Prereq: MB 200 or 400 or consent of instructor.

ASC 532 ADVANCED ANIMAL FOOD MICROBIOLOGY. (5)
Microbial principles as applied to production, processing, handling and distribution of dairy, meat, poultry and egg products. The utilization of microorganisms in the manufacture of food products. Microorganisms and toxins involved in food-born illness. Students will isolate and identify selected microorganisms from foods. Lecture, three hours; laboratory, four hours. Prereq: ASC 530 or equivalent.

ASC 534 CHEMISTRY OF ANIMAL PRODUCTS. (4)
Chemical and physical characteristics of foods of animal origin, and other foods used in their processing; physical and chemical principles involved in food preparation and processing; special methods of analysis. Prereq: CHE 236 or equivalent.

ASC 562 ADVANCED GENETICS. (3)
Concerned chiefly with the physical basis of heredity, mutations, chromosomal aberrations, linkage, genetics and development, and reports on current literature. Prereq: ASC 360 or equivalent.

ASC 564 MILK SECRETION. (3)
Anatomy of the mammary gland, physiology and biochemistry of milk secretion and management factors affecting yield and composition of milk. Prereq: ASC 280, VS 350.

ASC 580 PRINCIPLES OF ANIMAL NUTRITION. (3)
The chemistry and physiology of animal nutrition and the nutritive requirements for growth, fattening, reproduction, lactation, and other body functions. Prereq: CHE 236 or equivalent.

ASC 600 METHODS AND TECHNIQUES IN ANIMAL SCIENCES. (3)
A study of statistical methods and techniques applicable to animal research including selection of experimental material, allocation techniques, design, analysis and interpretation of results and a critical review of existing investigations. Prereq: STA 670 required and STA 674 desirable.

ASC 630 ADVANCED MEAT SCIENCE. (4)
Advanced meat science with special reference to the histological, chemical, physical and microbiological properties as they relate to meat quality, organoleptic acceptability and processing procedures. Three lecture hours, two laboratory hours per week. Prereq: ASC 304, 306 or equivalent; one course in histology or biochemistry or consent of instructor.

ASC 660 PHYSIOLOGY OF REPRODUCTION. (3)
Physiological processes of reproduction in farm animals, gonadal function, endocrine relationships, fertility, and factors affecting reproductive efficiency. Prereq: VS 350, ASC 460.

ASC 662 POPULATION GENETICS. (3)
Introduction to principles of static and dynamic populations; statistical concepts and tools applied to quantitative inheritance. Prereq: ASC 360, 460 and STA 670 or equivalent.

ASC 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 360, 460 and STA 670 or equivalent.

ASC 680 LABORATORY METHODS IN ANIMAL NUTRITION AND MEATS. (4)
The use of laboratory techniques and equipment in the solution of fundamental problems of nutrition and meats. Lecture and recitation, one hour; laboratory, six hours. Prereq or concur: ASC 580.

ASC 681 ENERGY METABOLISM. (2)
Current concepts of the contributions of biochemical, physiological, and nutritional theory of the understanding of energy utilization by animals. Prereq: BCH 502 or CHE 522 or consent of instructor.

ASC 682 NUTRIENT METABOLISM. (5)
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.

ASC 683 PROTEIN METABOLISM. (2)
A study of the principles and present concepts of protein and amino acid metabolism in the animal. Prereq: BCH 502 or CHE 552 or consent of instructor.

ASC 684 ADVANCED RUMINANT NUTRITION. (3)
Introduction of principles of ruminant metabolism in the utilization of feedstuffs for meat, milk, and wool production. Prereq: One course in nutrition, physiology, or biochemistry and consent of instructor.

ASC 685 MINERAL METABOLISM. (2)
Detailed study of the absorption, excretion, metabolism, and physiological functions of the mineral elements required by animals; the relationship of dietary supply of minerals to animal production; and symptoms resulting from deficiency and excess dietary supply. Prereq: BCH 502 or CHE 552 or consent of instructor.

ASC 686 ADVANCED NON-RUMINANT NUTRITION. (3)
A study of nutrient utilization as influenced by digestion, absorption and metabolism, with special emphasis on non-ruminant species. Prereq: One course each in nutrition and biochemistry.

ASC 687 VITAMIN METABOLISM. (2)
Detailed study of the metabolism of vitamins and the role of vitamins in the metabolism of carbohydrates, proteins, lipids, and minerals. Prereq: BCH 502 or CHE 552 or consent of instructor.

ASC 688 EQUINE NUTRITION. (2)
Detailed study of anatomical, physiological and microbiological factors influencing the nutritive requirements of the quine for maintenance, growth, reproduction, lactation and work. Prereq: One course in nutrition and physiology or biochemistry or consent of instructor.

ASC 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
(1-6 credits equivalence.) May be repeated once.

ASC 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
(1-12 credits equivalence.) May be repeated indefinitely.

ASC 771 ANIMAL SCIENCE SEMINAR. (1)
May be repeated twice for a total of three credits.

ASC 780 SPECIAL PROBLEMS IN ANIMAL DERIVED FOODS. (1-4)
May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser.

ASC 781 SPECIAL PROBLEMS IN GENETICS OR PHYSIOLOGY. (1-4)
May be repeated to a maximum of nine credits. Prereq: Consent of graduate adviser.

ASC 782 SPECIAL PROBLEMS IN ANIMAL NUTRITION. (1-4)
May be repeated to a maximum of nine credits. Prereq: Consent of graduate adviser.

ASC 790 RESEARCH IN ANIMAL DERIVED FOODS. (1-6)
Problems involving original investigation. May be repeated for a total of nine credits. Prereq: Consent of graduate adviser.

ASC 791 RESEARCH IN GENETICS OR PHYSIOLOGY. (1-6)
Problems involving original investigation. May be repeated for a total of nine credits. Prereq: Consent of graduate adviser.

ASC 792 RESEARCH IN ANIMAL NUTRITION. (1-6)
Problems involving original investigation. May be repeated for a total of nine credits. Prereq: Consent of graduate adviser.

ANTHROPOLOGY

ANT 120 HUMAN ANCESTRY. (3)
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.

ANT 121 INTRODUCTION TO CULTURAL ANTHROPOLOGY. (3)
Archaeological remains of prehistoric man and the arts, industries, social organization, languages, and religions of modern primitive peoples. Meets Social Studies Requirements. This course is prerequisite to a significant number of courses in this and related areas of study.

ANT 153 SOCIETIES AROUND THE WORLD. (3)
Comparative study of Eskimo, Navajo, and Baganda as preliterate, primitive societies in difficult environments. Meets Social Studies requirements. Open to freshmen. Prereq: SOC 101. (Same as SOC 153.)

ANT 200 ANTHROPOMETRY. (2)
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.

ANT 201 ANTHROPOLOGY IN THE MODERN WORLD. (3)
The application of anthropology to the problems of contemporary society in industrialized and less developed parts of the world. Cultural factors affecting change.

ANT 221 PRIMITIVE INVENTIONS. (3)
Ancient and modern inventions of primitive peoples. Theoretical approach combined with handling and manufacturing artifacts. Prereq: ANT 121.

ANT 232 LIVING RACES OF MAN. (3)
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.

ANT 241 BEGINNINGS OF CIVILIZATION. (3)
Earliest evidences of agriculture, pastoralism, and complex social and political organization, with special emphasis on the origins of Western Civilization.

ANT 383 SPECIAL PROBLEMS. (2)
Designed for upper division students who undertake minor research problems in archaeology, ethnology and physical anthropology in regular consultation with the instructor. May be repeated to maximum of eight credits.

ANT 402 HUMAN IDENTIFICATION. (2)
This course requires of the student a detailed and systematic knowledge of human anatomy, both of the skeleton and the soft part tissues. The first half of the course will be devoted to the positive identification of all the bones of the human skeleton. This approach involves knowing each bone and its fragments, including the identification by side (left or right). 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.

ANT 428 CONTEMPORARY CULTURES AND SOCIETIES IN SOUTHEAST ASIA. (3)
A descriptive and analytical consideration of representative cultures from insular and mainland Southeast Asia in terms of their social, political, economic and religious organization. The history of the cultural contacts of Southeast Asia with India, China, Europe and the Islamic tradition will be discussed. Prereq: ANT 120, 121 or consent of instructor.

ANT 438 ETHNOLOGY OF THE NEAR EAST AND NORTH AFRICA. (3)
Survey of Islamic, Christian, and Hebraic cultures of the Near East and North Africa, with emphasis on relations between religious traditions and political systems. Prereq: ANT 120 and 121, or consent of instructor.

ANT 439 CIRCUMPOLAR PEOPLES. (3)
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.

ANT 442 NEW WORLD PREHISTORY. (3)
Survey of the origin and growth of prehistoric American Indian cultures as revealed by archaeological data. Prereq: ANT 120, 121.

ANT 490 PRE-FIELD STUDY SEMINAR. (3)
Orients students in a specific cultural area where they will conduct field research under faculty supervision and provides training in designing anthropological research. Prereq: ANT 120, 121, major, and consent of instructor.

ANT 510 HISTORY OF ANTHROPOLOGICAL THEORY. (3)
Description and analysis of significant anthropological ideas in their historical context; the growth of the theoretical concepts in physical anthropology, archaeology and ethnology. Prereq: Consent of instructor.

ANT 512 COMPARATIVE CIVILIZATIONS. (3)
Comparison of complex societies of the past and present, stressing similarities and differences in their historical development and cultural achievements.

ANT 514 DESCRIPTIVE LINGUISTICS: PHONETICS. (3)
Articulatory description of speech sounds; practice in recognition and control. Prereq: Consent of instructor. (Same as ENG 514, LIN 515.)

ANT 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.)

ANT 516 DESCRIPTIVE LINGUISTICS: MORPHEMICS. (3)
An explanation of some of the ways speech-sounds are put together in patterns so as to form languages. Prereq: Consent of instructor. (Same as ENG 516, LIN 516.)

ANT 517 SYNTAX. (3)
Introduction to current theoretical problems in syntax as represented by Chomsky, Fillmore, Pike and others. Practice in rule-writing for different types of languages. Prereq: LIN 301 or consent of instructor.

ANT 518 LANGUAGE IN CULTURE. (3)
Survey of problems of language in culture, including man's facility for communication, diversity and use of linguistic codes, semantic systems, paralinguistic phenomena, and applications of historical linguistics to cultural problems. Prereq: A course in linguistics or consent of instructor.

ANT 521 ETHNOLOGY OF THE NEW WORLD. (3)
Cultures and physical types of the American Indians during and after white settlement. (Northwestern North America is not included.)

ANT 522 NORTH PACIFIC COAST CULTURES. (3)
Ethnology of the maritime peoples of Western North America and Northeast Asia. Cultural connections between America and Asia will be stressed. Prereq: ANT 121.

ANT 523 ETHNOLOGY OF OCEANIA. (3)
A survey of the various cultures to be found on the islands of the Pacific Ocean. Both aboriginal and modern acculturated societies will be considered. Prereq: ANT 120,121.

ANT 524 MYTHOLOGY. (3)
The unwritten literature of primitive peoples. Themes, diffusion, style, literary devices, and function of myths.

ANT 525 APPLIED ANTHROPOLOGY. (3)
Application of anthropological methods to contemporary practical problems such as acculturation, colonial administration, intercultural education, and race relations. Prereq: ANT 121.

ANT 526 CULTURE AND PERSONALITY. (3)
The cultural basis of personality. Personal character considered as the result of culturally fostered patterns. The ideal personality in several selected societies. Prereq: SOC 101. (Same as SOC 526.)

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

ANT 529 SURVEY OF MEDICAL ANTHROPOLOGY. (3)
A cross-cultural survey of behavioral factors in the recognition, prevention and treatment of disease in primitive, folk, and modern cultures, with an emphasis on the solution of world health problems. Topics to be covered include non-western medical systems, health behavior as a projective system, transcultural medicine and psychiatry, and health behavior and culture change. Prereq: ANT 120, 121. (Same as BSC 529.)

ANT 530 CONTEMPORARY LATIN AMERICAN CULTURES. (3)
Detailed survey of societies and cultures of contemporary Latin America, utilizing contribution from anthropological research. Prereq: Consent of instructor.

ANT 531 CULTURES AND SOCIETIES OF SUB-SAHARAN AFRICA. (3)
A survey of indigenous societies and cultures of Africa south of the Sahara, with special attention to their adaptation to colonialism and post-colonial national development. Prereq: ANT 121, or consent of instructor.

ANT 533 SOCIAL ANTHROPOLOGY. (3)
History and theory of social anthropology with special emphasis on the comparative approach to analysis of structure, function, and change in social and cultural systems. Prereq: Consent of instructor; SOC 101. (Same as SOC 533.)

ANT 534 THE SOUTHERN APPALACHIANS: A SOCIOLOGICAL INTERPRETATION. (3)
A sociological interpretation of the Southern Appalachians, emphasizing the great diversity—social, cultural, economic—in the various parts of this area by study of the major institutions, value orientations, and social and cultural changes affecting both the whole area and its sections. Prereq: SOC 101. (Same as SOC 534 in College of Agriculture.)

ANT 536 EUROPEAN PEASANTRIES. (3)
Comparison of peasant populations and their modernization, with emphasis upon the dynamics of cultural stability and change encountered in relationships between national elites and peasantries in various countries. Prereq: ANT 510 and junior classification.

ANT 541 ARCHAEOLOGICAL THEORY AND METHOD. (3)
The concepts and aims of archaeology, its history as a scientific discipline and its present role in the social sciences. Attention to basic principles in field work and to recent advances.

ANT 542 NORTH AMERICAN ARCHAEOLOGY. (3)
Origin and growth of prehistoric American Indian cultures north of Mexico as revealed by archaeological data.

ANT 546 PREHISTORIC MESO-AMERICA AND PERU. (3)
An intensive study of the native American civilizations, their origins, development, and achievements.

ANT 547 CULTURES OF THE SOUTHWESTERN UNITED STATES. (3)
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.

ANT 548 EUROPEAN AND NEAR EASTERN ARCHAEOLOGY. (3)
Prehistoric cultural development in Europe and the Near East, from the earliest times to the beginning of civilizations. Prereq: ANT 120 and 121, or consent of instructor.

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

ANT 555 EASTERN NORTH AMERICAN ARCHAEOLOGY. (3)
Detailed analysis of prehistoric cultures of eastern United States with emphasis on interpretation of prehistory in Ohio River Valley. Prereq: ANT 120, 121, and 442 or consent of instructor.

ANT 560 ETHNOGRAPHIC PRINCIPLES AND PRACTICE. (3)
Exposition of the principles of ethnographic data collection, and practice in the acquisition and use of censuses, genealogies, personal histories, maps, specialized recordings, specimen collections, and other materials. Prereq: ANT 510.

ANT 561 ANTHROPOLOGY: MAN AND HIS WORKS. (3)
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.

ANT 575 PREHISTORY OF EASTERN ASIA. (3)
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.

ANT 581 INDEPENDENT WORK IN ANTHROPOLOGY. (1-4)
Prereq: Major and a standing of 3.0 in the Department. May be repeated to a maximum of 12 credits.

ANT 582 TUTORIAL SEMINAR. (2)
Anthropological methods and theory. May be repeated to a maximum of eight credits. Prereq: Major in anthropology.

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

ANT 605 SEMINAR IN METHOD AND THEORY IN ANTHROPOLOGY. (3)
Seminar discussion and individual student research concerning current trends in theory and method in anthropological inquiry. Prereq: Permission of instructor.

ANT 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.

ANT 611 SEMINAR IN ETHNOLOGY. (3)
A summary of the major topics within the subfield of ethnology. Emphasis is placed on the control of ethnographic data in a recognized culture area with respect to these topics. Prereq: Permission of instructor.

ANT 612 SEMINAR IN CULTURE HISTORY. (3)
An in-depth discussion of the theory and method of the various approaches to the study of culture history. Prereq: Permission of instructor and three hours of culture history.

ANT 613 SEMINAR IN PHYSICAL ANTHROPOLOGY. (3)
Seminar discussion and individual research covering the range of theory and method in physical anthropology. Historical development in relation to the broader sphere of anthropology will be emphasized. Prereq: ANT 120, 232, or equivalent.

ANT 614 FIELD METHODS IN LINGUISTICS. (3)
Analysis of a language by working directly with a native speaker. Prereq: ANT (ENG) 514 or 515, and ANT (ENG) 516.

ANT 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.

ANT 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.

ANT 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.

ANT 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.

ANT 670 SEMINAR ON ROLE THEORY. (3)
An exploration of differences and similarities in the utilization of the concept of role in sociology, anthropology and psychology. Emphasis is placed on the potentiality of role as unifying concept in the behavioral sciences. Prereq: SOC 101. Consent of instructor. (Same as BSC 670 and SOC 670.)

ANT 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.

ANT 727 SEMINAR ON SOCIO-CULTURAL CHANGE. (3)
A seminar for advanced students. Emphasizes economic, religious, political, technological, psychological, etc., factors in change, and social and cultural patterns and processes of change. Prereq: SOC 101; ANT 527 or SOC 518, or permission of instructor. (Same as SOC 727.)

ANT 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.

ANT 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 non-literate and literate societies. May be repeated once. Prereq: SOC 101. (Same as SOC 731.)

ANT 741 SEMINAR IN REGIONAL ARCHAEOLOGY. (3)
Intensive examination of archaeology from selected regions, emphasizing cultural reconstruction, time-space organizations, and hypothesis testing. Prereq: ANT 541.

ANT 742 ADVANCED SEMINAR IN CULTURE HISTORY. (3)
Consideration of evolutionist, diffusionist, environmentalist, and other general theories of cultural casuality, and their applicability to available historical and archaeological data. Prereq: ANT 601 and 602 or consent of instructor.

ANT 750 GRADUATE FIELD STUDY IN ANTHROPOLOGY. (1-6)
Field research as part of a long-range anthropological research program for graduate interns training under direct faculty supervision. Provides student with experience conducting scientific research as research team member. Report required. Laboratory, three hours to full time. Prereq: Appropriate language fluency; preparatory area study plus consent of instructor in addition to ANT 601.

ANT 764 TOPICAL SEMINAR IN PSYCHOLOGICAL ANTHROPOLOGY. (3)
Advanced study of topics of current interest in psychological anthropology; e.g., language and cognition, psychological concomitants of rapid culture change; and transcultural psychiatry. Prereq: ANT 526 or PSY 544, or permission of instructor. (Same as BSC 764.)

ANT 765 RESEARCH PROBLEMS IN MEDICAL ANTHROPOLOGY. (3)
(1) History and theory of medical anthropology; (2) Research design, field work, analysis of data, and report writing. Two class hours per week, three laboratory hours per week. Prereq: Graduate status in anthropology, sociology or psychology, and a concentration or minor in medical behavioral science. (Same as BSC 765.)

ANT 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

ANT 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

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

ANT 790 RESEARCH PROBLEMS IN ANTHROPOLOGY. (3)
Intensive study in the fields of physical anthropology, archaeology and ethnology with qualified staff members. Term papers required. May be repeated three times.

ARCHITECTURE

ARC 010 ARCHITECTURAL FIELD TRIP I. (0)
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.

ARC 020 ARCHITECTURAL FIELD TRIP II. (0)
A field trip for students enrolled in the third through the fifth-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.

ARC 030 ARCHITECTURAL FIELD TRIP III. (0)
Same ARC 020. Laboratory fee. May be repeated twice. Prereq: ARC 020 or consent of dean.

ARC 232 HISTORY OF ARCHITECTURE SURVEY. (3)
A survey of the development of architecture in relation to world culture with emphasis on aesthetics, principles and philosophies of design, structure, use of materials, and the social and political backgrounds. Illustrated lectures, parallel reading, discussion, sketching and research. Not open to students in architecture. (Same as A-H 232.)

INTRODUCTORY ARCHITECTURE SEQUENCE

ARC 101 AN INTRODUCTION TO ARCHITECTURE I. (1)
An introductory course for majors that will introduce the student of Architecture to the general context and framework of the professional curriculum: History theory, design, structures and environmental controls, and the social context. Required of all freshmen students that have enrolled in Architecture. It is recommended that transfer students enroll in the course during the basic architecture sequence. Lecture, one hour.

ARC 102 AN INTRODUCTION TO ARCHITECTURE II. (1)
A continuation of ARC 101. Lecture, one hour. Prereq: ARC 101.

BASIC ARCHITECTURE SEQUENCE

ARC 201 BASIC ARCHITECTURE I. (5)
An introduction into those forces and requirements which define the architectural problem: physical and environmental forces, cultural conventions, and visual design phenomena. Lecture, two hours; studio, 12 hours. Prereq: Sophomore standing.

ARC 202 BASIC ARCHITECTURE II. (5)
A continuing study of the impact of the general parameters of the architectural problem on building form and complexes, with special reference to visual design phenomena. Lecture, two hours; studio, 12 hours. Prereq: Admission to ARC 202 will be granted on completion of ARC 201 with satisfactory grade (C or better).

ARCHITECTURAL STUDIO SEQUENCE

ARC 810 ARCHITECTURAL STUDIO I. (4)
Investigation of the internal physical systems which comprise building; systems and their integration in architectural solutions. Lecture, one hour; studio, 12 hours. Prereq: Admission to ARC 810 will be granted on completion of ARC 202 with satisfactory grade (C or better).

ARC 811 ARCHITECTURAL STUDIO II. (4)
Continuation of the investigation of internal physical systems; introduction of methodologies for ordering and rationalizing their integration in architectural solutions. Lecture, one hour; studio, 12 hours. Prereq: Admission to ARC 811 will be granted on completion of the course ARC 810 with satisfactory grade (C or better).

ARC 812 ARCHITECTURAL STUDIO III. (4)
Investigation of the external systems which influence architecture; program, functional and theoretical design considerations. Lecture, one hour; studio, 12 hours. Prereq: Admission to the ARC 812 will be granted on completion of ARC 811 with satisfactory grade (C or better).

ARC 813 ARCHITECTURAL STUDIO IV. (4)
A continuation of the investigation of external systems generating architectural form. Lecture, one hour; studio, 12 hours. Prereq: Admission will be granted on completion of ARC 812 with satisfactory grade (C or better).

HISTORY OF ARCHITECTURE SEQUENCE

ARC 820 HISTORY OF ARCHITECTURE I. (3)
Elementary development to the World-State. Concur: ARC 810.

ARC 821 HISTORY OF ARCHITECTURE II. (3)
The Medieval aesthetic and the Renaissance ideal. Prereq: ARC 820. Concur: ARC 811.

ARC 822 HISTORY OF ARCHITECTURE III. (3)
Renaissance permeation. Prereq: ARC 821. Concur: ARC 812.

ARC 823 HISTORY OF ARCHITECTURE IV. (3)
Contemporary evolution and manifestation. Prereq: ARC 822. Concur: ARC 813.

ARC 840 THEORIES OF URBAN FORM. (3)
Discussion of socio-economic forces and theories of planning affecting urban form. Discussion of contemporary theories of urban form, theories related to the functional elements of urban areas and comprehensive urban form. Lecture, two hours; seminar, two hours. Concur: ARC 810.

STRUCTURES AND ENVIRONMENTAL CONTROLS

ARC 830 STRUCTURES AND ENVIRONMENTAL CONTROLS I. (4)
Introduction to elementary structural systems and environmental controls; emphasis on these as natural and artificial mechanisms acting as sub-systems of the total building system; statical and mechanical properties of materials. Lecture, one hour; recitation, two hours; studio, three hours. Prereq: MA 113, PHY 201 and 203. Concur: ARC 810.

ARC 831 STRUCTURES AND ENVIRONMENTAL CONTROLS II. (4)
A continuation of ARC 830. Lecture, one hour; recitation, two hours; studio, three hours. Prereq: ARC 830. Concur: ARC 811.

ARC 832 STRUCTURES AND ENVIRONMENTAL CONTROLS III. (4)
Advanced structural systems; three-dimensional structural organization; integration of complex building systems. Lecture, one hour; recitation, two hours; studio, three hours. Prereq: ARC 831. Concur: ARC 812.

ARC 833 STRUCTURES AND ENVIRONMENTAL CONTROLS IV. (4)
A continuation of ARC 832. Lecture, one hour; recitation, two hours; studio, three hours. Prereq: ARC 832. Concur: ARC 813.

PROFESSIONAL PRACTICE

ARC 850 PROFESSIONAL PRACTICE. (3)
Professional and ethical responsibility to profession and community; procedural matters pertaining to practice and management.

ADVANCED ARCHITECTURAL PROBLEMS SEQUENCE

ARC 910 ADVANCED ARCHITECTURAL PROBLEMS I. (5)
Advanced topical studies in architecture. Prereq: Admission will be granted on completion of ARC 813 with satisfactory grade (C or better).

ARC 911 ADVANCED ARCHITECTURAL PROBLEMS II. (5)
Same as ARC 910. Prereq: Admission will be granted on completion of ARC 910 with satisfactory grade (C or better).

ARC 912 SEMINAR ON SELECTED TOPICS IN DESIGN. (3)
Seminar on selected topics in architectural and environmental design. May be repeated by permission of dean for a maximum of six semester hours. Prereq: Enrollment in ARC 910 or 911, or consent of instructor.

ARC 914 SEMINAR ON SPECIAL PROBLEMS IN ARCHITECTURE. (3)
Seminar on special problems in architecture and environmental design. May be repeated by permission of dean for a maximum of six semester hours. Prereq: Enrollment in ARC 910 or 911, or consent of instructor.

ARC 920 PROGRAM IN CONTEMPORARY ARCHITECTURAL HISTORY. (2)
Analysis of current problems in architectural history, historic urban renewal and preservation, innovation in research techniques and their significance, modern architectural philosophies and their applications. Prereq: ARC 823; consent of instructor.

ARC 922 SEMINAR ON HOUSING. (2)
A survey of various aspects of housing, while scope of investigation will be international in scale. Participants will select a limited topic concentration of study. Prereq: Concurrent ARC 910-911, or consent of instructor.

ARC 950 COMPUTER APPLICATIONS IN ARCHITECTURE. (3)
Present utilization methods for computers in architecture to include information retrieval, problem decomposition, graphics, simulation, etc. Lecture, two hours; laboratory, three hours. Prereq: CS 150, 220; enrollment in architecture.

ARC 960 ARCHITECTURAL PHOTOGRAPHIC MEDIA IN DESIGN I. (2)
Development of creative capacity and visual awareness of architectural phenomena through photography. 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 College of Architecture and consent of instructor.

ARC 961 ARCHITECTURAL PHOTOGRAPHIC MEDIA IN DESIGN II. (3)
Continuation of Architectural Photographic Media in Design I. Application to 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 of ARC 960 as related to the enhancement of the student's abilities to comprehend architectural phenomena. Evaluation of impact of photography on architectural communication. Lecture, two hours; laboratory, four hours per week. Prereq: ARC 960 or consent of instructor.

ARC 963 ADVANCED SPECIAL PROBLEMS IN ARCHITECTURE I. (3)
Seminars and independent investigations in special problem areas in architecture. May be repeated by permission of dean for a maximum of six semester hours. Prereq: Consent of instructor.

ARC 964 ADVANCED SPECIAL PROBLEMS IN ARCHITECTURE II. (3)
Seminars and independent investigations in special problem areas in architecture. May be repeated by permission of dean for a maximum of six semester hours.

ART

ART 001-008 ART PROFESSIONS. (0)
Lectures and discussions on the various art professions as they affect the student, the professional artist, the art historian, the art educator and the community. Required of all art majors (art-education, art history, and art studio).

ART 501 BASIC MUSEUM TRAINING: HISTORICAL ART. (3)
Theory and practice of curatorship; care and handling of art objects, conservation, connoisseurship, registration, research, publication, exhibition, public relations. Lectures, demonstrations, visits to galleries and museums, and practical experience in the University Art Gallery. Lecture, three hours; laboratory, six hours. Prereq: Nine credits in art history and consent of the instructor.

ART 502 BASIC MUSEUM TRAINING: CONTEMPORARY ART. (3)
Introduction to the special problems of handling and displaying works of contemporary art with consideration of various functions of contemporary art exhibitions and their organization. Lectures, demonstrations, visits to galleries, and practical experience in the University Art Gallery and the Center for Contemporary Art. Lecture, three hours; laboratory, six hours. Prereq: Nine credits in art history and consent of the instructor.

ART—EDUCATION

A-E 270 INTRODUCTION TO ART EDUCATION. (3)
A lecture-studio course investigating the theoretical, historical, psychological, and sociological foundations of art education. Critical examination of individual and group activities currently offered in the elementary school art program; lectures, curriculum design, evaluation of process and technique. Introduction to the visual arts through studio experiences. Six class hours per week. A-E 270 and A-E 272 together satisfy the State art requirement for general elementary teacher certification.

A-E 272 WORKSHOP IN DESIGN EDUCATION. (3)
Studio problems with a variety of design concepts with special attention to the nature of different media and their educational potential. Six class hours per week. A-E 270 and A-E 272 together satisfy the State art requirement for general elementary teacher certification. Prereq: A-E 270.

A-E 379 ART EDUCATION WORKSHOP. (1)
Creative problems, lectures and discussion in public school art. Primarily for in-service teachers. Thirty class hours. Prereq: A-E 270, 271.

A-E 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.

A-E 577 ART IN SECONDARY SCHOOLS. (3)
Art for teachers in secondary schools. The literature of art education. Courses of study. Teaching materials. Lectures, conferences, and reports.

A-E 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.

A-E 670 SCHOOL AND COMMUNITY ART. (3)
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 instructor.

A-E 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

ART—HISTORY

A-H 100 INTRODUCTION TO ART HISTORY. (3)
An introduction to the field of art history, and methods of study, and interpretation in selected periods, including an examination of sources and documents.

A-H 210 ANCIENT ART. (3)
A survey of the major forms of art in ancient Western Asia, Greece, and Rome, with emphasis on the comparative typology and cultural significance of the monuments. Same as CLA 210.

A-H 220 MEDIEVAL ART. (3)
With special emphasis on Western Europe, the developments in architecture, sculpture, painting and related arts are surveyed from the rise of Christianity to the beginnings of the Renaissance.

A-H 230 RENAISSANCE ART. (3)
A survey of art in Europe from the 14th Century to the 18th Century with emphasis on the major styles, artists, and developments from the early Renaissance through the age of the Baroque.

A-H 240 MODERN ART. (3)
Survey of the visual arts from the 18th through the 20th Centuries with primary emphasis on Europe and the United States. Lectures, discussions, gallery visits, and field trips.

A-H 510 STUDIES IN ANCIENT ART. (3)
A specialized study of either a single site, a related group of sites, or the development of a form of art usually selected from ancient Greece, the Roman Empire, or Egypt. Emphasis on archaeology and cultural interpretation. May be repeated to a maximum of nine credits. Prereq: A-H 210 or HIS 229 or consent of the instructor.

A-H 520 STUDIES IN MEDIEVAL ART. (3)
Individual studies of a specialized nature covering the period between 300 and 1400. Primary emphasis on the arts of Europe. May be repeated to a maximum of nine credits. Prereq: One art history course at the 200 level or above or consent of the instructor.

A-H 530 STUDIES IN RENAISSANCE ART. (3)
A selected area, style, or period usually in European art from the 14th Century through the age of the Baroque. Lecture presentation. May be repeated to a maximum of nine credits. Prereq: One art history course at the 200 level or above or consent of the instructor.

A-H 540 STUDIES IN MODERN ART. (3)
Intensive study of a particular artist, architect, or group, specific media, techniques, trends, or themes in the visual arts from the 18th Century to the present. Lectures, discussion, original research, and critiques. May be repeated to a maximum of nine credits. Prereq: One art history course at the 200 level or above or consent of the instructor.

A-H 590 TOPICAL STUDIES IN ART HISTORY. (3)
A topic or area not covered in the series of 500-589 courses; especially studies in media, forms, styles, iconography and in theoretical or critical studies. Readings, lectures, discussions. May be repeated to a maximum of nine credits. Prereq: One art history course at the 200 level or above or consent of the instructor.

A-H 592 AESTHETICS. (3)
Problems of method in aesthetics; major types of aesthetic theory. Aesthetic materials of the arts, in literature, music, and the space arts. Form and types of form. Meaning in the arts. Interrelations of the arts. (Same as PHI 592.)

A-H 594 CRITICISM OF ART. (3)
History and theory of criticism in the visual arts. A survey of major types of critical theory, historical and contemporary. Required of majors in art history; open to majors in philosophy, literature, and the arts.

A-H 599 INDEPENDENT WORK: ART HISTORY. (3)
Supervised and sustained individual research in the history of art leading to the discovery and demonstration of new knowledge. May be repeated to a maximum of nine credits. Prereq: One art history course at the 500 level or above; major and a standing of 3.0 or higher in the Department.

A-H 610 PROBLEMS IN ANCIENT ART. (3)
Intensive study of a single typological or archaeological problem with emphasis on cross-cultural interrelationships. Reading, research and oral presentations. May be repeated to a maximum of nine credits. Prereq: Twelve credits in art history or consent of the instructor.

A-H 620 PROBLEMS IN MEDIEVAL ART. (3)
Sustained individual research and visual analysis resulting in a paper of publishable form. May be repeated to a maximum of nine credits. Prereq: Twelve credits in art history or consent of the instructor.

A-H 630 PROBLEMS IN RENAISSANCE ART. (3)
Problems in areas or topics of art history from the 14th Century through the age of the Baroque which are not treated extensively in standard texts or monographs. Readings, presentations, discussions. May be repeated to a maximum of nine credits. Prereq: Twelve credits in art history or consent of the instructor.

A-H 650 PROBLEMS IN MODERN ART. (3)
Investigation of particular critical and historical problems in the visual arts from the 18th Century to the present. Lectures, discussion, original research, and critiques. May be repeated to a maximum of nine credits. Prereq: Twelve credits in art history or consent of the instructor.

A-H 690 TOPICAL PROBLEMS IN ART HISTORY. (3)
Investigation of special critical and historical problems of form and content crossing the customary period divisions of art history. Lectures, discussion, original research, and critiques. May be repeated to a maximum of nine credits. Prereq: Twelve credits in art history or consent of the instructor.

A-H 750 GRADUATE ART HISTORY SEMINAR. (3)
An intensive study of a particular work or group of works in the history of the visual arts, with special emphasis on interpretation of sources and the handling of visual and bibliographical materials. Primarily for graduate students in art history. May be repeated to a maximum of six credits. Prereq: Graduate standing in the Department or consent of the instructor.

A-H 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

A-H 799 INDEPENDENT WORK: ART HISTORY. (3)
Supervised and sustained individual research and interpretation in the history of art leading to the discovery and demonstration of new knowledge. May be repeated to a maximum of nine credits. Prereq: Graduate standing in the Department and consent of the instructor.

ART—STUDIO

A-S 102 DRAWING. (3)
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. Laboratory, nine hours.

A-S 103 INTERMEDIATE DRAWING. (3)
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.

A-S 180 BASIC DESIGN. (2)
Training in basic design skills. Creative construction in common materials; logical development of unified forms.

A-S 215 BASIC PAINTING AND PICTORIAL COMPOSITION. (3)
Introduction to technical and aesthetic problems in painting, and two-dimensional composition. Nine laboratory hours per week. Prereq: A-S 102, A-S 103, A-S 180.

A-S 220 GRAPHIC DESIGN. (2)
Basic training in the design of printing, lettering, layouts, and presentation. Studio, six hours. Prereq: A-S 102.

A-S 255 BASIC SCULPTURE. (3)
Introduction to three-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.

A-S 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 laboratory hours per week. Prereq: A-S 102, 103, 180, 215, 255, and consent of the insturctor.

A-S 310 INTERMEDIATE PAINTING. (3)
Principles of pictorial structures and composition. Still life and landscape. Medium: oil. Prereq: A-S 103, and consent of the instructor.

A-S 311 INTERMEDIATE PAINTING. (3)
A continuation of 310. Prereq: A-S 310, and consent of the instructor.

A-S 320 PRINTMAKING: INTAGLIO. (3)
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 laboratory hours per week. Prereq: A-S 215.

A-S 325 PRINTMAKING, PLANOGRAPHIC AND RELIEF. (3)
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 laboratory hours per week. Prereq: A-S 215.

A-S 340 TEXTILES: WEAVING. (3)
Design of textile, emphasis on structure, color, texture. Techniques of drafting, warping and weaving on various types of looms. Nine studio hours per week. Prereq: A-S 102, 180, and consent of the instructor.

A-S 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 laboratory hours per week. Prereq: A-S 340, and consent of the instructor.

A-S 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 laboratory hours per week. Prereq: A-S 102, 180, and consent of the instructor.

A-S 343 FIBER: NON WOVEN. (3)
Continuation of A-S 342. Emphasis concerned with developing technical skill as well as increased aesthetic value in stitchery, rug knotting, Macrame. Nine laboratory hours per week. Prereq: A-S 342, and consent of the instructor.

A-S 355 BASIC CASTING. (3)
Introduction to foundry procedure. Casting in lead, aluminum, and bronze utilizing various methods of investment casting. Nine laboratory hours per week. Prereq: A-S 255.

A-S 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 laboratory hours per week. Prereq: A-S 355.

A-S 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 laboratory hours per week. Prereq: Consent of the instructor.

A-S 360 BASIC WELDING. (3)
An introduction to the tools and techniques of welding. Projects in steel, brass, and copper. Lecture and discussion on welded sculpture. Nine laboratory hours per week. Prereq: A-S 255.

A-S 361 INTERMEDIATE WELDING. (3)
A continuation of work begun in basic welding. Introduction to arc welding. Work in steel and aluminum. Large scale work encouraged. Nine laboratory hours per week. Prereq: A-S 255, 360.

A-S 364 FIGURE MODELING. (3)
A vigourous 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 laboratory hours per week. Prereq: A-S 255.

A-S 365 BASIC WOOD SCULPTURE. (3)
Introduction to basic skills, materials, tools, and methods. Lecture and discussion of wood sculpture from history of art. Nine laboratory hours per week. Prereq: A-S 255.

A-S 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 laboratory hours per week. Prereq: A-S 365.

A-S 369 STONE CARVING. (3)
Introduction to traditional and contemporary methods, tools and concepts. Lectures and discussion of stone sculpture from history of art. Nine laboratory hours per week. Prereq: A-S 255.

A-S 370 CERAMICS. (3)
The design, construction, glazing and firing of pottery. Studio, nine hours. Prereq: A-S 180, 255 and consent of the instructor.

A-S 371 CERAMICS. (3)
A continuation of A-S 370. Prereq: A-S 370 and consent of the instructor.

A-S 502 ADVANCED DRAWING. (3)
Introduction and exploration into experimental materials and media. Relation of traditional and contemporary drawing attitudes to other areas investigated. Independent projects encouraged. Nine laboratory hours per week. Prereq: A-S 302 and consent of instructor.

A-S 510 ADVANCED PAINTING. (3)
Individual development in creative painting. May be repeated to a maximum of nine credits. Prereq: A-S 311 and consent of the instructor.

A-S 525 ADVANCED PRINTMAKING. (3)
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 nine credits.

A-S 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 laboratory hours per week. Prereq: A-S 340, 342.

A-S 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 laboratory hours per week. Prereq: A-S 356.

A-S 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 laboratory hours per week. Prereq: A-S 255, 360, 361.

A-S 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 laboratory hours per week. Prereq: A-S 366.

A-S 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 laboratory hours per week. Prereq: A-S 371 and consent of the instructor.

A-S 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 laboratory hours per week. May be repeated twice to a total of nine hours. Prereq: A-S 570 and consent of the instructor.

A-S 595 INDEPENDENT WORK: PAINTING, PRINTMAKING. (3)
Individual work in drawing, painting, and printmaking. May be repeated twice for a maximum of nine credits. Prereq: Major and a standing of 3.0 in the Department and consent of the instructor.

A-S 596 WORKSHOP. (1-6)
Summer workshops in sculpture or ceramics dealing with advanced problems. Prereq: Consent of instructor.

A-S 597 INDEPENDENT WORK: ADVANCED SCULPTURE AND OTHER THREE-DIMENSIONAL MEDIA. (3)
May be repeated two times for a maximum of nine credits. Individual research and experimental work. Prereq: Major and a standing of 3.0 in the Department; any course in the 330 sequence, and consent of instructor.

A-S 610 TRADITIONAL AND EXPERIMENTAL MEDIA IN PAINTING. (3)
A survey of historical and contemporary procedures and materials with sustained problems in mural and easel painting. Preparation of grounds and consideration of permanency in pigments, vehicles and supports. Prereq: Three credits in advanced painting; consent of instructor.

A-S 740 PROBLEMS IN FIBER. (3)
Sustained individual problems and experimental work in the technical and theoretical problems of fiber. May be repeated two times for a maximum of nine credits. Nine studio hours per week. Prereq: Twelve credits in upper division studio work and consent of instructor.

A-S 750 PROBLEMS IN SCULPTURE. (3)
Sustained individual problems and experimental work in the technical and theoretical problems of sculpture. May be repeated two times for a maximum of nine credits. Nine studio hours per week. Prereq: Twelve credits in upper division studio work and consent of instructor.

A-S 767 M.F.A. STUDIO THESIS PROJECT. (1-6)
Independent research and preparation for the M.F.A. thesis exhibition. For the student working in a highly technical medium or process, the preparation of a correlated written thesis under close guidance will be the outcome. The student will be expected to know the standard forms for photographic concepts and the preparation of a professional portfolio. May be repeated for a total of six credits. Prereq: Normally taken during final semester for graduate study.

A-S 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

A-S 770 PROBLEMS IN CERAMICS. (3)
Sustained individual problems and experimental work in the technical and theoretical problems of ceramics. May be repeated twice for a maximum of nine credits. Nine studio hours per week. Prereq: Twelve credits in upper division studio work and consent of instructor.

A-S 780 PROBLEMS IN DESIGN. (3)
Sustained individual problems and experimental work in the technical and theoretical problems of design. May be repeated two times for a maximum of nine credits. Nine studio hours per week. Prereq: Twelve credits in upper division studio work and consent of instructor.

A-S 793 GRADUATE STUDIO SEMINAR. (1)
A seminar expecially for graduate students in the studio area, in all areas of concentration. Lectures, discussion and criticism will focus on current formal and aesthetic problems in the arts. Emphasis will be placed on the integration of concepts arising in the different fields in the visual arts. Required of M.F.A. candidates for three semesters. May be repeated for a total of three credits. Prereq: Graduate standing in the Department.

A-S 799 PROBLEMS IN PAINTING AND PRINTMAKING. (3)
Sustained individual problems in drawing, painting and printmaking. May be repeated two times for a maximum of nine credits. Prereq: Twelve credits of upper division studio work and consent of instructor.

ARTS and SCIENCES

Interdisciplinary, topical or experimental courses to be approved by the Dean of the College of Arts and Sciences. A particular course may be offered at most twice under the A&S 300 number, and no A&S 300 course may be given for more than three credits per semester. Open to all University students, subject to such limits or prerequisites as set by the instructor.

A&S 102 HUMAN ECOLOGY. (3)
A study of the interrelationships of man, populations, space, energy, food, mineral resources and other life on earth.

ASTRONOMY

AST 191 DESCRIPTIVE ASTRONOMY. (3)
A non-mathematical course dealing with the earth, moon, sun, planets, comets, and meteors.

AST 192 DESCRIPTIVE ASTRONOMY. (3)
A non-mathematical course dealing with the earth, moon, solar system, the stars, the galaxy, and the universe at large.

AST 193 ELEMENTARY ASTRONOMY. (3)
A descriptive, non-mathematical account of the solar system, the sun and stars, our galaxy, and the universe at large. For elective credit, non-science requirement. Credit is not given for both AST 193 and either 191 or 192.

AST 291 SPHERICAL ASTRONOMY. (3)
Application of the formulae for the spherical triangle to a variety of problems on the celestial sphere. Prereq: Plane trigonometry.

AST 292 GALACTIC ASTRONOMY I. (3)
Consideration of stellar statistics, radio astronomy, galactic rotation, stellar populations, interstellar medium. Prereq: AST 191, 192 or consent of instructor.

AST 391 CELESTIAL MECHANICS. (3)
The mechanics of systems of gravitating particles, with emphasis upon the calculation of orbits, theory of perturbations.

AST 492 GALACTIC ASTRONOMY II. (3)
Study of content, organization, and evolution of our own and other galaxies. Prereq: AST 292 or consent of instructor.

AST 495 ELEMENTARY ASTROPHYSICS I. (3)
Applications of the principles of elementary physics to the problems of stellar and planetary interiors. Prereq: PHY 232 or 251.

AST 496 ELEMENTARY ASTROPHYSICS II. (3)
Applications of the principles of elementary physics to the problems of stellar atmospheres and interstellar matter. Prereq: AST 495.

AST 591 COSMOLOGY I. (3)
Consideration of observational basis of cosmology, cosmological theories of general relativity, the steady state theory, and kinematic relativity. Prereq: MA 213.

AST 592 COSMOLOGY II. (3)
A study of the universe as a complete physical unit. Consideration of the various relativistic models and theory evaluation in the light of current observations. Prereq: AST 591.

BEHAVORIAL SCIENCE

BSC 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. Note: For nursing, pre-nursing and allied health. Prereq: PSY 104, SOC 101.

BSC 221 BEHAVIORAL FACTORS IN HEALTH AND DISEASE. (3)
The study of human behavior relating to health and disease and the organization of medicine as a social system. Selected concepts from the psychological and social sciences are presented in a holistic frame of reference and applied to the consideration of specific problems.

BSC 527 SOCIETY AND HEALTH. (3)
The study of human behavior in illness and of medicine as a complex form of social organization in perspective of historical, cross-cultural and contemporary analysis. This course is designed primarily for students preparing for careers in an allied health science and profession. Prereq: SOC 101. (Same as SOC 527.)

BSC 529 SURVEY OF MEDICAL ANTHROPOLOGY. (3)
A cross-cultural survey of behavioral factors in the recognition, prevention and treatment of disease in primitive, folk, and modern cultures with an emphasis on the solution of world-health problems. Topics to be covered include non-western medical systems, health behavior as a projective system, transcultural medicine and psychiatry and health behavior and culture change. Prereq: ANT 120, 121. (Same as ANT 529.)

BSC 546 SOCIAL FACTORS IN MENTAL HEALTH. (3)
The significance of social and cultural factors in the recognition, course, and management of mental health problems; social organization of the mental hospital and and cultural alternatives of hospitalization. Prereq: Consent of instructor; SOC 101. (Same as SOC 546.)

BSC 670 SEMINAR ON ROLE THEORY. (3)
An exploration of differences and similarities in the utilization of the concept of role in sociology, anthropology and psychology. Emphasis is placed on the potentiality of role as a unifying concept in the behavioral sciences. Prereq: Consent of instructor; SOC 101. (Same as SOC 670 and ANT 670.)

BSC 738 SEMINAR: DRUG USE AS DEVIANT BEHAVIOR. (3)
A seminar for advanced students. Data on drug abuse and its control used to exemplify and test sociological theories of deviant behavior. Covers characteristics of users, treatment approaches, relations to control measures, changes over time and drug policies. Prereq: SOC 636. (Same as SOC 738.)

BSC 761 INTERPERSONAL PROCESSES IN CRITICAL SITUATIONS. (3)
A review of the processes underlying the manner in which people react to situations involving potentially serious consequences for themselves and others. The evidence to be reviewed will come from studies of: reactions in disaster situations; laboratory studies of stress; patterned responses to victims of physical and social pathology. Prereq: PSY 544 and introductory statistics. Same as PSY 761.

BSC 764 TOPICAL SEMINAR IN PSYCHOLOGICAL ANTHROPOLOGY. (3)
Advanced study of topics of current interest in psychological anthropology; e.g., language and cognition, psychological concommitants of rapid culture change; and transcultural psychiatry. Prereq: ANT 526 or PSY 544, or permission of instructor. (Same as ANT 764.)

BSC 765 RESEARCH PROBLEMS IN MEDICAL ANTHROPOLOGY. (3)
(1) History and theory of medical anthropology; (2) research design, field work, analysis of data, and report writing. Two class hours, three laboratory hours per week. Prereq: Graduate status in ANT, SOC, or PSY, a concentration or minor in medical behavioral science and consent of instructor. (Same as ANT 765.)

BSC 766 CONCEPTS IN MEDICAL SOCIOLOGY. (3)
A systematic review of sociological concepts and methods which have been applied to the study of health and medicine; the contributions of medical sociology to general sociological theory; the roles of sociology in education for the health professions and in research on health related problems of society. Three class 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.)

BSC 767 RESEARCH PROBLEMS IN MEDICAL SOCIAL PSYCHOLOGY. (3)
Advanced training in research strategies, designs, and techniques applicable to problems in medical social psychology, such as patient compliance, adaptive and maladaptive responses to pathology, status relations as a variable in the effectiveness of health teams, socialization of the medical student. Prereq: introductory statistics, permission of instructor.

BSC 772 TOPICAL SEMINAR IN MEDICAL BEHAVIORAL SCIENCE. (1-3)
Advanced study of topics of current importance in medical behavioral science such as alcoholism, social psychological processes related to health, social structure of mental hospitals, social epidemiology of disease, institutional dependency, computer-aided diagnosis. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

BSC 776 SEMINAR IN DEPENDENCY BEHAVIOR. (3)
The course is designed to explore theories of dependency behavior by examining the concept of dependency as it can be applied to the study of various phenomena including alcohol use and abuse; dependence on other psychoactive substances; institutional dependency; corporation behavior; and poverty and welfare. Prereq: Consent of instructor.

BSC 777 SEMINAR IN MENTAL ILLNESS CONCEPTS, RESEARCH AND POLICY. (3)
Systematic study of contemporary concepts of mental health and mental illness, and their historical development; major forms of societal response to mental illness. Prereq: Graduate or advanced undergraduate work in a social science, consent of instructor.

BSC 790 RESEARCH IN MEDICAL BEHAVIORAL SCIENCE. (1-6)
Individually directed research and reading in particular aspects of medical behavioral science under the supervision of one or more members of the faculty. 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.

BSC 810 CONCEPTS OF DENTAL BEHAVIORAL SCIENCE. (2)
Selected concepts from the behavioral sciences, (psychological, socio-cultural, historical) are considered with special reference to the understanding of the nature and organization of dental resources and human behavior with respect to dental health and disease. Principles of human communication are considered in terms of the dentist-patient relationship. Concepts fundamental to the basic sciences of dentistry are introduced through lectures, seminars and laboratory exercises. Lecture, seminar and laboratory. Note: For dental students only.

BSC 811 HEALTH AND SOCIETY. (2)
The unit on Health and Society is designed to provide beginning medical students with selected concepts and principles from the behavioral sciences within the context of a unifying 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 responses to illness; of the organization of medicine as a major system of behavior and of interpersonal relationships and social structure within medicine. Topical seminars provide small groups of students and faculty an opportunity to explore selected topics in some depth and draw on facilities in the community, the hospital and the Department's small group interaction laboratory.

BIOCHEMISTRY

BCH 401 FUNDAMENTALS OF BIOCHEMISTRY. (3)
Descriptive chemistry of amino acids and proteins, carbohydrates, lipids and nucleic acids and discussion of major metabolic pathways and of methods of energy production in cells. Lecture, three hours; one optional conference. Prereq: CHE 104 or 112, CHE 236 and BIO 202 or equivalent.

BCH 502 GENERAL BIOCHEMISTRY. (3)
A continuation of BCH 401. The topics discussed include mechanisms of enzyme action, regulation of metabolic pathways and alternate pathways in plants and bacteria. The sequence BCH 401, 502 covers the material of BCH 811. Prereq: BCH 401 or equivalent.

BCH 517 EXPERIMENTAL METHODS IN BIOCHEMISTRY. (4)
A laboratory course dealing with the instrumentation and procedures of biochemical research. Because many of the materials used are labile, the course is given in a block during a four-week period at the end of the spring semester. Five days per week during four-week intersession, or summer session. Prereq: BCH 401, 502 or 811 and permission of instructor.

BCH 610 BIOCHEMISTRY OF LIPIDS AND MEMBRANES. (3)
A lecture and seminar course devoted to intermediary metabolism of lipids and various biochemical aspects of the structure, assembly and functions of biological membrane systems. Prereq: BCH 401, 502 or 811.

BCH 611 BIOCHEMISTRY AND CELL BIOLOGY OF NUCLEIC ACIDS. (3)
A lecture and seminar course devoted to a study of the principles of nucleic acid chemistry and to the role of nucleic acids in cellular function. Prereq: BCH 401, 502 or 811. (Same as CBI 611.)

BCH 612 STRUCTURE AND FUNCTION OF PROTEINS AND ENZYMES. (3)
Primarily a lecture course devoted to the relationship of the structure of protein molecules to their biological roles. Proteins will be discussed in terms of their size, shape, conformation, primary structure, catalytic mechanism and regulatory properties. Prereq: BCH 401, 502 or 811; CHE 444 or consent of instructor. May be taken concurrently with BCH 502.

BCH 618 SEMINAR IN BIOCHEMISTRY. (1)
A weekly seminar, required of all students majoring in biochemistry devoted to discussions of areas not covered in other courses and to recent developments in the field.

BCH 619 SEMINAR IN BIOCHEMISTRY. (1)
A weekly seminar, required of all students majoring in biochemistry, devoted to discussions of areas not covered in other courses and to recent developments in the field.

BCH 640 RESEARCH IN BIOCHEMISTRY. (1-15)
Prereq: Permission of instructor.

BCH 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

BCH 780 TOPICS IN BIOCHEMISTRY. (1-3)
A lecture and seminar course offered on topics of special interest to graduate students. May be repeated to a maximum of six credits.

BCH 811 BIOCHEMISTRY FOR MEDICAL STUDENTS. (6)
A selective summary of available information on cellular activities at the 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. Lecture, five hours; laboratory, one hour. Prereq: Admission to College of Medicine.

BIOLOGY

(See also courses listed under Botony, Microbiology and Zoology.)

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 102 HUMAN ECOLOGY. (3)
A study of the interrelationships of man, populations, space, energy, food, mineral resources and other life on earth.

BIO 103 PRINCIPLES OF BIOLOGY. (3)
Introductory biology. Discussion topics are those relevant to both plants and animals—cell structure and function, molecules important to living things, metabolism, heredity, environment. Prereq: One unit of chemistry or consent of instructor.

BIO 104 ANIMAL BIOLOGY. (3)
An introduction to the major areas of interest in animal biology, e.g., the cell, development, heredity, body systems, evolution, taxonomy, phylogeny, ecology. Prereq: High school chemistry recommended.

BIO 105 ANIMAL BIOLOGY LABORATORY. (1)
Laboratory to be taken concurrently with BIO 104. Two laboratory hours per week. Prereq: One unit of chemistry or consent of instructor; BIO 104 should be taken concurrently.

BIO 106 PRINCIPLES OF PLANT BIOLOGY. (3)
The principles underlying the structure, physiology and reproduction of flowering plants. Prereq: High school chemistry recommended.

BIO 107 PLANT BIOLOGY LABORATORY. (1)
Laboratory studies of the morphology, physiology and reproduction of plants with emphasis on the flowering plants. Two laboratory hours per week. Prereq: One unit of chemistry or consent of instructor. BIO 106 should be taken concurrently.

BIO 108 PRINCIPLES OF MICROBIOLOGY. (3)
This course will introduce biology and non-biology students to fundamental microbiological principles and techniques. Emphasis is placed upon structural, functional, ecological and evolutionary relationships among microorganisms, principally viruses, rickettsiae, bacteria, fungi and algae. Prereq: High school chemistry recommended.

BIO 109 INTRODUCTORY MICROBIOLOGY LABORATORY. (2)
Laboratory exercises in general microbiology. Four laboratory hours per week. Prereq: One unit of chemistry or consent of instructor; BIO 108 should be taken concurrently.

BIO 110 INTRODUCTION TO HUMAN BIOLOGY AND HEALTH. (3)
A course describing basic anatomical and physiological functions of various body cells, tissues, and organs and their interrelationships as a functioning whole. It also deals with basic information as to maintenance of health, brief description of the major and common diseases affecting man—their control and prevention.

BIO 200 GENERAL BIOLOGY I. (3)
An integrated study of organisms and life functions. Prereq: One year college chemistry. Must be accompanied by BIO 201 (laboratory).

BIO 201 GENERAL BIOLOGY LABORATORY I. (2)
Laboratory to accompany BIO 200. Four hours laboratory per week. Prereq: Enrollment in BIO 200. Also open to students who have had BIO 101. One year college chemistry or concur.

BIO 202 GENERAL BIOLOGY II. (3)
Continuation of BIO 200. Prereq: BIO 200-201. Must be accompanied by BIO 203 (laboratory).

BIO 203 GENERAL BIOLOGY LABORATORY II. (2)
Laboratory to accompany BIO 202. Four hours laboratory per week. Prereq: Enrollment in BIO 202. Also open to students who have completed BIO 101 and 201.

BIO 404 PRINCIPLES OF GENETICS. (3)
A study of inheritance dealing with physical and chemical aspects of the genetic material and their relationship to the expression of the phenotype. Prereq: One year of biology or equivalent.

BIO 450 INTRODUCTORY ECOLOGY. (4)
A non-laboratory course in basic ecology taught jointly by Botany and Zoology Departments. Will stress the ecosystem approach to understanding the interrelationships between organisms and their environment including current environmental problems. Lecture, three hours; recitation, one hour. Prereq: One course in introductory biology.

BIO 515 GENERAL CELL BIOLOGY. (3)
An integrative, analytical study of the cell as the basic unit biological structure and function, with emphasis on eukaryotes. Lecture, discussions with readings in some original literature. Prereq: BIO 200-202 or equivalent, one year of organic chemistry or permission of instructor. Course work in cytology or genetics recommended. (Same as CBI 515.)

BIO 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.

BIO 620 GENETIC STRUCTURE OF POPULATIONS. (3)
A discussion of the development, theory and practice of experimental and theoretical population genetics, including the basic dynamics and integrating properties of populations, factors which produce changes in populations and their effects on population structure and evolution. Prereq: An introductory course in genetics and in statistics, and consent of instructor. (Same as AGR 620.)

BIO 630 EXPERIMENTAL TECHNIQUES IN PLANT PHYSIOLOGY. (3)
Presentation of theory and experimental techniques for the study of chemical constituents by centrifugation, chromatography, spectroscopy and electrometry. Discussion of methods and design to culture, sample and prepare plant material for use in physiological experiments. Two class hours per week; three laboratory hours per week. Prereq: BOT 501, CHE 232, 233 or consent of instructor. (Same as AGR 630.)

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 740 MAMMALIAN RADIATION BIOLOGY. (2)
The physical and biological sequelae of radiation effects will be discussed emphasizing human and mammalian responses and radiation health. Emphasis will be for health and medical workers. Prereq: Must have consent of instructor, ZOO/RM 540 or RM 546 or equivalent background. (Same as BIO 740.)

BIO 760 DEVELOPMENTAL GENETICS. (3)
Discussion of metabolism, phenogensis, 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. (0)
(1 to 6 credits equivalence.) May be repeated to a maximum of six credits.

BIO 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
(1 to 12 credits equivalence.) May be repeated indefinitely.

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.

BOTANY

(See also courses listed under Biology.)

BOT 201 FIELD BOTANY I. (2)
The study of the flora and vegetation of Kentucky. The use of field identification keys and herbarium collections. Two two-hour laboratories (field trips in lieu of some class hours per week). Prereq: An introductory course in biology.

BOT 202 FIELD BOTANY II. (2)
The study of flora and vegetation of Kentucky. The use of field identification keys and herbarium collections. Two two-hour laboratories per week. Prereq: An introductory course in biology.

BOT 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: One semester of botany or equivalent. (Same as FOR 219.)

BOT 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: An introductory course in biology.

BOT 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.)

BOT 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.)

BOT 403 ECONOMIC BOTANY. (3)
Study of Ethnobotany and the domestication of plants. Plants as sources of food, medicines and other plant products. Two class hours per week; two laboratory hours per week. Prereq: Introductory course in biology or consent of instructor.

BOT 501 PLANT PHYSIOLOGY. (3)
Basic principles of plant physiology; the physiological processes of green plants and the effect of the environment on these processes. Prereq: Six credits in botany or biology and two semesters of inorganic chemistry.

BOT 502 LABORATORY IN PLANT PHYSIOLOGY. (2)
Laboratory for BOT 501. Laboratory, four hours. Prereq: BOT 501 or concurrent with BOT 501.

BOT 506 SPECIAL PROBLEMS. (1-3)
Independent work in some phase of advanced botany. May be repeated three times for a maximum of 12 credits. Prereq: Consent of instructor.

BOT 507 ALGOLOGY. (4)
A survey of the physiology, structure, life histories, genetics and relationships of the various groups comprising the algae, with the main emphasis upon the fresh-water green algae. Two hours of lecture and two two-hour laboratories per week. Prereq: Six credits in biology.

BOT 513 PLANT AUTECOLOGY. (4)
The effect of physical and biotic factors on plants and environment. Physiological, morphological and anatomical adaptions of plants to the physical factors of the environment are emphasized. Some of the laboratory exercises are carried out in the field. Three one-hour lectures and one two-hour laboratory per week. Prereq: BIO 450 or consent of instructor.

BOT 515 SEMINAR. (1)
Readings and reports on special topics. Required of all senior botany majors. May be repeated once.

BOT 521 ANATOMY OF VASCULAR PLANTS. (4)
The nature and origin of primary and secondary tissues and their distribution in plant organs; the use of anatomical information in phylogeny, pathology, ecology and other research areas. Two lectures and two two-hour laboratory periods per week. Prereq: Two semesters of biology or consent of instructor.

BOT 524 MYCOLOGY. (4)
The structure, life history, and physiology of the fungi. Three lectures and one laboratory period per week. Prereq: One course in biology.

BOT 528 PLANT CYTOLOGY. (4)
The structure of plant cells; mitosis and meiosis. Lectures, three hours and two hours of laboratory per week. Prereq: Six credits in the biological sciences.

BOT 530 INTRODUCTION TO HEREDITY. (3)
The principles of heredity and their physical basis. Prereq: Three credits in the biological sciences.

BOT 541 PLANT PATHOLOGY. (3)
Significance, nature, causes, and methods of control of plant diseases. Lecture and discussion, two hours; laboratory, two hours. Prereq: One semester of botany or equivalent. (Same as PPA 541.)

BOT 551 TAXONOMY OF VASCULAR PLANTS. (4)
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 laboratories per week, including field trips. Prereq: Two semesters of biology or consent of instructor.

BOT 560 PLANT MICROTECHNIQUE. (3)
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.

BOT 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 laboratories per week. Prereq: BOT 501, 521 or 560 or consent of instructor.

BOT 620 TOPICS IN MODERN BOTANY. (1-3)
A course for students in the biological and related sciences to be taught on various topics by specialists in their fields. Designed to give the student the most up-to-date information on the various topics. May be repeated three times for credit, but each time the course is taken, it must be under a different instructor. The type of course should be indicated by parentheses, i.e., (systematic botany), (cytogenetics), (morphogenesis), (mycology), (algal physiology), etc. Prereq: Consent of instructor.

BOT 626 EXPERIMENTAL MYCOLOGY. (4)
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.

BOT 634 CYTOGENETICS. (4)
Cytological and genetic evidence for the chromosome theory. Chromosome aberrations and their importance in heredity and evolution. Prereq: BOT 528 and 530 or equivalent.

BOT 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. Lecture, two hours; laboratory, two hours per week. Prereq: CHE 236 or 232, BOT 501, or consent of instructor.

BOT 732 MINERAL NUTRITION OF PLANTS. (3)
Discussion of accumulation, translocation, and utilization of mineral elements by higher plants. Emphasis will be placed on the relationship between these processes and plant metabolism. Prereq: BOT 701 or BCH 515 or consent of instructor. (Same as AGR 732 and HOR 732.)

BOT 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 and HOR 734.)

BOT 735 BIOSYSTEMATICS. (3)
Principles in the application of data from the fields of ecology, genetics, cytology, morphology, phytogeography, and physiology to the solution of taxonomic problems. Prereq: BOT 551, 530.

BOT 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

BOT 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

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

BOT 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.

BUSINESS ADMINISTRATION

BA 330 MARKETING MANAGEMENT. (3)
The literature and problems in the retail distribution of consumers' goods, wholesale distribution of consumers' goods, industrial goods, sales organizations, sales promotion and advertising, and price policies. Prereq: ECO 261 or consent of the instructor.

BA 332 BEHAVIORAL SYSTEMS IN MARKETING. (3)
The application of psychology, sociology, and anthropology to

marketing. Includes such topics as consumer decision process, communications, interpersonal behavior, innovation. Prereq: BA 330.

BA 335 BUSINESS MANAGEMENT. (3)
A study of planning organizing and controlling; an interdisciplinary approach; actual decision-making cases. Prereq: STA 291, ECO 260, 261 and ACC 202, or consent of instructor.

BA 336 INDUSTRIAL RELATIONS. (3)
Historical development of industrial relations; labor organizations; analysis of labor management relationships from social, economic and political perspectives; manpower; supervision and leadership; introduction to recruitment, selection, job evaluation, training; wages, hours, promotion, health policies; current problems. Prereq: BA 335 or consent of instructor.

BA 340 THE LEGAL ENVIRONMENT OF BUSINESS. (3)
An interdisciplinary approach to the legal environment of business. Primary focus on the nature and development of law as an expression of social and economic policy. Historical and contemporary analyses of a number of specific legal questions involving the corporate organization. Prereq: Junior standing and consent of instructor.

BA 341 BUSINESS LAW I. (3)
A survey of the principles of contracts, sales, bills, notes, and that portion of the law of torts applicable to business practices. Prereq: Junior standing or consent of instructor.

BA 345 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.

BA 351 INTRODUCTION TO BUSINESS DATA PROCESSING. (3)
An introduction to high speed data processing's role in business and economics. Includes methods of solving problems related to economic and business decision making and the study of managerial problems related to business computer systems. Prereq: Not open to students who are enrolled in or have received credit for courses in data processing.

BA 395 INDIVIDUAL WORK IN BUSINESS ADMINISTRATION. (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits. Class hours and laboratory hours by appointment. Prereq: Consent of instructor.

BA 431 CONTEMPORARY MARKETING PROBLEMS. (3)
An examination of selected areas in the field of marketing with a focus on contemporary problems. Emphasis will be placed on individual work by students. Prereq: BA 330.

BA 432 MARKETING STRATEGY AND PLANNING. (3)
An examination of and participation in analytical processes for managerial marketing decisions. Topics will include such problem areas as: product planning, distribution systems, advertising strategies, information systems, pricing decisions and buying behavior. Prereq: BA 330 and two other marketing courses.

BA 434 RESEARCH IN MARKETING. (3)
Training in the application of scientific method to research in fields of marketing. A major marketing investigation will be conducted by the class. Prereq: BA 330, ECO 391 or equivalent.

BA 435 ANALYSIS OF ORGANIZATIONAL BEHAVIOR. (3)
The behavior of business organizations and their participants is analyzed in the contemporary language of social psychology, systems, and models. Various theories of the firm are reviewed and evaluated. The interdependence of economic, social and behavioral factors is stressed. Prereq: BA 335 or consent of instructor.

BA 439 BUSINESS POLICY. (3)
Analysis of management problems, formulation of alternative courses of action, determination of policy decisions. Prereq: Senior standing, BA 435 or 450, or consent of instructor.

BA 441 BUSINESS LAW II. (3)
A continuation of BA 341. Prereq: BA 341 or consent of instructor.

BA 446 INVESTMENTS. (3)
Analysis of corporation statements for investment purposes; the security market, market influences on security prices; effect of interest changes on security prices; and the development of investment programs. Prereq: ACC 202.

BA 447 LIFE INSURANCE. (3)
Economics of life insurance; organization and control; special forms of life insurance; and fundamental principles of rate-making. Prereq: ECO 261.

BA 448 PROPERTY AND CASUALTY INSURANCE. (3)
Public control; nature of contracts; analysis of reserve functions, and rate-making processes. Prereq: ECO 261.

BA 450 QUANTITATIVE ANALYSIS IN MANAGEMENT. (3)
An introduction to quantitative techniques in management decisions. Includes basic linear programming, Monte Carlo, and waiting line theory. Prereq: BA 335 and ECO 391, or consent of instructor.

BA 456 WORLD BUSINESS. (3)
Examines the impact of international business upon society from a political, cultural and economic point of view. Particular stress will be given to U.S. business in international operations; its past involvement, present position, and future direction. Prereq: ECO 260-261.

BA 536 APPLIED PERSONNEL MANAGEMENT. (3)
Analysis of the problems, theories and techniques used in recruitment, job analysis, selection decisions, interviewing, performance evaluation, and training in organizations. Prereq BA 335, ECO 391, or consent of instructor.

BA 537 CONTEMPORARY PROBLEMS IN INDUSTRIAL RELATIONS. (3)
An examination of selected areas in the field of Industrial Relations with a focus on contemporary problems. Emphasis will be placed on individual work by the students. Prereq: BA 536 and ECO 578, or consent of instructor.

BA 551 ADVANCED BUSINESS DATA PROCESSING AND INFORMATION SYSTEMS. (3)
An examination of the use of computers as an aid to business and economic decision making, information, and related problems in business and economics. Prereq: BA 351 or equivalent. (BA 450.)

BA 556 INTERNATIONAL COMMERCIAL POLICY. (3)
America's position in the world economy and its international accounts; United States tariff policies, war debts, financial cooperation and investment policy. Prereq: ECO 471.

BA 584 FINANCIAL MARKETS AND INSTITUTIONS. (3)
Analysis of securities markets, savings and loan associations, insurance companies, pension funds, credit unions, broker-dealer operations and government agencies with particular attention to their role in the flow of funds in the American economy. Prereq: ECO 485.

BA 585 BANK MANAGEMENT. (3)
A study of the principles and cases in commercial banking practice. Bank management practices are studied within the economic, monetary, fiscal and legal framework of the American economy. Prereq: ECO 485 or consent of instructor.

BA 600 FUNDAMENTALS OF BUSINESS ADMINISTRATION. (12)
An accelerated course providing intensive treatment of administration and the tools of analysis for policy-level decision making in organizations. Not open to students with undergraduate Business Administration degrees. To be offered summer term only. Prereq: Admission to MBA Program.

BA 621 ANALYSIS OF ORGANIZATIONS: DECISION SCIENCE METHODS. (4)
An introduction to organizational decision making under conditions of uncertainty, risk, and certainty. Concepts of analysis from the areas of economics, mathematics, and statistics will be utilized in terms of administrative decision making in public administration. Prereq: MPA student or consent of instructor.

BA 622 ANALYSIS OF ORGANIZATIONS: FINANCIAL CONTROL METHODS. (4)
A study of accounting systems and the information they provide as an aid to the decision- making process involved in the planning and control functions within an organizational framework. Consideration will be given to the underlying assumption of the data base and the models used in not-for profit institutions as well as for profit-oriented organizations. Special emphasis will be given to budgetary concepts and fund accounting. Prereq: MPA student or consent of instructor.

BA 623 ANALYSIS OF ORGANIZATIONS: BEHAVIORAL SCIENCE METHODS. (4)
The course examines analytical techniques employed in the management and decisions concerning human behavior in organizations. Human behavior is viewed in three contexts: potential organizational employees, present organizational employees, and consumers of the organization's services. Applications in specific public organizational settings are considered. Prereq: MPA student or consent of instructor.

BA 626 ADMINISTRATION OF PUBLIC ORGANIZATIONS. (3)
A course which examines the interaction of both external and

internal resources and constraints upon the administrative decision processes in a number of public organizational settings. The objective is an understanding of the practice of administration in public organizations. Prereq: MPA student or consent of instructor.

BA 627 THE FISCAL SETTING OF PUBLIC ORGANIZATIONS. (3)
Principles and practices of economical resource management in the governmental sector: tax and expenditure types, intergovernmental fiscal cooperation, debt financing, budgeting and financial planning. Prereq: MPA student or consent of instructor.

BA 628 LEGAL AND POLITICAL ENVIRONMENT OF PUBLIC ORGANIZATIONS. (3)
A study of those aspects of political and legal systems that particularly affect the administration of public agencies. Emphasis on party systems, legislative and executive processes, administrative law, and judicial review of administration. Prereq: MPA student or consent of instructor.

BA 629 PUBLIC POLICY FORMULATION AND SOCIAL PLANNING. (3)
Broad-based course in public policy formulation and social planning. Emphasis is on the parameters of policy formulation as well as the social planning and impact variables. Both policy processes and relevant content areas will be stressed. Prereq: MPA student or consent of instructor.

BA 630 ADVANCED MARKETING MANAGEMENT. (3)
A critical study of significant trends, controversial issues and advanced techniques in the fields of marketing. Prereq: A course in marketing or consent of instructor.

BA 631 CONSUMER BEHAVIOR. (3)
An explanation and evaluation of theory and research from the behavioral sciences in order to assess the marketing implications of the various processes and facets of consumer motivation and behavior. Prereq: BA 330 or equivalent.

BA 632 DISTRIBUTION CHANNEL SYSTEMS. (3)
An in-depth study of marketing or distribution channels covering both the conceptual and managerial problems of the topic. Special emphasis is on the importance of distribution within a marketing program and in the U.S. economy. Prereq: BA 630 (or equivalent).

BA 633 QUANTITATIVE AND STATISTICAL METHODS IN MARKETING DECISION MAKING. (3)
The course will focus on the application of management science concepts and techniques for the analysis of marketing decisions within the firm. Emphasis will be placed on the current state of knowledge regarding the use of mathematical and statistical models for analyzing marketing decisions and processes. Prereq: BA 650, 630 or equivalent.

BA 635 MANAGERIAL ECONOMICS. (3)
Analysis of applications of economic theory to management decision making. Such problems as demand and cost determination, pricing, and capital budgeting are treated.

BA 636 RESEARCH AND REPORT WRITING. (3)
An introduction to business research and formal report writing. Emphasis is placed on methodology, research design, techniques of analysis, and data sources. The actual writing of research reports is stressed.

BA 637 ADMINISTRATIVE BEHAVIOR. (3)
A critical examination of the principles, methods, policies and procedures related to the effective utilization of human resources in business concerns, consideration being given to mutual relationships.

BA 638 COMPARATIVE INTERNATIONAL MANAGEMENT. (3)
A comparison of management concepts and practices in different countries and the role of management in economic development; an interdisciplinary approach emphasizing the impact of sociological-cultural factors, legal-political factors and education on management development. Prereq: BA 335 or consent of instructor.

BA 639 ADVANCED BUSINESS MANAGEMENT. (3)
An integration of marketing, production, finance and organization behavior and application of analytical tools of statistics, accounting, economics, and mathematics in actual business cases involving planning, policies and strategies.

BA 642 BUSINESS AND SOCIETY. (3)
An introduction to the increasingly complex set of interrelationships between the business organization and its environment. Course is developed around a series of problems selected to raise major issues involved in these relationships. Prereq: MBA student or consent of instructor.

BA 645 CORPORATE FINANCIAL POLICY. (3)
A study of financial management from the viewpoint of the corporate financial officer. Problems of planning the capital structure, issuing securities, the management of working capital, and policies with reference to reserves, surplus and dividends. Prereq: A course in business finance or consent of instructor.

BA 646 INVESTMENT MANAGEMENT. (3)
Evaluation of sources of information and advice concerning securities, methods of analysis and policies of individuals and institutions in the management of investment funds. Prereq: Appropriate undergraduate courses in accounting and finance.

BA 650 MANAGEMENT SCIENCE I. (3)
Application of mathematical analysis in business decision making. Includes linear programming, total value analysis, incremental analysis, and other phases of operations research. Prereq: MA 113.

BA 651 TOPICS IN OPTIMIZATION. (3)
A study of optimization tools employed in decision making in the business and economic setting. Emphasis on characterization and computation of optima with particular attention to modeling. Topics include linear, non-linear, dynamic, and integer programming, as well as further study of the method of Lagrange, Kuhn-Tucker theory, optimal control theory and sensitivity analysis. Prereq: Consent of instructor.

BA 652 PRODUCTION MANAGEMENT. (3)
A study of procedures and techniques employed in manufacturing plants. An analysis of actual cases in production planning and control, time and motion study, quality control, plant layout, and budgetary control. Visits to industrial plants.

BA 655 MANPOWER ADMINISTRATION. (3)
Critical examination of applied research, models, and methods in the management of manpower resources. Emphasis is placed on evaluation and practice in specific models and techniques employed in maximizing staffing, development, and compensation decisions. Prereq: ECO 391 or equivalent.

BA 656 INTERNATIONAL MARKETING. (3)
A comparative approach to marketing systems with emphasis on the adaptability of U.S. marketing policies in overseas areas. The nature of the foreign markets, their growth, distribution systems and government policies. The U.S. firm and its overseas activities, organization structure, management, finance, product policies, physical distribution, promotion and research. Prereq: Consent of instructor.

BA 695 INDIVIDUAL WORK IN BUSINESS ADMINISTRATION. (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits. Prereq: Consent of the instructor.

BA 730 SEMINAR IN MARKETING THEORY. (3)
A survey, analysis and evaluation of the current research in marketing theory. Detailed attention is given to problems of determining the meaning and boundaries of marketing theory. Emphasis is placed on introducing the student to the substantive content of marketing theories and their methodologies. Prereq: BA 630 or consent of instructor.

BA 735 ADMINISTRATIVE SCIENCE I. (3)
Primary emphasis upon the identification and investigation of the schools of thought concerning the field of administration. Analysis of various theory bases for purposes of integration and generalization will also make up a major portion of the course. Prereq: BA 335 or consent of instructor.

BA 736 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.

BA 745 SEMINAR IN FINANCIAL THEORY. (3)
Primary emphasis on the theory of financial asset valuation. Topics include: utility theory, investor reaction to uncertainty, cost of capital theory, dividend theory, portfolio theory, and asset pricing in equilibrium. Prereq: BA 645.

BA 746 SEMINAR IN MANAGERIAL FINANCE. (3)
Primary emphasis on the implementation of financial theory for the management of the assets of a business firm. Topics include: capital budgeting, working capital planning, financing the firm, cost of capital and the financial structure of the firm, and mergers and acquisitions. Prereq: BA 645.

BA 750 MANAGEMENT SCIENCE II. (3)
Continuation of BA 650 to include dynamic programming, game theory, Bayesian Decision Theory, and Monte Carlo techniques. Prereq: BA 650 or equivalent.

BA 751 SEMINAR IN MANAGEMENT SCIENCE. (3-6)
Each semester some topic in management science such as simulation, queuing theory, stochastic processes, numerical methods, and

Bayesian decision theory will be studied intensively. Prereq: BA 651, 750.

BA 761 SEMINAR IN MANAGERIAL ECONOMICS. (3)
Each semester some topic in managerial economics such as cost analysis, capital budgeting, production management, demand analysis, forecasting will be studied intensively. Prereq: BA 635.

BA 762 RESEARCH METHODOLOGY. (3)
This course will deal with the philosophy of science, problems of scientific logic, induction and deduction and the role of theory construction in the behavioral and social sciences. It will emphasize the nature of scientific method and problems in research design.

BA 763 RESEARCH, DESIGN AND ANALYSIS. (3)
This course deals with the design and analysis of business research. Emphasizes the practical application of analysis of variance and correlational techniques to problems in business research. Focus will be on design, implementation, and interpretation of research. Prereq: BA 762.

BA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated. (1-6 credits equivalence.)

BA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

BA 771 SEMINAR IN BUSINESS ADMINISTRATION. (3)
Each semester some topic currently discussed in scholarly journals in business administration will be studied intensively. May be repeated to maximum of nine credits. Prereq: Consent of instructor.

BA 781 INDEPENDENT WORK IN BUSINESS ADMINISTRATION. (1-16)
Designed for advanced students who undertake research problems to be conducted in regular consultation with the instructor. May be repeated to maximum of six credits. Prereq: Consent of instructor.

BUSINESS AND OFFICE EDUCATION

(See also Vocational Education.)

BOE 112 THEORY AND PRINCIPLES OF SHORTHAND. (3)
A study of the theory and principles of shorthand (Gregg) with emphasis upon development in reading, in writing, and in establishing basic foundations for transcription. Credit for this course will be validated upon completion of BOE 113. Prereq or concur: ENG 101.

BOE 113 INTERMEDIATE SHORTHAND AND TRANSCRIPTION. (3)
A continuation of the study of theory and principles of shorthand; development of dictation and transcription, with introduction of associated secretarial procedures and personnel relationships. Prereq: BOE 112, 117 or their equivalents.

BOE 117 TYPEWRITING. (3)
Principles and techniques of typewriting are integrated with a thorough study of form, style, and arrangement of typewritten materials. Prereq or concur: ENG 101.

BOE 118 ADVANCED TYPEWRITING. (3)
A study of advanced principles and techniques of typewriting with emphasis upon planning and organizing a wide range of business communications media and upon meeting production standards essential to the operation of modern offices, Prereq: BOE 117 or its equivalent.

BOE 209 SECRETARIAL APPLICATIONS OF ACCOUNTING. (4)
A study of accounting systems for the professions, small businesses, and institutions in which the secretary is responsible for the financial records, with special application and practice sets. Prereq: Consent of instructor.

BOE 214 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.

BOE 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.

BOE 219 OFFICE MACHINES. (3)
A study of office machines processes, application, and integration and administration of office services. Prereq: BOE 117 or equivalent.

BOE 301 OFFICE INTERNSHIP. (1)
Laboratory and office experience for advanced students in business and office education. Prereq: BOE 215 or consent of instructor.

BOE 302 OFFICE INTERNSHIP. (1)
Laboratory and office experience for advanced students in business and office education. Prereq: BOE 215 or consent of instructor.

BOE 303 OFFICE INTERNSHIP. (1)
Laboratory and office experience for advanced students in business and office education. Prereq: BOE 215 or consent of instructor.

BOE 395 INDIVIDUAL WORK IN BUSINESS AND OFFICE EDUCATION. (1-6)
Individually supervised study in one or more specialized topics or problems in business and office education not covered in regular courses. Independently designed projects may also be selected. Open to seniors in business education. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

BOE 445 OFFICE ADMINISTRATION AND SERVICES. (3)
A study of the theory, principles, and techniques of modern office administration and services with emphasis on data processing systems and information handling.

BOE 519 RECORDS MANAGEMENT. (3)
The underlying principles and procedures of records management; information storage and retrieval systems; integration and control of records systems and programs. Prereq: BOE 219, or consent of instructor.

BOE 556 BUSINESS 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.

CELL BIOLOGY

CBI 515 GENERAL CELL BIOLOGY. (3)
An integrative, analytical study of the cell as the basic unit biological structure and function, with emphasis on eukaryotes. Lecture, discussions with readings in some original literature. Prereq: BIO 200-202 or equivalent, one year of organic chemistry or permission of instructor. Course work in cytology or genetics recommended. (Same as BIO 515.)

CBI 512 CELLULAR PHYSIOLOGY. (3)
An intensive study of general physiological principles with emphasis on the chemistry and physics of the cell. Prereq: Physics and general chemistry. (Same as PGY 512.)

CBI 611 BIOCHEMISTRY AND CELL BIOLOGY OF NUCLEIC ACIDS. (3)
A lecture and seminar course devoted to a study of the principles of nucleic acid chemistry and to the role of nucleic acids in cellular function. Prereq: BCH 401, 502 or 811. (Same as BCH 611.)

CBI 710 SPECIAL TOPICS IN CELL BIOLOGY. (2)
A variety of topics relating to modern molecular and cell biology. Prereq: Permission of instructor.

CBI 811 CELL BIOLOGY I. (4)
A course in general cell biology designed to provide the medical student with an understanding of the structure, function, genetic and control mechanisms in various cell types. Prereq: Admission to the College of Medicine.

CBI 821 CELL BIOLOGY II. (3)
Cell biology of pathogenic organisms with emphasis on their relation to disease in man. Prereq: Admission to the College of Medicine.

CBI 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. Prereq: Full-time College of Dentistry enrollment.

CHEMICAL ENGINEERING

CME 001 THE ENGINEERING PROFESSION (FRESHMAN). (0)

CME 002 THE ENGINEERING PROFESSION (FRESHMAN). (0)

CME 006 THE ENGINEERING PROFESSION (JUNIOR). (0)

CME 007 THE ENGINEERING PROFESSION (SENIOR). (0)

CME 008 THE ENGINEERING PROFESSION (SENIOR). (0)
Lectures on professional growth, conduct and ethics. Activities of the student branches of the corresponding professional societies. CME 001-008 may be repeated indefinitely.

CME 200 PROCESS PRINCIPLES. (3)
Material and energy balances using the first law of thermodynamics, thermophysics and thermochemistry. Physical and chemical process analysis. Prereq or concur: MA 114, PHY 231.

CME 220 ENGINEERING THERMODYNAMICS. (3)
Fundamentals of thermodynamics, review of first law, second and third laws, phase equilibria and chemical equilibria. Prereq or concur: MA 213, PHY 232.

CME 300 ENVIRONMENTAL CONSERVATION ENGINEERING. (3)
The natural environment and air, water, and land pollution. Effects of pollutants. Energy production and conversion. Engineering systems for the control of air quality, water quality, and for ultimate waste disposal. Prereq: MA 114, CHE 108 or 112, or consent of instructor.

CME 395 SPECIAL PROBLEMS IN CHEMICAL ENGINEERING. (1-3)
Individual work on some selected problems in the field of chemical engineering. May be repeated one time. Prereq: Approval of the chairman of the Department.

CME 412 STAGED MASS TRANSFER PROCESSES. (2)
Mass transfer processes described by the equilibrium stage concept, including distillation, gas absorption, and extraction. Prereq: CME 200.

CME 422 RATE MASS TRANSFER PROCESSES. (3)
Fundamentals of diffusional and convective transport operations with applications to distillation, absorption, extraction and air-water contact operations. Prereq: ME 330.

CME 430 ADVANCED PROBLEMS IN CHEMICAL ENGINEERING. (2)
Lectures and problems presenting fundamental principles and design procedures for several selected operations from the broad areas of mass, momentum, and heat transfer. Prereq: CME 422.

CME 431 CHEMICAL ENGINEERING LABORATORY I. (2)
A lecture-laboratory course emphasizing experimental work in fluid flow, heat transfer, evaporation, mass transfer, etc., with special consideration to mathematical and statistical data treatment, measurement techniques and report writing. Lecture, one hour; laboratory, three hours. Prereq: CME 422.

CME 432 CHEMICAL ENGINEERING LABORATORY II. (2)
Continuation of CME 431, covering diffusional operations such as distillation, absorption, and drying. Laboratory, six hours. Prereq: CME 422, 431.

CME 455 CHEMICAL ENGINEERING PROCESS DESIGN I. (4)
A lecture and problem-solving course intent on combining the principles of chemical engineering economics and optimization as they apply to the design of chemical process units and systems. Lecture, three hours; laboratory, three hours. Prereq: ME 325, CME 422.

CME 462 PROCESS CONTROL. (3)
The theory of automatic control devices and their application in industrial chemical plants. Prereq: Consent of instructor.

CME 505 ANALYSIS OF CHEMICAL ENGINEERING PROBLEMS. (3)
The application of numerical methods, differential equations, and transforms to complex chemical engineering problems. Prereq: MA 432 or consent of instructor.

CME 515 AIR POLLUTION CONTROL. (3)
Kinetics and equilibria of photochemical and "dark" atmospheric reactions. Atmospheric statics and dynamics including lapse rates, inversions, and vertical and horizontal air motion. Single and area source diffusion. Stack meteorology. Prereq: CME 220 or ME 220.

CME 520 EQUILIBRIUM THERMODYNAMICS. (3)
The criteria for physical and chemical equilibria, including: predictive equations, solution theory, chemical activity, coupled chemical equilibria, and external constraints. Emphasis may be on vapor-liquid equilibrium, chemical reaction equilibrium, or complex ionic equilibria in dilute aqueous solutions and suspensions. Prereq: CHE 442 and CME 220 or consent of instructor.

CME 530 TRANSPORT I. (3)
A unified study of physical rate processes in liquids and vapors, including: mass, energy, and momentum transport, transport in chemically reacting systems, and similarities.

CME 550 CHEMICAL REACTOR DESIGN. (3)
A lecture and problem course dealing with interpretation of kinetic data and application in the design of chemical reactor systems. Prereq: CME 220 or ME 321.

CME 552 POLYMERIC MATERIALS. (3)
Relating properties to structure; properties of polymer materials; mechanical, electrical and thermal properties of amorphous and crystalline polymers, molding and fabrication, polymers as additives, biomedical application, selection of polymers, design. Prereq: MET 301 or CHE 230 or CHE 236, or consent of instructor. (Same as MET 552.)

CME 555 CHEMICAL ENGINEERING PROCESS DESIGN II. (3)
An advanced chemical process and plant design course to provide the conceptual details of project engineering methods. Lecture and pertinent literature assignments will be coupled to the execution of case design problems. Lecture, two hours; laboratory, three hours. Prereq: CME 455.

CME 560 NON-NEWTONIAN FLOW AND HEAT TRANSFER. (3)
Classification of fluid behavior, determination of flow properties, laminar flow for fluids with and without a yield stress, turbulent flow, momentum boundary layer theory, mixing and agitation, heat transfer. Prereq: ME 325 and ME 330.

CME 570 CHEMICAL SEPARATION AND MEASUREMENT FOR CHEMICAL ENGINEERS. (3)
An engineering-oriented survey of modern topics in chemical measurement to include discussions of liquid extraction; liquid and gas chromatography; optical absorption; magnetic resonance absorption, including NMR and ESR; microwave spectroscopy. Prereq: CME 520, or consent of instructor.

CME 580 DESIGN OF RATE AND EQUILIBRIUM PROCESS FOR WATER POLLUTION CONTROL. (3)
The design of chemical and physical processes for the removal and concentration of organic, inorganic, and particulate pollutants from aqueous solution/suspension; absorption, destabilization, disinfection, membrane processes, thermal processes, flow through beds of solids, etc. Prereq: CME 455, 550 and CHE 442 or consent of instructor.

Prerequisite for graduate work: Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics. For major work, a candidate must hold a bachelor's degree in chemical engineering or its equivalent.

CME 615 ADVANCED AIR POLLUTION CONTROL. (3)
Principles and techniques of the control of atmospheric pollution, including process design for the removal of gaseous and particulate pollutants from air streams. Legal and administrative aspects of control. Prereq: CME 515 or consent of instructor.

CME 617 AIR SAMPLING AND ANALYSIS. (3)
Theory and techniques of air sampling, including aerosol sampling. Instrumental, gravimetric, and volumetric analysis of gaseous and particulate air pollutants with emphasis on the most modern methods of instrumental analysis. Lecture, two hours; laboratory, three hours. Prereq: Concur with CME 515, consent of instructor.

CME 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.

CME 621 NONEQUILIBRIUM THERMODYNAMICS. (3)
An introductory course in the thermodynamics of irreversible processes, including: phenomenological equations relating flows and forces, Onsager's law, and entropy production in continuous processes. Prereq: CME 520, or ME 620, or consent of instructor.

CME 625 PROPERTIES OF GASES AND LIQUIDS. (3)
Development, discussion and application of intermolecular force

laws as they apply to gases, liquids and mixtures: Chapman-Enskog kinetic theory, virial theorem, Buckingham (6-exp) potential, and theoretical and semi-theoretical predictive equations. Estimation of thermodynamic and transport properties. Prereq: CME 520 and CME 530, or consent of instructor.

CME 631 TRANSPORT II. (3)
A continuation of Transport I. Interphase transport of mass, energy, and momentum is discussed. Boundary Layer theory is applied to combined transport and chemical reaction. Theories of turbulent transport are examined. Prereq: CME 530 or consent of instructor.

CME 633 DIFFUSIONAL MASS TRANSFER OPERATIONS. (3)
An advanced course in diffusional processes depending upon the current literature for much of its content. Multicomponent diffusional processes. Turbulent diffusion. The modelling of diffusion in biological systems. Prereq: CME 530 or consent of instructor.

CME 635 STAGED MASS TRANSFER OPERATIONS. (3)
Design and performance of vapor-liquid or liquid-liquid, and solid-liquid systems, particularly for multicomponent mixtures. Emphasis will depend upon student interest. Prereq: CME 422.

CME 637 BIOMEDICAL MASS TRANSFER. (3)
Derivation of the transport equations for application to biomedical systems, diffusion and the mechanism of mass transport in the body, membrane transport, convective mass transfer in biomedical systems, discussion of mass transfer in artificial organs. Prereq: Consent of instructor.

CME 638 TRANSPORT PHENOMENA IN PACKED AND FLUIDIZED BEDS. (3)
A course dealing specifically with the dynamics of heat, mass and momentum transport in packed and fluidized beds. Current experimental findings and transport theories, and bed characterizations are discussed. Analytic and difference methods are used to solve model problems. Prereq: CME 530 or consent of instructor.

CME 642 ADVANCED PROCESS CONTROL I. (3)
Linear and nonlinear automatic control theory, dynamics of chemical process systems, design of systems. Prereq: CME 562.

CME 643 ADVANCED PROCESS CONTROL II. (3)
A continuation of CME 642. Prereq: CME 642.

CME 650 ADVANCED CHEMICAL REACTOR DESIGN. (3)
Rate expressions for heterogeneous reaction kinetics; energy and mass transport within and external to reacting porous catalysts; design equations for fixed-moving, and fluidized-bed reactors. Prereq: CME 530 and CME 550 or consent of instructor.

CME 671 BASIC ELECTRODE PROCESSES IN ELECTROCHEMICAL ENGINEERING. (3)
Provides engineers with an introduction to electrochemical theory and measurement techniques, including relaxation methods. Selected topics in equilibrium electrochemistry, generalized theory of reversibility, double layer structural effects on charge transfer rates, organic redox reactions, chemical power systems, and biomedical engineering. Prereq: CME 520, or consent of instructor.

CME 680 BIOCHEMICAL ENGINEERING. (3)
Principles and design of processes involving bio-chemical reactions, including aerobic and anaerobic respirations and fermentations, and involving pure and mixed cultures. Energy considerations, heat and mass transfer, biochemical kinetics, and application to biological waste treatment. Prereq: CME 530, 550 and CHE 442, or consent of instructor.

CME 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
(1-6 credits equivalence.)

CME 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
(1-12 credits equivalence.)

CME 771 SEMINAR. (0)
Review of current literature in the field of chemical engineering, general discussion and presentation of papers on departmental research. Lecture, one hour. Required for all graduate students in chemical engineering.

CME 780 SPECIAL PROBLEMS IN CHEMICAL ENGINEERING. (3)
Independent study, design, or research in chemical engineering topics. May be repeated to a maximum of 12 credits. Prereq: Approval of the departmental director of Graduate Studies.

CHEMISTRY

CHE 100 INTRODUCTORY CHEMISTRY. (4)
This course deals with those general principles of chemistry which give the necessary foundation for practical work in nutrition, materia medica, and other subjects. Lecture and recitation, three hours; laboratory, two hours.

CHE 101 CHEMISTRY: A CULTURAL APPROACH I. (3)
This course is for non-science majors and deals with the relationship between chemistry and other areas of learning.

CHE 103 CHEMISTRY: A CULTURAL APPROACH II. (3)
This course is for non-science majors and deals with the relationship between chemistry and other areas of learning. Normally a terminal course. Two lecture/discussion hours and two laboratory hours per week. Prereq: CHE 101.

CHE 106 ELEMENTARY GENERAL CHEMISTRY I. (4)
This course is for science students who have not had high school chemistry or scored too low on entrance examinations to enter CHE 110. The approach is more elementary than CHE 110 and 112. Lecture, three hours; recitation, one hour. Prereq: Composite score above ACT 25 percentile (College Bound Norms), or one semester college work. Prereq or concur: CHE 105.

CHE 108 ELEMENTARY GENERAL CHEMISTRY II. (3)
This course is for science students who have not had high school chemistry or scored too low on entrance examinations to enter CHE 110. The approach is more elementary than CHE 110 or 112. Prereq or concur: CHE 106.

CHE 110 GENERAL COLLEGE CHEMISTRY I.* (3)
The principles of chemistry and the properties and reactions of the more important elements and their compounds. Prereq: High school chemistry and composite score above ACT 50 percentile (College bound norms.)

CHE 112 GENERAL COLLEGE CHEMISTRY II.* (3)
The principles of chemistry and the properties and reactions of the more important elements and their compounds. Includes qualitative analysis. Prereq: CHE 110.

CHE 115 GENERAL CHEMISTRY LABORATORY. (3)
Laboratory for science majors in CHE 106, 108 or 110, 112 sequence. One lecture and four laboratory hours per week. Prereq: CHE 106 or 110 or consent of instructor.

CHE 226 ANALYTICAL CHEMISTRY. (3-5)
An introduction to the theory and practice of quantitative analysis. Lecture, two hours; laboratory, three to six hours. Prereq: CHE 108 or 112, and 115.

CHE 230 ORGANIC CHEMISTRY. (3)
Fundamental principles and theories of organic chemistry. Lecture, three hours. Prereq: CHE 108 or 112, and 115.

CHE 231 ORGANIC CHEMISTRY LABORATORY. (1-2)
Laboratory for CHE 230. Prereq or concur: CHE 230.

CHE 232 ORGANIC CHEMISTRY. (3)
A continuation of CHE 230. Prereq: CHE 230.

CHE 233 ORGANIC CHEMISTRY LABORATORY. (1-2)
Laboratory for CHE 232. Prereq: CHE 231; prereq or concur, CHE 232.

CHE 236 ORGANIC CHEMISTRY. (4)
An elementary course for non-professional students. Lecture, three hours; laboratory, three hours. Prereq: CHE 108, 112, and 115.

CHE 395 INDEPENDENT WORK IN CHEMISTRY. (1-3)
May be repeated for a total of nine credits. Prereq: Major and a standing of 3.0 in the Department.

CHE 440 PHYSICAL CHEMISTRY. (3)
The fundamental principles of physical chemistry are studied with emphasis upon the application of these in the correlation of natural phenomena. Prereq: CHE 108 or 112, and 115; MA 213; PHY 242.

CHE 441 PHYSICAL CHEMISTRY LABORATORY. (2)
Laboratory studies in physical chemistry to accompany CHE 440 or 444. Laboratory, six hours. Prereq or concur: CHE 440 or 444.

CHE 442 PHYSICAL CHEMISTRY. (3)
A continuation of CHE 440. Prereq: CHE 440.

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

CHE 443 PHYSICAL CHEMISTRY LABORATORY. (3)
Laboratory studies in physical chemistry to accompany CHE 442 with emphasis upon the proper treatment of data. Laboratory, six hours; recitation, one hour. Prereq or concur: CHE 442.

CHE 444 PHYSICAL CHEMISTRY. (3)
For students in agriculture and in the biological sciences. Prereq: CHE 108 or 112, and 115; MA 113; PHY 213.

CHE 490 CHEMISTRY FOR HIGH SCHOOL TEACHERS. (3)
Topics in modern chemistry to be selected from the following areas: atomic structure, periodic table, stoichiometry, thermodynamics, electrochemistry, chemical equilibria, macromolecules and polymers, environmental chemistry, radionuclear chemistry, biological chemistry, and inner transition elements. Topics to be considered will be related to the background and interests of the participants. Prereq: Certification as a secondary school science teacher.

CHE 510 ADVANCED INORGANIC CHEMISTRY. (3)
A course dealing with the concepts of inorganic chemistry with emphasis on atomic structure, periodicity, nomenclature, bonding, chemistry of the non-transition elements and acid-base theories. Prereq: CHE 112 or 226.

CHE 512 INORGANIC CHEMISTRY LABORATORY. (3)
Preparative techniques of inorganic chemistry to include: the use of liquefied gases, aqueous and non-aqueous solutions, anhydrous and oxygen-free systems, and the handling of highly reactive materials. Lecture, one hour; laboratory, six hours per week. Prereq: CHE 510.

CHE 520 RADIOCHEMISTRY. (3)
An introduction to the use of radionuclides in chemistry. Topics include principles of radioactive decay, use of tracers, activation analysis, interactions of radiations with matter and hot-atom chemistry. Lecture and laboratory, five hours. Prereq: CHE 112 or 226.

CHE 522 INSTRUMENTAL ANALYSIS. (4)
The theory and application of instrumental methods of analysis. Lecture, two hours; laboratory, six hours. Prereq: CHE 442.

CHE 532 QUALITATIVE ORGANIC ANALYSIS. (3)
A systematic study of the separation and identification of organic compounds. Lecture, one hour; laboratory, six hours. Prereq: CHE 233.

CHE 538 PRINCIPLES OF ORGANIC CHEMISTRY. (3)
A general survey of the field of organic chemistry. Prereq: CHE 232.

CHE 547 ADVANCED PHYSICAL CHEMISTRY I. (3)
An introduction to quantum chemistry and spectroscopy, emphasizing applications to chemical bonding, atomic and molecular spectroscopy, and magnetic resonance. Lecture, three hours. Prereq: CHE 442, MA 214.

CHE 548 ADVANCED PHYSICAL CHEMISTRY II. (3)
Fundamental principles of classical physical chemistry, including the kinetic theory, thermodynamics, statistical thermodynamics, and chemical kinetics. Prereq: CHE 440.

CHE 550 PHYSIOLOGICAL CHEMISTRY. (4)
A study of the chemistry of living processes. Lecture, three hours; laboratory, three hours. Prereq: CHE 226, 231 and 232.

CHE 552 PHYSIOLOGICAL CHEMISTRY. (4)
A continuation of CHE 550. Prereq: CHE 550.

CHE 572 SEMINAR. (1)
Reports and discussions on recent research and current chemical literature. May be repeated for a total of two credits.

CHE 580 TOPICS IN CHEMISTRY. (2)
A detailed investigation of a topic of current significance in chemistry. May be repeated to a maximum of six credits. Prereq: CHE 232 and 440 or 444, or consent of instructor.

CHE 582 CHEMICAL LITERATURE. (1)
Training in the use of chemical literature. Prereq: Junior or senior standing.

CHE 610 CHEMISTRY OF THE TRANSITION METALS. (3)
A detailed treatment of the chemistry of the transition elements, lanthanides and actinides, including the structure of coordination complexes, bonding, reaction mechanisms and preparations. Prereq: CHE 510.

CHE 612 INORGANIC CHEMISTRY OF THE NON-METALS. (3)
A detailed treatment of the inorganic chemistry of the non-metals. Topics include theories of bonding, spectral characteristics, reaction mechanisms, preparations, physical methods of characterization and structure determination, and applications. Prereq: CHE 510.

CHE 616 NUCLEAR CHEMISTRY. (3)
An advanced study of nuclear chemistry and topics related to nuclear and radiochemistry. Prereq: CHE 443 and 520.

CHE 625 OPTICAL METHODS OF ANALYSIS. (3)
An intensive study of the theory and applications of each of the following methods: emission spectroscopy, absorption spectrophotometry, colorimetry, refractometry, and polarimetry. Laboratory, six hours. Prereq: CHE 522.

CHE 626 ADVANCED ANALYTICAL CHEMISTRY. (3)
An advanced study of the theory and practice of quantitative analysis.

CHE 633, 635 ADVANCED ORGANIC CHEMISTRY. (3 ea.)
Fundamental organic chemistry as interpreted by modern theory. Prereq: CHE 538.

CHE 640 ELECTROCHEMISTRY. (2)
Absorption and potential distribution at the electrode surface. Mechanism and kinetics of electrode processes. Kinetic interpretation of such phenomena as reversibility and overvoltage. Prereq: CHE 442 or 548.

CHE 645 CHEMICAL THERMODYNAMICS. (3)
Principles and applications of chemical thermodynamics. Prereq: CHE 442.

CHE 646 CHEMICAL KINETICS. (3)
Studies of chemical reactions from the standpoint of velocity and mechanism. Prereq: CHE 442.

CHE 647 QUANTUM CHEMISTRY. (3)
An introduction to quantum mechanics with emphasis on the aspects closely related to chemistry. Prereq: CHE 547.

CHE 710 TOPICS IN INORGANIC CHEMISTRY. (2-4)
Discussion of topics of recent interest in inorganic chemistry, including physical methods, syntheses, and structural theories. May be repeated to a maximum of 12 credits. Prereq: CHE 610 or 612.

CHE 714 NON-AQUEOUS SOLUTIONS. (2)
A study of non-aqueous systems and of reactions in non-aqueous systems. Prereq: CHE 443.

CHE 720 ELECTROCHEMICAL METHODS OF ANALYSIS. (3)
Classification of methods. Inherent and practical limits of sensitivity. Polarographic, voltametric and pulse methods. Lecture and laboratory, seven hours. Prereq: CHE 522 and 640.

CHE 726 TOPICS IN ANALYTICAL CHEMISTRY. (1-3)
Selected topics which may include spectrometric methods of analysis, nuclear magnetic resonance, mass spectrometry, x-ray diffraction, microscopy, electroanalytical chemistry, use of computers in analytical chemistry. May be repeated to a maximum of six credits. Prereq: CHE 522.

CHE 736 TOPICS IN ORGANIC CHEMISTRY. (2-4)
Selected topics which may include heterocyclic organic compounds, natural and synthetic dyes, carbohydrates, nitrogen compounds, and recent advances in the field of organic chemistry. Lecture, two to four hours. May be repeated to a maximum of 12 credits.

CHE 743 MOLECULAR STRUCTURE. (3)
Applications of quantum theory to chemical problems, theories of chemical bonding, structure and spectra of molecules. Prereq: CHE 547.

CHE 744 STATISTICAL THERMODYNAMICS. (3)
The study of chemical thermodynamics from the viewpoint of the statistical treatment of systems rather than from the empirical classical approach. Prereq: CHE 645.

CHE 746 TOPICS IN PHYSICAL CHEMISTRY. (2-4)
Selected topics which may include photochemistry, structure of crystals, molecular spectra, nature of the chemical bond, and other recent advances in the field of physical chemistry. Lecture, two to four hours. Prereq: CHE 442. May be repeated to a total of 12 credits.

CHE 747 ADVANCED QUANTUM CHEMISTRY. (3)
An advanced treatment of quantum chemistry with emphasis on the methods and procedures used in its applications. Prereq: CHE 647.

CHE 755 TOPICS IN CHEMICAL PHYSICS (SUBTITLE REQUIRED). (3)
An introduction to current research areas in chemical physics. Topics may include theory of atomic spectra, atomic and molecular processes, molecular theory, electrons and phonons in crystals, and optical properties of metals. Lecture, two or three hours. May be repeated to a total of 12 credits. Prereq: Consent of instructor. (Same as PHY 755.)

CHE 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
(1 to 6 credits equivalence.) May be repeated.

CHE 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
(1 to 12 credits equivalence.) May be repeated indefinitely.

CHE 776 GRADUATE SEMINAR. (1)
Reports and discussions on recent research and current literature. Required of all graduate students. May be repeated for a total of eight credits.

CHE 780 INDIVIDUAL WORK IN CHEMISTRY. (1-5)
Selected library and laboratory problems in conformance with the student's interest will be attacked and pursued under the direction of a suitable staff member who is proficient in the area under investigation.

CHE 790 RESEARCH IN CHEMISTRY. (1-5)
Work may be taken in the following fields, subject to the approval of the Departmental Graduate Committee: analytical chemistry, inorganic chemistry, organic chemistry, radiochemistry, or physical chemistry. May be repeated indefinitely.

CIVIL ENGINEERING

CE 001 THE ENGINEERING PROFESSION. (FRESHMAN). (0)
Lectures on professional growth, conduct, and ethics. Activities of the student branches of the corresponding professional societies. May be repeated indefinitely.

CE 100 PLANE SURVEYING. (3)
Principles, field practice and calculations. General use and care of surveying instruments. Lecture, two hours; laboratory, three hours. Prereq or concur: MA 113.

CE 105 BASIC ENGINEERING GRAPHICS. (2)
Freehand sketching and lettering. Orthographic and axonometric drawings and sketches. Use and care of instruments. Use of scales. Dimensioning. Auxiliary views. Sectioning. Fasteners. Pencil and ink techniques. Charts, maps and diagrams. Six hours a week. (Same as ME 105.)

CE 206 DESCRIPTIVE GEOMETRY. (2)
The graphical solution of spatial problems. Drawing room six hours. Prereq: ME 105, MA 110.

CE 215 ROUTE, CONTROL AND TOPOGRAPHIC SURVEYING. (4)
Given at the Surveying Camp. Theory, field and office practice in route control and topographic surveys. Applications of aerial photographs, hydrographic surveys, topographic maps and property survey plats including the precise measurement of all required values. Lecture, 17.5 hours; laboratory, 44 hours. Prereq: ME 105, CE 100, PHY 231 and approval of chairman of Department.

CE 231 ELEMENTS OF MINING. (3)
Fundamental mining operations, prospecting and mine development. Prereq: CHE 112, PHY 231, GLY 240.

CE 301 CIVIL ENGINEERING MATERIALS I. (2)
A study of materials used in civil engineering construction and their basic physical and mechanical properties with emphasis on relation to fundamental structure of the material. Lecture, one hour; laboratory, two hours. Prereq: MET 301, EM 302.

CE 305 CONSTRUCTION PLANNING AND MANAGEMENT. (3)
A study of the principles, methods and procedures involved in the administration of civil engineering construction including financial and legal fundamentals of contracts; specifications and critical path scheduling and quality control. Prereq or concur: Senior classification.

CE 328 FOUNDATION ENGINEERING. (3)
Application of the principles of soil mechanics and structural mechanics to the design of retaining walls, bracing for excavations, footings, mat and pile foundations and to the analysis of the stability of earth slopes. Prereq: CE 425.

CE 331 MINE VENTILATION AND SAFETY. (3)
Mine atmosphere including mine air, mine dust and mine climate; properties of air affecting mine ventilation, measurement of temperature, humidity, pressure and velocity of air, aerostatics, principal laws of air movement underground, aerodynamic resistance of mine workings, air flow distribution, natural ventilation, fans, regulation of air flow, air leakage, auxiliary ventilation, ventilation structures and ventilation planning; mine fires and explosives; rescue and recovery work. Prereq: Consent of Instructor.

CE 332 MINE LAW. (3)
The technical applications of laws and regulations from the standpoint of the mining engineer and superintendent. Prereq: CE 231 or consent of instructor.

CE 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. Prereq: CE 215.

CE 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. Air transport. Highway location analysis. Lecture, two hours; laboratory, three hours. Prereq: CE 340.

CE 351 HYDRAULICS LABORATORY. (1)
Experimental investigation and application of some of the more important principles covered in ME 330. Laboratory, three hours. Prereq: ME 330.

CE 355 WATER QUALITY ENGINEERING. (3)
Survey of water resources field with emphasis upon water, sewage and industrial waste treatment theory and practices. Prereq: ME 330 or consent of instructor.

CE 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. Prereq: CE 355.

CE 371 SEMINAR. (1)
A study of current engineering literature as related to civil engineering; assigned reading and reports. Round-table conference for two hours. Prereq: Senior classification.

CE 380 STRUCTURAL MECHANICS I. (3)
Analysis of statically determinate and statically indeterminate structures including beams, trusses, cables, arches and frames. Prereq or concur: EM 302.

CE 385 TIMBER STRUCTURES. (1)
Design of structural beams, columns and trusses as related to timber structures. Drawing room, three hours. Prereq: CE 380.

CE 387 STEEL STRUCTURES I. (3)
Behavior and design of individual members and connections. Instabilities of beams and columns. Plastic design and analysis of continuous structures. Prereq: CE 380.

CE 389 DESIGN OF STRUCTURES. (3)
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, two hours; drawing room, three hours. Prereq: CE 387, 392.

CE 392 REINFORCED CONCRETE. (3)
Theory and design of beams, slabs, girders and columns as related to building frames and bridges. Introduction to pre-stressed concrete, elastic design and ultimate strength design. Prereq: CE 380.

CE 395 INDEPENDENT WORK IN CIVIL ENGINEERING. (1-6)
Individual work on some selected problem in the field of civil engineering. May be repeated for a maximum of six credits. Prereq: Consent of Department chairman and the instructor.

CE 425 SOIL MECHANICS. (3)
A study of soil and its utilization in foundations for structures and subgrade for highways. Stabilization and improvement of bearing values. Lecture, two hours; laboratory, three hours. Prereq or concur: GLY 240, EM 302.

CE 435 MINE PLANT AND MACHINERY. (3)
Theory and practice of mine haulage, hoisting, drainage, pumping and compressed air as power. Application of engineering principles to the mineral industries. Lecture, two hours; laboratory, three hours. Prereq: CE 231, or consent of instructor.

CE 480 STRUCTURAL MECHANICS II. (3)
Continuation of CE 380 with emphasis on sophisticated methods of analyzing complex structures. Prereq: CE 380.

CE 515 GEOMETRONICS. (3)
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 construc-

tion and photogrammetric mapping. Lecture, two hours; laboratory, three hours. Prereq: MA 214, CE 215.

CE 523 PHOTOGRAMMETRY. (3)
Fundamentals of the photogrammetric method including: geometry of the single photographs and terrestrial photographs; planning the photographic mission and ground control for mapping and an introduction to analytic photogrammetry, stereo-photogrammetric plotting instruments, photo interpretation and remote sensing. Applications to problems in engineering. Geography, geology and other disciplines are emphasized. Lecture, two hours; laboratory, three hours. Prereq: MA 113 and consent of instructor.

CE 531 COAL PREPARATION I. (3)
Principles and practice of coal preparation and associated operations. Lecture, two hours; laboratory, three hours. Prereq: CE 231, or consent of instructor.

CE 532 COAL PREPARATION II. (3)
A continuation of CE 531. Lecture, two hours; laboratory, three hours. Prereq: CE 531.

CE 533 ROCK MECHANICS. (3)
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. Prereq: MET 301, EM 302, GLY 240, or consent of instructor. (Same as GLY 533.)

CE 540 PAVEMENT ANALYSIS AND DESIGN. (3)
Pavement types and wheel loads; stresses in flexible and rigid pavements; effect of climate and subgrade soils on pavement performance; evaluation of strength and other properties of soils, base courses, and paving materials; structural design of flexible and rigid pavements; pavement performance. Prereq: CE 340.

CE 543 DEVELOPMENT OF TRANSPORTATION FACILITIES. (3)
Analysis of factors affecting development of transporation 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. Prereq: CE 340.

CE 545 CIVIL ENGINEERING MATERIALS II. (3)
Properties and performances of major materials used in civil engineering construction—mineral aggregates, portland cement concrete, bituminous materials, structural steels and certain appurtenant materials. Economical and statistical considerations used in specifying, testing, and inspecting materials are stressed. Prereq: CE 301.

CE 550 ENGINEERING HYDRAULICS. (3)
Analysis of flow in closed conduits and natural and artificial open channels. Design of hydraulic structures. Prereq: ME 330.

CE 553 HYDROLOGY. (3)
A study of the factors affecting the occurrence, movement and utilization of water including meteorological considerations, evaporation, transpiration, runoff relationships, hydrograph analysis, and ground water management. Prereq: ME 330 or consent of instructor.

CE 555 ENGINEERING ECONOMY. (3)
Economic evaluation and financial analysis of engineering alternatives in which the goal of economic efficiency is applied to engineering design. Prereq: ECO 261 or consent of instructor.

CE 566 PUBLIC HEALTH ENGINEERING. (3)
Application of engineering principles to the control of the environment, as used by sanitary engineers in federal, state or international health agencies. Prereq: Consent of instructor.

CE 568 SANITARY ENGINEERING LABORATORY. (3)
Lectures and laboratory practice in principles, application and interpretation of analytical tests used in sanitary engineering research and plant control. Lecture, two hours; laboratory, three hours. Prereq: Consent of instructor.

CE 580 THEORY OF STRUCTURES III. (3)
Plastic design of steel. Introduction to the theory of arches. Theory and design of continuous trusses. Prereq: CE 480, MA 214.

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.

CE 621 ENGINEERING ASPECTS OF SURFICIAL SOILS AND LANDFORMS. (3)
Techniques of terrain analysis for civil engineering purposes through the use of air photo interpretations (quantitative and qualitative) and other sources of pedologic, geologic and topographic information. Prereq: GLY 240.

CE 624 EXPERIMENTAL METHODS IN SOIL MECHANICS. (3)
A comprehensive study, including literature review, and experimentation of the instrumentation, methods, and problems associated with the measurement of the behavior and the properties of soil. Laboratory and field methods used in research and practice. Lecture and recitation, two hours; laboratory, three hours. Prereq or concur: CE 625 or consent of instructor.

CE 625 ADVANCED SOIL MECHANICS. (3)
Detailed study of the particulate and macroscopic behavior of soils. The applicability of surface chemistry, particulate mechanics, elasticity, viscoelasticity, and plasticity as means of describing soil strength and deformational behavior. Prereq: CE 425 or consent of instructor.

CE 626 GROUNDWATER AND SEEPAGE. (3)
Permeability and capillary flow in soils, mathematical theory of flow through porous media. Flow through anisotropic, stratified and composite sections. Solution by flow net, conformal mapping and numerical methods. Seepage toward wells. Dewatering and drainage of soils. Prereq: CE 425 or consent of instructor.

CE 627 SOIL ENGINEERING FOR TRANSPORTATION FACILITIES. (3)
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. Prereq: CE 425 or consent of instructor.

CE 628 ADVANCED FOUNDATION ENGINEERING. (3)
Application of the principles of soil mechanics to the design and analysis of foundations. Prereq: CE 625 or consent of instructor.

CE 629 SOIL DYNAMICS. (3)
A study of the response of soils to dynamic loads including foundation vibration problems and the response of footings to impulse loads. Theories of wave propagation in granular and porous media and methods of measurement of the dynamic properties of soils in the laboratory are included.

CE 631 ADVANCED PROSPECTING. (3)
Study of the principles involved in the geophysical investigation of the minerals of the earth's crust. Lecture, two hours; laboratory, three hours. (Same as GLY 631.)

CE 633 MINE ORGANIZATION. (3)
Detailed study of the structure and function of a mining enterprise from both the financial and the engineering standpoints.

CE 634 ADVANCED MINE ENGINEERING. (3)
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.

CE 635 APPLIED STATISTICAL METHODS IN WATER RESOURCES. (2)
Frequency analysis, stream flow predictions through regression and multivariate techniques, simulation of water resources systems, time series analysis of hydrologic data. Prereq: MA 214, STA 670, or equivalent or consent of instructor.

CE 639 AIR TRANSPORT ENGINEERING. (3)
Planning location, and design of airports, STOL ports, and heliports. Air traffic operations, performance and control as related to facility requirements. Role of governmental agencies. Prereq: CE 342 or consent of instructor.

CE 640 HIGHWAY ADMINISTRATION, ECONOMICS AND FINANCE. (3)
A study of Highway Administration Economics and Finance; including organization of highway departments, sources and types of revenue, road costs, environmental values, classification of roads, benefits from improvements, systems analysis, and program planning. Prereq: CE 340 or consent of instructor.

CE 641 HIGHWAY TRAFFIC CHARACTERISTICS. (3)
Vehicle operating characteristics; driver, pedestrian and roadway characteristics as they individually, and collectively as traffic stream characteristics, are related to the planning design and operation of highway facilities. Prereq: CE 340.

CE 642 HIGHWAY LOCATION ANALYSIS. (3)
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.

CE 643 URBAN TRANSPORTATION PLANNING. (3)
A detailed review of the transportation planning process; inventory methodologies; trip generation, distribution and assignment with associated mathematical models and theories; prediction of future travel; land and use models; modal split; developing and testing proposed systems; simulation. Prereq: CE 543 or equivalent and STA 381, or STA 681 or equivalent statistics course. (Same as GEO 643.)

CE 644 OPERATIONAL EFFECTS OF GEOMETRICS IN TRANSPORTATION. (3)
Operational effects of the geometry of transportation facilities includes capacity, safety, and economic considerations prompting current and impending changes in geometric design of intersections, interchanges, horizontal and vertical alignment, clearances, cross section elements and interfaces between elements of the transportation system. Prereq: CE 340.

CE 645 HIGHWAY DESIGN, CONSTRUCTION AND MAINTENANCE. (3)
A study of highway design, construction and maintenance; including physical aspects of design, drainage, road types, structural pavement design, construction methods and supervision and maintenance methods. Prereq: CE 340 or consent of instructor.

CE 647 PORTLAND CEMENT CONCRETE AND BITUMINOUS MATERIALS. (3)
Origin production, use-classifications and significant engineering properties of portland cements, concretes, mortars and bituminous materials. Covers precise methods of design and control of mixes; durability considerations; additions and admixtures; mineral aggregates; structural, paving and mass concretes; specifications and materials testing. Lecture, two hours; laboratory, three hours. Prereq: CE 540 and CE 545 or consent of instructor.

CE 652 OPEN CHANNEL FLOW. (3)
The hydraulics of free surface flow including such topics as uniform flow, varied flow, unsteady flow, the hydraulic jump flow transitions, spillways and channel delivery. Prereq: ME 330.

CE 653 ADVANCED HYDROLOGY. (3)
Advanced discussion of special topics relating to hydrology including sediment transport, flow through culverts and bridges, frequency analysis, waves, infiltration, and computer models. Prereq: CE 553.

CE 654 HYDRAULIC STRUCTURES. (3)
Structural and hydraulic analysis required for the design of concrete and earth dams and appurtenant structures. Prereq: CE 550.

CE 655 WATER-RESOURCES PLANNING. (3)
Presentation of techniques for evaluating water-resources projects to meet social objectives with specific reference to such purposes as flood control, drainage, water supply, hydropower, navigation and recreation. Prereq: CE 555.

CE 659 ADVANCED SANITARY ENGINEERING DESIGN I. (3)
Application of theory of water treatment processes to the functional and hydraulic design of water treatment facilities. Lecture, two hours; laboratory, three hours.

CE 660 ADVANCED SANITARY ENGINEERING DESIGN II. (3)
Application of theory of waste treatment processes to the functional and hydraulic design of waste treatment facilities. Lecture, two hours; laboratory, three hours.

CE 662 FUNDAMENTALS OF WATER QUALITY CONTROL I. (3)
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.

CE 663 WATER QUALITY CONTROL LABORATORY. (3)
Laboratory studies of pollution control processes and techniques discussed in CE 662 and 664. Lecture, one hour; laboratory, six hours. Prereq: CE 568 or consent of instructor.

CE 664 FUNDAMENTALS OF WATER QUALITY CONTROL II. (3)
Continuation of CE 662 with emphasis upon biological processes. Prereq: CE 568.

CE 668 ADVANCED INSTRUMENTATION FOR WATER RESOURCES RESEARCH. (3)
The theory and application of advanced techniques of analysis to water resources research.

CE 669 WATER QUALITY IN SURFACE WATERS. (3)
Water quality requirements for various beneficial uses. Analysis of dispersion, advection, evaporation, natural aeration, biological oxidation and photosynthesis; their effects on the physical, chemical and biological quality of waters in streams, lakes, reservoirs, estuaries and other surface waters. Eutrophication. Prereq: MA 214 and CE 355, or consent of instructor.

CE 674 MECHANICS OF LIQUID FLOW IN PIPES. (3)
Steady and unsteady one-dimensional pipe flow. Water hammer and surge tank analysis. Steady two-dimensional pipe flow. Digital and analog computer applications. Prereq: CE 550.

CE 678 FLUID DYNAMICS OF MULTIPHASE SYSTEMS. (3)
A study of the dynamics of multiphase systems consist of mixtures of solid particles, liquid droplets, or bubbles in fluids. Prereq: ME 330; MA 214.

CE 681 DYNAMICS OF STRUCTURES. (3)
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.

CE 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, one hour; laboratory, six hours.

CE 686 ADVANCED METAL STRUCTURES. (3)
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. Prereq: CE 480; Prereq and concur, EM 531.

CE 690 SUSPENDED STRUCTURES. (3)
Theory and application of stress analysis and design as applied to suspended structures and suspension systems. Lecture, two hours; laboratory, two hours. Prereq: Consent of instructor.

CE 691 ADVANCED REINFORCED CONCRETE THEORY. (3)
Background and origin of modern reinforced concrete design procedures and codes. Comparison of American and foreign methods of analysis. Review of current research and projection to anticipated future changes in design and construction practices. Prereq: EM 531.

CE 692 SLAB AND FOLDED PLATE STRUCTURES. (3)
Design and analysis of reinforced concrete floor slabs and folded plate roofs. Elastic and inelastic methods. Prereq: CE 480, EM 531, or consent of instructor.

CE 693 SHELL STRUCTURES. (3)
Design and analysis of reinforced concrete shell structures, including domes, barrel shells, hyperbolic paraboloids and cylindrical tanks. Prereq: CE 692 or consent of instructor.

CE 694 ADVANCED STRUCTURAL ANALYSIS I. (3)
Theory and application of classical methods for the solution of complex planar structural systems. Prereq: CE 480 or consent of instructor.

CE 695 ADVANCED STRUCTURAL ANALYSIS II. (3)
Theory and application of matrix methods of analysis to complex plane and space structures. Prereq: CE 694.

CE 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

CE 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

CE 771 SEMINAR. (0)
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.

CE 780 SPECIAL DESIGN PROBLEMS IN CIVIL ENGINEERING. (1-6)
Individual work on some selected problems in one of the various fields of civil engineering. Laboratory, six hours. May be repeated to a maximum of nine credits. Prereq: Approval of the chairman of Department.

CE 790 SPECIAL RESEARCH PROBLEMS IN CIVIL ENGINEERING. (1-6)
Individual work on some selected problems in one of the various fields of civil engineering. Laboratory, six hours. May be repeated to

a maximum of nine credits. Prereq: Approval of the chairman of Department.

CLASSICAL LANGUAGES AND LITERATURES

LATIN

CLA 101 ELEMENTARY LATIN. (3)
An introduction to the study of classical Latin. Emphasis is placed on learning to read the language. Some attention is given to Latin literature and Roman civilization.

CLA 102 ELEMENTARY LATIN. (3)
A continuation of CLA 101. Prereq: CLA 101 or equivalent.

CLA 201 INTERMEDIATE LATIN. (3)
Review of grammatical principles together with readings from Latin prose and poetry. Selections from a wide range of authors will be included in order to demonstrate the diversity and appeal of Latin literature. Emphasis is placed on developing reading ability. Prereq: CLA 102 or two years of high school Latin or equivalent.

CLA 202 INTERMEDIATE LATIN. (3)
Continuation of CLA 201. Prereq: CLA 201, or three years of high school Latin or equivalent.

CLA 210 ANCIENT ART. (3)
A survey of the major forms of art in ancient Western Asia, Greece, and Rome, with emphasis on the comparative typology and cultural significance of the monuments. Same as A-H 210.

CLA 262 SURVEY OF LATIN LITERATURE IN TRANSLATION. (3)
An investigation of the major literary works of classical Rome. Lectures and class discussions will focus on the authors' historical, philosophical and cultural backgrounds.*

CLA 301 LATIN LITERATURE I. (3)
An introduction to the literature of Republican Rome with selected readings of complete works from the major Latin authors. Lectures and class discussions on the various genres, styles and themes of Latin literature. Prereq: CLA 202 or equivalent.

CLA 302 LATIN LITERATURE II. (3)
An introduction to the literature of Imperial Rome with selected readings of complete works from the major Latin authors. Lectures and class discussions on the various genres, styles and themes of Latin literature. Prereq: CLA 202 or equivalent.

CLA 425 LATIN LITERATURE IN TRANSLATION. (3)
Extensive reading in the most important works. Discussion of the significance of the works in their own and later times to the present. No knowledge of Latin necessary. Graduate students within the Department of Classics will not receive graduate credit for this course.*

CLA 501 LUCRETIUS AND EPICUREANISM. (3)
A study of the *De Rerum Natura* in terms of its Greek background and the poet's own milieu. Prereq: CLA 202 or equivalent.

CLA 503 CICERO. (3)
A study of the orator's political and social views as expressed in his letters and philosophical works. Prereq: CLA 202 or equivalent.

CLA 504 ROMAN SATIRE. (3)
A study of the genre as exemplified in the works of Horace and Juvenal. Emphasis on textual analysis with lectures and class discussions on the poet's literary milieu. Prereq: CLA 202 or equivalent.

CLA 505 VIRGIL AND THE ROMAN EPIC. (3)
A study of the poet's work with particular emphasis on the epic form in Latin literature. Prereq: CLA 202 or equivalent.

CLA 506 MEDIEVAL LATIN. (3)
Reading of selected works in Latin prose and poetry from the Sixth Century A.D. to the 15th Century. Emphasis on textual analysis with lectures and class discussions on the thought and life of the Middle Ages. Prereq: CLA 202 or the equivalent.

CLA 507 ROMAN DRAMA. (3)
A study of the genre as exemplified in Plautus, Terence and Seneca. Emphasis on textual analysis with lectures and classroom discussions on the playwright's literary milieu. Prereq: CLA 202 or the equivalent.

CLA 509 ROMAN LAW. (3)
An historical introduction to the development of Roman law, from the Twelve Tables through the Codex Justinianus. Prereq: A course in ancient history, or classics, or consent of instructor.*

CLA 511, 512 STUDIES IN ROMAN PHILOLOGY. (3 ea.)
Courses to meet the needs of students in various areas of Roman philology, e.g., in Latin literature, in Roman civilization, in Latin linguistics, etc. Prereq: Consent of instructor.

CLA 530 THE TEACHING OF LATIN. (3)
The place of Latin and the classical humanities in general education. Objectives, materials, and methods. The reading approach to learning Latin. Evaluation of textbooks and other materials. Prereq: Senior standing.

CLA 603 STUDIES IN LATIN LITERATURE OF THE REPUBLIC. (3)
Intensive study of an author, a literary form, or a problem in the period of the Roman Republic. Considerable attention to secondary sources; students will write papers and present oral reports in class. May be repeated once.

CLA 604 STUDIES IN LATIN LITERATURE OF THE EMPIRE. (3)
Intensive study of an author, a literary form, or a problem in the period of the Roman Empire. Considerable attention to secondary sources; students will write papers and present oral reports in class. May be repeated once.

GREEK

CLA 151 ELEMENTARY GREEK. (3)
An introduction to the study of Classical Greek. Emphasis is placed on learning to read the language. Some attention is given to Greek literature and civilization.

CLA 152 ELEMENTARY GREEK. (3)
A continuation of CLA 151. Prereq: CLA 151 or equivalent.

CLA 251 INTERMEDIATE GREEK. (3)
Review of grammatical principles together with readings from Greek prose and poetry. Selections from a wide range of authors will be included in order to demonstrate the diversity and appeal of Greek literature. Emphasis is placed on developing reading ability. Prereq: CLA 152 or equivalent.

CLA 252 INTERMEDIATE GREEK. (3)
The reading of Greek prose and poetry. Textual and literary analysis of selections from classical authors and the New Testament. Prereq: CLA 251 or equivalent.

CLA 261 SURVEY OF GREEK LITERATURE IN TRANSLATION. (3)
An investigation of the major literary works of classical Greece. Lectures and class discussions will focus on the authors' historical, philosophical and cultural backgrounds.*

CLA 424 GREEK LITERATURE IN TRANSLATION. (3)
Extensive reading in the most important works. Discussion of the significance of the works in their own and later times to the present. No knowledge of Greek necessary. Graduate students within the Department of Classics hereafter will be *unable* to take the course for graduate credit.*

CLA 500 LATIN LYRIC POETRY. (3)
A study of the genre as exemplified in Catullus and Horace. Emphasis on textual analysis with lectures and class discussions on the poets' literary milieu. Prereq: CLA 202 or the equivalent.

CLA 552 GREEK EPIC AND LYRIC POETRY. (3)
A study of the two genres as exemplified in Homer, Hesiod, the Homeric Hymns and the early Greek Lyricists. Emphasis on textual analysis with lectures and class discussions on the authors' literary milieu. Prereq: CLA 252 or equivalent.

CLA 553 GREEK PHILOSOPHICAL LITERATURE. (3)
A study of Greek philosophical literature as exemplified in Plato, Aristotle and other philosophical writers. Emphasis on textual analysis with lectures and class discussions on the authors' literary milieu. Prereq: CLA 252 or equivalent.

CLA 556 GREEK DRAMATIC LITERATURE. (3)
A study of Greek drama through selected plays of the major tragic and comic writers. Emphasis on textual analysis with lectures and class discussions on the authors' literary milieu. Prereq: CLA 252 or equivalent.

CLA 557 GREEK HISTORICAL LITERATURE. (3)
A study of the Greek historiographical tradition as exemplified in Herodotus, Thucydides and other Greek historians. Emphasis on textual analysis with lectures and class discussions on the authors' literary milieu. Prereq: CLA 252 or equivalent.

CLA 561, 562 STUDIES IN GREEK PHILOLOGY. (3 ea.)
Courses to meet the needs of students in various areas of Greek

Philology, e.g., in Greek literature, in Greek civilization, in Greek linguistics, etc. Prereq: Consent of instructor.

CLA 601 STUDIES IN GREEK LITERATURE I. (3)
Intensive study of an author, a literary form or a problem in the period from Homer through the Fifth Century B.C. Considerable attention will be focused on secondary sources; students will write papers and present oral reports in class. May be repeated once.

CLA 602 STUDIES IN GREEK LITERATURE II. (3)
Intensive study of an author, a literary form or a problem in the period from the Fourth Century B.C. through the Third Century A.D. Considerable attention will be focused on secondary sources; students will write papers and present oral reports in class. May be repeated once.

CLASSICS IN GENERAL

CLA 131 MEDICAL TERMINOLOGY FROM GREEK AND LATIN. (3)
Latin and Greek roots, prefixes, and suffixes as found in medical terminology. Primarily for pre-medical, pre-dental, pre-nursing and pre-veterinary students, but others will be admitted for help in vocabulary building.*

CLA 235 MYTHOLOGY I. (3)
The Greek myths studied both from the standpoint of their meaning to the Greeks and Romans and from the standpoint of their use in later literature and in everyday life. No knowledge of Latin or Greek required.

CLA 236 MYTHOLOGY II. (3)
Germanic and Celtic myths studied from the standpoint of their meaning for medieval and modern literature and history. Comparative viewpoint emphasized. Wide reading in source material in translation.*

CLA 390 EARLY CHRISTIAN LITERATURE IN TRANSLATION. (3)
A survey of the development of Christian literature in the first four centuries. Attention will be focused on the efforts of the Christian community to achieve its own identity and to resolve the conflicts which it faced with Judaism, with the Graeco-Roman world and within itself. No knowledge of Greek or Latin required.

CLA 580 INDEPENDENT WORK IN CLASSICS. (3)
Courses to meet the needs of the student will be arranged in various areas. Prereq: Major standing of 3.0 in Department or consent of instructor. May be repeated to a maximum of 12 credits.

CLA 600 BIBLIOGRAPHY OF CLASSICAL SCHOLARSHIP. (3)
An introduction to the bibliography of classical scholarship and to research methods. Prereq: Reading knowledge of Greek and Latin and of German or French or consent of instructor.

CLA 605 COMPARATIVE GREEK AND LATIN GRAMMAR. (3)
Studies or research in comparative linguistics, historical syntax, semantics, and other aspects of linguistics in the Greek and Latin area. Prereq: Necessary command of the languages involved.

CLA 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated to a maximum of six credits equivalence. (1-6 credits equivalence.)

CLA 790 RESEARCH IN THE TEACHING OF CLASSICAL LANGUAGES. (3)
Problems in the teaching of Latin and/or Greek in secondary and/or higher education. Objectives, methods, preparation of materials, development of curricula, or the history of the field. Prereq: CLA 530 or the equivalent.

*No knowledge of Greek or Latin expected.

CLINICAL NUTRITION

CNU 502 PRINCIPLES OF HUMAN PHYSIOLOGY. (5)
A basic course in human physiology including the functions and regulations of the major body systems. Prereq: One year of inorganic chemistry; one semester of college anatomy, or one year of college biology. (Same as PGY 810.)

CNU 504 PRINCIPLES OF HUMAN PHYSIOLOGY LECTURES. (4)
A basic course in human physiology including the function and regulation of the major body systems. Prereq: One year, inorganic chemistry; one semester, college anatomy or one year, college biology.

CNU 601 CLINICAL NUTRITION. (4)
An analysis of the process by which man ingests, assimilates and utilizes all of the constituents of food in health and disease. Relationship of biochemical and physiological factors to the nutrient requirements of the human body. Evaluation of dietary status and rationale of dietary management. Course to be taught by lectures, clinical rounds, conferences and written and oral case studies. Prereq: PGY 502, 503; consent of instructor. BCH 501 to be taken concurrently.

CNU 602 CURRENT TRENDS IN NUTRITION. (1)
A seminar to review the current literature of nutrition; development of techniques for the preparation of abstracts, reviews and bibliographies on current topics. Questions of editing, editorial styles, evaluation and graphic interpretation to be discussed. Course to be taught through seminar sessions, along with reports and some lectures. Prereq: PGY 502, 503; BSC 421 (statistics). BCH 501 to be taken concurrently.

CNU 701 ADVANCED CLINICAL NUTRITION. (2)
A course dealing primarily with the clinical application of the principles of nutrition, to include clinical conferences and case studies. Prereq: CNU 601 or concur.

CNU 768 RESIDENCE CREDIT FOR MASTER'S DEGREE IN CLINICAL NUTRITION. (0)
(1-6 credits equivalence.) May be repeated.

CNU 780, 781, 782 INDEPENDENT STUDY. (1 ea.)
Required each semester and summer school by all students enrolled in the clinical nutrition program. Topics of interest will be reviewed in depth with appropriate presentation.

CM 601 PRINCIPLES OF NUTRITION IN POPULATION GROUPS (2)
Epidemiological aspects of nutrition. Factors affecting adequacy of dietary intake and assessment of nutritional status in population groups. Community programs in social welfare and public health, including city, state, federal and international programs. Field work four weeks. Course will be taught through lectures and discussions. Prereq: BCH 501; BSC 421 (statistics); PGY 502, 503; SOC 780. Consent of instructor.

CLINICAL PASTORAL COUNSELING

CPC 501 PERSPECTIVES IN RELIGION AND HEALTH. (3)
An interdisciplinary study of significant religious components in health. Prereq: Consent of instructor.

COMMUNICATIONS

CMO 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.

CMO 250 MASS MEDIA AND MASS CULTURE. (3)
An examination of the interplay between the technology and content of the mass communications media and popular culture.

CMO 350 LANGUAGE AND COMMUNICATION. (3)
An introductory survey course covering syntactic, semantic and pragmatic aspects of language as they relate to communication. Language learning, sign typolgion, psycholinguistics, and the nature of meaning are selected topic areas. Emphasis is on a behavioral, communication approach. Prereq: CMO 101.

CMO 550 INTRODUCTION TO COMMUNICATIONS RESEARCH. (3)
To introduce undergraduate students to the philosophy of research—particularly as it applies to communications; and to study the principal types of communications research so that the student will be able to do simple projects and interpret research findings in his field.

CMO 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.

CMO 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.

CMO 554 SEMINAR IN COMMUNICATIONS. (2)
Intensive study of a communication topic in professional, theoretical, and research (methodology) areas. Three class hours per week. May be repeated to a maximum of six credits.

CMO 601 PROSEMINAR IN COMMUNICATION. (3)
Introduction to graduate study; theory and systems, research strategies. Prereq: Graduate standing in communications or consent of instructor.

CMO 605 INTRODUCTION TO INFORMATION SCIENCE. (3)
Introduction to major areas of information science and technology. Consideration is given to the nature of information science and technology as a field of study, the analysis and design of information systems, basic computer systems, and specific components of information storage and retrieval systems. (Same as LS 605.)

CMO 607 EVALUATING AND COMMUNICATING INFORMATION. (3)
A study of the communication systems with which students will work, of the effect of the communications systems on public decisions, and of the means by which students work efficiently with communications systems.

CMO 608 MASS COMMUNICATIONS AND SOCIETY. (3)
A study of the ways in which the communications media play their roles in contemporary society with special attention to the major functions, rights, and responsibilities of media and individuals.

CMO 614 INFORMATION STORAGE AND RETRIEVAL SYSTEMS. (3)
Investigates the flow of information through information storage and retrieval system; abstracting, indexing, file organization, storage, search strategy, dissemination of information and its utilization. Consideration will also be given to special problems of vocabulary control, semantic and syntactic controls, determination of user requirements and the evaluation of in system performance. Prereq: LS 605, or consent of instructor. (Same as LS 614.)

CMO 615 INFORMATION SYSTEMS DESIGN. (3)
Principles and problems of information systems: systems analysis applied to information systems. Design of information systems with particular attention to equipment, training of personnel and evaluation. Prereq: LS 614.

CMO 650 SIGNS AND SIGN BEHAVIOR. (3)
A study of syntactic, semantic and pragmatic aspects of language and their relation to communication. Specific topics are covered by the individual student with an outlook toward the research report-proposal. Prereq: ANT 514 or equivalent; or consent of instructor.

CMO 651 COMMUNICATIONS THEORY. (3)
Major theories of the communications process and review of experiments and field studies on communications. Readings, discussion, and student experiments testing theoretical propositions about communications. Prereq: Course in statistics or in design of social research.

CMO 665 COMMUNICATIONS RESEARCH METHODS. (3)
The scientific method. Communications research as a part of social science research. Study and practice of advanced behavioral research techniques which apply to communications. Prereq: A behavioral research course and permission of instructor.

CMO 705 SEMINAR: INFORMATION SCIENCES. (3)
An investigation of the parameters of the information sciences from an interdisciplinary approach. Investigation and analysis of the literature of communications, management science, cybernetics, information theory to identify the similarities and differences. From this investigation, both qualitative and quantitative concepts of the directions of information science will be derived. Prereq: LS 605 or consent of instructor. (Same as LS 705.)

CMO 721 SEMINAR IN INTRAPERSONAL COMMUNICATION. (3)
The investigation of a single category of theoretical approaches to communication processing within a single organism. Repeatable. Prereq: Graduate standing in communications or consent of the instructor.

CMO 730 SEMINAR IN MASS MEDIA AND PUBLIC POLICY. (2)
The role of mass communications media in making public policy and the effects of public policies on the mass media. One subject area will be investigated each semester; typical topics are: (1) political campaign communications; (2) censorship; (3) controversial public issues; (4) rights; (5) international and world agreements. Prereq: Graduate standing.

CMO 731 SEMINAR IN INTERPERSONAL COMMUNICATION.(3)
Communication with emphasis on emergence of theory and implications for further research. May be repeated once. Prereq: Graduate standing in communications or consent of the instructor.

CMO 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated to a maximum of six hours. (1 to 6 hours equivalence.)

CMO 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.

COMMUNITY DENTISTRY

CD 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.

CD 810 PROFESSIONAL COMMITMENTS AND DENTAL PRACTICE. (1)
This is an introductory course to freshman dental students. The purpose is to familiarize the student with the history and the profession of dentistry, its professional organization, moral obligation, code of ethics, and the variety of ways that dentistry can be practiced. Lectures, seminars, and office visitations are used to allow the students to see and discuss, as well as hear about, the total environment in which dentistry is being practiced and what direction the profession is taking for the future.

CD 821 THE EPIDEMIOLOGY OF DENTAL DISEASES AND THE SCIENTIFIC METHOD. (1)
This course is designed to introduce second-year students to the scientific methods used in the dental profession and the various types of research that are done in the profession. Selected research papers are used in seminars as a basis for discussing the epidemiology of various dental diseases as well as focusing on the methodology of the scientific research. They participate in an epidemiological survey of local school children and learn to evaluate their findings in terms of the scientific data and the socio-economic characteristic of the local setting.

CD 830 THE COMMUNITY AND THE DELIVERY OF DENTAL SERVICES. (2)
This course is designed to allow students to participate in a five-day field experience (The Community Laboratory) in a small community in Kentucky. The students explore the political, social and demographic characteristics of the community. Attention is directed to health services provided by public agencies and the private sector of medical and dental practices. Finally, the students develop a plan for the effective delivery of dental health care to the population of the community.

SEE CONJOINT DENTAL SCIENCES FOR ELECTIVES.

COMMUNITY HEALTH

CH 101 INTRODUCTION TO THE HEALTH SCIENCES. (1)
Limited to students contemplating a career in one of the health sciences.

CH 210 INTRODUCTION TO COMMUNITY HEALTH ECOLOGY. (3)
An introduction to community health concepts, principles, and practice in modern society. Prereq: Consent of instructor.

CH 220 EDUCATION FOR COMMUNITY HEALTH. (2)
An analysis of the role of the educational process and skills in community health programs designed to change the state(s) of health. Prereq: Community health major or consent of the Department.

CH 250 INTRODUCTORY EPIDEMIOLOGY. (3)
An introduction to the science of epidemiology as the study of the distribution and determinants of health and disease. Prereq: Area I Mathematics requirement; BIO 110.

CH 320 COMMUNITY HEALTH EDUCATION METHODOLOGY. (3)
A systematic review of research and practice literature, observation of persons serving in community health education positions, and development of skills as a community health catalyst (educator). This course will be built upon the background knowledge and skills learned in previous education, and natural, and social science courses. Prereq: Community health major or consent of Department.

CH 321 SEMINAR IN COMMUNITY HEALTH EDUCATION. (3)
An educational approach to community health planning and the relationships of multiple factors affecting the planning and implementation process. Prereq: CH 320 or consent of the Department.

CH 420 CURRENT ISSUES IN COMMUNITY HEALTH EDUCATION. (3)
A study of conceptual approaches to diagnosis of health education needs of a community particularly those involving promoting wellness and prevention of illness. Specific process approaches to developing effective programs change(s) in state(s) of health are included. Prereq: CH 321 or consent of the Department.

CH 481 COMMUNITY HEALTH PRACTICE. (4-8)
To provide the community health specialist an opportunity to observe and practice classroom learned principles and skills in a community. Prereq: CH 321. Offered on a Pass-Fail basis.

CH 500 PUBLIC HEALTH SANITATION. (3)
A consideration of the cause, prevalence, transmission, and control of preventable diseases.

CH 501 PUBLIC HEALTH. (3)
A continuation of CH 500. Administrative and organizational approach to disease prevention.

CH 511 INDEPENDENT STUDY IN COMMUNITY HEALTH. (1-3)
Directed independent library and/or community health study. May be repeated for a maximum of six credit hours. Prereq: Major in community health and/or consent of the department chairman.

CH 515 COMMUNICABLE DISEASES. (3)
Environmental sanitation and the effects of environment on the control of communicable disease. Prereq: MB 200 or 400 or equivalent.

CH 520 MENTAL HYGIENE. (3)
An introduction to mental hygiene including a consideration of the cause, treatment and prevention of mental disorders. Not open to students who have credit in PSY 520.

CH 521 COMMUNITY HEALTH. (3)
An ecological view of community health, a study of the demographic, social, cultural and physical environmental factors that influence a community's state of health. Basic epidemiology and biostatistics are introduced as necessary instruments of community health analysis. Three class hours per week. Prereq: Upper division or graduate standing and consent of instructor.

CH 522 SCHOOL AND COMMUNITY HEALTH. (2)
A course designed to develop an idea of the cooperative nature of school health work and the importance of connecting it with adult health work.

CH 600 EPIDEMIOLOGY. (3)
A study of the natural history of disease.

CH 603 PUBLIC HEALTH RECORDS. (2)
General principles of recording, filing and use of public health data.

CH 604 MATERNAL AND CHILD HEALTH. (2)
A study of the principles of maternal, prenatal, infant and child care.

CH 612 PUBLIC HEALTH ADMINISTRATION. (3)
A consideration of the principles of public health administration.

CH 613 PUBLIC HEALTH ADMINISTRATION. (2)
A continuation of CH 612.

CH 618 VITAL STATISTICS. (3)
Application of the statistics of population, births, deaths, etc., in public health.

CH 619 VITAL STATISTICS. (2)
A contination of CH 618.

CH 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

CH 770 SEMINAR. (1)

CH 841 COMMUNITY HEALTH CLERKSHIP. (3)
Community health clerkship—field experience in applying the principles of community health analysis. Prereq: CH 521 and/or consent of instructor. Offered on a pass/fail basis only.

COMMUNITY MEDICINE

CM 821 COMMUNITY MEDICINE. (2)
The major purpose of the course, open only to medical students, is to prepare the student to understand and deal effectively with health problems of a community so that he can apply this knowledge in giving comprehensive quality care to individuals and families. The course will include lectures, seminars, demonstrations and field and laboratory assignments with emphasis on concepts of clinical public health, preventive medicine, epidemiology, environmental and ecological health, biostatistics and comprehensive medical care needs of communities.

CM 831 COMMUNITY MEDICINE CLERKSHIP. (7)
This course enables each student to become meaningfully involved in the health and medical affairs of a selected Kentucky area under the supervision of the community medicine faculty so that he will be able to develop an understanding of the interrelationships between the community and health and be prepared to assume his total role in his future community.

SUMMER PROGRAM IN EPIDEMIOLOGIC RESEARCH TRAINING (P.E.R.T.)
This non-credit program is offered in eight-week sessions each summer for freshmen and sophomore medical and dental students. The experience includes the design, conduction, and analysis of an approved epidemiologic research project under the supervision of a faculty member selected by the applicant. A stipend, as well as project mileage, are paid each participant.

COMPARATIVE LITERATURE

CLT 300 SEMINAR: COMPARATIVE LITERATURE METHODOLOGY. (3)
A study of the philosophy and methodology of comparative literature.

CLT 395 INDEPENDENT STUDY. (3)
Open to comparative literature majors only. May be repeated to a maximum of six credits. Prereq: Standing of 3.0 in major required.

Comparative literature courses. See CLA 235, 236, 261, 262, 424, 425; ENG 261, 262, 361, 560, 561, 562, 563; FR 261, 414, 415, 460, 461, 462; GER 300, 412, 501, 505, 510, 511; SO 263, 264, 555, 556, 563; SPI 261, 315, 316, 318, 319, 420, 543, 544, 591.

COMPUTER SCIENCE

CS 150 INTRODUCTION TO ALGORITHMIC PROCESSES. (3)
The use of algorithms in a procedure oriented language; includes an introduction to number systems, computer structure, internal representation and basic data structures.

CS 221 FIRST COURSE IN COMPUTER SCIENCE FOR ENGINEERS. (2)
Characteristics of a procedure-oriented language; description of a computer as to internal structure and the representation of information; introduction to algorithms. Emphasis will be placed on the solution of characteristic problems arising in engineering. Prereq: MA 113 and an engineering major.

CS 235 LOGIC FOR COMPUTER SCIENCE. (3)
An introduction to principles and techniques of modern formal logic and Boolean algebra applicable to computer science. Prereq: Major in computer science, or consent of instructor.

CS 250 COMPUTER ORGANIZATION AND PROGRAMMING. (3)
Number bases, data and instruction representations, assembler language programming, principles of programming, computer operating systems, hardware components and their relation to software, input/output devices, and input/output programming. Prereq: CS 150.

CS 310 DATA PROCESSING FOR COMPUTER SCIENCE MAJORS. (3)
An introduction to important basic concepts in computing. Prereq: CS 250.

CS 340 DISCRETE STRUCTURES IN COMPUTER SCIENCE. (3)
An introduction to those algebraic and logical concepts fundamental to computer science and to their application in computer science. Including basic set algebra, groups, semigroups, elements of graph theory and Boolean algebra. Prereq: CS 150 or CS 221.

CS 396 INDEPENDENT WORK IN COMPUTER SCIENCE. (2)
A course for computer science majors only. A problem, approved by the chairman of the Department, provides an opportunity for individual research and study. May be repeated to a maximum of six credits. Prereq: Major and standing of 3.0 in the Department.

CS 401 COMPUTER APPLICATIONS TO ALLIED HEALTH EDUCATION. (3)
Computer applications in medical record keeping, patient care,

research and instruction. Lecture, programmed study materials and computer assisted instruction. Programming as a skill is desirable but not a prerequisite for admission. (Recommended for non-computer science majors; the course does not satisfy requirements for a computer science major.) Prereq: Consent of the instructor. (Same as AHE 501.)

CS 415 GRAPH THEORY. (3)
A basic course in the theory of linear undirected graphs. The topics to be studied are: definitions and basic concepts, trees, connectivity, traversability, factorization, planarity and matrices. In addition, algorithm for finding spanning trees, testing z-connectivity, finding Euler trails, finding a maximum matching in a bipartite graph, and testing planarity will be presented at appropriate times. In conjunction with their algorithms there will be applications to Operations research, genetics and other areas. About 55 percent of the course will be spent on the general theory of graphs, 30 percent on algorithms and 15 percent on applications of these algorithms. Prereq: CS 150 or equivalent.

CS 420 ALGORITHMIC LANGUAGES AND COMPILERS. (3)
This course acquaints the student with the formal description of procedure-oriented languages and the techniques useful in the translation of these languages into computer programs. Prereq: CS 250.

CS 421 ELEMENTARY NUMERICAL ANALYSIS. (3)
Computer arithmetic. Discussion of the various types of errors. Solution of systems of linear algebraic equations—elementary discussion. Solution of a single non-linear algebraic equation. Polynomial interpolation. Numerical differentiation and integration. (This course could serve as an introduction both for the specialist and the non-specialist.) (Same as MA 421.)

CS 440 DATA STRUCTURES. (3)
An introduction to structures of information sets covering syntactic or semantic relations. The generation, development and processing of structures and their interrelationships, machine instructions and storage hierarchies. Prereq: CS 250.

CS 445 COMPUTING AND THE HUMANITIES. (3)
An introduction to the use and significance of computing for those who are interested in how to use a computer, but who are not necessarily interested in how to program it. The course will cover the history and social implications of computing but will concentrate more heavily on what results have been and can be obtained in the humanities through the use of well-planned digital computation.

CS 472 SEMINAR. (2)
Weekly report on current research papers. Discussion of new advances in computer science. May be repeated to a maximum of six credits. Prereq: CS 250 or 440 or consent of instructor.

CS 482 DISCRETE METHODS AND MODELS IN APPLIED MATHEMATICS. (3)
Probability on finite sample spaces, combinatorial mathematics, finite Markov chains, linear programming, theory of games. Prereq: MA 214 or equivalent. (Same as STA 482, MA 482.)

CS 502 USE AND MANAGEMENT OF MINI—COMPUTERS. (3)
Concepts and techniques employed by mini-computers are discussed. Topics include machine architecture, languages, and operation; utility programs; interrupts and input-output processing; file management; and applications. Prereq: Knowledge of FORTRAN and graduate standing or consent of instructor.

CS 510 DISCRETE COMPUTER MATHEMATICS I. (3)
Basic material and selected topics on combinatorial mathematics will be covered. This includes: inversion formulas, generating functions and recursions, combinatorial identities, partitions, enumeration theorems and block designs. Also there will be a brief introduction to graph theory and algebraic coding theory. Prereq: CS 340, or equivalent.

CS 525 ANALOG AND HYBRID COMPUTER TECHNIQUES. (3)
Application of analog and hybrid computers in the solution of systems of integro-differential-difference equations. Prereq: MA 214 or consent of instructor.

CS 530 COMPUTATIONAL METHODS. (3)
A study of computational methods from the user's standpoint rather than from the designer's. Lecture, two hours; laboratory, two hours. Prereq: MA 421 or instructor's consent, plus ability to program a digital computer.

CS 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. (Same as MA 538.)

CS 540 SYSTEMS SIMULATION. (3)
Computer simulation techniques including building and utilizing deterministic and stochastic models for digital and analog computers, Monte Carlo. Prereq: CS 150 or CS 221 and a course in statistics or probability.

CS 541 ADVANCED COMPILER DESIGN I. (3)
Lexical scan, data-directed parsing methods, mathematical analysis of syntactic analysis methods. Prereq: CS 420, or equivalent, or by consent of instructor.

CS 550 INTRODUCTION TO CODING THEORY. (3)
An introduction to the principles, techniques, and development of algebraic coding theory with particular emphasis on its use and applicability to Computer Science. Prereq: CS 340 and a course in linear algebra or consent of instructor.

CS 560 NON-NUMERICAL APPLICATIONS OF COMPUTERS. (3)
Introduction to and training in non-numerical techniques by digital computers. Prereq: CS 440.

CS 570 COMPUTERS AND PROGRAMMING SYSTEMS. (3)
Advanced concepts in software design, development, and implementation including priority, executive, and real time computer systems. Prereq: CS 420.

CS 575 FORMAL LANGUAGE THEORY. (3)
A study of various types of formal grammars and the languages they generate; phrase-structure grammars; context-sensitive, context-free, and regular grammars. Recognition of languages by various types of automata; Turing machines, pushdown automata, and finite automata. Decidability and undecidability of questions concerning languages. Prereq: LISP or Snobol programming or consent of instructor.

CS 605 ADVANCED INFORMATION PROCESSING. (3)
Linked allocation, doubly-linked lists, trees, multilinked structures, dynamic stored allocation, list processing languages, processing of game trees. Prereq: CS 440, 510 or equivalent.

CS 611 DISCRETE COMPUTER MATHEMATICS II. (3)
This course, a continuation of CS 510, will deal primarily with computer oriented applications of the various methods and techniques developed in CS 510, primarily to problems in graph theory and algebraic coding theory. Prereq: CS 510.

CS 612 INDEPENDENT WORK IN COMPUTER SCIENCE. (1-3)
Reading course for graduate students in computer science. May be repeated to a maximum of nine credits. Prereq: Over-all standing of 3.0, and consent of instructor.

CS 620 NUMERICAL APPROXIMATION AND CURVE-FITTING. (3)
Design of computer programs to approximate given functions to within a specified tolerance according to a specified norm. Curv- and surface-fitting, spline approximation. Smoothing. Optimization techniques. Prereq: CS/MA 538.

CS 630 NUMERICAL EVALUATION OF TRANSCENDENTAL FUNCTIONS. (3)
Use of analytic properties to generate numerical values of transcendental functions and to estimate their precision. Application of power, Chebyshev, factorial, and Fourier series, continued fractions, and other convergent and asympototic infinite expansions, recurrences, convergence acceleration and obomhus algorithms. Examples will be selected from among the more important classical special functions, giving an introduction to their major properties. Prereq: MA 433, Elements of complex analysis, differential equations, or consent of instructor.

CS 631 ERROR ANALYSIS AND CERTIFICATION. (3)
Effects of inexact data and/or inexact computer arithmetic on the accuracy of the computed solution to a problem. Design of acceptance tests on the basis of which a computer program may be certified as meeting its specifications. Prereq: CS/MA 538.

CS 641 ADVANCED COMPILER DESIGN II. (3)
Optimization, special purpose languages, compiler-compiler, industrial compiler practice. Prereq: CS 541 or consent of instructor.

CS 650 PROBLEM SEMINAR. (3)
A seminar on the identification, analysis, formulation and solution of problems amenable to computer solution. Presupposes knowledge of calculus and programming. Prereq: Consent of instructor.

CS 680 SEMINAR IN COMPUTER SCIENCE. (2)
May be repeated to a maximum of four credits. Prereq: Consent of instructor, or two 500 level computer science courses.

CS 682 SWITCHING THEORY. (3)
Application of the symbolic logic of Boole and Schroeder to the design of switching systems. Topics include Boolean algebra, Boolean analysis, the solution of logic equations, the minimization of Boolean formulas, and the diagnosis of failures in digital systems. Prereq: EE 580 or consent of instructor. (Same as EE 682.)

CS 683 AUTOMATA THEORY. (3)
Decomposition of Sequential Machines, State Assignment, Finite Memory Machine, Shifting Operators as applied to Structural Machines, Turning Machines, Pattern Classification by State Machines. Prereq: EE 580, MA 561. (Same as EE 683.)

CS 685 SPECIAL TOPICS IN COMPUTER SCIENCE. (3)
To be selected by staff. Prereq: Consent of instructor or two 500 level computer science courses. May be repeated to a maximum of six credits.

CS 690 ADVANCED PROGRAMMING SYSTEMS I. (3)
Programming topics including list processing recursion. Non-sequential processing including time-sharing system. Prereq: CS 570 or equivalent.

CS 691 ADVANCED PROGRAMMING SYSTEMS II. (3)
Non-sequential processing including time-sharing systems, virtual memory, input/output practices, and practices connected with operating systems. Prereq: CS 690.

CS 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated. (1 to 6 credits equivalence.)

CONJOINT

(College of Medicine)

CON 812 INTRODUCTION TO THE PROFESSION. (5)
This course introduces medical students to their future professional role. Normal development, techniques of interviewing and examination, observation of practice, and response to common emergencies are presented. Prereq: Admission to the College of Medicine.

CON 815 FIRST-YEAR ELECTIVE. (1-3)
With the advice and approval of his faculty adviser, the first year student may choose approved electives offered by the various departments of the College of Medicine. The intent is to provide the student an opportunity for individual thinking and for the development of his own intellectual initiative. Prereq: Admission to the first year, College of Medicine.

CON 818 CONJOINT SCIENCES. (2)

CON 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.

CON 825 SECOND-YEAR ELECTIVE. (1-4)
Electives to be offered by various College of Medicine departments will vary in length from 25 to 100 hours and will carry one to four hours credit. A student will select his elective with the advice and approval of his adviser. Prereq: Admission to second-year medical curriculum and approval of adviser.

CON 845 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (48-56)
A list of the electives offered by all departments is published annually by the Office of Student Services. Prereq: Admission to fourth year, College of Medicine.

CONJOINT DENTAL SCIENCE

CDS 801 FIRST-YEAR ELECTIVE. (1-10)
These new elective courses are proposed to give various departments an opportunity to offer topics on different levels within their departments. These electives will allow students to pursue in-depth areas of interest to them and to learn to be more intellectually independent and creative. Also, electives will provide flexibility in the curriculum for students above average in ability. Specific courses include: Extramural Education, The Analysis and Evaluation of Scientific Literature, Scientific Writing, and Independent Work in Oral Biology.

CDS 802 SECOND-YEAR ELECTIVE. (1-15)
These new elective courses are proposed to give various departments an opportunity to offer topics on different levels within their departments. These electives will allow students to pursue in-depth areas of interest to them and to learn to be more intellectually independent and creative. Also, electives will provide flexibility in the curriculum for students above average in ability. Specific courses include: Extramural Education, The Analysis and Evaluation of Scientific Literature, Scientific Writing, Independent Work in Oral Biology, Oral Biology.

CDS 803 THIRD-YEAR ELECTIVE. (1-20)
These new elective courses are proposed to give various departments an opportunity to offer topics on different levels within their departments. These electives will allow students to pursue in-depth areas of interest to them and to learn to be more intellectually independent and creative. Also, electives will provide flexibility in the curriculum for students above average in ability. Specific courses include: Extramural Education, The Analysis and Evaluation of Scientific Literature, Scientific Writing, Independent Work in Oral Biology, Oral Biology, Oral Pathology, Facial Pain and Acute Mandibular Dysfunction, Occlusal Problem Solving and Waxing, Various Concepts of Occlusal Reconstruction, Teaching Expanded Auxiliary Management (TEAM) Clinic, Compacted Gold Restoration, Periodontic Seminar.

CDS 804 FOURTH-YEAR ELECTIVE. (1-20)
These new elective courses are proposed to give various departments an opportunity to offer topics on different levels within their departments. These electives will allow students to pursue in-depth areas of interest to them and to learn to be more intellectually independent and creative. Also, electives will provide flexibility in the curriculum for students above average in ability. Specific courses include: Extramural Education, The Analysis and Evaluation of Scientific Literature, Scientific Writing, Independent Work in Oral Biology, Oral Biology, Oral Pathology, Facial Pain and Acute Mandibular Dysfunction, Occlusal Problem Solving and Waxing, Various Concepts of Occlusal Reconstruction, Teaching Expanded Auxiliary Management (TEAM) Clinic, Compacted Gold Restorations, Periodontic Seminar, Introduction to Dental Practice, Creative Problem Solving, Extra-Oral Radiography, Hospital Clinical Clerkship, Oral Surgery Hospital Rotation, Care of the Chronically Ill and Handicapped Child, Principles of Comprehensive Orthodontic Treatment.

CDS 812 PRINCIPLES OF OCCLUSION AND TOOTH MORPHOLOGY. (5)
Detailed study of the teeth, individually and collectively. Includes relationships of teeth, and the significance of tooth form to function is emphasized as is the practical relationship to preventive clinical dentistry. Those principles of occlusion and mandibular physiology which are common to all disciplines of clinical dentistry are coordinated to provide the student with a basic understanding of the fundamentals involved.

CDS 813 PRE-CLINCAL 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.
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.

CDS 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.

CDS 816 INTRODUCTION TO CLINICAL DENTISTRY. (4)
A conjoint course presenting basic concepts on communication, history taking, physical diagnosis, soft and hard tissue examination, treatment planning and case presentation. Includes lectures, hospital rounds, and clinical activities.

CDS 821 ANESTHESIOLOGY. (1)
Techniques for administration of local anesthetics in dental practice are covered. Methods of patient evaluation and emergency techniques for cardiac and respiratory resuscitation are taught. The role of general anesthetics in dental practice is described.

CDS 822 DIAGNOSIS AND TREATMENT OF MANDIBULAR DYSFUNCTION AND OCCLUSAL TRAUMA. (2)
Directed toward the examination, diagnosis and treatment of occlusal disharmonies of the natural dentition associated with mandibular dysfunction and periodontal occlusal trauma. Theory and practice of occlusal adjustment includes clinical and laboratory experiences in selective grinding and biteguard fabrication.

CDS 824 INTRODUCTION TO PATIENT MANAGEMENT. (3)
This course presents the basic principles of treatment planning for

comprehensive care patients as well as basic principles of patient motivation. Treatment planning seminars are also held with the students presenting cases they are treating in the clinic.

CDS 825 INHALATION SEDATION. (1)
This course is designed to teach the principles of safe administration of nitrousoxide oxygen inhalation sedation in dentistry. Lectures, demonstration, and clinical participation are the teaching methods used. Prereq: OB 821, CDS 821.

CDS 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.

CDS 836 DENTAL AUXILIARY UTILIZATION. (1)
This course teaches the student current concepts of auxiliary utilization. The duties of all dental auxiliary personnel are discussed. The technique of working with the chairside assistants is emphasized. Prereq: Admission to the College of Dentistry.

CDS 837 CLINICAL USE OF DAU. (5)
A dental assistant will be assigned to each student for a period of six weeks for the purpose of teaching the student how to utilize the assistant. Lecture, one hour; laboratory, 24 hours a week for six weeks. Prereq: CDS 836; DAU Didactic.

CDS 843 DENTAL EMERGENCIES. (1)
The objective of this course is to teach the recognition and management of selected medical and other emergencies that may occur in the practice of dentistry. The clinical application of biological principles is stressed.

CDS 845 INTRODUCTION TO DENTAL PRACTICE. (3)
The course is designed to provide the fifth-level dental student with basic information for establishing and maintaining a successful dental practice. Among the topic areas offered are the role of an attorney, C.P.A., and a banker in a private practice; facility design; current trends in dental equipment, and insurance needs for the private practitioner.

CDS 850 MANAGEMENT OF DENTAL AUXILIARIES. (2)
This course is designed to provide the student with an overview of the management process as it relates to dentistry. Major emphasis is on the human relations aspects of management including basic management function, group dynamics, employee motivation, and leadership. Prereq: CDS 836; DAU Didactic.

CDS 851 CLINICAL MANAGEMENT. (5)
This course is designed to provide clinical management experience for all fifth-level students. The student will actively manage a team dental practice. Through clinical and seminar teaching the student will learn the basic skills needed to effectively manage a dental practice. Prereq: CDS 836, 837, and 850.

COOPERATIVE EXTENSION

CEX 501 PRINCIPLES OF COOPERATIVE EXTENSION. (3)
Philosophy, history and development of Cooperative Extension Service; evaluation of instructional techniques; leadership training; and practice in use of extension methods. Open to junior, senior and graduate students.

DENTAL HYGIENE

THIRD YEAR

BASIC DENTAL SCIENCES

DH 811 ORAL BIOLOGY I. (2)
An introduction to the gross and microscopic anatomy and physiology of the head and neck; the embryonic development of the head and face is included.

DH 812 ORAL BIOLOGY II. (4)
Basic and current concepts in controlling pain by the use of local anesthetics and the technics of administration will be covered; an introduction to the response of the living organism to drugs with particular emphasis on drugs used in dentistry. Prereq: Admission to the dental hygiene program.

DH 814 ORAL PATHOLOGY. (2)
An introduction to the concepts of general pathology with emphasis on common oral diseases.

DH 815 DENTAL MORPHOLOGY AND PRINCIPLES OF OCCLUSION. (2)
A course designed to permit the study of morphological characteristics of the teeth and other oral structures. Emphasis is placed on the positional relation of teeth in the dental arch and on the practical relation of dental morphology and occlusion to preventive dentistry. Prereq: Admission to the dental hygiene program.

DH 816 GROWTH AND DEVELOPMENT. (2)
This course covers the dental, physical, emotional and environmental growth and development of the normal child from birth through adolescence and with some discussion of the aging problem. Prereq: Admission to the dental hygiene program.

DH 818 DENTAL RADIOLOGY. (1)
An introduction to dental radiology which includes processing and developing of radiographs, radiographic technic, and the principles of radiation exposure. Students expose and process intra-oral radiographs of clinic patients. Prereq: Admission to the dental hygiene program.

DH 820 INTRODUCTION TO ORAL EXAMINATION AND HOSPITAL PROCEDURES. (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. The initial introduction to patients, therefore, occurs in the Oral Diagnosis Clinic and University Hospital. Twenty-four lecture hours, 55 clinical hours.

DH 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.

DH 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.

DH 823 RESTORATIVE DENTISTRY AND DENTAL PHYSICAL SCIENCES. (2)
A course designed to introduce students to the etiology, pathology, prevention, and treatment of dental caries. Students also will be introduced to the various materials used to restore teeth and will perform the procedures used for polishing restorations. Prereq: Admission to the dental hygiene program.

DH 825 CLINICAL DENTAL HYGIENE I. (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.

DH 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.

DH 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.

DH 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.

DH 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.

DH 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.

DH 834 DENTAL LITERATURE. (1)
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.

DH 835 COMMUNITY CLINICAL DENTAL HYGIENE LABORATORY. (2)
A course designed to provide advanced clinical experience in a field setting during the summer between the third and fourth years. Each student spends two weeks caring for children in a rural county set-up in schoolrooms under faculty supervision. Prereq: Admission to dental hygiene program, first year.

FOURTH YEAR

BASIC DENTAL SCIENCES

DH 911 ORAL PATHOLOGY. (1)
This course covers the pathology of the more commonly seen oral diseases. Prereq: Admission to dental hygiene program, second year.

DH 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.

DH 920 DENTAL RADIOLOGY: TECHNIQUE AND INTERPRETATION. (2)
Extensive experience in radiographic technique is provided through clinical practice on dental clinic patients. This course also includes instruction in dark room procedures and in radiographic interpretation. Prereq: Admission to dental hygiene program, second year.

DH 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.

DH 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.

DH 923 PEDODONTICS III. (4)
The clinical application of treatment procedure for children (didactic portion taught in Pedodontics I/DH 822 and Pedodontics II/DH 922). Prereq: Admission to the dental hygiene curriculum.

DH 925 CLINICAL DENTAL HYGIENE II. (3)
Continuation of Clinical Dental Hygiene I. Prereq: Successful completion of DH 825.

DH 926 DENTAL PRACTICE II. (2)
Continuation of Dental Practice I. Prereq: Successful completion of DH 826.

DH 927 CLINICAL DENTAL HYGIENE III. (3)
Continuation of Clinical Dental Hygiene II. Two hundred fifty-six laboratory hours per semester. Prereq: Successful completion of DH 925.

DH 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.

DH 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.

DH 933 PUBLIC HEALTH AND COMMUNITY ORGANIZATION. (1)
Introduction to public health administration and organization. Consideration of community resources that can be utilized in the promotion of public health programs, especially as related to dentistry. Experience in developing dental health education materials and presenting dental health information to child and adult groups. Prereq: Admission to dental hygiene program, second year.

DH 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.

DH 940 ADVANCED DENTAL HYGIENE. (1-4)
This course is designed for registered dental hygienists. It includes advanced study in clinical dental hygiene, community dental hygiene and the basic dental sciences. Subject areas will be arranged to meet the specific needs of the student. May be repeated for a total of 12 hours.

DIAGNOSTIC RADIOLOGY

DR 831 DIAGNOSTIC RADIOLOGY CLERKSHIP. (2)
This course is an introduction to the indications and use of diagnostic radiology in patient care. Fundamental concepts of diagnosis are briefly covered. The course is a combination of lecture and laboratory exercises and observation periods. Prereq: Admission to third year, College of Medicine.

DIPLOMACY AND INTERNATIONAL COMMERCE

(PATTERSON SCHOOL OF DIPLOMACY)

DIP 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.(0)
May be repeated once. (1-6 credits equivalence.)

DIP 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.(0)
May be repeated indefinitely. (1-12 credits equivalence.)

ECONOMICS

ECO 160 CONTEMPORARY ECONOMIC ISSUES. (3)
A basic course in the analysis of contemporary economic issues with emphasis on current economic topics such as inflation, poverty and affluence, urban congestion, and environmental pollution. (Credit will not be given for this course to students who have received credit in ECO 260 and/or 261.)

ECO 260 PRINCIPLES OF ECONOMICS. (3)
An introductory course. The theory of income and employment and value theory. Not open to freshmen.

ECO 261 PRINCIPLES OF ECONOMICS. (3)
The major emphasis is on distribution theory and public policy. Prereq: ECO 260.

ECO 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 and 261.

ECO 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.

ECO 391 ECONOMIC AND BUSINESS STATISTICS. (3)
Distributions of means, proportions, and variances. Introduction to non-parametric tests, analysis of variance, non-linear regression and correlation, multiple regression, statistical decision theory, and time series and index number. Emphasis on application to economic and business problems. Prereq: STA 291 or equivalent.

ECO 395 INDIVIDUAL WORK IN ECONOMICS. (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits.

ECO 396 TUTORIAL WORK IN ECONOMICS. (1)
Open only to Arts and Sciences majors.

ECO 461 MARKET STRUCTURE AND ANTI-TRUST POLICY. (3)
A study of the relationship between industry performance and market structure, and the role and effect of the government's anti-trust policies. Prereq: ECO 361 or consent of instructor.

ECO 462 SEMINAR IN ECONOMIC THEORY. (3)
An advanced undergraduate seminar in economic theory, including micro and macro. Each semester one or two topics will be selected for intensive study. May be repeated twice for a maximum of six credits. Prereq: ECO 360 and 361, and senior level standing.

ECO 463 ANALYSIS OF BUSINESS CONDITIONS. (3)
A study of economic factors causing fluctuations in aggregate economic activity and the methods of forecasting business activity. Prereq: ECO 360 and 391, or equivalent.

ECO 465 COMPARATIVE ECONOMIC SYSTEMS. (3)
A study of capitalism, socialism, fascism, communisim, and cooperation, with attention to current experiments in economic planning. Prereq: ECO 261.

ECO 466 SEMINAR IN COMPARATIVE SYSTEMS. (3)
A seminar designed to provide intensive study of the economic theories, institutions, and policies which provide direction and coordination for economic systems—from classical capitalism to authoritarian socialism. The focus of the course will be directed toward the latter, in particular the Soviet Union and its East European neighbors. Prereq: ECO 465.

ECO 467 THE ECONOMIC 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 beginning from the 16th to the beginning of the 19th Century. Prereq: ECO 260 and 261.

ECO 468 SEMINAR IN ECONOMIC HISTORY. (3)
An extension of ECO 467 with emphasis being placed on independent study of various aspects of growth and development of the U.S. economy since 1790. Prereq: ECO 467.

ECO 469 HISTORY OF ECONOMIC THOUGHT. (3)
A study of several of the great ideas in the history of economic thought with special emphasis on the works of Adam Smith, T. R. Malthus, David Ricardo, Karl Marx, and Thorstein Veblen. Prereq: ECO 260-261.

ECO 471 INTERNATIONAL ECONOMICS. (3)
An analysis of the determinants of the pattern of international trade and the behavior of the international financial system, with careful attention to the problems of government policy in both the highly developed and the less developed countries.

ECO 472 SEMINAR IN INTERNATIONAL ECONOMICS. (3)
An intensive study of selected problems in contemporary international commerce, with an emphasis upon student research and informal discussion. Prereq: ECO 471.

ECO 473 ECONOMIC DEVELOPMENT. (3)
A comparative study of economic progress in selected countries; growth patterns, theories of development and capital formation, interaction of social and economic change. Prereq: ECO 261.

ECO 474 SEMINAR IN ECONOMIC DEVELOPMENT. (3)
Application to the principles of economic development to particualr cases and issues. Selection of topics based on contemporaneity and student interest, as well as susceptibility to analytical treatment. Prereq: ECO 473.

ECO 477 LABOR ECONOMICS. (3)
Insecurity, wages and income, substandard workers, industrial conflict; wage theories; the economics of collective bargaining; unionism in its structural and functional aspects; recent developments. Prereq: ECO 261.

ECO 478 SEMINAR IN LABOR ECONOMICS. (3)
The seminar will focus on contemporary issues and problems of economics and social interest in the field of labor economics. An exploration and evaluation of selected topics may include labor law, weapons of conflict, collective bargaining in the public and private sectors of the economy, technology and labor market imperfections, manpower policy, wage determination, and trade union philosophy and development. Prereq: ECO 477 or consent of instructor.

ECO 479 PUBLIC FINANCE. (3)
A study of public receipts; public expenditures, the principles of taxation with special reference to their application to the tax systems, federal and state. Prereq: ECO 261

ECO 480 SEMINAR IN PUBLIC FINANCE. (3)
Selected readings on public finance problems will be discussed in seminar. Prereq: ECO 479.

ECO 481 COLLECTIVE BARGAINING. (3)
The principles and procedures of bargaining and dispute settlement studied in detail. Includes a review of the content of labor contracts and provisions for administration. Union and management techniques are considered. Prereq: ECO 477 or consent of instructor.

ECO 483 REGIONAL ECONOMICS. (3)
A survey of the major tools, measurements, and theories utilized in studying the regional economy. The topics covered include the basic elements of location theory, regional growth theory, and such economic models as economic base, input-output, and shift-share. Prereq: ECO 360 and 361.

ECO 484 SEMINAR IN REGIONAL ECONOMICS. (3)
A further extension of the basic theoretical framework of regional economics particularly with reference to the spatial and interdisciplinary aspects of the theoretical structure, supervised independent study will concentrate on the application of the theoretic analysis to various policy questions. Prereq: ECO 483.

ECO 485 MONETARY ECONOMICS. (3)
A detailed discussion of the financial sector of basic static marcoeconomic models, including the views of both the Monetarist and Neo-Keynesian schools. Institutional aspects of the financial system are discussed. The course stresses problems of economic stabilization. Prereq: ECO 360.

ECO 486 SEMINAR IN MONETARY ECONOMICS. (3)
Recent developments and contemporary issues in monetary economics. Prereq: ECO 485.

ECO 491 SURVEY SAMPLING DESIGN. (3)
Sampling theory applied to research design and data collection in economics. Covers simple random, stratified random, systematic, and cluster sampling. Prereq: ECO 391 or consent of instructor.

ECO 493 SOCIAL AND CLUTURAL DETERMINANTS OF ECONOMIC GROWTH AND DEVELOPMENT. (3)
The first part of the course deals with economic variables determining growth and development. The second part deals with the social and cultural forces having a predominant impact upon the variables discussed in part one. The purpose is to emphasize that economic development is a long run concept and depends heavily upon the impact of the social and cultural forces on the economic variables. Prereq: SOC 101; ECO 261. (Same as SOC 493.)

ECO 590 INTRODUCTION TO QUANTITATIVE ECONOMICS I. (3)
An introduction to mathematical approaches to economic theory. Emphasis on linear models, constrained optimization, and techniques used in comparative statics. Prereq: ECO 361; MA 113; or consent of instructor.

ECO 592 INTRODUCTION TO QUANTITATIVE ECONOMICS II. (3)
An introduction to the use of mathematical statistics in econometrics. Emphasis on statistical decision theory and linear regression analysis. Prereq: ECO 590 or consent of instructor.

ECO 595 SOCIAL ACCOUNTING. (3)
An analysis of social accounts and use of accounts in creating development plans for underdeveloped and developed economies. Topics include the measurement of national income and its use in development planning; the qualitative and quantitative aspects of a development plan; the planning of economic policy and implementation of economic programs. Prereq: ECO 360 or equivalent.

ECO 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.

ECO 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.

ECO 662 RESEARCH METHODS AND PROCEDURES IN ECONOMICS. (3)
The basic procedures and methods of research in economics are considered from the standpoint of their applicability to problem solving and discovery of new scientific facts and generalizations in economics. Definition of the problem, statement of hypothesis,

research design, data collection methods, and data analysis constitute the major topics. Attention is given to proper style and preparation of research reports in economics. Prereq: Second semester standing as a graduate student in economics.

ECO 665 HISTORY OF ECONOMIC THOUGHT I. (3)
The background and development of English political economy up to 1848.

ECO 666 HISTORY OF ECONOMIC THOUGHT II. (3)
Main lines of controversy, reconstruction and development in economics since 1848 with an emphasis on the bibliography.

ECO 667 SEMINAR IN HISTORICAL STUDIES IN ECONOMIC CHANGE. (3)
Growth and development hypotheses will be tested on a wide range of historical materials drawn from the experience of Western Europe and America as bases for comparative studies in the newer developing regions.

ECO 668 AMERICAN ECONOMIC CHANGE IN HISTORICAL PERSPECTIVE. (3)
A wide range of statistical and historical studies will be used as bases to test various hypotheses concerning economic growth and development in the United States since the Revolution. Prereq: ECO 360 and 361, or consent of instructor.

ECO 671 INTERNATIONAL ECONOMICS SEMINAR I. (3)
History and analysis of theories of international trade; theories of international equilibrium and mechanisms of equilibrium adjustments; theory of economic integration. Prereq: ECO 471.

ECO 673 SEMINAR IN ECONOMIC DEVELOPMENT I. (3)
An intensive study of growth models, with special attention to problems associated with capital accumulation, balanced growth, and low-level equilibrium. Prereq: ECO 473 or equivalent.

ECO 674 AGRICULTURE AND ECONOMIC DEVELOPMENT. (3)
Analytical consideration of role of agriculture in economic development in relation to over-all development strategy at various stages of growth. Theoretical and policy issues of particular relevance to the agricultural development in underdeveloped agrarian economies with various resource, social, political and economic systems. Prereq: ECO 473 or consent of instructor. (Same as AEC 626.)

ECO 676 LABOR MARKETS AND WAGE DETERMINATION. (3)
Economic and social forces determining labor supply and demand, labor force, unemployment, labor mobility; economic and institutional forces determining wages, wage theories and impact of collective bargaining. Prereq: ECO 360 and 361 or consent of instructor.

ECO 679 SEMINAR IN PUBLIC FINANCE I. (3)
Reading and discussion of current and standard literature on public finance problems and the theory of the public economy. Individual research reports. Prereq: ECO 479 or consent of instructor.

ECO 682 THE ECONOMICS OF SPATIAL RELATIONS. (3)
A study of the spatial aspects of the economy with emphasis on location theory in a static equilibrium and dynamic framework. Empirical evidence and public policy considerations are also included. Prereq: ECO 361 or equivalent.

ECO 683 ECONOMICS OF GROWTH AND DEVELOPMENT IN REGIONS AND URBAN AREAS. (3)
A macroeconomic study of regional-urban growth and development with primary emphasis on the construction of income determination and growth models for an open economy. Prereq: ECO 360 or equivalent.

ECO 686 MONETARY ECONOMICS: THEORY. (3)
Demand and supply of money and other assets. The financial sector in macro-static and dynamic models of the economy. Prereq: ECO 760, 761 or consent of instructor.

ECO 687 HISTORY AND THEORY OF MONEY AND PRICES. (3)
Theory of public making. Central bank policy instruments and the effectiveness of monetary policy. Debt management and the term structure of interest rates. Econometric studies of the financial sector. Reforming financial institutions. Prereq: ECO 686 or consent of the instructor.

ECO 688 TOPICS IN OPTIMIZATION. (3)
A study of optimization tools employed in decision making in the business and economic setting. Emphasis on characterization and computation of optima with particular attention to modeling. Topics include linear, non-linear, dynamic, and integer programming, as well as further study of the method of Lagrange, Kuhn-Tucker theory optimal control theory and sensitivity analysis. Prereq: Consent of instructor.

ECO 692 ECONOMETRIC METHODS. (3)
An introduction to econometrics with an emphasis on the applications of regression analysis, time series analysis, and the simultaneous equations model. Prereq: ECO 692 or consent of instructor.

ECO 696 SOVIET AREA ECONOMICS SEMINAR. (3)
Theory and implementation of central planning in Soviet Union and other socialist economics. Special emphasis on East European reform models of socialist planning. Prereq: ECO 360 and 361, or consent of instructor (completion of ECO 496 or equivalent desirable).

ECO 697 COMPARATIVE ECONOMIC SYSTEMS. (3)
A study of the theories and institutions that support different economic systems; from classical capitalism to authoritarian socialism and communism. Prereq: ECO 360, 361, or consent of instructor. Completion of ECO 465 is desirable.

ECO 760 SEMINAR IN MICROECONOMIC THEORY. (3)
Recent developments and major issues in contemporary microeconomic theory. Prereq: ECO 660 or consent of instructor.

ECO 761 SEMINAR IN MACROECONOMIC THEORY. (3)
Recent developments and major issues in contempory macroeconomic theory. Prereq: ECO 661 or consent of instructor.

ECO 762 WELFARE ECONOMICS. (3)
A study of the meanings and the limitations of the economic efficiency obtainable through voluntary production and exchange and modification thereof in the light of the welfare of individuals in a society. Prereq: ECO 660 or consent of instructor.

ECO 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated. (1-6 credits equivalence.)

ECO 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

ECO 771 INTERNATIONAL ECONOMICS SEMINAR II. (3)
Trade and economic development; determination of international payments equilibrium; econometric studies in world trade; computation of terms of trade; new developments in trade theory. Prereq: ECO 471.

ECO 773 SEMINAR IN ECONOMIC DEVELOPMENT II. (3)
Comprehensive survey of the literature on specific aspects of economic development, including industrialization, foreign trade policy, foreign aid, foreign investment, demographic problems, and stimulation and mobilization of savings. Prereq: ECO 473.

ECO 776 ECONOMICS OF TRADE UNIONISM AND LABOR LAW. (3)
Origin and growth of labor organizations; trade union philosophy, organization and administration. Foreign labor movements. A detailed analysis of industrial relations and economic security legislation. Prereq: ECO 676 or consent of instructor.

ECO 779 SEMINAR IN PUBLIC FINANCE II. (3)
Essentially a continuation of ECO 679. Individual research reports. Prereq: ECO 479, or consent of instructor.

ECO 783 SEMINAR IN REGIONAL ECONOMICS. (3)
A critical study of recent extensions in regional economic analysis and regional policy programs. Individual research paper is required. Prereq: ECO 682 and 683.

ECO 786 SEMINAR IN MONETARY THEORY AND POLICY. (3)
A comprehensive and critical analysis of contemporary monetary theory and policy. Prereq: ECO 686 or consent of instructor.

ECO 788 MATHEMATICAL ECONOMICS—MACRO THEORY. (3)
Selected aggregative models treated mathematically. Emphasis on maximization problems for linear systems. Leontief input-output models. Prereq: ECO 360, MA 113 or equivalent.

ECO 791 PROBLEMS IN ECONOMETRICS. (3)
Empirical estimation of multi-equation models. Bayesian estimation theory and techniques. Non-linear estimation techniques. Supervised empirical work requiring a major research paper. Prereq: ECO 792.

ECO 792 ECONOMETRICS I. (3)
The first course in the Econometrics area of specialization. A comprehensive survey of general linear regression analysis; autocorrelation; errors in variables models; distributed lag models. Prereq: ECO 692 or consent of instructor.

ECO 793 ECONOMETRICS II. (3)
The second course in the Econometrics area of specialization. A comprehensive survey of identification, estimation, and hypothesis testing in the contest of the simultaneous equation model. Prereq: ECO 792.

ECO 795 SEMINAR IN COMPARATIVE ECONOMIC SYSTEMS. (3)
A comprehensive review of studies and articles that deal with the

performance of selected national economies and their systems; with emphasis on capitalist and non-capitalist systems alike. Prereq: ECO 696 or consent of instructor.

ECO 796 SEMINAR. (1-6)
An extended original investigation some specific topic with a view to giving training in methods of research and studying intensively a particular subject in the field of economics. May be repeated to a maximum of six credits.

ECO 797 RESEARCH PROBLEMS IN ECONOMICS. (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits.

EDUCATION

EDU 300 SPECIAL COURSE. (1-3)
This course provides an opportunity for offering experimental, topical or interdisciplinary courses on a one-time or two-time basis without creating a permanent course. The description will be announced each time the course is offered. Prereq: Permission of the instructor.

EDUCATION–ADMINISTRATION AND SUPERVISION

EDA 502 THE ADMINISTRATION OF PUPIL PERSONNEL. (3)
Administrative problems relating to child accounting, including school census, attendance records and reports, social and economic factors affecting school attendance, and duties and responsibilities of school and non-school personnel and agencies.

EDA 601 ADMINISTRATION OF EDUCATIONAL ORGANIZATION. (3)
A study of the historical development of educational administration, administrative processes, the application of theory and values in decision making and an introduction to modern management methods applied to education.

EDA 602 ORGANIZATION AND ADMINISTRATION OF AMERICAN EDUCATION. (3)
An analysis of the administration of local, state and federal education agencies and their relationships. A study of the administrative tasks in these agencies.

EDA 603 CONSTITUTIONAL AND LEGAL BASIS OF PUBLIC SCHOOL ADMINISTRATION. (3)
A study of court decisions to discover the legal principles involved in practical problems of school administration. Prereq: Admission to program in administration and supervision.

EDA 604 SCHOOL BUILDINGS AND EQUIPMENT. (3)
Measurement and evaluation of existing school building facilities, planning new buildings, determining suitable equipment, and financing the building program. Prereq: Admission to program in administration and supervision.

EDA 608 INTERNSHIP IN EDUCATIONAL ADMINISTRATION AND SUPERVISION. (3)
Field experiences are provided for prospective administrators under the cooperative supervision of University personnel and principals, supervisors, and superintendents in Kentucky public school systems. May be repeated once to a maximum of six credits. Prereq: Admission to program in administration and supervision.

EDA 628 FIELD STUDIES IN EDUCATIONAL ADMINISTRATION AND SUPERVISION. (3)
Study and evaluation of the major areas of school operation in actual field situations. Emphasis upon the synthesis of knowledge through surveying, evaluating and developing recommendations for the improvement of the school operation. Prereq: Consent of instructor.

EDA 629 THE PRINCIPAL. (3)
An analysis of the building unit as a sub-system within a larger complex organization. Special emphasis on the changes in the role of the principal as a result of changes in society and in the schools. Prereq: Admission to Department program or consent of instructor.

EDA 633 ADMINISTRATION AND SUPERVISION OF INSTRUCTIONAL PROGRAMS. (3)
A study of the role of organizational leadership in the development of instructional goals, instructional programs, evaluation procedures and procedures for educational changes.

EDA 634 ADMINISTRATION OF EDUCATIONAL PERSONNEL. (3)
Consideration of the motivation and management of educational personnel with special emphasis on the professional in complex organizations. Attention is given to the theory and practice of collective bargaining in education.

EDA 635 BUSINESS ADMINISTRATION AND FINANCE OF PUBLIC EDUCATION. (3)
A course for prospective superintendents. Emphasizes school support, including state, local, and federal revenues; budgetary policy; procedures for purchasing, accounting, and reporting costs; management of funds, property, equipment, and supplies; payroll procedures, records and reports.

EDA 639 THE SUPERVISOR. (3)
A study of the role of the supervisor of instruction as part of administrative leadership in improving instructional programs with special emphasis on in-service education of staff. Prereq: Admission to program or consent of instructor.

EDA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1 to 6 credits equivalence.)

EDA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1 to 12 credits equivalence.)

EDA 771 SEMINAR IN ADMINISTRATION. (1-3)
A variable topic seminar on selected problems in school administration. Activities designed to improve skill in planning, decision making, organizing, communicating, evaluating, negotiating, and resolving conflict will be provided as appropriate. Educational innovations and processes of implementing change may be analyzed. May be repeated to a maximum of six credits. Prereq: Admission to program or consent of instructor.

EDA 772 SEMINAR IN EDUCATION. (1)
A course planned for graduate students majoring in education, given under the direction of the faculty of the College of Education. May be repeated once to a maximum of two credits.

EDA 785 INDEPENDENT WORK IN SCHOOL ADMINISTRATION. (3)
Includes research on a practical problem in school administration. Open only to students with at least one semester of graduate work in education. Prereq: Consent of instructor. May be repeated once to a maximum of six credits.

EDA 792 RESEARCH IN EDUCATIONAL ADMINISTRATION AND SUPERVISION. (3)
Critical examination of representative research studies in administration and related fields. Emphasis upon the students' defining and delimiting an appropriate problem in educational administration and supervision, generating a design appropriate to the problem and selecting appropriate techniques of analysis. Prereq: Admission to program.

EDUCATION–CURRICULUM AND INSTRUCTION

EDC 120 ARTS AND CRAFTS IN THE ELEMENTARY SCHOOL. (3)
Designed to give experiences with materials for arts and crafts related to classroom activities such as the playhouse, panoramas, dioramas, puppet shows, friezes, mural painting, map making, booklets, and colonial crafts.

EDC 305 FUNDAMENTALS OF SECONDARY EDUCATION. (2-3)
A consideration of problems which develop in connection with student teaching at the secondary level. This course is to be taken during the same semester in which the student is engaged in student teaching.

EDC 324 TEACHING SCIENCE AND SOCIAL LEARNINGS IN THE ELEMENTARY SCHOOL. (2-4)
Content areas of social studies and science. Developing understandings and skills relative to unit teaching. Social skills and scientific concepts will be developed through professional laboratory experiences. Consideration will be given to organizing science and social learnings in the elementary school.

EDC 325 TEACHING IN THE ELEMENTARY SCHOOL. (3)
A course designed to develop understandings relative to program planning, daily schedule, record keeping, evaluation, reporting to parents, professional organizations, and teacher ethics. The unit approach as a method of organizing learning experiences in the elementary school is introduced.

EDC 329 TEACHING COMMUNICATIVE SKILLS IN THE ELEMENTARY SCHOOLS. (2-4)
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.

EDC 331 TEACHING ARITHMETIC IN THE ELEMENTARY SCHOOL. (3)
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.

EDC 333 STUDENT TEACHING IN THE ELEMENTARY SCHOOL.* (3-12)
A course designed to give the student experience with and practice in the program of an elementary school. Actual work with children in all learning situations is the basic part of the course.

EDC 340 TEACHING IN THE JUNIOR HIGH SCHOOL. (2-4)
A course designed, with laboratory experiences, to consider the philosophy and organization of the modern junior high school; approaches to teaching in the subject field areas: selection of materials and books for young adolescents, and the guidance role of the junior high school teacher.

EDC 342 STUDENT TEACHING IN ART.* (3-12)
Designed to give the student practical experience through observation, planning, teaching, and evaluating procedures. The student works with children on all grade levels under the guidance of the supervising teacher.

EDC 344 PRINCIPLES AND TECHNIQUES OF TEACHING IN THE SECONDARY SCHOOL. (3)
This course will include a survey of secondary school curriculum, development of teaching objectives, instruction in the development of the technical skills of teaching.

EDC 353 STUDENT TEACHING IN ENGLISH.* (3-12)
Observation and practice in teaching high school English. Included are objectives and content of English courses in high school, planning and methods of teaching, testing, textbook analysis, audio-visual material and equipment, and safety education.

EDC 354 STUDENT TEACHING IN LANGUAGES.* (3-12)
Aims and objectives, courses of study, materials, methods, and testing in French, Spanish, and Latin. Includes observation and practice in the content field, safety education, audio-visual aids, and planning conferences with the supervising teacher.

EDC 355 STUDENT TEACHING IN THE SCIENCES.* (3-12)
Aims and objectives, courses of study, methods, tests, equipment, general science, biology, physics, and chemistry. The course includes observation and practice, safety education, audio-visual aids, and planning conferences with the supervising teacher.

EDC 356 STUDENT TEACHING IN MATHEMATICS.* (3-12)
Aims and objectives, course of study, materials, methods, and testing in algebra, geometry, and trigonometry. Includes observation and practice in the content field, safety education, audio-visual aids, and planning conferences with the supervising teacher.

EDC 357 STUDENT TEACHING IN THE SOCIAL STUDIES.* (3-12)
Includes a study of the development and present status of social studies programs, classroom methods and activities, teaching materials, testing and evaluation, professional aids to teachers, safety education, and observation and participation in actual classroom experiences.

EDC 369 STUDENT TEACHING IN PHYSICAL EDUCATION.* (3-12)
For students who expect to teach and who meet the requirements for a major in physical education. Experience in working with children in physical education activities comprises basic part of course. Safety education also included.

EDC 377 STUDENT TEACHING IN MUSIC.* (3-12)
A course planned for teachers who expect to become either instructors or supervisors of music in the public schools. Observation, teaching, work on research problems, and conferences with the supervising teacher included.

EDC 521 MATERIALS AND METHODS IN TEACHING MATHEMATICS IN SECONDARY SCHOOL. (3)
A course emphasizing the methods and materials used in teaching secondary school mathematics, including simulated teaching of selected topics from arithmetic, algebra, geometry and upper level school mathematics.

*Offered on Pass-Fall basis only.

EDC 522 MATERIALS AND METHODS IN TEACHING SOCIAL STUDIES IN THE SECONDARY SCHOOL. (3)
A course for prospective secondary school social studies teachers in the utilization of materials, resources, equipment and techniques appropriate for modern teaching strategies.

EDC 524 MATERIALS AND METHODS FOR TEACHING SCIENCE IN THE SECONDARY SCHOOL. (3)
A course designed to provide practical experience in curriculum materials and methods for the development of teaching models in secondary school science.

EDC 525 MATERIALS AND METHODS OF TEACHING ENGLISH IN THE SECONDARY SCHOOL. (3)
A course designed to develop frames of reference from which to make appropriate selection of materials and methods for the teaching of secondary school English.

EDC 533 TEACHING READING IN THE SECONDARY SCHOOL. (3)
A study of current methods and materials useful in teaching reading in secondary schools with particular emphasis on the improvement of reading in the content areas.

EDC 538 ADVANCED ARTS AND CRAFTS IN THE ELEMENTARY SCHOOL. (3)
Planned to give the elementary teacher an understanding of teaching methods involved in, and construction of, art activities which would enrich the classroom program.

EDC 539 THE ELEMENTARY CURRICULUM. (3)
The philosophy and techniques of curriculum construction and some practical work in construction.

EDC 540 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.

EDC 542 CHILDREN'S LITERATURE. (3)
Planned to acquaint students with literature for children, kindergarten through grade eight. Review of interests at different ages. Discussion of types of literature—folklore, modern fairy tales, myths and legends, realistic stories, biography, and poetry.

EDC 543 TEACHING IN THE KINDERGARTEN. (3)
The nature, development, and education of the child of kindergarten age. Organization, equipment, curriculum, and procedures used with children of this age. Regular periods are scheduled for observing and participating in the kindergarten.

EDC 544 UTILIZATION OF EDUCATIONAL MEDIA. (3)
Surveys the broad area of educational media with an emphasis on utilization and the advantages and disadvantages of the various media. Provides experience in relating educational technology to productive learning activity. (Same LS 586.)

EDC 545 PREPARATION OF INSTRUCTIONAL MATERIALS. (3)
Develops a basic pattern for the preparation of a wide variety of instructional materials. Laboratory practice is provided for the production of materials for projected and non-projected use. Sources of free and inexpensive materials will be identified and evaluated. Lecture, two hours; laboratory two hours.

EDC 546 INTRODUCTION TO EARLY CHILDHOOD EDUCATION. (3)
Survey of early childhood educational programs with emphasis on principles, purposes, values and contemporary problems. A study of current literature and research related to these aspects for developing programs for young children. Prereq: Permission of instructor.

EDC 549 SOCIOLOGICAL ASPECTS OF MASS COMMUNICATION. (3)
The relationship between the organization of modern society and its communication media: Special emphasis is given to the way in which cultural processes and social change have an impact upon the mass media, and upon the way in which the mass media influence cultural processes and social change. The social-psychological bases of communications are studied within a context of theory and research. Prereq: Six hours of Sociology. SOC 101. (Same as SOC 549.)

EDC 550 TEACHING THE DISADVANTAGED. (3)
A critical study of the concept of disadvantagement, relevant teaching practices, institutional programs, and curricula.

EDC 552 MODERN EDUCATIONAL PROBLEMS. (3)
A brief survey of some of the problems in modern education.

EDC 562 MODERN EDUCATIONAL PROBLEMS. (3)
A brief survey of some of the problems in modern education.

EDC 563-576 MODERN EDUCATIONAL PROBLEMS. (GENERAL ELEMENTARY CURRICULUM)

EDC 564 MODERN EDUCATIONAL PROBLEMS. (GENERAL SECONDARY CURRICULUM)

EDC 565 MODERN EDUCATIONAL PROBLEMS. (GENERAL CURRICULUM)

EDC 572 MODERN EDUCATIONAL PROBLEMS. (VOCATIONAL EDUCATION)

EDC 575 MODERN EDUCATIONAL PROBLEMS. (UNCLASSIFIED)

EDC 576 MODERN EDUCATIONAL PROBLEMS. (UNCLASSIFIED)

EDC 596 SCIENCE IN THE ELEMENTARY SCHOOL. (3)
A background of elementary science usable with children in the first six grades. Includes planning units of work, organizing and using materials and references, making bibliographies for teachers and children, use of illustrative materials, and excursions.

EDC 600 WORKSHOP IN READING. (1-3)
An intensive workshop dealing with materials and techniques in teaching reading. Study of new techniques, examination of materials; lectures by specialists. Class hours per week one to three weeks, eight hours per day. May be repeated for a maximum of three hours. Prereq: Undergraduate degree.

EDC 606 INSTRUCTIONAL TELEVISION IN THE CLASSROOM. (3)
Emphasizes the classroom utilization of instructional television. Includes the psychology of listening; problems of evaluation; the writing, producing, and scheduling of school telecasts; and the sources of telecasting for school use. Research studies in the area will be investigated.

EDC 607 PROGRAMMED INSTRUCTION IN THE CLASSROOM. (3)
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.

EDC 608 APPLICATIONS OF INSTRUCTIONAL DESIGN. (3)
Briefly reviews currently popular approaches to systematic design of instruction. Provides supervised field experience in application of design techniques by teaming the student with an experienced teacher to design classroom instruction. Lecture, two hours; laboratory, two hours. Prereq: EDC 607 or consent of instructor.

EDC 619 DIAGNOSIS OF READING DISABILITIES. (3)
Clinical techniques for the diagnosis of reading disabilities. A course designed to develop both theoretical understandings and operational skills in clinical diagnosis of reading problems. Lecture, two hours; laboratory, two hours. Prereq: EDC 540 or permission of instructor.

EDC 620 READING REMEDIATION. (3)
Clinical techniques used in the remediation of reading problems. A course designed to develop individualized remedial procedures related to diagnosis. Lecture, two hours; laboratory, two hours. Prereq: EDC 619, or permission of instructor.

EDC 641 A STUDY OF RESEARCH AND THEORY IN TEACHING READING IN THE ELEMENTRY SCHOOL. (3)
A systematic study of the research and theory and their application to the teaching of reading in the elementry school. Attention will be given to new developments in the field. Prereq: EDC 329; work in linguistics.

EDC 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; work in linguistics.

EDC 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 533; work in linguistics.

EDC 646 ORGANIZING READING PROGRAMS. (3)
Procedures in establishing and administering reading programs in elementary and secondary schools. Lecture, two hours; laboratory, two hours. Prereq: Nine hours of graduate reading courses.

EDC 650 A STUDY OF RESEARCH AND THEORY IN TEACHING THE DISADVANTAGED. (3)
An ordered examination of the research and theory developed for teaching disadvantaged children and adolescents. Particular emphasis will be placed on research and theoretical developments in the field. Prereq: EDC 550.

EDC 670 ADVANCED STUDY IN THE TEACHING OF ELEMENTARY SCHOOL MATHEMATICS. (3)
New developments in modern elementary mathematics for teachers in the elementary schools will be reviewed. Special emphasis will be given to a study of new teaching methods, application of published research, techniques and trends in mathematics in the elementary school. Prereq: Graduate standing.

EDC 680 INTERNSHIP IN TEACHER EDUCATION. (6)
A required component of the 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 for 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.

EDC 712 THE ELEMENTARY SCHOOL. (3)
Recent research and modern trends in teaching the skills and content subjects in the elementary school. Planned for supervisors, superintendents, principals, and teachers for better understanding of a modern elementary school.

EDC 714 THE SECONDARY SCHOOL. (3)
A course designed to acquaint the secondary teacher and the administrator with the nature and function of the secondary school.

EDC 717 THE JUNIOR HIGH SCHOOL. (3)
A study of the unique functions of the junior high school. Scope and sequence of the curriculum, school organization and guidance as related to the young adolescent will be considered. A course for principals, supervisors, teachers.

EDC 724 ORGANIZATION AND SUPERVISION OF STUDENT TEACHING. (3)
A course designed for teachers preparing to become supervising teachers. The basic principles apply both to elementary and secondary education. Includes a presentation of the experiences deemed important in developing students into effective teachers.

EDC 730 PROBLEMS OF THE SCHOOL CURRICULUM. (3)
Problems in the field of the school curriculum and in the preparation of instructional materials. Students enrolling in this course are required to leave on file with the College of Education a complete report to each problem studied. May be repeated once to a maximum of six credits.

EDC 732 PRINCIPLES OF CURRICULUM CONSTRUCTION. (3)
Study of basic principles of curriculum development. Relationship of social and psychological factors to curriculum change. Survey of current approaches to curriculum organization. Consideration of means of curriculum development in school systems.

EDC 735 THE CORE PROGRAM IN THE SECONDARY SCHOOLS. (3)
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.

EDC 740 PRACTICUM IN TEACHING READING AND RELATED LANGUAGE ARTS. (3)
Supervised practicum in analyzing problems in reading and related language arts and providing remedial work. Requires six hours per week in practicum with individual children or groups, plus two hours per week in seminar. May be repeated once to a maximum of six credits. Prereq: EDC 619 and 620.

EDC 745 ADMINISTRATION OF EDUCATIONAL MEDIA PROGRAMS. (3)
Stresses the operation of educational media programs considering budgeting, training of personnel, duties of staff, sources of materials, and the purchase of equipment. Previews are made of many educational media and attention is given to the special needs of the Instructional Materials Center.

EDC 746 MOTION PICTURES IN EDUCATION. (3)
The history of the educational motion picture, technique in the use of films, educational scenario writing, grading and scoring films, and motion picture appreciation.

EDC 747 SEMINAR IN READING. (3)
A seminar for advanced graduate students. Critical discussion of

theory and research under investigation by graduate students and faculty. Prereq: Permission of instructor. May be repeated once. (Same as EDP 747.)

EDC 748 PSYCHOLOGY OF READING. (3)
A systematic examination of the psychological basis of the reading process. A study of psychological theory and research related to reading. Prereq: Permission of instructor. (Same as EDP 748.)

EDC 750 ADMINISTRATION AND SUPERVISION OF PUBLIC SCHOOL MUSIC. (3)
A study of current trends in school music, curricula, testing programs, and other supervisory procedures. Offered either as an education course or as a music course using same number. (Same as MUS 750.)

EDC 751 HISTORY AND PHILOSOPHY OF MUSIC EDUCATION. (3)
A historical survey of thought concerning the place and significance of music in the education of the individual and the group. (Same as MUS 751.)

EDC 757 COLLEGE AND ADULT READING. (3)
The study of the reading process as it pertains to college students and adults. Emphasis will be placed on principles and procedures for teaching reading to this age group. Prereq: Permission of instructor.

EDC 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1 to 6 credits equivalence.)

EDC 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1 to 12 credits equivalence.)

EDC 777 SEMINAR IN CURRICULUM AND INSTRUCTION (SUBTITLE REQUIRED). (1-3)
A critical analysis of recently developed materials and techniques in curriculum and instruction for pre-college education. Includes analysis of evaluative research related to new materials and techniques. May be repeated for a total of nine credits. Prereq: Consent of instructor.

EDC 780 INDEPENDENT WORK IN ELEMENTARY EDUCATION. (2)
An independent work course for students who have done a minimum of 12 semester hours of graduate work including EDC 712 or EDA 629. May be repeated once to a maximum of four credits.

EDC 781 INDEPENDENT WORK IN SECONDARY EDUCATION. (3)
An independent work course for students who have done a minimum of 12 semester hours of graduate work including EDC 714; EDA 630. May be repeated once to a maximum of six credits.

EDC 790 RESEARCH PROBLEMS IN SECONDARY EDUCATION. (3)
An independent research course. Students confer individually with the instructor. Prereq: One year of graduate work. May be repeated once to a maximum of six credits.

EDC 791 RESEARCH PROBLEMS IN ELEMENTARY EDUCATION. (3)
An independent research course. Students confer individually with the instructor. Prereq: One year of graduate work. May be repeated once to a maximum of six credits.

EDUCATION— HIGHER AND ADULT EDUCATION STUDIES

EDH 99 ORIENTATION SEMINAR FOR GRADUATE STUDENTS. (0)
An orientation course for students who are entering the Graduate School for the first time.

EDH 500 CLINICAL AND LABORATORY TEACHING. (4)
Includes learning theories, motivational concepts, review of research, developing instructional objectives, human relations in the classroom, teaching methodologies, clinical instruction, performance evaluation and preparation of instructional units. This course is designed primarily for students in allied health, education, library science, home economics and social professions.

EDH 501 TEACHING INTERNSHIP. (3-12)
Supervised practice under competent leadership. Observation, instruction, independent study which parallels field experience, and conferences with supervising instructor included. This course is designed primarily for students in allied health, education, library science, home economics, and social professions. May be repeated for total of 12 hours. Prereq: EDH 500 or permission of instructor.

EDH 718 TRENDS IN HIGHER EDUCATION. (3)
A survey of modern tendencies in higher education: scope and development, objectives, organization, administration, curricula, finance, faculty and student personnel. Designed primarily for prospective college administrators, teachers, and registrars.

EDH 719 COLLEGE TEACHING AND LEARNING. (3)
A study of all phases of instruction at the college level. The course will include methods and principles of teaching, utilization of materials in teaching, a consideration of the teaching-learning process as it relates to the individual student, and the evaluation of student progress. A comprehensive course for prospective college teachers.

EDH 722 COLLEGE STUDENT PERSONNEL. (3)
A study of college student behavior, relationship of student personnel to total college program, organization and administration, evaluation, and research of college student personnel.

EDH 733 ORGANIZATION AND ADMINISTRATION OF HIGHER EDUCATION. (3)
Purposes and scope of higher education, organization, general administration, faculty administration, inter-institutional cooperation, allocation of financial resources, state systems of higher education.

EDH 734 THE JUNIOR COLLEGE. (3)
History, philosophy, programs, and teaching-learning climate at the junior college; patterns of control and support; a consideration of the private as well as the community junior college.

EDH 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1 to 6 credits equivalence.)

EDH 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefintely. (1 to 12 credits equivalence.)

EDH 798 SEMINAR IN HIGHER EDUCATION. (3)
A critical study of selected problems in higher education. The seminar topic will be varied from one semester to another. Prereq: EDH 718 and 733, or by permission of the instructor.

EDH 799 RESEARCH PROBLEMS IN HIGHER EDUCATION. (3)
An independent research course for the study of special problems in higher education. Prereq: One year of graduate work. May be repeated once to a maximum of six credits.

EDUCATIONAL PSYCHOLOGY AND COUNSELING

EDP 202 HUMAN DEVELOPMENT AND THE CURRICULUM. (2-4)
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.

EDP 518 MENTAL HYGIENE. (3)
A general orientation to the subject of mental hygiene, its historical development, its scope and relation to various sciences. The individual and cultural determinants of behavior will be discussed. Prereq: PSY 104 and 106, or 210, or EDP 202. Not open to students who have had CH 520. (Same as PSY 518.)

EDP 519 THE ELEMENTARY SCHOOL PUPIL. (2)
The psychology of the child in the primary and intermediate grades. Prereq: One course in psychology.

EDP 520 THE SECONDARY SCHOOL PUPIL. (3)
The psychology of the pupil in junior and senior high school. Prereq: One course in psychology.

EDP 521 INTRODUCTION TO VOCATIONAL REHABILITATION (COUNSELING AND GUIDANCE). (3)
Survey of vocational rehabilitation: historical, legal, and administrative aspects of rehabilitation services; survey of rehabilitation services; and the role of the counselor in rehabilitation process.

EDP 522 EDUCATIONAL TEST AND MEASUREMENTS. (3)
Problems of measurement in the school program with special emphasis on standardized tests. General principles of test construction, teacher-made tests, examinations, criteria of evaluation and marking systems.

EDP 548 EDUCATIONAL PSYCHOLOGY. (3)
An introduction to the application of principles of psychology to classroom learning and teaching problems.

EDP 600 HUMAN DEVELOPMENT AND BEHAVIOR. (3)
Child and adolescent study as related to the physiological, social and psychological bases of human behavior. Critical evaluation of current theories of human development.

EDP 601 HUMAN SOCIAL DEVELOPMENT. (3)
Survey of current research and theory regarding motor skills, social development, initiation, dependency, aggression, affiliation, moral development and peer group behavior. Prereq: EDP 600 or consent of instructor.

EDP 602 HUMAN COGNITIVE LEARNING. (3)
Development of cognitive processes. Review and evaluation of current research in attentional processes, concept-formation, perception, and problem solving. Prereq: EDP 600 or equivalent.

EDP 605 FUNDAMENTALS OF GUIDANCE. (3)
A survey of guidance philosophy, procedures and practices; role of the counselor in relation to guidance services in the educational setting.

EDP 640 PRACTICE IN TESTING: INTELLIGENCE TESTS. (4)
This course provides theoretical material and advanced laboratory practice in the measurement of intelligence by individual techniques. Lecture, three hours; laboratory, two hours. Prereq: PSY 535 or EDP 653 or equivalent and consent of instructor. (Same as PSY 640.)

EDP 641 PSYCHOLOGICAL MEASURING INSTRUMENTS. (3)
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. (Same as PSY 641.) Prereq: PSY 201 or EDP 522 and EDP 657.

EDP 649 GROUP GUIDANCE PROBLEMS AND PRACTICES. (3)
An overview of the theoretical bases and practical procedures used in the selection, organization, and effective use of group dynamics in the facilitation of educational goals. Prereq: EDP 605 and consent of instructor.

EDP 650 DIAGNOSIS AND COUNSELING IN COUNSELING PSYCHOLOGY. (3)
An advanced course in diagnosis and application of theories, techniques and tools in counseling psychology. Prereq: A graduate major in psychology or educational psychology and counseling and consent of instructor. (Same as PSY 650.)

EDP 652 COUNSELING THEORY AND TECHNIQUES. (3)
Study of principles, techniques and theoretical bases of the counseling process. Practice in interviewing, use of case studies, simulated problems, observational techniques and tests. Prereq: EDP 600, 605 and PSY 501 or equivalent.

EDP 653 APPRAISAL PROCEDURES IN GUIDANCE PRACTICE. (3)
Introduction to assessment procedures utilizing observational and group testing techniques. Study of use and interpretation of group guidance instruments. Prereq: EDP 605.

EDP 656 METHODOLOGY OF EDUCATIONAL RESEARCH. (3)
An introduction to research methods applicable to education; the scientific method, research designs, measurement techniques, statistical analysis, and writing the research report.

EDP 657 EDUCATIONAL STATISTICS. (3)
A study of the applications of statistical and graphical methods to educational data. Basic descriptive statistics, correlation, the normal distribution, and hypothesis testing will be covered.

EDP 658 PROBLEMS IN EDUCATIONAL PSYCHOLOGY. (3)
A critical survey of the psychological theories and research applicable to educational practices. Prereq: one year of psychology.

EDP 659 ADVANCED EDUCATIONAL MEASUREMENT. (3)
Theory and application in educational measurement with emphasis on the appropriate selection, administration, and interpretation of standardized tests used in educational assessment. Prereq: EDP 522 or equivalent.

EDP 660 RESEARCH DESIGN AND ANALYSIS IN EDUCATION. (3)
A study of the research methodologies applicable in the several aspects of education. Emphasis is on the design of research and analysis of accumulated data. Prereq: EDP 657.

EDP 661 SUPERIVISED PRACTICE IN COUNSELING. (3)
Supervised practice in counseling in the setting which the student plans to work. Requires eight hours a week in actual counseling plus a mimimum of two hours weekly in seminar. May be repeated twice to a maximum of nine credits. Prereq: EDP 600, 605, and consent of instructor.

EDP 664 PSYCHO-SOCIAL ASPECTS OF DISABILITY. (3)
Investigation of psychological and social reactions to the onset of disability and adjustments as related to personality variables and minority group membership. Implications for job placement and vocational adjustment counseling. Two hours of lecture; three hours of laboratory. Prereq: EDP 521.

EDP 665 PRACTICUM IN COUNSELING PSYCHOLOGY. (3)
Supervised experience in application of diagnostic and interviewing techniques in a counseling service. May be repeated three times to a maximum of 12 credits. Prereq: PSY 522.

EDP 666 OCCUPATIONAL AND EDUCATIONAL INFORMATION IN GUIDANCE. (3)
Collective, evaluation, organization and information retrieval processes in counseling regarding current job information, supply and demand, working conditions, entry requirements and career fields.

EDP 701 BEHAVIOR MODIFICATION IN EDUCATION. (3)
A comprehensive theoretical review and practical experience in behavior modification techniques; observational, strategy formation approaches, and evaluative procedures stressed. Prereq: fifteen hours of work in educational psychology or counseling, or consent of instructor.

EDP 702 CAREER DEVELOPMENT: RESEARCH, THEORIES AND PRACTICES. (2-3)
Overview of theories of career development and current research. Emphasis on use of vocational assessment techniques in counseling and decision making. Prereq: EDV 523. (Same as EDV 702.)

EDP 707 MULTIVARIATE ANALYSIS IN EDUCATIONAL RESEARCH. (3)
A study of several techniques for the analysis of educational outcomes utilizing multiple variables. Prereq: EDP 660 or equivalent.

EDP 708 INTERNSHIP IN EDUCATIONAL PSYCHOLOGY AND COUNSELING. (3-9)
Full-time practice in an operational setting such as a school or government agency, with on-site supervision provided by the host agency and with academic supervision provided by a University faculty member. May be repeated to a maximum of 12 credits. Lecture, three hours; laboratory, four clock hours per semester hour. Prereq: Completion of a minimum of one year of graduate study in the Department and permission of professor.

EDP 747 SEMINAR IN READING. (3)
A seminar for advanced graduate students. Critical discussion of theory and research under investigation by graduate students and faculty. May be repeated once. Prereq: Permission of instructor. (Same as EDC 747.)

EDP 748 PSYCHOLOGY OF READING. (3)
A systematic examination of the psychological basis of the reading process. A study of psychological theory and research related to reading. Prereq: Permission of instructor. (Same as EDC 748.)

EDP 759 IDENTIFYING AND PROVIDING FOR INDIVIDUAL STUDENT NEEDS. (3)
Research studies and reports on individual differences in the physical, intellectual, social, and emotional development of students, and of ways that have proved effective in meeting individual needs, especially in secondary schools. To be taken only with EDP 600 in the First Professional Block of the counselor preparation program. Not offered separately.

EDP 762 ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES. (3)
A study of the problems of staffing, supervision, finances, interpersonal relationships, community participation, in-service education and evaluation of guidance programs. Prereq: Twelve hours of guidance and counseling work and consent of instructor.

EDP 763 RESEARCH AND EVALUATION IN GUIDANCE. (3)
Research methods applied to the formulation, development, and evaluation of guidance services. Critical evaluation of current research trends.

EDP 765 INDEPENDENT WORK IN COUNSELING AND GUIDANCE. (2)
An independent work course for advanced graduate students who desire to investigate special problems in counseling and guidance. Prereq: One year of graduate work in counseling and guidance, including EDP 600 (or PSY 610) and approval of instructor. May be repeated once to a maximum of four credits.

EDP 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1 to 6 credits equivalence.)

EDP 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1 to 12 credits equivalence.)

EDP 777 SEMINAR IN COUNSELING AND GUIDANCE. (3)
Topical consideration of philosophical technical and theoretical positions in counseling theory and practice. Prereq: Doctoral standing, EDP 665, or consent of instructor.

EDP 778 SEMINAR IN EDUCATIONAL PSYCHOLOGY. (3)
Intensive study of selected topics in human learning and development. Particular emphasis on research topics. Students will design sample studies in their areas of interest. Prereq: Doctoral standing in the College of Education or consent of instructor.

EDP 782 INDEPENDENT WORK IN EDUCATIONAL PSYCHOLOGY. (3)
An independent work course for students who have done a minimum of 12 semester hours of graduate work including EDP 522, 520 or 658. May be repeated once to a maximum of six credits.

EDUCATION— SOCIAL AND PHILOSOPHICAL STUDIES

EDF 98 PLANNING A CAREER IN EDUCATION. (0)
A general orientation program for freshman students who expect to enter the teaching profession. It is in this course that information is supplied to students about the different programs in teaching, and information is secured from the student as to his ability, interest in and aptitude for teaching.

EDF 301 EDUCATION IN AMERICAN CULTURE. (3)
An introduction to education based on the analysis of certain questions regarding society, man, knowledge and values.

EDF 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 six hours.

EDF 532 RACE AND ETHNIC RELATIONS. (3)
Analysis of relationships between racial and ethnic groups and the behavioral products thereof. Sources and consequences of prejudice and discrimination. Situation and prospects of minorities. Strategies of change and tension reduction. Prereq: SOC 101. (Same as SOC 532.)

EDF 533 INTRODUCTION TO THE PHILOSOPHIC STUDY OF EDUCATION. (3)
An introduction to the philosophic analysis of major concepts in education. The course is designed primarily as an elective for students in teacher-education and students in other colleges. Does not apply toward teacher certification. Prereq: Junior or senior status, not on academic probation.

EDF 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.

EDF 640 PHILOSOPHY OF EDUCATION. (3)
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 six credits.

EDF 645 FOUNDATIONS IN EDUCATION. (3)
An intensive study in various foundational fields which contribute to the development of educational theory and practice. Prereq: Twelve semester hours in education at the undergraduate level. May be repeated once to a maximum of six credits.

EDF 646 ANALYSIS OF THINKING. (3)
An interdisciplinary analysis of thinking, the central process of education. Topics studied include psychological, logical and semantic aspects of thought. Prereq: EDP 548 and EDF 640, or permission of instructor.

EDF 650 HISTORY OF WESTERN EDUCATION. (3)
A study of the development of the "institution" of education in relation to social and political reality, ideas, and ideals of successive periods in Western culture.

EDF 651 HISTORY OF EDUCATION IN THE UNITED STATES. (3)
A history of the growth and development of education in the United States from earliest Colonial times to the present, including recent movements and trends.

EDF 652 HISTORY OF EDUCATIONAL THOUGHT. (3)
A study of the lives and writings of the world's great educators to acquaint the student with their major contributions to society and education.

EDF 655 EDUCATION IN OTHER NATIONS. (3)
Analytical and comparative study of contemporary education in selected countries, with emphasis on the historical development and total cultural context of educational programs. Informal as well as formal agencies and programs will be studied with particular attention to recent reforms and innovations.

EDF 656 INTERNATIONAL DEVELOPMENT EDUCATION. (3)
Critical study of the role of education in the social, cultural, political and economic development of countries in Asia, Latin America, and Africa with particular emphasis on interdisciplinary-interprofessional planning. Problems of change in education and international cooperation for education development.

EDF 661 EDUCATIONAL SOCIOLOGY. (3)
A course in sociological foundations of education. Prereq: SOC 101. (Same as SOC 661.)

EDF 662 ANALYSIS OF EDUCATIONAL CHANGE. (3)
The history, nature, processes, and problems related to educational change, drawing upon the literature in several disciplines.

EDF 663 FIELD 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.

EDF 665 EDUCATION AND CULTURE. (3)
An analysis of the cultural role and function of educational institutions and processes. Topics considered include: schooling as cultural transmission, the community context of education, cross-national studies of schools, and implications of anthropological approaches for teacher training.

EDF 724 EPISTEMOLOGICAL PROBLEMS IN EDUCATION. (3)
A study of knowledge and inquiry as they relate to problems of formulating educational policy and curriculum design. Prereq: EDF 640.

EDF 725 ANALYSIS OF VALUE QUESTIONS IN EDUCATION. (3)
A study of the nature of value as it relates to formulating and justifying aims and policies, curriculum design and the teaching-learning process. Materials in ethics, value theory, and aesthetics are used in the appraisal of educational theory. Prereq: EDF 640 or equivalent.

EDF 750 PROBLEMS IN EDUCATIONAL SOCIOLOGY. (3)
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.

EDF 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1 to 6 credits equivalence.)

EDF 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1 to 12 credits equivalence.)

EDF 773 SEMINAR IN FOUNDATIONS OF EDUCATION. (3)
A critical study of selected problems in the foundations of education areas.

EDF 778 SEMINAR IN HISTORY OF EDUCATION IN KENTUCKY. (3)
A seminar for graduate students in education who are interested in developing a background and perspective upon educational problems by study of the history and development of education in Kentucky.

EDF 785 INDEPENDENT STUDY IN SOCIAL AND PHILOSOPHICAL PROBLEMS IN EDUCATION. (3)
This course will allow advanced students to study, in depth, individualized problems and issues related to social and philosophical foundations. May be repeated to a maximum of nine hours. Prereq: EDF 661 or its equivalent.

EDUCATION—SPECIAL

EDS 285 APPLIED PHONETICS. (3)
Study of the phonetic structure of the English language with requirement of mastery of international Phonetic Alphabet. Emphasis will be placed on phonetic transcription, and application will be made for students interested in general speech, speech correction, radio, television, and theatre. (Same as SP 285.)

EDS 335 METHODS AND MATERIALS FOR SPEECH EVALUATION AND THERAPY. (3)
Procedures of examination for articulation and voice disorder; interviewing for information; therapy materials for children and adults. Prereq: Speech Pathology: A Survey.

EDS 358 OBSERVATION AND PRACTICUM IN SPECIAL EDUCATION. (3)
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.

EDS 359 STUDENT TEACHING IN SPECIAL EDUCATION. (3-12)
Supervised student teaching experience utilizing the special techniques used in working with individuals with exceptional educational problems such as speech handicaps, physical handicaps, visual impairments, hearing disabilities, neurological impairments (learning disabilities), mental retardation, and the gifted. To be offered only on a pass-fail basis. Prereq: Must complete the published College requirements for admission to student teaching.

EDS 375 INTRODUCTION TO EDUCATION OF EXCEPTIONAL CHILDREN. (3)
A survey of education and treatment of children having inferior or superior intellectual abilities; defects of vision, hearing speech, or physical and neurological defects. Examination of research dealing with the exceptional child.

EDS 500 SPEECH ANALYSIS AND PERCEPTION. (3)
Physics of sound; acoustic and structural properties of speech and their relationship to speech perception; analysis of speech intensity, fundamental frequency, wave composition, and time (rate, duration, and transitional change). (Same as SP 500.)

EDS 501 SPEECH AND LANGUAGE DEVELOPMENT. (3)
The normative aspects of speech and language acquisition; application of linguistic and learning theory concepts; communication in lower animals; language and cognition.

EDS 502 DEVELOPMENT AND EVALUATION OF INSTRUCTIONAL MATERIALS IN SPECIAL EDUCATION. (3)
Survey and principles of instructional materials in special education with emphasis on development and critical evaluation. Discussion of characteristics of effective instructional material and means of developing new instructional material. Prereq: Consent of instructor.

EDS 505 EDUCATION OF THE TRAINABLE MENTALLY RETARDED. (3)
A study of modern classroon techniques for working with the trainable, or severely mentally retarded. Private and public day and residential school programs are considered. Attention is given to educational significance of multiple disabilities of retarded children.

EDS 523 LANGUAGE DISABILITIES OF THE MENTALLY RETARDED. (3)
Topics related to research on delayed language development, linguistics, teaching techniques for mentally retarded children with language disabilities will be covered. Use of materials for language development training will be presented. Prereq: EDS 375 or consent of instructor.

EDS 524 PROGRAMS FOR THE ADOLESCENT MENTALLY RETARDED. (3)
A study of the philosophy, organization, and principles of education and rehabilitation programs for the adolescent mentally retarded. Emphasis is placed on the respective roles of educational and rehabilitation agencies and their interaction in the preparation of retarded youth for successful post-school adjustment. Prereq: EDS 530.

EDS 525 EDUCATION OF THE ORTHOPEDICALLY AND NEUROLOGICALLY HANDICAPPED. (3)
A study of educational techniques, materials and equipment used in teaching crippled, brain-injured and chronically ill children. Curriculum for both classroom and individual clinical teaching is included.

EDS 526 EDUCATION OF THE EDUCABLE MENTALLY RETARDED. (3)
A study of modern classroom techniques for working with the educable, or mildly mentally retarded. Major emphasis is on curriculum development and teaching techniques.

EDS 527 CHARACTERISTICS OF THE ORTHOPEDICALLY AND NEUROLOGICALLY HANDICAPPED. (3)
A survey of causes, treatment, and educational implications of physical and neurological disabilities in school-age children. Attention given to rehabilitation and life adjustment problems of individuals with single and multiple handicaps.

EDS 530 CHARACTERISTICS OF THE MENTALLY RETARDED. (3)
A critical examination of pertinent research in reference to the educational, physical, and psychological nature and needs of the educable and trainable mentally retarded child, including interpretation of psychological tests. Evaluation of the physical, social, emotional and mental characteristics of the retarded, to assist the classroom teacher to recognize the social potential of each child to the degree that the child with retarded mental development may become less of a burden to himself and society.

EDS 558 PROBLEMS IN SPECIAL EDUCATION: (VARIABLE TOPIC). (1-9)
In-depth study of a current and topical problem or issue in the education of exceptional children and youth. Course may be repeated to a maximum of nine credits. A title is assigned each time the course is offered.

EDS 570 CHARACTERISTICS OF EMOTIONALLY DISTURBED CHILDREN. (3)
The problems of emotionally disturbed school children are considered in the context of normal child development with emphasis on psychological factors correlated with behavior deviations. A survey of the major diagnostic categories include identification, description, and etiology, with material drawn from clinical, theoretical and research sources. Approaches to remediation cover both community resources and the roles of various professional personnel. Lecture, two hours; laboratory, two hours. Prereq: EDS 375, or permission of instructor.

EDS 577 SPEECH PATHOLOGY: A SURVEY. (3)
An introduction to the nature, causes, and treatment of the major disorders of speech: articulation, voice, cleft palate, hearing, cerebral palsy and aphasia.

EDS 578 SPEECH PATHOLOGY: AN INTRODUCTION TO THERAPY. (3)
Observation and discussion of and limited supervised experience with therapeutic techniques and procedures of speech therapy. Prereq: EDS 577.

EDS 579 STUTTERING. (3)
The nature, causes, and treatment of stuttering, with emphasis on therapeutic procedures. Prereq: EDS 577. (Same as PSY 579.)

EDS 583 SPEECH MECHANISMS. (3)
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.

EDS 584 INTRODUCTION TO AUDIOLOGY. (3)
A survey of the profession of audiology; anatomy, physiology and acoustics of hearing; principal types of hearing disorders.

EDS 587 AUDIOMETRY. (3)
Basic clinical techniques for assessing hearing acuity. Topics include: identification audiometry, methods of puretone threshold determination, interpretation of audiograms and speech audiometry. Prereq: EDS 584 or consent of instructor.

EDS 591 AURAL REHABILITATION. (3)
Principles and methods of speech and hearing therapy including speech reading, auditory training, speech conservation and hearing aid counseling for children and adults. Prereq: EDS 584 or consent of instructor.

EDS 592 PROBLEMS AND NEEDS OF THE HEARING IMPAIRED. (3)
Effects of hearing impairment on mental development, language acquisition, and personality adjustment; current research and clinical trends in auditory rehabilitation and the education of the deaf.

EDS 600 SURVEY OF SPECIAL EDUCATION. (3)
A survey of current status of the field of special education. Emphasis is on analysis of the major research literature pertaining to exceptional children and their education. Prereq: Graduate standing.

EDS 601 BEHAVIORAL MANAGEMENT OF EXCEPTIONAL CHILDREN. (3)
Principles of behavioral management are reviewed. Techniques of observation, recording, and implementation of management programs with exceptional children are stressed through case work with

EDP 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1 to 6 credits equivalence.)

EDP 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1 to 12 credits equivalence.)

EDP 777 SEMINAR IN COUNSELING AND GUIDANCE. (3)
Topical consideration of philosophical technical and theoretical positions in counseling theory and practice. Prereq: Doctoral standing, EDP 665, or consent of instructor.

EDP 778 SEMINAR IN EDUCATIONAL PSYCHOLOGY. (3)
Intensive study of selected topics in human learning and development. Particular emphasis on research topics. Students will design sample studies in their areas of interest. Prereq: Doctoral standing in the College of Education or consent of instructor.

EDP 782 INDEPENDENT WORK IN EDUCATIONAL PSYCHOLOGY. (3)
An independent work course for students who have done a minimum of 12 semester hours of graduate work including EDP 522, 520 or 658. May be repeated once to a maximum of six credits.

EDUCATION— SOCIAL AND PHILOSOPHICAL STUDIES

EDF 98 PLANNING A CAREER IN EDUCATION. (0)
A general orientation program for freshman students who expect to enter the teaching profession. It is in this course that information is supplied to students about the different programs in teaching, and information is secured from the student as to his ability, interest in and aptitude for teaching.

EDF 301 EDUCATION IN AMERICAN CULTURE. (3)
An introduction to education based on the analysis of certain questions regarding society, man, knowledge and values.

EDF 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 six hours.

EDF 532 RACE AND ETHNIC RELATIONS. (3)
Analysis of relationships between racial and ethnic groups and the behavioral products thereof. Sources and consequences of prejudice and discrimination. Situation and prospects of minorities. Strategies of change and tension reduction. Prereq: SOC 101. (Same as SOC 532.)

EDF 533 INTRODUCTION TO THE PHILOSOPHIC STUDY OF EDUCATION. (3)
An introduction to the philosophic analysis of major concepts in education. The course is designed primarily as an elective for students in teacher-education and students in other colleges. Does not apply toward teacher certification. Prereq: Junior or senior status, not on academic probation.

EDF 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.

EDF 640 PHILOSOPHY OF EDUCATION. (3)
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 six credits.

EDF 645 FOUNDATIONS IN EDUCATION. (3)
An intensive study in various foundational fields which contribute to the development of educational theory and practice. Prereq: Twelve semester hours in education at the undergraduate level. May be repeated once to a maximum of six credits.

EDF 646 ANALYSIS OF THINKING. (3)
An interdisciplinary analysis of thinking, the central process of education. Topics studied include psychological, logical and semantic aspects of thought. Prereq: EDP 548 and EDF 640, or permission of instructor.

EDF 650 HISTORY OF WESTERN EDUCATION. (3)
A study of the development of the "institution" of education in relation to social and political reality, ideas, and ideals of successive periods in Western culture.

EDF 651 HISTORY OF EDUCATION IN THE UNITED STATES. (3)
A history of the growth and development of education in the United States from earliest Colonial times to the present, including recent movements and trends.

EDF 652 HISTORY OF EDUCATIONAL THOUGHT. (3)
A study of the lives and writings of the world's great educators to acquaint the student with their major contributions to society and education.

EDF 655 EDUCATION IN OTHER NATIONS. (3)
Analytical and comparative study of contemporary education in selected countries, with emphasis on the historical development and total cultural context of educational programs. Informal as well as formal agencies and programs will be studied with particular attention to recent reforms and innovations.

EDF 656 INTERNATIONAL DEVELOPMENT EDUCATION. (3)
Critical study of the role of education in the social, cultural, political and economic development of countries in Asia, Latin America, and Africa with particular emphasis on interdisciplinary-interprofessional planning. Problems of change in education and international cooperation for education development.

EDF 661 EDUCATIONAL SOCIOLOGY. (3)
A course in sociological foundations of education. Prereq: SOC 101. (Same as SOC 661.)

EDF 662 ANALYSIS OF EDUCATIONAL CHANGE. (3)
The history, nature, processes, and problems related to educational change, drawing upon the literature in several disciplines.

EDF 663 FIELD 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.

EDF 665 EDUCATION AND CULTURE. (3)
An analysis of the cultural role and function of educational institutions and processes. Topics considered include: schooling as cultural transmission, the community context of education, cross-national studies of schools, and implications of anthropological approaches for teacher training.

EDF 724 EPISTEMOLOGICAL PROBLEMS IN EDUCATION. (3)
A study of knowledge and inquiry as they relate to problems of formulating educational policy and curriculum design. Prereq: EDF 640.

EDF 725 ANALYSIS OF VALUE QUESTIONS IN EDUCATION. (3)
A study of the nature of value as it relates to formulating and justifying aims and policies, curriculum design and the teaching-learning process. Materials in ethics, value theory, and aesthetics are used in the appraisal of educational theory. Prereq: EDF 640 or equivalent.

EDF 750 PROBLEMS IN EDUCATIONAL SOCIOLOGY. (3)
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.

EDF 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1 to 6 credits equivalence.)

EDF 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1 to 12 credits equivalence.)

EDF 773 SEMINAR IN FOUNDATIONS OF EDUCATION. (3)
A critical study of selected problems in the foundations of education areas.

EDF 778 SEMINAR IN HISTORY OF EDUCATION IN KENTUCKY. (3)
A seminar for graduate students in education who are interested in developing a background and perspective upon educational problems by study of the history and development of education in Kentucky.

EDF 785 INDEPENDENT STUDY IN SOCIAL AND PHILOSOPHICAL PROBLEMS IN EDUCATION. (3)
This course will allow advanced students to study, in depth, individualized problems and issues related to social and philosophical foundations. May be repeated to a maximum of nine hours. Prereq: EDF 661 or its equivalent.

EDUCATION–SPECIAL

EDS 285 APPLIED PHONETICS. (3)
Study of the phonetic structure of the English language with requirement of mastery of international Phonetic Alphabet. Emphasis will be placed on phonetic transcription, and application will be made for students interested in general speech, speech correction, radio, television, and theatre. (Same as SP 285.)

EDS 335 METHODS AND MATERIALS FOR SPEECH EVALUATION AND THERAPY. (3)
Procedures of examination for articulation and voice disorder; interviewing for information; therapy materials for children and adults. Prereq: Speech Pathology: A Survey.

EDS 358 OBSERVATION AND PRACTICUM IN SPECIAL EDUCATION. (3)
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.

EDS 359 STUDENT TEACHING IN SPECIAL EDUCATION. (3-12)
Supervised student teaching experience utilizing the special techniques used in working with individuals with exceptional educational problems such as speech handicaps, physical handicaps, visual impairments, hearing disabilities, neurological impairments (learning disabilities), mental retardation, and the gifted. To be offered only on a pass-fail basis. Prereq: Must complete the published College requirements for admission to student teaching.

EDS 375 INTRODUCTION TO EDUCATION OF EXCEPTIONAL CHILDREN. (3)
A survey of education and treatment of children having inferior or superior intellectual abilities; defects of vision, hearing speech, or physical and neurological defects. Examination of research dealing with the exceptional child.

EDS 500 SPEECH ANALYSIS AND PERCEPTION. (3)
Physics of sound; acoustic and structural properties of speech and their relationship to speech perception; analysis of speech intensity, fundamental frequency, wave composition, and time (rate, duration, and transitional change). (Same as SP 500.)

EDS 501 SPEECH AND LANGUAGE DEVELOPMENT. (3)
The normative aspects of speech and language acquisition; application of linguistic and learning theory concepts; communication in lower animals; language and cognition.

EDS 502 DEVELOPMENT AND EVALUATION OF INSTRUCTIONAL MATERIALS IN SPECIAL EDUCATION. (3)
Survey and principles of instructional materials in special education with emphasis on development and critical evaluation. Discussion of characteristics of effective instructional material and means of developing new instructional material. Prereq: Consent of instructor.

EDS 505 EDUCATION OF THE TRAINABLE MENTALLY RETARDED. (3)
A study of modern classroon techniques for working with the trainable, or severely mentally retarded. Private and public day and residential school programs are considered. Attention is given to educational significance of multiple disabilities of retarded children.

EDS 523 LANGUAGE DISABILITIES OF THE MENTALLY RETARDED. (3)
Topics related to research on delayed language development, linguistics, teaching techniques for mentally retarded children with language disabilities will be covered. Use of materials for language development training will be presented. Prereq: EDS 375 or consent of instructor.

EDS 524 PROGRAMS FOR THE ADOLESCENT MENTALLY RETARDED. (3)
A study of the philosophy, organization, and principles of education and rehabilitation programs for the adolescent mentally retarded. Emphasis is placed on the respective roles of educational and rehabilitation agencies and their interaction in the preparation of retarded youth for successful post-school adjustment. Prereq: EDS 530.

EDS 525 EDUCATION OF THE ORTHOPEDICALLY AND NEUROLOGICALLY HANDICAPPED. (3)
A study of educational techniques, materials and equipment used in teaching crippled, brain-injured and chronically ill children. Curriculum for both classroom and individual clinical teaching is included.

EDS 526 EDUCATION OF THE EDUCABLE MENTALLY RETARDED. (3)
A study of modern classroom techniques for working with the educable, or mildly mentally retarded. Major emphasis is on curriculum development and teaching techniques.

EDS 527 CHARACTERISTICS OF THE ORTHOPEDICALLY AND NEUROLOGICALLY HANDICAPPED. (3)
A survey of causes, treatment, and educational implications of physical and neurological disabilities in school-age children. Attention given to rehabilitation and life adjustment problems of individuals with single and multiple handicaps.

EDS 530 CHARACTERISTICS OF THE MENTALLY RETARDED. (3)
A critical examination of pertinent research in reference to the educational, physical, and psychological nature and needs of the educable and trainable mentally retarded child, including interpretation of psychological tests. Evaluation of the physical, social, emotional and mental characteristics of the retarded, to assist the classroom teacher to recognize the social potential of each child to the degree that the child with retarded mental development may become less of a burden to himself and society.

EDS 558 PROBLEMS IN SPECIAL EDUCATION: (VARIABLE TOPIC). (1-9)
In-depth study of a current and topical problem or issue in the education of exceptional children and youth. Course may be repeated to a maximum of nine credits. A title is assigned each time the course is offered.

EDS 570 CHARACTERISTICS OF EMOTIONALLY DISTURBED CHILDREN. (3)
The problems of emotionally disturbed school children are considered in the context of normal child development with emphasis on psychological factors correlated with behavior deviations. A survey of the major diagnostic categories include identification, description, and etiology, with material drawn from clinical, theoretical and research sources. Approaches to remediation cover both community resources and the roles of various professional personnel. Lecture, two hours; laboratory, two hours. Prereq: EDS 375, or permission of instructor.

EDS 577 SPEECH PATHOLOGY: A SURVEY. (3)
An introduction to the nature, causes, and treatment of the major disorders of speech: articulation, voice, cleft palate, hearing, cerebral palsy and aphasia.

EDS 578 SPEECH PATHOLOGY: AN INTRODUCTION TO THERAPY. (3)
Observation and discussion of and limited supervised experience with therapeutic techniques and procedures of speech therapy. Prereq: EDS 577.

EDS 579 STUTTERING. (3)
The nature, causes, and treatment of stuttering, with emphasis on therapeutic procedures. Prereq: EDS 577. (Same as PSY 579.)

EDS 583 SPEECH MECHANISMS. (3)
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.

EDS 584 INTRODUCTION TO AUDIOLOGY. (3)
A survey of the profession of audiology; anatomy, physiology and acoustics of hearing; principal types of hearing disorders.

EDS 587 AUDIOMETRY. (3)
Basic clinical techniques for assessing hearing acuity. Topics include: identification audiometry, methods of puretone threshold determination, interpretation of audiograms and speech audiometry. Prereq: EDS 584 or consent of instructor.

EDS 591 AURAL REHABILITATION. (3)
Principles and methods of speech and hearing therapy including speech reading, auditory training, speech conservation and hearing aid counseling for children and adults. Prereq: EDS 584 or consent of instructor.

EDS 592 PROBLEMS AND NEEDS OF THE HEARING IMPAIRED. (3)
Effects of hearing impairment on mental development, language acquisition, and personality adjustment; current research and clinical trends in auditory rehabilitation and the education of the deaf.

EDS 600 SURVEY OF SPECIAL EDUCATION. (3)
A survey of current status of the field of special education. Emphasis is on analysis of the major research literature pertaining to exceptional children and their education. Prereq: Graduate standing.

EDS 601 BEHAVIORAL MANAGEMENT OF EXCEPTIONAL CHILDREN. (3)
Principles of behavioral management are reviewed. Techniques of observation, recording, and implementation of management programs with exceptional children are stressed through case work with

EDP 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1 to 6 credits equivalence.)

EDP 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1 to 12 credits equivalence.)

EDP 777 SEMINAR IN COUNSELING AND GUIDANCE. (3)
Topical consideration of philosophical technical and theoretical positions in counseling theory and practice. Prereq: Doctoral standing, EDP 665, or consent of instructor.

EDP 778 SEMINAR IN EDUCATIONAL PSYCHOLOGY. (3)
Intensive study of selected topics in human learning and development. Particular emphasis on research topics. Students will design sample studies in their areas of interest. Prereq: Doctoral standing in the College of Education or consent of instructor.

EDP 782 INDEPENDENT WORK IN EDUCATIONAL PSYCHOLOGY. (3)
An independent work course for students who have done a minimum of 12 semester hours of graduate work including EDP 522, 520 or 658. May be repeated once to a maximum of six credits.

EDUCATION— SOCIAL AND PHILOSOPHICAL STUDIES

EDF 98 PLANNING A CAREER IN EDUCATION. (0)
A general orientation program for freshman students who expect to enter the teaching profession. It is in this course that information is supplied to students about the different programs in teaching, and information is secured from the student as to his ability, interest in and aptitude for teaching.

EDF 301 EDUCATION IN AMERICAN CULTURE. (3)
An introduction to education based on the analysis of certain questions regarding society, man, knowledge and values.

EDF 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 six hours.

EDF 532 RACE AND ETHNIC RELATIONS. (3)
Analysis of relationships between racial and ethnic groups and the behavioral products thereof. Sources and consequences of prejudice and discrimination. Situation and prospects of minorities. Strategies of change and tension reduction. Prereq: SOC 101. (Same as SOC 532.)

EDF 533 INTRODUCTION TO THE PHILOSOPHIC STUDY OF EDUCATION. (3)
An introduction to the philosophic analysis of major concepts in education. The course is designed primarily as an elective for students in teacher-education and students in other colleges. Does not apply toward teacher certification. Prereq: Junior or senior status, not on academic probation.

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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.

EDF 640 PHILOSOPHY OF EDUCATION. (3)
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 six credits.

EDF 645 FOUNDATIONS IN EDUCATION. (3)
An intensive study in various foundational fields which contribute to the development of educational theory and practice. Prereq: Twelve semester hours in education at the undergraduate level. May be repeated once to a maximum of six credits.

EDF 646 ANALYSIS OF THINKING. (3)
An interdisciplinary analysis of thinking, the central process of education. Topics studied include psychological, logical and semantic aspects of thought. Prereq: EDP 548 and EDF 640, or permission of instructor.

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A study of the lives and writings of the world's great educators to acquaint the student with their major contributions to society and education.

EDF 655 EDUCATION IN OTHER NATIONS. (3)
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EDF 656 INTERNATIONAL DEVELOPMENT EDUCATION. (3)
Critical study of the role of education in the social, cultural, political and economic development of countries in Asia, Latin America, and Africa with particular emphasis on interdisciplinary-interprofessional planning. Problems of change in education and international cooperation for education development.

EDF 661 EDUCATIONAL SOCIOLOGY. (3)
A course in sociological foundations of education. Prereq: SOC 101. (Same as SOC 661.)

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The history, nature, processes, and problems related to educational change, drawing upon the literature in several disciplines.

EDF 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.

EDF 665 EDUCATION AND CULTURE. (3)
An analysis of the cultural role and function of educational institutions and processes. Topics considered include: schooling as cultural transmission, the community context of education, cross-national studies of schools, and implications of anthropological approaches for teacher training.

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A study of knowledge and inquiry as they relate to problems of formulating educational policy and curriculum design. Prereq: EDF 640.

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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.

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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.

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

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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.

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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.

EDUCATION–SPECIAL

EDS 285 APPLIED PHONETICS. (3)
Study of the phonetic structure of the English language with requirement of mastery of international Phonetic Alphabet. Emphasis will be placed on phonetic transcription, and application will be made for students interested in general speech, speech correction, radio, television, and theatre. (Same as SP 285.)

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A survey of education and treatment of children having inferior or superior intellectual abilities; defects of vision, hearing speech, or physical and neurological defects. Examination of research dealing with the exceptional child.

EDS 500 SPEECH ANALYSIS AND PERCEPTION. (3)
Physics of sound; acoustic and structural properties of speech and their relationship to speech perception; analysis of speech intensity, fundamental frequency, wave composition, and time (rate, duration, and transitional change). (Same as SP 500.)

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The normative aspects of speech and language acquisition; application of linguistic and learning theory concepts; communication in lower animals; language and cognition.

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Survey and principles of instructional materials in special education with emphasis on development and critical evaluation. Discussion of characteristics of effective instructional material and means of developing new instructional material. Prereq: Consent of instructor.

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A study of modern classroon techniques for working with the trainable, or severely mentally retarded. Private and public day and residential school programs are considered. Attention is given to educational significance of multiple disabilities of retarded children.

EDS 523 LANGUAGE DISABILITIES OF THE MENTALLY RETARDED. (3)
Topics related to research on delayed language development, linguistics, teaching techniques for mentally retarded children with language disabilities will be covered. Use of materials for language development training will be presented. Prereq: EDS 375 or consent of instructor.

EDS 524 PROGRAMS FOR THE ADOLESCENT MENTALLY RETARDED. (3)
A study of the philosophy, organization, and principles of education and rehabilitation programs for the adolescent mentally retarded. Emphasis is placed on the respective roles of educational and rehabilitation agencies and their interaction in the preparation of retarded youth for successful post-school adjustment. Prereq: EDS 530.

EDS 525 EDUCATION OF THE ORTHOPEDICALLY AND NEUROLOGICALLY HANDICAPPED. (3)
A study of educational techniques, materials and equipment used in teaching crippled, brain-injured and chronically ill children. Curriculum for both classroom and individual clinical teaching is included.

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A study of modern classroom techniques for working with the educable, or mildly mentally retarded. Major emphasis is on curriculum development and teaching techniques.

EDS 527 CHARACTERISTICS OF THE ORTHOPEDICALLY AND NEUROLOGICALLY HANDICAPPED. (3)
A survey of causes, treatment, and educational implications of physical and neurological disabilities in school-age children. Attention given to rehabilitation and life adjustment problems of individuals with single and multiple handicaps.

EDS 530 CHARACTERISTICS OF THE MENTALLY RETARDED. (3)
A critical examination of pertinent research in reference to the educational, physical, and psychological nature and needs of the educable and trainable mentally retarded child, including interpretation of psychological tests. Evaluation of the physical, social, emotional and mental characteristics of the retarded, to assist the classroom teacher to recognize the social potential of each child to the degree that the child with retarded mental development may become less of a burden to himself and society.

EDS 558 PROBLEMS IN SPECIAL EDUCATION: (VARIABLE TOPIC). (1-9)
In-depth study of a current and topical problem or issue in the education of exceptional children and youth. Course may be repeated to a maximum of nine credits. A title is assigned each time the course is offered.

EDS 570 CHARACTERISTICS OF EMOTIONALLY DISTURBED CHILDREN. (3)
The problems of emotionally disturbed school children are considered in the context of normal child development with emphasis on psychological factors correlated with behavior deviations. A survey of the major diagnostic categories include identification, description, and etiology, with material drawn from clinical, theoretical and research sources. Approaches to remediation cover both community resources and the roles of various professional personnel. Lecture, two hours; laboratory, two hours. Prereq: EDS 375, or permission of instructor.

EDS 577 SPEECH PATHOLOGY: A SURVEY. (3)
An introduction to the nature, causes, and treatment of the major disorders of speech: articulation, voice, cleft palate, hearing, cerebral palsy and aphasia.

EDS 578 SPEECH PATHOLOGY: AN INTRODUCTION TO THERAPY. (3)
Observation and discussion of and limited supervised experience with therapeutic techniques and procedures of speech therapy. Prereq: EDS 577.

EDS 579 STUTTERING. (3)
The nature, causes, and treatment of stuttering, with emphasis on therapeutic procedures. Prereq: EDS 577. (Same as PSY 579.)

EDS 583 SPEECH MECHANISMS. (3)
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.

EDS 584 INTRODUCTION TO AUDIOLOGY. (3)
A survey of the profession of audiology; anatomy, physiology and acoustics of hearing; principal types of hearing disorders.

EDS 587 AUDIOMETRY. (3)
Basic clinical techniques for assessing hearing acuity. Topics include: identification audiometry, methods of puretone threshold determination, interpretation of audiograms and speech audiometry. Prereq: EDS 584 or consent of instructor.

EDS 591 AURAL REHABILITATION. (3)
Principles and methods of speech and hearing therapy including speech reading, auditory training, speech conservation and hearing aid counseling for children and adults. Prereq: EDS 584 or consent of instructor.

EDS 592 PROBLEMS AND NEEDS OF THE HEARING IMPAIRED. (3)
Effects of hearing impairment on mental development, language acquisition, and personality adjustment; current research and clinical trends in auditory rehabilitation and the education of the deaf.

EDS 600 SURVEY OF SPECIAL EDUCATION. (3)
A survey of current status of the field of special education. Emphasis is on analysis of the major research literature pertaining to exceptional children and their education. Prereq: Graduate standing.

EDS 601 BEHAVIORAL MANAGEMENT OF EXCEPTIONAL CHILDREN. (3)
Principles of behavioral management are reviewed. Techniques of observation, recording, and implementation of management programs with exceptional children are stressed through case work with

EDP 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1 to 6 credits equivalence.)

EDP 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1 to 12 credits equivalence.)

EDP 777 SEMINAR IN COUNSELING AND GUIDANCE. (3)
Topical consideration of philosophical technical and theoretical positions in counseling theory and practice. Prereq: Doctoral standing, EDP 665, or consent of instructor.

EDP 778 SEMINAR IN EDUCATIONAL PSYCHOLOGY. (3)
Intensive study of selected topics in human learning and development. Particular emphasis on research topics. Students will design sample studies in their areas of interest. Prereq: Doctoral standing in the College of Education or consent of instructor.

EDP 782 INDEPENDENT WORK IN EDUCATIONAL PSYCHOLOGY. (3)
An independent work course for students who have done a minimum of 12 semester hours of graduate work including EDP 522, 520 or 658. May be repeated once to a maximum of six credits.

EDUCATION– SOCIAL AND PHILOSOPHICAL STUDIES

EDF 98 PLANNING A CAREER IN EDUCATION. (0)
A general orientation program for freshman students who expect to enter the teaching profession. It is in this course that information is supplied to students about the different programs in teaching, and information is secured from the student as to his ability, interest in and aptitude for teaching.

EDF 301 EDUCATION IN AMERICAN CULTURE. (3)
An introduction to education based on the analysis of certain questions regarding society, man, knowledge and values.

EDF 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 six hours.

EDF 532 RACE AND ETHNIC RELATIONS. (3)
Analysis of relationships between racial and ethnic groups and the behavioral products thereof. Sources and consequences of prejudice and discrimination. Situation and prospects of minorities. Strategies of change and tension reduction. Prereq: SOC 101. (Same as SOC 532.)

EDF 533 INTRODUCTION TO THE PHILOSOPHIC STUDY OF EDUCATION. (3)
An introduction to the philosophic analysis of major concepts in education. The course is designed primarily as an elective for students in teacher-education and students in other colleges. Does not apply toward teacher certification. Prereq: Junior or senior status, not on academic probation.

EDF 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.

EDF 640 PHILOSOPHY OF EDUCATION. (3)
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 six credits.

EDF 645 FOUNDATIONS IN EDUCATION. (3)
An intensive study in various foundational fields which contribute to the development of educational theory and practice. Prereq: Twelve semester hours in education at the undergraduate level. May be repeated once to a maximum of six credits.

EDF 646 ANALYSIS OF THINKING. (3)
An interdisciplinary analysis of thinking, the central process of education. Topics studied include psychological, logical and semantic aspects of thought. Prereq: EDP 548 and EDF 640, or permission of instructor.

EDF 650 HISTORY OF WESTERN EDUCATION. (3)
A study of the development of the "institution" of education in relation to social and political reality, ideas, and ideals of successive periods in Western culture.

EDF 651 HISTORY OF EDUCATION IN THE UNITED STATES. (3)
A history of the growth and development of education in the United States from earliest Colonial times to the present, including recent movements and trends.

EDF 652 HISTORY OF EDUCATIONAL THOUGHT. (3)
A study of the lives and writings of the world's great educators to acquaint the student with their major contributions to society and education.

EDF 655 EDUCATION IN OTHER NATIONS. (3)
Analytical and comparative study of contemporary education in selected countries, with emphasis on the historical development and total cultural context of educational programs. Informal as well as formal agencies and programs will be studied with particular attention to recent reforms and innovations.

EDF 656 INTERNATIONAL DEVELOPMENT EDUCATION. (3)
Critical study of the role of education in the social, cultural, political and economic development of countries in Asia, Latin America, and Africa with particular emphasis on interdisciplinary-interprofessional planning. Problems of change in education and international cooperation for education development.

EDF 661 EDUCATIONAL SOCIOLOGY. (3)
A course in sociological foundations of education. Prereq: SOC 101. (Same as SOC 661.)

EDF 662 ANALYSIS OF EDUCATIONAL CHANGE. (3)
The history, nature, processes, and problems related to educational change, drawing upon the literature in several disciplines.

EDF 663 FIELD 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.

EDF 665 EDUCATION AND CULTURE. (3)
An analysis of the cultural role and function of educational institutions and processes. Topics considered include: schooling as cultural transmission, the community context of education, cross-national studies of schools, and implications of anthropological approaches for teacher training.

EDF 724 EPISTEMOLOGICAL PROBLEMS IN EDUCATION. (3)
A study of knowledge and inquiry as they relate to problems of formulating educational policy and curriculum design. Prereq: EDF 640.

EDF 725 ANALYSIS OF VALUE QUESTIONS IN EDUCATION. (3)
A study of the nature of value as it relates to formulating and justifying aims and policies, curriculum design and the teaching-learning process. Materials in ethics, value theory, and aesthetics are used in the appraisal of educational theory. Prereq: EDF 640 or equivalent.

EDF 750 PROBLEMS IN EDUCATIONAL SOCIOLOGY. (3)
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.

EDF 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1 to 6 credits equivalence.)

EDF 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1 to 12 credits equivalence.)

EDF 773 SEMINAR IN FOUNDATIONS OF EDUCATION. (3)
A critical study of selected problems in the foundations of education areas.

EDF 778 SEMINAR IN HISTORY OF EDUCATION IN KENTUCKY. (3)
A seminar for graduate students in education who are interested in developing a background and perspective upon educational problems by study of the history and development of education in Kentucky.

EDF 785 INDEPENDENT STUDY IN SOCIAL AND PHILOSOPHICAL PROBLEMS IN EDUCATION. (3)
This course will allow advanced students to study, in depth, individualized problems and issues related to social and philosophical foundations. May be repeated to a maximum of nine hours. Prereq: EDF 661 or its equivalent.

EDUCATION—SPECIAL

EDS 285 APPLIED PHONETICS. (3)
Study of the phonetic structure of the English language with requirement of mastery of international Phonetic Alphabet. Emphasis will be placed on phonetic transcription, and application will be made for students interested in general speech, speech correction, radio, television, and theatre. (Same as SP 285.)

EDS 335 METHODS AND MATERIALS FOR SPEECH EVALUATION AND THERAPY. (3)
Procedures of examination for articulation and voice disorder; interviewing for information; therapy materials for children and adults. Prereq: Speech Pathology: A Survey.

EDS 358 OBSERVATION AND PRACTICUM IN SPECIAL EDUCATION. (3)
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.

EDS 359 STUDENT TEACHING IN SPECIAL EDUCATION. (3-12)
Supervised student teaching experience utilizing the special techniques used in working with individuals with exceptional educational problems such as speech handicaps, physical handicaps, visual impairments, hearing disabilities, neurological impairments (learning disabilities), mental retardation, and the gifted. To be offered only on a pass-fail basis. Prereq: Must complete the published College requirements for admission to student teaching.

EDS 375 INTRODUCTION TO EDUCATION OF EXCEPTIONAL CHILDREN. (3)
A survey of education and treatment of children having inferior or superior intellectual abilities; defects of vision, hearing speech, or physical and neurological defects. Examination of research dealing with the exceptional child.

EDS 500 SPEECH ANALYSIS AND PERCEPTION. (3)
Physics of sound; acoustic and structural properties of speech and their relationship to speech perception; analysis of speech intensity, fundamental frequency, wave composition, and time (rate, duration, and transitional change). (Same as SP 500.)

EDS 501 SPEECH AND LANGUAGE DEVELOPMENT. (3)
The normative aspects of speech and language acquisition; application of linguistic and learning theory concepts; communication in lower animals; language and cognition.

EDS 502 DEVELOPMENT AND EVALUATION OF INSTRUCTIONAL MATERIALS IN SPECIAL EDUCATION. (3)
Survey and principles of instructional materials in special education with emphasis on development and critical evaluation. Discussion of characteristics of effective instructional material and means of developing new instructional material. Prereq: Consent of instructor.

EDS 505 EDUCATION OF THE TRAINABLE MENTALLY RETARDED. (3)
A study of modern classroon techniques for working with the trainable, or severely mentally retarded. Private and public day and residential school programs are considered. Attention is given to educational significance of multiple disabilities of retarded children.

EDS 523 LANGUAGE DISABILITIES OF THE MENTALLY RETARDED. (3)
Topics related to research on delayed language development, linguistics, teaching techniques for mentally retarded children with language disabilities will be covered. Use of materials for language development training will be presented. Prereq: EDS 375 or consent of instructor.

EDS 524 PROGRAMS FOR THE ADOLESCENT MENTALLY RETARDED. (3)
A study of the philosophy, organization, and principles of education and rehabilitation programs for the adolescent mentally retarded. Emphasis is placed on the respective roles of educational and rehabilitation agencies and their interaction in the preparation of retarded youth for successful post-school adjustment. Prereq: EDS 530.

EDS 525 EDUCATION OF THE ORTHOPEDICALLY AND NEUROLOGICALLY HANDICAPPED. (3)
A study of educational techniques, materials and equipment used in teaching crippled, brain-injured and chronically ill children. Curriculum for both classroom and individual clinical teaching is included.

EDS 526 EDUCATION OF THE EDUCABLE MENTALLY RETARDED. (3)
A study of modern classroom techniques for working with the educable, or mildly mentally retarded. Major emphasis is on curriculum development and teaching techniques.

EDS 527 CHARACTERISTICS OF THE ORTHOPEDICALLY AND NEUROLOGICALLY HANDICAPPED. (3)
A survey of causes, treatment, and educational implications of physical and neurological disabilities in school-age children. Attention given to rehabilitation and life adjustment problems of individuals with single and multiple handicaps.

EDS 530 CHARACTERISTICS OF THE MENTALLY RETARDED. (3)
A critical examination of pertinent research in reference to the educational, physical, and psychological nature and needs of the educable and trainable mentally retarded child, including interpretation of psychological tests. Evaluation of the physical, social, emotional and mental characteristics of the retarded, to assist the classroom teacher to recognize the social potential of each child to the degree that the child with retarded mental development may become less of a burden to himself and society.

EDS 558 PROBLEMS IN SPECIAL EDUCATION: (VARIABLE TOPIC). (1-9)
In-depth study of a current and topical problem or issue in the education of exceptional children and youth. Course may be repeated to a maximum of nine credits. A title is assigned each time the course is offered.

EDS 570 CHARACTERISTICS OF EMOTIONALLY DISTURBED CHILDREN. (3)
The problems of emotionally disturbed school children are considered in the context of normal child development with emphasis on psychological factors correlated with behavior deviations. A survey of the major diagnostic categories include identification, description, and etiology, with material drawn from clinical, theoretical and research sources. Approaches to remediation cover both community resources and the roles of various professional personnel. Lecture, two hours; laboratory, two hours. Prereq: EDS 375, or permission of instructor.

EDS 577 SPEECH PATHOLOGY: A SURVEY. (3)
An introduction to the nature, causes, and treatment of the major disorders of speech: articulation, voice, cleft palate, hearing, cerebral palsy and aphasia.

EDS 578 SPEECH PATHOLOGY: AN INTRODUCTION TO THERAPY. (3)
Observation and discussion of and limited supervised experience with therapeutic techniques and procedures of speech therapy. Prereq: EDS 577.

EDS 579 STUTTERING. (3)
The nature, causes, and treatment of stuttering, with emphasis on therapeutic procedures. Prereq: EDS 577. (Same as PSY 579.)

EDS 583 SPEECH MECHANISMS. (3)
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.

EDS 584 INTRODUCTION TO AUDIOLOGY. (3)
A survey of the profession of audiology; anatomy, physiology and acoustics of hearing; principal types of hearing disorders.

EDS 587 AUDIOMETRY. (3)
Basic clinical techniques for assessing hearing acuity. Topics include: identification audiometry, methods of puretone threshold determination, interpretation of audiograms and speech audiometry. Prereq: EDS 584 or consent of instructor.

EDS 591 AURAL REHABILITATION. (3)
Principles and methods of speech and hearing therapy including speech reading, auditory training, speech conservation and hearing aid counseling for children and adults. Prereq: EDS 584 or consent of instructor.

EDS 592 PROBLEMS AND NEEDS OF THE HEARING IMPAIRED. (3)
Effects of hearing impairment on mental development, language acquisition, and personality adjustment; current research and clinical trends in auditory rehabilitation and the education of the deaf.

EDS 600 SURVEY OF SPECIAL EDUCATION. (3)
A survey of current status of the field of special education. Emphasis is on analysis of the major research literature pertaining to exceptional children and their education. Prereq: Graduate standing.

EDS 601 BEHAVIORAL MANAGEMENT OF EXCEPTIONAL CHILDREN. (3)
Principles of behavioral management are reviewed. Techniques of observation, recording, and implementation of management programs with exceptional children are stressed through case work with

individuals and groups of children. Lecture, two hours; laboratory, two hours. Prereq: Consent of instructor.

EDS 602 ADMINISTRATION AND SUPERVISION IN SPECIAL EDUCATION. (3)
The organization, management and supervision of programs for exceptional children at the local, state and national levels. Roles and functions of the special education administrator are considered. Experiences drawn from special residential, private and public day schools are studied. Prereq: Certification in Special Education. Six hours of course work in educational administration and supervision.

EDS 610 EDUCATIONAL EVALUATION OF EXCEPTIONAL CHILDREN. (3)
An intensive study of, and laboratory experience in, the assessment of educational problems of exceptional children. Special emphasis is given to the relationship of physical, intellectual, emotional and social handicaps to performance in the individual or group setting. Class hours per week, two; laboratory hours per week, two. Prereq: EDP 522 and consent of instructor.

EDS 611 EDUCATIONAL REMEDIATION OF LEARNING DISABILITIES OF EXCEPTIONAL CHILDREN. (3)
The study of, and laboratory experience in, the remediation of educational problems of exceptional children. Attention is given to the amelioration of learning disabilities in individual cases. Class hours per week, two; laboratory hours per week, two. Prereq: EDS 610 or consent of instructor.

EDS 612 ADVANCED PRACTICUM IN SPECIAL EDUCATION. (3-6)
Intensive clinical experience with exceptional children in day and residential schools, hospitals and private agencies. Students engage in prescriptive teaching with handicapped children in individualized, small group and special class settings. Laboratory hours, 6-12 per week. Prereq: Graduate standing; major in special education.

EDS 613 ARTICULATION AND ARTICULATION DISORDERS. (3)
Research and clinical findings on articulation and articulation disorders. Topics include articulation testing and prediction, variables related to articulation performance and articulation programming (therapy).

EDS 614 VOICE AND VOICE DISORDERS. (3)
Research on voice and voice disorders. Topics include a review of voice physiology and organic and functional voice disorders.

EDS 617 CLEFT PALATE AND CEREBRAL PALSY. (3)
Description, assessment and interdisciplinary management of organic speech disorders, particularly those associated with orofacial anomalies and dysarthria. Review of relevant research.

EDS 627 PRACTICUM IN SPEECH THERAPY. (3)
Practical case work in speech therapy in speech clinic, hospitals, and public schools. Training in diagnostic examinations, case history methods, and group therapy. Prereq: EDS 577, 578. May be repeated once for a maximum of six credits.

EDS 647 DISORDERS OF LANGUAGE. (3)
Emphasis on adult aphasia and developmental language disabilities, theories, research findings, assessment procedures, and therapy approaches. (Same as PSY 647.)

EDS 671 EDUCATION OF EMOTIONALLY DISTURBED CHILDREN. (3)
A study of educational techniques, materials, and equipment used in teaching emotionally disturbed children. Curriculum for both classroom and individual clinical teaching is included. Lecture, two hours; laboratory, two hours. Prereq: EDS 570.

EDS 672 THEORIES OF EDUCATING EMOTIONALLY DISTURBED CHILDREN. (3)
A systematic review of various teaching philosophies related to the education of emotionally disturbed children. Observation and participation in educational settings reflecting these philosophies will be provided. Lecture, two hours; laboratory, two hours. Prereq: Consent of instructor.

EDS 702 SEMINAR IN SPEECH PATHOLOGY. (3)
Advanced coverage of the clinical and research literature on the etiology, description, assessment, and management of specific speech and language disabilities. The semester topic will be rotated. Topics will include stuttering, developmental language disabilities, cleft palate, cerebral palsy, etc. May be repeated twice for a maximum of nine hours.

EDS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1 to 6 credits equivalence.)

EDS 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1 to 12 credits equivalence.)

EDS 779 SEMINAR IN SPECIAL EDUCATION (VARIABLE TOPIC). (3)
Study of philosophy, principles, trends and research in education of exceptional children. Students will carry on an extensive study of a problem dealing with education of the exceptional child. May be repeated twice to a maximum of nine credits.

EDS 789 INDEPENDENT STUDY IN SPECIAL EDUCATION. (1-6)
An independent study course for advanced graduate students with an interest in a specific problem in special education. By appointment. Prereq: Minimum of 12 semester hours in graduate work and approval of instructor.

EDS 799 RESEARCH TECHNIQUES IN SPECIAL EDUCATION. (3)
A study of the basic research techniques and their application to special education. Unique problems in special education will be discussed with emphasis on designing and conducting a research study. Computer usage will be discussed and students encouraged to use the computer as a research tool. Prereq: Twelve graduate semester hours in special education including EDP 657 or equivalent.

EDUCATION—VOCATIONAL

AGRICULTURAL EDUCATION

EDV 370 STUDENT TEACHING VOCATIONAL AGRICULTURE. (9)
Practical application of methods in teaching various phases of vocational agriculture. To be taken concurrently with EDV 580, 581, and 583. Laboratory, 20 hours per week. Prereq: Second semester senior. Offered on a Pass-Fail basis only.

EDV 580 MATERIALS AND METHODS TEACHING VOCATIONAL AGRICULTURE. (3)
Designed to develop teacher competency in methods of teaching with emphasis on the problem-solving procedure and use of demonstrations, field trips, and audio-visual materials. Evaluation of teaching-learning is emphasized. A study of facilities and instructional materials needed by a Department of Vocational Agriculture is made.

EDV 581 ADULT-FARMER SCHOOLS AND YOUNG-FARMER COURSES IN AGRICULTURE. (3)
A general introduction to adult-farmer schools and young-farmer courses with some observation of work in both of these fields.

EDV 583 EXPERIENCE PROGRAMS IN VOCATIONAL AGRICULTURE. (3)
Designed to develop teacher competencies to guide students to select, plan, carry out, and evaluate supervised experience programs in vocational agriculture, both production and off-farm. Prereq: Second semester senior.

EDV 640 ADVANCED METHODS IN THE SECRETARIAL SUBJECTS. (3)
Recent research, trends and developments in methodology of teaching typewriting, shorthand, and clerical procedures. The psychology of skill building and the techniques of office production.

EDV 672 DETERMINING CONTENT IN VOCATIONAL AGRICULTURE. (3)
Interpretation of local data as a basis for course building. Each student works out the content of a four-year course in vocational agriculture.

EDV 673 PROGRAM DEVELOPMENT IN VOCATIONAL AGRICULTURE. (3)
A course in program and curriculum development for the specialized vocational areas in agriculture; a study of the occupational opportunities and the training needs for specific areas (farm operation, agricultural business, agricultural mechanics, horticulture, forestry, park management, etc.). Each student makes a study of local or area needs and works out a one or two year course of study for a senior high or post-high school program. Prereq: EDV 580 or consent of instructor.

EDV 675 MODERN PROBLEMS IN AGRICULTURAL EDUCATION. (3)
Class work (not individual-problem work) on modern problems in agricultural education. (May be repeated twice to a maximum of nine credits.)

EDV 679 ADULT EDUCATION IN AGRICULTURE. (3)
Preparation for teaching adult classes in agriculture with emphasis on improvement of established agricultural businesses including farming; organization of classes, development of curriculum, and methods of teaching.

EDV 680 DIRECTING OCCUPATIONAL EXPERIENCE IN AGRICULTURE. (3)
Supervised farming and agricultural employment as a method of teaching; standards, planning, supervision, and records.

EDV 681 TEACHING FARM SHOP. (3)
A study of necessary content for shop, plans for securing and equipping the shop, and methods of teaching farm shop.

EDV 682 EDUCATION IN AGRICULTURE FOR YOUNG ADULTS. (3)
Preparation for teaching young people who are becoming established in an agricultural occupation; including farming, farm service operators and agricultural employees. Curriculum content and method of teaching applicable to each group is emphasized.

BUSINESS EDUCATION

EDV 393 STUDENT TEACHING IN BUSINESS EDUCATION*. (3-12)
Student teaching in business subjects such as general business, shorthand, typewriting, and bookkeeping. Observation and practice in the content field. Safety education, audio-visual aids, and planning conferences with the supervising teacher.

EDV 511 TEACHING SECRETARIAL SUBJECTS. (3)
A study of effective teaching in shorthand, transcription, business communication, and secretarial office practice.

EDV 512 TEACHING BOOKKEEPING AND ACOUNTING. (3)
Methods, materials, and techniques used in the teaching of bookkeeping and accounting. Required of business education majors.

EDV 513 TEACHING TYPEWRITING AND CLERICAL PRACTICE. (3)
A study of effective teaching in typewriting and clerical office practice including the machines commonly used in business offices.

EDV 514 TEACHING GENERAL BUSINESS SUBJECTS IN THE SECONDARY SCHOOLS. (3)
The aims and purposes of the general business course are studied. Analysis is made of the objectives of the general subjects, and methods and materials used in teaching them are emphasized.

EDV 615 PROBLEMS IN BUSINESS EDUCATION. (3)
A study of advanced problems of interest to business teachers such as testing in business subjects, guidance, job studies, placement and follow-up, equipment, and supervision. May be repeated three times to a maximum of 12 credits.

EDV 618 THE SOCIAL BUSINESS SUBJECTS IN HIGH SCHOOL. (3)
An examination of the various social business subjects, to determine their contribution of the objectives of business education.

EDV 623 ADMINISTRATION AND SUPERVISION OF BUSINESS EDUCATION. (3)
Duties and responsibilities of city and state supervisors, department heads, and others engaged in directing business education.

EDV 626 CLASSIFICATION AND POSSIBLE USE OF COMMUNITY RESOURCES IN BUSINESS EDUCATION. (3)
Course provides for community analysis, and the development of possible ways and means to supplement the business education course in the secondary school with a study of vital community resources. (See also Business and Office Education, BOE.)

DISTRIBUTIVE EDUCATION

EDV 380 STUDENT TEACHING IN DISTRIBUTIVE EDUCATION. (9)
Designed to provide the student experience with and practice in teaching, student placement, supervision, coordination, working with employers, advisory committees, and parents. Laboratory, 20 hours per week. Prereq: EDV 528. Offered on a Pass-Fail basis only.

EDV 515 PROBLEMS IN DISTRIBUTIVE EDUCATION. (2-3)
Problems in teaching vocational distributive education in day, part-time, and evening schools. The problems are selected in accordance with the needs and desires of the students. May be repeated to a maximum of six credits.

EDV 517 DETERMINING TEACHING CONTENT IN DISTRIBUTIVE EDUCATION. (2-3)
Course construction in the field of distributive education. This course is planned to meet the needs of persons engaged as instructors in the field of distributive education. May be repeated to a maximum of six credits.

EDV 526 ORGANIZATION AND OPERATION OF ADULT PROGRAMS IN DISTRIBUTIVE EDUCATION. (3)
The organization and administration of adult classes; development of curriculum, personnel, instructional materials, and methods of teaching. Prereq: EDV 516 or 528, or consent of instructor.

EDV 528 TECHNIQUE OF TEACHING DISTRIBUTIVE EDUCATION. (2-3)
A study of the methods of teaching as applied to distributive education. The purpose of the course is to train prospective teachers to teach in the field of distributive education. May be repeated to a maximum of six credits.

HOME ECONOMICS EDUCATION

EDV 362 STUDENT TEACHING IN HOME ECONOMICS. (3-12)
Practical application of methods in teaching various phases of home economics. Prereq: EDV 586. Offered on a Pass-Fail basis only.

EDV 586 TEACHING HOME ECONOMICS IN THE SECONDARY SCHOOL. (3)
A course emphasizing methods of teaching; utilization of resources; evaluation; and professional responsibilities of the teacher as they apply to vocational home economics.

EDV 588 ADULT EDUCATION IN HOME ECONOMICS. (3)
Problems in teaching vocational homemaking in day, part time, and evening schools. Prereq: EDV 586; concur: EDV 362.

EDV 590 PROBLEMS IN HOME ECONOMICS EDUCATION. (3)
Problems in teaching home economics for high school students and adults. May be repeated twice to a maximum of nine credits.

EDV 610 SIMULATED OCCUPATIONAL EXPERIENCE PROGRAM IN DISTRIBUTIVE EDUCATION. (2-4)
Designed primarily for teachers interested in developing programs utilizing simulated occupational experience. Demonstration teaching and use of actual facilities and equipment in business and industry by the students will be stressed. Instruction will be provided in the selection of equipment and teaching aids utilized in a simulated program. Class hours, two to four per week; laboratory hours, three per week. Prereq: EDV 517 or 528, or consent of instructor.

EDV 683 CURRENT PROBLEMS IN HOME ECONOMICS EDUCATION. (3)
Recent developments in home economics education. Prereq: EDV 586 and 362; experience in teaching.

EDV 684 CURRENT TRENDS IN HOME ECONOMICS EDUCATION. (3)
Class work in current trends and significant developments in home economics education. May be repeated to a maximum of nine credits.

EDV 685 HOME ECONOMICS CURRICULUM CONSTRUCTION. (3)
A study of the underlying principles of curriculum building for junior and senior high school and adult education in home economics. Prereq: EDV 586; 362.

EDV 686 EVALUATION IN HOME ECONOMICS EDUCATION. (3)
A course to acquaint teachers of home economics with techniques used in measuring attainment in home economics in the junior and senior high school and college. Prereq: Teaching experience.

EDV 687 HOME ECONOMICS SUPERVISION. (3)
A course planned primarily to help prepare teacher-trainers and supervisors of home economics education. Prereq: EDV 586; 362; experience in teaching; approval of instructor.

INDUSTRIAL EDUCATION

EDV 106 OCCUPATIONAL ANALYSIS. (2)
The analysis of an occupation into its various tasks and required informational topics. The student will analyze his own vocation for purposes of preparing a course of study and necessary instruction sheets, which are to be subsequently used in his teaching activities.

EDV 107 SHOP MANAGEMENT PROBLEMS. (2)
Study of the shop or laboratory teacher's management responsibilities that may be categorized as managerial. Attention is directed toward the incorporation of these activities into an effective program of instruction. Management of shop equipment, arrangement of the shop or laboratory, and student personnel systems receive major attention.

EDV 108 CONFERENCE LEADERSHIP. (2)
Designed to develop leadership and participation skills in solving problems and planning activities in the industrial school class or in industry by the discussion method. Discussion theory will be studied and applied to problems identified by the class members.

EDV 109 INSTRUCTIONAL MATERIAL IN INDUSTRIAL EDUCATION. (2)
Components of a comprehensive course of study are identified and students engage in the validation and preparation of materials to be

used in teaching. Emphasis is placed on planning and preparing those materials that individualize instruction in the vocational industrial course. Prereq: EDV 106.

EDV 110 PRINCIPLES OF INDUSTRIAL TEACHING. (2)
Designed for the beginning vocational industrial teacher. Study is made of various accepted teaching procedures and class managerial activities with which the new shop teacher must be familiar.

EDV 116 AUDIO-VISUAL AIDS, THEIR USE IN TEACHING INDUSTRIAL AND DISTRIBUTIVE EDUCATION. (2)
This course is designed to meet the needs of industrial and distributive education teachers. The theory of demonstration teaching will be discussed, and practice will be done by the students in the class. The course will include instruction in the use of these aids in teaching: film projectors, mock-ups, cutaways, flannelboard, bulletin board, sample specimens, tape recorders, and field trips. Instruction will be given in the selection of various aids as a part of the teaching program.

EDV 220 PRACTICUM IN INDUSTRIAL EDUCATION. (3-9)
Observation and experience in teaching industrial occupations in area vocational schools and extension centers. The course emphasizes planning, methods, utilization of resources, safety education, teaching procedures, and evaluation. One class hour per week; 9-30 laboratory hours per week.

EDV 222 OCCUPATIONAL INTERNSHIP FOR INDUSTRIAL TEACHERS. (3)
Coordinated occupational experience in an industrial environment for persons desiring to become industrial teachers. Emphasis is given to the development of occupational competence, trade theory, meeting production schedules, employer-employee relations and industrial safety. Ten laboratory hours per week. Prereq: Two years of industrial experience in a single occupation.

EDV 224 TECHNIQUES OF TEACHING INDUSTRIAL EDUCATION. (3)
Designed for persons preparing to teach various industrial occupations in vocational schools in Kentucky. Emphasis is given to the leading of discussions, lectures, oral questioning, written examinations, and demonstration teaching. Prereq: EDV 110.

IND 226 BASIC COMPETENCIES IN INDUSTRIAL OCCUPATIONS. (3)
Skill development experience for new teachers and those desiring to become teachers of industrial occupations. Emphasis to be given to the development of work skills in laboratory situations, selection of proper tools and equipment, and safe work habits. May be repeated for a total of nine credits. Three class hours per week; three laboratory hours per week.

IND 228 ADVANCED COMPETENCIES IN INDUSTRIAL OCCUPATIONS. (3)
A study of advanced theories and practices in skills of industrial-technical occupations for present teachers and those desiring to become teachers. Emphasis is given to providing laboratory experience to attain competence necessary for teaching industrial competencies in vocational schools. May be repeated for a total of nine credits. Three class hours per week; three laboratory hours per week. Prereq: EDV 226.

EDV 352 STUDENT TEACHING FOR INDUSTRIAL AND EDUCATIONAL TRAINING DIRECTORS. (3-12)
Designed to give the student practical experience through observation, planning, teaching, and evaluating procedures. Offered on a Pass-Fail basis only.

EDV 518 METHODS IN INDUSTRIAL EDUCATION. (2)
A study of various principles and concepts of learning and how they relate to teaching in vocational industrial education. Emphasis is given to methods and techniques used in shop teaching and how these activities are associated with the principles and concepts of learning. May be repeated once to a maximum of four credits.

EDV 524 MODERN INDUSTRIAL ANALYSIS. (2)
Modern industrial organizations; trends in industrial educational policies; the proper approach to and analysis of these problems as they affect the industrial vocational teacher.

EDV 525 SUPERVISED WORK EXPERIENCE IN BUSINESS OR INDUSTRY. (3)
For students planning careers as vocational teachers and directors. Includes education and experience under the supervision of college personnel and personnel in business and industry. May be repeated three times to a maximum of 12 hours.

EDV 529 EVALUATION IN INDUSTRIAL AND DISTRIBUTIVE EDUCATION. (2)
The theory and practice of standardized, classroom and performance testing as a means of measuring student achievement. Opportunity to practice will be provided in keeping with each teacher's work assignment. Prereq: Must be employed as teacher in Trade or Distributive Education.

EDV 534 ORGANIZATION AND OPERATION OF PART-TIME AND EVENING CLASSES. (2)
A course for administrators, coordinators, and teachers in part-time and evening industrial education. Covers the duties of a coordinator in cooperative training programs.

EDV 536 SURVEYS IN INDUSTRIAL EDUCATION. (2)
This course deals with the basic methods and techniques used in making a survey to determine the needs for trade and industrial education. Emphasis is placed on gathering, evaluating, and interpreting the data.

EDV 537 SPECIAL PROBLEMS IN INDUSTRIAL EDUCATION. (1-3)
A study of the problem-solving process and its relationship to the solutions of the problems faced by vocational industrial teachers. Students learn to identify teaching problems and engage in activities that lead to their solutions. May be repeated to a total of six credits.

EDV 540 SUPERVISION OF STUDENT TEACHING IN INDUSTRIAL EDUCATION. (2)
Designed to prepare supervising teachers in industrial education. Includes philosophy of the job in relation to total program of teacher preparation, making teaching assignments, conferencing, evaluation and development of a list of experiences deemed necessary for developing students into effective teachers. Prereq: Hold a ten-year teaching certificate in Industrial Education.

VOCATIONAL EDUCATION

EDV 210 INTRODUCTION TO VOCATIONAL EDUCATION.(2-3)
The history, status, philosophy, and objectives of vocational education in relation to general education.

EDV 516 PROBLEMS OF THE COORDINATOR IN VOCATIONAL EDUCATION. (2-3)
A course to prepare coordinators of vocational education programs, including planning of local or area programs, use of advisory committees, selection of instructional materials and equipment, organizing instructional programs, and over-all planning and operating of the program.

EDV 523 VOCATIONAL GUIDANCE. (2-3)
A study of the philosophy of guidance, aims and purposes of vocational guidance, individual student inventory (as revealed by tests, surveys, records, case studies, interviews, and observations), and counseling techniques. Emphasis is given to securing and using occupational information, student guidance, placement, evaluation of occupational performance, and organizing and administering vocational guidance programs.

EDV 535 PRINCIPLES AND PHILOSOPHY OF VOCATIONAL EDUCATION. (2-3)
Study is made of philosophy, accepted principles, and legislation affecting programs in vocational education. May be repeated to maximum of six credits.

EDV 608 INTERNSHIP IN VOCATIONAL EDUCATION. (6)
Field experiences are provided for leadership personnel in vocational education through cooperative supervision of University personnel, superintendents, directors in the Bureau of Vocational Education and area vocational-technical schools, in Kentucky public school systems. May be repeated to a maximum of 12 credits. Lecture, three hours; laboratory, 16 hours per week, Prereq: Completion of Master's degree and teaching and/or administrative experience.

EDV 641 APPRAISAL OF CURRENT LITERATURE IN VOCATIONAL EDUCATION. (3)
A critical study of issues and trends as reported in the current literature. Course designed to enable students to read more widely in the field of vocational education, to read more critically, to interpret research findings and to formulate generalizations from studying the literature.

EDV 670 METHOD IN TEACHING VOCATIONAL EDUCATION. (3)
The principles of method applied to teaching in the field of vocational education. Prereq: Experience in teaching vocational education.

EDV 671 YOUTH ORGANIZATIONS IN VOCATIONAL EDUCATION. (3)
A study of the underlying philosophy and principles for organizing and advising youth organizations in vocational education. Emphasis to be placed on activities which will enrich and motivate the instructional programs and which will develop leadership, cooperation and citizenship.

EDV 678 SELECTING TEACHING MATERIALS. (3)
Selection and organization of specific references and other instructional materials to be used in teaching an area of vocational education.

EDV 693 SUPERVISION IN VOCATIONAL EDUCATION. (3)
This course includes practice in teaching for observation by others, student teaching, and school visiting. Prereq: Two years of teaching experience and EDV 687.

EDV 694 THE ADMINISTRATION OF VOCATIONAL EDUCATION. (3)
A course designed for superintendents, high-school principals, and other administrators. Its purpose is to train for administering and supervising vocational education in schools.

EDV 695 SPECIAL PROBLEMS IN VOCATIONAL EDUCATION. (3)
An independent work course for students interested in vocational education. Students make individual investigations and report on special problems.

EDV 702 CAREER DEVELOPMENT: RESEARCH, THEORIES AND PRACTICES. (2-3)
Overview of theories of career development and current research. Emphasis on use of vocational assessment techniques in counseling and decision making. Prereq: EDV 523. (Same as EDP 702.)

EDV 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1 to 6 credits equivalence.)

EDV 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1 to 12 credits equivalence.)

EDV 779 SEMINAR IN VOCATIONAL EDUCATION. (1-3)
A critical study of selected problems in vocational education. The course is open only to students with experience in the field. May be repeated to a maximum of nine credits.

EDV 789 INDEPENDENT WORK IN VOCATIONAL EDUCATION. (1-3)
An independent work course for students who have completed a minimum of 12 semester hours of graduate work, one half of which must have been in vocational education. May be repeated for a total of nine hours.

EDV 799 RESEARCH IN VOCATIONAL EDUCATION. (1-3)
Individual research of importance to vocational education. May be repeated for a total of nine credits.

ELECTRICAL ENGINEERING

EE 001 THE ENGINEERING PROFESSION (FRESHMAN). (0)

EE 005 THE ENGINEERING PROFESSION (JUNIOR). (0)

EE 006 THE ENGINEERING PROFESSION (JUNIOR). (0)

EE 007 THE ENGINEERING PROFESSION (SENIOR). (0)

EE 008 THE ENGINEERING PROFESSION (SENIOR). (0)
Lectures on professional growth, conduct and ethics. Activities of the student branches of the corresponding professional societies. May be repeated indefinitely.

EE 211 CIRCUITS I. (3)
Fundamental laws and principles; interpretations, physical concepts; background for linear analysis study. Prereq: MA 113; concur: PHY 231, 241; MA 114.

EE 221 CIRCUITS II. (3)
Elementary circuit analysis. Study of series and parallel R-L-C circuits with single-phase sinusoidal driving functions. Prereq: EE 211, PHY 231; MA 114.

EE 222 ELECTRICAL ENGINEERING LABORATORY I. (2)
Laboratory exercises in the use of measuring instruments. Experiments in R-L-C circuit analysis. Lecture, one hour; laboratory, three hours. Concur: EE 221.

EE 305 ELECTRICAL CIRCUITS AND MACHINERY. (3)
Study of d-c circuits, machines and control; analysis single-phase and three-phase circuits. Prereq: MA 114, PHY 232.

EE 306 ELECTRICAL AND ELECTRONIC CIRCUITS. (3)
Krimm three-phase circuits, a-c machinery, electronics principles and application. Prereq: MA 114, PHY 232.

EE 371 SEMINAR. (1)
Weekly meetings with staff for oral reports on term papers. Discussion of modern practices in electrical engineering. Two class hours. Prereq: Senior standing.

EE 372 SEMINAR. (1)
Continuation of EE 371. Two class hours. Prereq: EE 371.

EE 395 INDPENDENT WORK IN ELECTRICAL ENGINEERING. (1-6)
Special research and problems for individual students who are capable of pursuing independent investigations. May be repeated for a maximum of six credits. Prereq: Consent of instructor.

EE 401 ELECTRONIC ANALOG COMPUTATION. (3)
Analog computer components and their interconnection. Time and amplitude scaling. Simulation of linear and non-linear physical systems. Simulation of continuous systems using a digital computer. Lecture, two hours; laboratory, three hours. Prereq: MA 214 or consent of instructor.

EE 402 ELECTRONIC INSTRUMENTATION AND MEASUREMENTS. (3)
A self paced laboratory course for applying electronic principles to measurement instrumentation. It includes an introduction to the elements and circuits used in electrical and electronic measurements and specific topics such as: Theory and design consideration for AC and DC measurement circuits including bridge and balance or comparison elements; applications of transistor amplifier and oscillator circuits and operational amplifiers in instrumentation circuits; frequency characterization of electrical elements; laboratory exercises using electronic circuits and detectors for use with temperature, strain, pressure and velocity transducers and other sensors; theory and laboratory experiments using logic circuits in digital design and data gathering systems. The course is available to non-electrical engineering students. Lecture, two hours; laboratory, three hours. Prereq: EE 305 or consent of instructor.

EE 415 ELECTROMECHANICS I. (3)
Study of idealized electromechanical systems and rotary energy converters with emphasis on their dynamical behavior. Prereq: EE 221 and 467. Concur: EE 416.

EE 416 ELECTRICAL ENGINEERING LABORATORY III. (2)
Laboratory practice and experimental studies related to EE 415. Lecture, one hour; laboratory, three hours. Concur: EE 415.

EE 420 ENGINEERING ANALYSIS I. (3)
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. Prereq: MA 214 and EE 211.

EE 435 CIRCUITS III. (3)
Fundamentals of network theory in communications circuits; Laplace transforms and wave filters. Prereq: EE 221.

EE 461 ELECTRONIC CIRCUITS I. (3)
Analysis and design of electronic circuitry incorporating nonlinear electronic elements such as transistors, FET's, and vacuum tubes. Applications to amplifiers. Prereq: EE 221. Concur: EE 462.

EE 462 ELECTRICAL ENGINEERING LABORATORY II. (2)
Experimental exercises in the design and analysis of useful electronic circuits incorporating semiconductor devices: transistors, tunnel and zener diodes; also, vacuum tubes, integrated circuits and operational amplifiers. Lecture, one hour; laboratory, three hours. Prereq: EE 222. CS 221; concur: EE 461.

EE 467 ELECTRIC AND MAGNETIC FIELDS. (3)
Field laws and theorems in vector form; fields in dielectric and magnetic media. Forces, moments, energy power. Brief introduction to time-varying fields. Prereq: PHY 232, MA 213.

EE 468 FIELDS AND WAVES. (3)
Maxwell's equations; vector and scalar wave equations; bounded solutions (transmission lines, waveguides); unbounded solutions (antennas); Poynting's theorem; fields in moving media. Prereq: EE 467.

EE 471 LINEAR FEEDBACK CONTROL SYSTEMS. (3)
Block diagram and transfer function representation of linear control systems. Basic servo characteristics; stability and frequency response. Analysis and synthesis by Nyquist diagram, Bode diagram and root-locus method. Prereq: EE 435.

EE 508 ELECTRICAL ENGINEERING LABORATORY IV. (2)
Laboratory study of control methods and systems employing magnetic and electronic components; analog computers. Lecture, one hour; laboratory, three hours. Prereq or concur: EE 471.

EE 511 INTRODUCTION TO COMMUNICATION SYSTEMS. (3)
An introduction to the basic signal processing operations in communications systems. Topics include frequency and time domain signal and system representation, random signals, modulation, sampling, pulse modulation, information theory. Prereq: EE 420.

EE 512 DIGITAL COMMUNICATION SYSTEMS. (3)
A treatment of the basic signaling concepts involved in the communication of digital information. Topics include transmission requirements and distortion of digital signals; discrete amplitude, frequency, and phase modulation; error control coding. Prereq: EE 435, EE 420 or consent of instructor.

EE 513 COMMUNICATIONS LABORATORY. (2)
This course is devoted to the experimental study of various types of communication systems. Complete systems are constructed from laboratory equipment, and their performances are evaluated using realistic speech, music and data signals with real and simulated channels. Systems studied include: spectrum analyzers, amplitude modulation, frequency and phase modulation, pulse modulation, digital carrier modulation. Lecture, one hour; laboratory, three hours. Prereq: EE 511 and concurrent EE 512.

EE 517 ELECTROMECHANICS II. (3)
A continuation of EE 415 including energy conversion in continuous media and realistic considerations. Prereq: EE 415.

EE 520 ENGINEERING ANALYSIS II. (3)
Investigation of transient and steady-state conditions in electrical and mechanical systems, using Laplace transforms, vectors, complex variables: network analysis and synthesis. Feedback system stability criteria. Prereq: EE 420.

EE 523 ELECTRICAL ENGINEERING PROJECTS. (2)
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.

EE 528 ELECTROMAGNETIC RADIATION AND WAVE PROPAGATION. (3)
Review of basic electromagnetic theory, electromagnetic potentials, Hertz potential; waveguide theory, circular waveguides; theory of simple linear antennas, antenna arrays, slot antennas, electromagnetic horns, principle of broadband antennas; introduction to plasma dynamics, wave propagation in plasmas, introduction to ionospheric physics, wave propagation in the ionosphere. Prereq: EE 468.

EE 529 FIELDS IN BIOLOGICAL MEDIA. (3)
Electromagnetic fields in volume conductors; biological sources of fields and their equivalent respresentations; characteristics of the heart activity; forward and inverse problems in electrocardiography. Prereq: EE 468 or consent of instructor.

EE 537 ELECTRIC POWER SYSTEMS I. (3)
Application of symmetrical components to power system fault studies, calculation of transmission line parameters. Prereq: Consent of instructor.

EE 538 ELECTRIC POWER SYSTEMS II. (3)
Introduction to modern power system practices, basic transient and steady-state stability analysis with emphasis on digital techniques. Prereq: Consent of instructor.

EE 560 SEMICONDUCTOR DEVICE DESIGN. (3)
Theory, development and discussion of equivalent circuit models of transistor devices, negative resistance, semi-conductor devices and praetersonic devices based on electronic processes in solid state elements. High and low frequency, as well as the Ebers-Moll and charge control switching models and their application in computerized electronic circuit analysis will be developed. Prereq: CS 221; EE 461 or equivalent.

EE 562 ELECTRONIC CIRCUITS II. (3)
Feedback amplifiers, tuned and untuned amplifiers, oscillators, AM and FM transmitters. Prereq: EE 461.

EE 563 COMMUNICATION CIRCUITS DESIGN. (3)
Fundamental electronic principles applied to the design of typical circuits in communication systems. Such circuits include regulated power supplies, tuned amplifiers, modulation and detection circuits, and RF amplifiers. Prereq: EE 562.

EE 564 ELECTRONIC CIRCUITS III. (3)
Timing, scanning, trigger, logic and pulse circuits; video and broadband R-F amplifiers. Prereq: EE 461.

EE 565 ELECTRICAL ENGINEERING LABORATORY V. (2)
Laboratory practice and experiment exercises relating to studies in EE 564. Lecture, one hour; laboratory, three hours. Concur: EE 564.

EE 567 INTRODUCTION TO LASERS AND MASERS. (3)
Basic principles of laser action; atomic transitions; population inversion; two and three level systems; optical resonators; pumping methods; applications. Prereq: Consent of instructor and senior standing.

EE 569 MICROWAVE AND COHERENT OPTICS MEASUREMENT. (3)
Theory and practice of measurement of coherent microwave and optical radiation. Laboratory measurement of frequency, power attenuation, impedance, polarization. Dispersion and absorption in materials. Dielectric spectroscopy. Holography, reflection, refraction, optical interference and diffraction, lens systems. Two hours lecture and three hours laboratory. Prereq: EE 468.

EE 572 NON-LINEAR FEEDBACK CONTROL SYSTEMS. (3)
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 471.

EE 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. Prereq: EE 221.

EE 581 ADVANCED LOGICAL DESIGN. (3)
Boolean matrices; Boolean trees, design of sequential circuits. Design a digital and hybrid computers. Prereq: EE 580.

EE 582 DIGITAL SYSTEMS LABORATORY. (3)
A laboratory course on the design of digital systems. Experiments in digital logic include basic gates, encoders, decoders, multiplexers, flip-flops, counters, shift-registers, and arithmetic processors. Experiments in computer interfacing include machine-language programming, electrical access to the accumulator and memory-buffer, interaction of bus-signals with external devices, and analog/digital conversion. Lecture, one hour; laboratory, six hours. Prereq: Concurrent EE 581.

EE 584 COMPUTER AIDED DESIGN. (3)
The student's background in programming and design techniques is combined and focused on practical design problems in passive and active networks and systems. Prereq: EE 461, CS 221. Prereq or concur: EE 471. (Formerly EE 507.)

EE 585 MOLECULAR ENGINEERING. (3)
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; laboratory, three hours. Prereq: EE 420, 467.

EE 595 INDEPENDENT PROBLEMS. (1-3)
For electrical engineers. A problem, approved by the Chairman of the Department, provides an objective for study and research. May be repeated to a maximum of six credits. Prereq: 2.5 standing.

Prerequiste for graduate work: Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics. For major work, a candidate must hold a bachelor's degree in Electrical Engineering or its equivalent.

EE 601 ELECTROMAGNETIC ENERGY CONVERSION I. (3)
Generalized electric machine theory; parameter determination. Energy conversion in continuous media including magnetohydrodynamics. Prereq: Consent of instructor.

EE 602 ELECTROMAGNETIC ENERGY CONVERSION II. (3)
Continuation of EE 601 with special reference to energy conversion in nonlinear media; numerical methods; irregular boundaries. Prereq: Consent of instructor.

EE 606 POWER SYSTEM ANALYSIS. (3)
Digital methods for calculation of transmission line parameters: matrix models of power system components; digital methods applied to load flow, stability, and short-circuit studies. Prereq: EE 537 or consent of instructor.

EE 607 ADVANCED TOPICS IN POWER ENGINEERING. (3)
Special topics of current interest to power utilities and power systems engineering such as economic dispatch, probility analysis of the outage rates of generators, the economic evaluation of engineering projects, protection of transmission systems against lightning and transient surgers, and protective relaying of transmission systems. Prereq: EE 537 or consent of instructor.

EE 611 LINEAR SYSTEM ANALYSIS I. (3)
Fundamental properties of linear systems, time domain techniques, singularity functions, convolution and superposition integrals, the Fourier integral, two-sided Laplace transforms, Z-transforms, difference equations and discrete time systems. Prereq: EE 520.

EE 612 LINEAR SYSTEM ANALYSIS II. (3)
Concepts of state, natural modes of linear systems. State variable methods in linear systems with an introduction to non-linear and time-varying system, concepts of controllability, observability and Lyapunov stability. Prereq: EE 611.

EE 613 OPTIMAL CONTROL THEORY. (3)
State-space modeling of control systems; variational techniques; system optimization by maximum principle, dynamic programming; Hamilton-Jacobi equations, design of linear optimal systems; computational methods for solving boundary value problems. Prereq: EE 611.

EE 614 SAMPLE-DATA CONTROL SYSTEMS. (3)
Basic theory of sampling, the pulse-transfer function, Z-transform analysis of sampled-data control systems, modified Z-transforms, general design principles, analysis of multirate, variable-rate and non-synchronized sampled-data system. Prereq: EE 520 or consent of instructor.

EE 615 STABILITY THEORY OF CONTROL SYSTEMS. (3)
Stability theorems are studied with emphasis on application to closed-loop control systems. Prereq: EE 572.

EE 616 ADVANCED TOPICS IN CONTROL. (3)
Current research and design practices in control devices and systems. May be repeated twice. Prereq: EE 613, 614 or consent of instructor.

EE 621 INTRODUCTION TO ANTENNAS. (3)
Fundamental antenna concepts, Array Theory, Linear Radiators, Loops, Helices, Mutual Coupling, Reflectors, Measurement Theory. Prereq: EE 468.

EE 624 SOLID-STATE ELECTRONICS. (3)
Bose and Fermi statistics. Semiconductor theory; solid-state devices; electrical properties of insulators; theory and applications of magnetic materials, including ferrites.

EE 625 ELECTROMAGNETIC PROPAGATION AND SCATTERING. (3)
Theory of electromagnetic wave propagation in anisotropic and inhomogeneous media; ionospheric radio propagation; waves in plasmas. Prereq: EE 468 or consent of instructor.

EE 626 MICROWAVE ENGINEERING. (3)
Generation, detection, and measurement of microwave energy; vacuum tubes at ultra high frequencies; the klystron, the magnetron, travelling wave tubes; solid state microwave devices. Prereq: EE 468.

EE 627 ELECTROMAGNETIC FIELDS. (3)
Advanced studies in electromagnetic fields; radiation and propagation of electromagnetic waves; propagation in anisotropic media; diffraction theory; electrodynamics of moving media. Prereq: EE 468.

EE 631 DISCRETE INFORMATION THEORY I. (3)
Entropy, Markov sources, algebra of codes, classification of codes, Shannon's theorems, compact codes, linear codes, error detection and error correction, syndrome vectors. Prereq: Consent of instructor.

EE 632 DISCRETE INFORMATION THEORY II. (3)
Plotkin, Gilbert and other bounds, Hamming codes, Reed-Muller and other linear codes, cyclic codes, Bose-Chandhuri codes, sequential decoding, convolution encoding. Prereq: EE 631.

EE 635 PATTERN RECOGNITION. (3)
Introduction to and equivalence of approaches to pattern recognition, matched filtering, decision theoretic methods, sequential approach and learning machines. Prereq: Consent of instructor.

EE 640 CONTINUOUS STOCHATIC PROCESSES I. (3)
Random variables, stochastic processes, stationary processes, correlation and power spectrum, mean-square estimation, filter design, decision theory, Markoff processes, simulation. Prereq: STA 523.

EE 641 CONTINUOUS STOCHASTIC PROCESSES II. (3)
Continuation of EE 640. Prereq: EE 640.

EE 645 COMMUNICATION SYSTEMS I. (3)
The formulation, optimization, and implementation of digital and analog communication systems. Topics include signal representation and design, optimal detection methods, modulation, channel modeling, and diversity techniques. Prereq: EE 511 or consent of instructor.

EE 646 COMMUNICATION SYSTEMS II. (3)
Communication channel capacity and the formulation and implementation of systems that approach the channel capacity. The design and optimization of analog modulation and demodulation systems. Prereq: EE 645.

EE 650 ELECTRO-OPTICAL PROPERTIES OF MATERIALS. (3)
The effects of electric fields upon light propagation in media. Lasers, electro-optic modulation, non-linear optics, laser noise, optical parametric oscillator, stimulated Raman emission, coherent scattering. Prereq: EE 624.

EE 653 OPTICAL PROCESSING. (3)
Emphasis on both the mathematical modeling and the use of optical equipment in the solution of diverse physical problems which lend themselves to a "photographic" type output. Lecture, two hours; laboratory, three hours. Prereq: Consent of instructor.

EE 660 ELECTRONIC DEVICE DESIGN. (3)
An integrated treatment of the theory and application of electronic devices with emphasis on methods of engineering analysis and design. Prereq: Consent of instructor.

EE 665 INTEGRATED CIRCUITS. (3)
Theory and analysis of integrated circuits will be developed and the relations between process variables and electrical performance parameters established. Modern semiconductor techniques will be described for silicon and other microcircuit materials and the theory and rationale behind their application developed. The use and application of computer aided design will be introduced. Prereq: MET 412, EE 461 or consent of instructor.

EE 666 ADVANCED TOPICS IN SOLID STATE ELECTRONICS. (3)
Current research and design practices in solide state and quantum electronic devices. A review and extension of current literature. Prereq: Consent of instructor.

EE 670 QUANTUM ELECTRONICS. (3)
The interaction of electromagnetic radiation fields and atomic systems and devices that make use of such interactions. Prereq: EE 624.

EE 672 MOLECULAR PROPERTIES IN ELECTRONIC DEVICES. (3)
The study of molecular properties and the application of these properties in electronic devices. Correlation of molecular energy states with infrared and Raman spectra; selection rules and intensities of transitions; instrumentation for molecular investigation; applications. Prereq: Consent of instructor.

EE 682 SWITCHING THEORY. (3)
Application of the symbolic logic of Boole and Schroeder to the design of switching systems. Topics include Boolean algebra, Boolean analysis, the solution of logic equations, the minimization of Boolean formulas, and the diagnosis of failures in digital systems. Prereq: EE 580 or consent of instructor. (Same as CS 682.)

EE 683 AUTOMATA THEORY. (3)
Decomposition of Sequential Machines, State Assignment, Finite Memory Machine, Shifting Operators as applied to Structural Machines, Turning Machines, Pattern Classification by State Machines. Prereq: EE 580, MA 561. (Same as CS 683.)

EE 711 NETWORK SYNTHESIS I. (3)
The first of a two-semester sequence of courses giving a comprehensive treatment of modern network synthesis. Prereq: EE 611.

EE 712 NETWORK SYNTHESIS II. (3)
The second of a two-semester sequence of courses giving a comprehensive treatment of modern network synthesis. Prereq: EE 711.

EE 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

EE 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1 to 12 credits equivalence).

EE 771 SEMINAR. (0)
Review of current literature in the field of electrical engineering, general discussion and presentation of papers on departmental research. Required of all graduate students. One class hour.

EE 783 SPECIAL PROBLEMS IN ELECTRICAL ENGINEERING. (1-3)
Open to graduate students only. Individual work on an assignment approved by the chairman of the Department. May be repeated to a maximum of nine credits.

ENDODONTICS

EN 600 BASIC ENDODONTIC THEORY. (2)
Lecture and seminar discussions which relate to basic endodontic theory including instrumentation filling techniques, and diagnosis and treatment of endodontic problems. Three lecture hours per week, Prereq: D.D.S. or D.M.D. degree.

EN 610 CLINICAL ENDODONTICS. (2)
The students will treat routine nonsurgical endodontic cases on patients in the postgraduate clinic. They will also treat endodontic emergencies one day per week. Eight laboratory hours per week. May be repeated to a maximum of eight credits. Prereq: D.D.S. or D.M.D.

EN 620 ENDODONTIC RESEARCH. (2)
The students will be presented instruction in biostatistics and research methodology, complete a review of the literature, perform the necessary project, compile the data, write a thesis and defend it before the members of the postgraduate faculty. Lecture, two hours; laborabory, four hours. May be repeated to a maximum of eight credits. Prereq: D.D.S. or D.M.D. degree.

EN 630 ENDODONTIC SEMINAR. (2)
This course will consist of seminars related to specific topics such as root canal culturing, other filling methods, new concepts or procedures and other related topics. May be repeated to a maximum of six credits. Prereq: D.D.S. or D.M.D. degree.

EN 650 DENTISTRY AND BASIC SCIENCE REVIEW. (4)
This course will consist of a series of seminars and programmed instruction items which relate to a wide variety of subjects including oral pathology, pharmacology, physiology, periodontics, pedodontics, oral surgery and restorative dentistry. Lecture, six hours. Prereq: D.D.S. or D.M.D. degree.

EN 825 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.

EN 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.

EN 845 CLINICAL ENDODONTICS. (3)
This is a clinical course in which the students receive instruction in conjunction with patient care.

ENGINEERING MECHANICS

EM 221 STATICS. (3)
Study of force systems on bodies at rest: description of force systems; principles of statics; equipollent forces systems; distributed forces; internal forces. Application to hydrostatics, frame and trusses, beams. Prereq: MA 213 or concur.

EM 302 MECHANICS OF DEFORMABLE SOLIDS. (3)
A study of stress and strain in deformable solids with application primarily to linear elastic materials. Topics covered include simple tension and compression of axial members, torsion of shafts, bending of beams, combined loading of members, and buckling of columns. Prereq: EM 221 and MA 214 concur.

EM 303 STRENGTH OF MATERIALS LABORATORY. (1)
Experimental studies of the mechanical properties of materials and structural elements. Laboratory, three hours. Prereq: EM 302 or concur.

EM 310 PROJECTS IN ENGINEERING MECHANICS. (3)
Three or four analysis and/or design projects based primarily on the subject matter of engineering mechanics are undertaken. One or two of the projects usually involve meaningful use of the computer. Emphasis is on complete engineering projects of current interest carried through to final reports. Consultants (engineers from industry or engineering professors) may be brought in to give expert advice on projects and their solutions. Prereq: EM 313 consent of instructor.

EM 313 DYNAMICS. (3)
Motion of a particle, dynamics of moving bodies, impulse and momentum, work and energy, balancing, gyroscopy, advanced dynamics of rigid bodies. Prereq: EM 221.

EM 351 EXPERIMENTAL SOLID MECHANICS. (3)
The fundamentals of mechanical measurement with illustrative experiments; an introduction to photoelasticity with laboratory demonstrations; the design and performance of relatively complex solid mechanics experiments. Lecture, two hours; laboratory, three hours. Prereq: EM 313.

EM 503 INTRODUCTION TO CONTINUUM MECHANICS. (3)
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 or concur: MA 433 or consent of instructor.

EM 505 VISCOELASTICITY. (3)
A study of the physical and mathematical phenomenological description of the mechanical behavior of polymeric materials. One—dimensional linear phenomena are emphasized. Topics are: Viscoelastic response in shear; relations between modulus and compliance; one-dimensional dynamical problems; stress analysis; thermal effects. Prereq: EM 302 or consent of instructor.

EM 506 MECHANICS OF COMPOSITE MATERIALS. (3)
The analysis of laminated and fiber reinforced materials. Response of composite structures to static and dynamic loads. Thermal stresses. Failure criteria. Prereq: EM 302 or consent of instructor.

EM 513 MECHANICAL VIBRATIONS. (3)
Vibrations of systems of one and several degrees of freedom, critical speeds and torsional and lateral vibrations of shafts. Prereq: EM 313.

EM 531 ADVANCED STRENGTH OF MATERIALS. (3)
Unsymmetrical bending of beams thin plates, stress analysis of thick walled cylinders, and rotating discs. Theory of elastic energy, curved beams, stress concentration and fatigue. Prereq: EM 302.

EM 532 EXPERIMENTAL STRESS ANALYSIS. (3)
Experimental stress analysis from an engineering viewpoint. Preliminary optics; stress-optic law; isoclinic and stress trajectories; strain gauges; rosettes; miscellaneous experimental techniques. Prereq: EM 531.

EM 533 AIRCRAFT AND MISSILE STRUCTURAL ANALYSIS. (3)
Analysis of semi-monocoque structures in bending and torsion. Energy and approximate methods; shear lag; and thermal effect. Introduction to creep and plasticity. Prereq: EM 313.

EM 585 FOURIER SERIES AND BOUNDARY VALUE PROBLEMS. (3)
An introductory treatment of Fourier series and its application to the solution of boundary value problems in the partial differential equations of physics and engineering. Orthogonal sets of functions, Fourier series and integrals, solution of boundary value problems, theory and application of Bessel functions and Legendre polynomials. Prereq: MA 432 or equivalent. (Same as MA 485.)

EM 603 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. Connection with dislocation theory. Prereq: MA 433 or consent of instructor.

EM 604 THEORETICAL PLASTICITY II. (3)
Continuation of EM 603. Limit analysis; plastic bending and torsion; structures and shells; thermoplasticity; plastic wave propagation. Prereq: EM 603.

EM 605 FOUNDATIONS OF INELASTICITY. (3)
A critical and constructive discussion of the assumptions and experimental evidence for inelastic material reponse from a viewpoint of the mechanist. Prereq: EM 604 and 662.

EM 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. Prereq: EM 503 or consent of instructor.

EM 607 ADVANCED INELASTICITY. (3)
A continuation of EM 605 with a study of the latest research results in the area inelasticity. Prereq: EM 605.

EM 613 NONLINEAR OSCILLATIONS. (3)
Analysis of various nonlinear oscillatory mechanical systems. Solutions of the differential equations of motion; response curves for forced oscillations; determination of stability criteria. Prereq: EM/ME 646 or permission of instructor.

EM 614 MECHANICS OF SPACE VEHICLES. (3)
Description of rigid body orientation, angular velocity, and angular

acceleration in terms of Euler angles, Euler parameters, and direction cosines. Gravitational forces and torques and their effect on the attitude motions of symmetrical and unsymmetrical near-earth satellites. Effects of gyroscopic devices, energy dissipation, and elastic flexibility on the stability of space vehicles. Prereq: EM 613 or consent of instructor.

EM 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. Prereq: EM 531.

EM 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.)

EM 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.)

EM 651 NUMERICAL METHODS IN POTENTIAL THEORY. (3)
A modern numerical treatment of some classical problems in potential theory. Prereq: MA 433.

EM 652 NUMERICAL METHODS IN ELASTICITY. (3)
Continuation of EM 651. A modern numerical treatment of some difficult problems in classical elasticity. Prereq: EM 651.

EM 653 METHODS OF APPLIED DIFFERENTIAL EQUATIONS. (3)
Integrals of nonlinear partial differential equations; similarity variables and other transformations; perturbation methods; weighted residual methods; numerical methods; selected topics. Prereq: MA 432 or consent of instructor.

EM 661 NONLINEAR CONTINUUM MECHANICS I. (3)
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. Prereq: EM 503 or MA 462 or consent of instructor.

EM 662 NONLINEAR CONTINUUM MECHANICS II. (3)
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. Prereq: EM 661.

EM 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
(1-6 credits equivalence.) May be repeated.

EM 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
(1-12 credits equivalence.) May be repeated indefinitely.

EM 780 SPECIAL PROBLEMS IN ENGINEERING MECHANICS. (3)
A forum for the presentation and discussion of a wide range of timely topics of interest to enginnering mechanics. May be repeated to a maximum of nine credits. Prereq: Approval of Director of Graduate Study.

ENGLISH

ENG 101 FRESHMAN COMPOSITION. (3)
A basic course designed to teach students to develop their ideas in clear, effective written English. Major emphasis is on organization, development, and usage, particularly in descriptive and expository writing.

ENG 102 ADVANCED FRESHMAN COMPOSITION. (3)
This advanced writing course investigates the logical and rhetorical problems involved in argumentative, analytical, and documented papers.

ENG 105 ADVANCED FRESHMAN COMPOSITION. (3)
This advanced course emphasizes documentation and research as well as the development of individual style in writing papers based on the critical reading of literature. Prereq: See description of English Composition requirements elsewhere in this Bulletin.

ENG 106 ADVANCED FRESHMAN COMPOSITION. (3)
A continuation of ENG 105. The reading matter is largely imaginative: Poetry, drama, fiction. Excellence in ENG 101 or 105 and recommendation of the instructor required for admission.

ENG 161 INTRODUCTION TO LITERATURE. (3)
An analytical rather than historical approach to literature, intended to deepen the student's insight into the nature and purpose of literature and to develop literary taste and judgment.

ENG 203 WRITING FOR BUSINESS AND INDUSTRY. (3)
Instruction and experience in writing for business and industry. Emphasis on clarity, conciseness, and effectiveness in preparing letters, memoranda, articles, and reports for specific audiences. Prereq: ENG 101 or 102, or 105 and sophomore or junior standing.

ENG 205 ADVANCED COMPOSITION. (3)
A course for those who wish further instruction and practice in expository writing. The emphasis is upon thoughtful organization of material and clear writing. Prereq: Freshman composition.

ENG 207 IMAGINATIVE WRITING. (3)
Exercise in imaginative writing; description, character study, narrative. Prereq: 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.

ENG 221 SURVEY OF ENGLISH LITERATURE. (3)
A survey of English literature from *Beowulf* through Milton. The emphasis is upon the more important writers, with attention to their cultural backgrounds.

ENG 222 SURVEY OF ENGLISH LITERATURE. (3)
A survey of English literature from Dryden to the present. The emphasis is upon the more important writers, with attention to their cultural backgrounds.

ENG 226 INTRODUCTION TO THE BRITISH NOVEL. (3)
An aesthetic and analytical approach to selected major British novels of the 18th, 19th, and 20th Centuries. Prereq: Sophomore status.

ENG 251 MAJOR AMERICAN WRITERS BEFORE 1900. (3)
An aesthetic and analytical approach to selected works by major American writers before 1900. Authors such as the following may be included: Franklin, Irving, Cooper, Poe, Hawthorne, Emerson, Thoreau, Melville, Twain, Howells, James, Whitman, Dickinson, Norris, Crane. Recommended for non-majors, the course does not satisfy any of the requirements of the English major. Open to freshmen with permission of instructor and dean.

ENG 252 MAJOR AMERICAN WRITERS OF THE 20th CENTURY. (3)
An aesthetic and analytical approach to selected works by major American writers of the 20th Century. Authors such as the following may be included: Dreiser, Pound, Stevens, Hart, Crane, Anderson, Hemingway, Fitzgerald, Steinbeck, O'Neil, Robert Lowell, Updike, Mailer, Bellow. Recommended for non-majors, the course does not satisy any of the requirements of the major. Open to freshman with permission of instructor and dean.

ENG 261 SURVEY OF WESTERN LITERATURE FROM THE GREEKS THROUGH THE RENAISSANCE. (3)
A study of major continental writers and their works, using anthology selections and one complete work.

ENG 262 SURVEY OF WESTERN LITERATURE FROM 1660 TO THE PRESENT. (3)
A study of major continental writers and their works, using anthology selections and one complete work.

ENG 264 MAJOR BLACK WRITERS. (3)
An aesthetic and analytical approach to selected works by major black writers, such as Wright, Baldwin, Jones, Malcolm X, Cleaver, Achebe, Ekwensi, Ngugi.

ENG 270 LITERATURE OF THE OLD 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.

ENG 271 LITERATURE OF THE NEW TESTAMENT. (3)
Critical analysis of the canonical and apocryphal *New Testament* in English, with particular attention to Biblical ideas and symbols helpful to students of literature.

ENG 356 STUDIES IN BLACK AMERICAN LITERATURE. (3)
An analytical-historical approach to the development of Black American Literature from Douglass and DuBois to Ellison, Baldwin and Cleaver.

ENG 361 THE COMIC MODE. (3)
Studies in comedy and the theories of the comic.

ENG 362 THE TRAGIC MODE. (3)
Studies in the forms of tragedy, dramatic and non-dramatic, with emphasis upon the theory of tragedy.

ENG 363 LITERARY STUDIES INTELLECTUAL MOVEMENTS. (3)
A survey of the growth and development in literature of one or more major intellectual movements or philosophies, such as Classicism, Romanticism, Realism, Naturalism, Existentialism. Topics announced the preceding semester. May be repeated once for a total of six credits.

ENG 364 CONTEMPORARY FICTION OF ENGLAND AND AMERICA. (3)
Studies in British and American fiction of the post-World War II era.

ENG 365 CONTEMPORARY POETRY OF ENGLAND AND AMERICA. (3)
Studies in the British and American poets of the post-World War II era.

ENG 366 STUDIES IN FICTION. (3)
Studies in forms of fiction, with emphasis upon the novel, the novella, the short story, but including fiction before the novel and a study of the theory of fiction.

ENG 367 STUDIES IN POETRY. (3)
Studies in the forms and techniques of poetry, with emphasis on the lyric.

ENG 368 STUDIES IN DRAMA. (3)
Studies in world drama from the Greeks to the present. Emphasis on changing concepts of dramatic form and the nature of the dramatic experience.

ENG 370 BLACK FOLKLORE OF NORTH AMERICA. (3)
An introduction to the narrative and other verbal forms of folklore current amoung English-speaking North American Blacks from slavery times to the present and a brief survey of the scholarly problems related to this material.

ENG 375 IMAGES OF WOMEN IN LITERATURE. (3)
A general investigation and analysis of the images of women in literature. Special study of selected men and women writers, comparing the images of women in each. Prereq: Junior standing.

ENG 380 FILM CRITICISM. (3)
Primary consideration will be given to the poetics of different types of film-silent, documentary, mystery, expressionistic, and so on. Consideration will also be given to the film as a visual art form, but criticism will be directed mainly toward the aesthetics of the film. Two laboratory hours and three class hours per week.

ENG 390 JUNIOR SEMINAR. (3)
Detailed investigation of a given topic, author, or theme with emphasis on both content and methods of research. Topics vary from section to section and are announced the preceding semester. Enrollment limited to 15 students; consent of instructor required. May be repeated once for a total of six credits. Prereq: Junior standing.

ENG 395 INDEPENDENT WORK. (1-3)
For undergraduate majors in English with a high standing. Each pursues a course independently under the guidance of a staff member, writes a paper embodying the results of his study, and takes an examination. May be repeated once for a total of six credits. Prereq: Major, standing of 3.0 in the Department, and permission of the chairman.

ENG 414 INTRODUCTION TO MODERN ENGLISH LINGUISTICS. (3)
A study of phonemics, morphemics, and syntax. Special attention will be given in laboratory sessions to practical applications. Prereq: Junior standing.

ENG 421 CHAUCER. (3)
Extensive readings in the principal works of Chaucer, with particular attention to the *Canterbury Tales.*

ENG 425 SHAKESPEARE SURVEY. (3)
A study of 10 to 12 of the major plays of Shakespeare, including comedies, tragedies, and histories. The student may receive credit for this course and for either ENG 526 or ENG 527, but not both; and only one of these three courses may count toward fulfillment of the requirements for the English major.

ENG 428 MILTON. (3)
Extensive readings in Milton's poetry and prose.

ENG 440 THE ENGLISH NOVEL I. (3)
A study of the English novel and its backgrounds from the beginnings through Jane Austen. Emphasis on the major figures of the 18th Century: Defoe, Richardson, Fielding, Smollett, and Sterne.

ENG 441 THE ENGLISH NOVEL II. (3)
A study of the English novel and its backgrounds from Scott and the early Victorians through Hardy and the Age of Transition. Such novelists as the Brontes, Dickens, Thackeray, Trollope, George Eliot, Meredith, and Collins will be studied.

ENG 442 THE ENGLISH NOVEL III. (3)
A study of the English novel and its backgrounds from Conrad and the Age of Transition to the present. Emphasis on the major figures of the Pre-World War II era: such as Joyce, Lawrence, Forster, and Virginia Woolf.

ENG 454 AMERICAN NOVEL BEFORE 1900. (3)
An analytical and historical survey of the American novel from Charles Brockden Brown to the early Dreiser. Novelists such as Cooper, Hawthorne, Melville, Twain, Howells, James and Crane will be studied.

ENG 455 MODERN AMERICAN NOVEL. (3)
An analytical and historical survey of the American novel from Wharton to Mailer. Novelists such as Dreiser, Anderson, Lewis, Fitzgerald, Hemingway, Faulkner, Steinbeck, Updike and Bellow will be studied.

ENG 473 GENERAL INTRODUCTION TO FOLKLORE. (3)
An introduction on a world-wide scope to the types of folklore. Emphasis upon folklore as a cultural phenomenon in its own right and upon its relations to literary types. The development of the science of folklore.

ENG 474 AMERICAN FOLKLORE. (3)
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.

ENG 490 ENGLISH DRAMA I. (3)
A study of English drama, exclusive of Shakespeare, from the beginnings to the closing of the theaters. Works by such authors as Lyly, Kyd, Marlowe, Jonson, Webster and Ford will studied.

ENG 491 ENGLISH DRAMA II. (3)
A study of major plays from the Restoration to the 20th Century. Works by such writers as Dryden, Congreve, Wycherly, Goldsmith, Sheridan, Bulwer, Pinero, Wilde and Shaw will be studied.

500 LEVEL COURSES

500 level courses: Many courses on the 500 level are basically survey courses, whose purpose is to give an intensive overview of the literature and literary history of the period as a whole.

ENG 501 WORKSHOP IN IMAGINATIVE WRITING. (3)
For advanced students. This course assumes that the student has already acquired competence as a writer. Prereq: ENG 207 and consent of instructor. With consent of instructor, may be repeated once for a total of six credits.

ENG 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.

ENG 510 AMERICAN ENGLISH. (3)
The varieties of Modern American English: geographical and social dialects, levels of usage, sources of the vocabulary, and spelling. Prereq: ENG 414.

ENG 512 MODERN ENGLISH GRAMMAR. (3)
Contemporary approaches to grammatical analysis: the interrelationships of phonology, morphology, and syntax. Prereq ENG 414.

ENG 514 DESCRIPTIVE LINGUISTICS: PHONETICS. (3)
Articulatory description of speech sounds; practice in recognition and control. Prereq: Consent of instructor. (Same as ANT 514.)

ENG 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. Prereq: Consent of instructor. (Same as ANT 515, LIN 515.)

ENG 516 DESCRIPTIVE LINGUISTICS: MORPHEMICS. (3)
An explanation of some of the ways speech sounds are put together in patterns so as to form languages. Prereq: ENG 515; consent of instructor. (Same as ANT 516, LIN 516.)

ENG 518 HISTORY OF THE ENGLISH LANGUAGE. (3)
A survey tracing the development of modern standard English from its Indo-European origin. Emphasis will be placed on the history of sounds, inflections, and vocabulary and on the varying concepts of "correctness."

ENG 519 INTRODUCTION TO OLD ENGLISH. (3)
An introduction to Old English language and culture. Chief emphasis is on *Beowulf;* some works will be read in translation.

ENG 520 MIDDLE ENGLISH LITERATURE. (3)
A survey of Middle English literature, exclusive of Chaucer. Major

writers such as the Pearl-Poet and Langland; major genres such as the romance.

ENG 522 ENGLISH RENAISSANCE: 1500-1600. (3)
Literature of the English Renaissance exclusive of the drama. Foreign sources of the English Renaissance. Major writers such as More, Ascham, Wyatt, Sidney, Spenser, Raleigh, and Marlowe.

ENG 523 ENGLISH RENAISSANCE: 1600-1660. (3)
Selected non-dramatic works of such writers as Bacon, Donne, Ben Jonson, George Herbert, Izaak Walton, Herrick, Sir Thomas Browne, Vaughan and Traherne.

ENG 526 SHAKESPEARE STUDIES I. (3)
A selection of Shakespeare's works through *Hamlet* (1601) will be studied in detail.

ENG 527 SHAKESPEARE STUDIES II. (3)
A selection of Shakespeare's works after *Hamlet* will be studied in detail.

ENG 530 THE RESTORATION AND EARLY 18TH CENTURY: 1660-1730. (3)
A survey of the rise of Classicism with emphasis on the works of Dryden, Pope, Swift, Addison and Steele.

ENG 531 THE LATER 18TH CENTURY: 1730-1780. (3)
A survey of the transition from Classicism to Romanticism with emphasis on the works of Boswell, Johnson, Gray, Goldsmith and Cowper.

ENG 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.

ENG 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.

ENG 538 VICTORIAN PERIOD: 1830-1860. (3)
A survey of the major essayists and poets of the early Victorian period. Such authors as Mill, Carlyle, Browning, Tennyson, Arnold and Newman will be considered both analytically and historically.

ENG 539 VICTORIAN PERIOD: 1860-1900. (3)
Survey of the major figures and movements of the late Victorian period: Ruskin, Pater, Hopkins; the Pre-Raphaelites, Darwinism, Imperialism, Aestheticism, and Decadence.

ENG 541 CONTEMPORARY BRITISH LITERATURE. (3)
A study of the content and technique of representative post-World War II novels, with some attention to background, especially Conrad. Selections from Waugh, Greene, Cary, Golding, Murdoch, Spark, Wilson, Burgess and others.

ENG 542 TWENTIETH CENTURY BRITISH LITERATURE. (3)
British literature of the 20th century, with particular attention to the poetry, to literary movements, and to critical theory.

ENG 550 AMERICAN LITERATURE BEFORE 1800. (3)
A survey of the poets, diarists, polemicists, historians and political writers from Bradstreet to Franklin, with emphasis on the intellectual life of Colonial New England and Revolutionary America.

ENG 551 AMERICAN LITERATURE: 1800-1860. (3)
A survey of American Romanticism, including such writers as Irving, Bryant, Cooper, Emerson, Thoreau, Poe, Hawthorne, Melville, and Whitman.

ENG 552 AMERICAN LITERATURE: 1860-1900. (3)
A survey of American writing from DeForest and Dickinson to the early Dreiser, with emphasis on the rise of Realism (Twain, Howells, James) and Naturalism (Norris, Crane), and related developments such as Western Humor and Local Color.

ENG 553 AMERICAN LITERATURE SINCE 1900. (3)
A survey of 20th Century writing to about 1940. Emphasis on major writers of fiction and poetry and on such developments as Imagism, the New Realism, and the Lost Generation.

ENG 560 COMPARATIVE LITERATURE I. (3)
A study of Greek and Latin literature from Homer to the Middle Ages.

ENG 561 COMPARATIVE LITERATURE II. (3)
Study in English of major works of continental European Literature. Late medieval period to mid-17th Century.

ENG 562 COMPARATIVE LITERATURE III. (3)
Study in English of major works of continental European literature written in modern languages, especially French, German, Spanish, Italian, Russian, mid-17th Century to end of 19th Century.

ENG 563 COMPARATIVE LITERATURE IV. (3)
Masterpieces and examples of 20th Century Western World literature, with emphasis on the emergence of new forms and techniques invented to express the complexity of modern life. The course will study novels, poems, and plays in their traditional development and in experimental and divergent forms.

ENG 566 MODERN DRAMA. (3)
Continental, British and American dramatic literature from Ibsen to the present. Authors such as the following are studied: Shaw, O'Neil, Brecht, and Beckett.

ENG 568 HISTORY OF LITERARY CRITICISM I. (3)
Literary criticism in the Western World from Plato through the 19th Century. Includes such critics as Plato, Aristotle, Horace, Longinus, Sidney, Dryden, Johnson, Coleridge, A.W. Schlegel, Arnold, Sainte Beuve, and Pater.

ENG 569 HISTORY OF LITERARY CRITICISM II. (3)
The theory and practice of literary criticism in the 20th Century. An examination of various approaches to the act of criticism as exemplified in such representative critics as Babbitt, Eliot, Richards, Ransom, Burke, Blackmur, Trilling, Crane, Frye and Brooks.

ENG 570 SELECTED TOPICS FOR ADVANCED STUDIES IN LITERATURE. (3)
Study of special topics that cut across the normal divisions of genre or periods, such as: The relations of literature to other disciplines; metaphor and symbolism; interpretative theory. May be repeated to a maximum of six credits. Prereq: Junior standing or consent of instructor.

ENG 572 STUDIES IN ENGLISH FOR 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 six credits.

Proseminars: The purpose of the proseminar courses (600 level) is to impart through lectures and discussion both the facts of literary history and the techniques of literary analysis. They are, therefore, designed to go beyond the mere information level to techniques of contemporary literary criticism and scholarship.

ENG 600 BIBLIOGRAPHY AND METHODS OF RESEARCH. (3)
Studies in enumerative bibliography and in the methods and materials of scholarly and critical investigation. Required of M.A. students in English.

ENG 620 STUDIES IN MIDDLE ENGLISH LITERATURE. (3)
A study in depth of selected writers and movements.

ENG 621 STUDIES IN CHAUCER. (3)
A study in depth of selected works of Chaucer, especially *Troilus* in relation to aspects of the medieval literary tradition.

ENG 622 STUDIES IN ENGLISH LITERATURE: 1500-1600. (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

ENG 623 STUDIES IN ENGLISH LITERATURE: 1600-1660. (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

ENG 625 STUDIES IN RENAISSANCE DRAMA EXCLUSIVE OF SHAKESPEARE. (3)
A study in depth of selected writers.

ENG 628 STUDIES IN MILTON. (3)
A study of all of Milton's poetry and of his more important prose; readings from contemporary thinkers; studies in thought currents of the time and Milton's relation to them.

ENG 630 STUDIES IN ENGLISH LITERATURE: 1660-1720. (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

ENG 631 STUDIES IN ENGLISH LITERATURE: 1720-1780. (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

ENG 635 STUDIES IN LITERATURE: 1780-1815. (3)
A study in depth of selected writers and movements.

ENG 636 STUDIES IN LITERATURE: 1815-1830. (3)
A study in depth of selected writers and movements.

ENG 638 STUDIES IN ENGLISH LITERATURE: 1830-1860. (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

ENG 639 STUDIES IN ENGLISH LITERATURE: 1860-1900. (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

ENG 642 STUDIES IN MODERN BRITISH LITERATURE. (3)
Selected writers, works, and movements in the modern period with concentration on the period from 1890 to 1945.

ENG 643 STUDIES IN MODERN BRITISH AND AMERICAN POETRY. (3)
Selected poets from England and America, with a major concentration on the period 1890-1945.

ENG 651 STUDIES IN AMERICAN LITERATURE BEFORE 1860. (3)
A study in depth of selected writers and movements.

ENG 652 STUDIES IN AMERICAN LITERATURE: 1860-1900. (3)
A study in depth of selected writers and movements.

ENG 653 STUDIES IN AMERICAN LITERATURE SINCE 1900. (3)
A study in depth of selected writers and movements.

ENG 660 MODERN CRITICAL THEORY. (3)
Examination of the theories supporting the modern versions of genre, genetic, and formalist criticism.

ENG 673 STUDIES IN FOLKLORE. (3)
A study in depth of selected topics such as the development of literary genres out of folklore.

ENG 682 STUDIES IN FICTION. (3)
A study in depth of selected types of fiction.

ENG 683 STUDIES IN DRAMA. (3)
A study in depth of selected types of drama.

ENG 684 STUDIES IN POETRY. (3)
A study in depth of selected types of poetry. May be repeated once for a total of six credits.

ENG 720 SEMINAR IN MEDIEVAL LITERATURE. (3)
Recent topics: Medieval fiction; Chaucer and the Gothic mind. May be repeated to a maximum of six credits.

ENG 722 SEMINAR IN 16TH CENTURY LITERATURE. (3)
Recent topics: Spenser; Elizabethan drama. May be repeated to a maximum of six credits.

ENG 723 SEMINAR IN 17TH CENTURY LITERATURE. (3)
Recent topics: Donne; Herbert; Milton. May be repeated to a maximum of six credits.

ENG 726 SEMINAR IN SHAKESPEARE. (3)
Seminar in Shakespeare. May be repeated to a maximum of six credits.

ENG 730 SEMINAR IN 18TH CENTURY LITERATURE. (3)
Recent topics: neoclassic satire. May be repeated to a maximum of six credits.

ENG 735 SEMINAR IN ROMANTIC LITERATURE. (3)
Recent topics: Keats; Wordsworth. May be repeated to a maximum of six credits.

ENG 738 SEMINAR IN VICTORIAN LITERATURE. (3)
Seminar in Victorian literature: may be repeated to a maximum of six credits.

ENG 740 SEMINAR IN 20TH CENTURY BRITISH LITERATURE. (3)
Seminar in 20th Century British Literature; may be repeated to a maximum of six credits.

ENG 750 SEMINAR IN COLONIAL LITERATURE. (3)
Seminar in Colonial literature; may be repeated to a maximum of six credits.

ENG 751 SEMINAR IN AMERICAN LITERATURE: 1800-1860. (3)
Seminar in American literature 1800-1860; recent topics: Emerson and Melville; Hawthorne. May be repeated to a maximum of six credits.

ENG 752 SEMINAR IN AMERICAN LITERATURE: 1860-1900. (3)
Seminar in American literature 1860-1900; recent topics: Whitman and Dickinson. May be repeated to a maximum of six credits.

ENG 753 SEMINAR IN AMERICAN LITERATURE SINCE 1900. (3)
Seminar in American literature since 1900; recent topics: Faulkner, Wolfe, and Warren. May be repeated to a maximum of six credits.

ENG 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

ENG 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

ENG 771 SEMINAR IN SPECIAL TOPICS. (3)
Seminar in special topics; includes genres and subject matters such as symbolism which cover more than one period of literature. Recent topic: symbolism and allegory. May be repeated to a maximum of six credits.

ENG 774 SEMINAR IN COMPARATIVE LITERATURE. (3)
Intensive study and research centering upon the relationship between English or American literature and that of some other country. May be repeated once for a total of six credits.

ENG 780 DIRECTED STUDIES. (1-3)
Independent work devoted to study and research on specific subjects and problems according to the interests and needs of individual students. May be repeated for a total of nine credits. Permission of chairman required.

ENTOMOLOGY

ENT 100 AGRICULTURAL ENTOMOLOGY. (3)
A general consideration of the fundamentals of insect structure, biology, and classification, with frequent discussions of current topics relating to both benefical and destructive insects. Lecture, two hours; laboratory, two hours.

ENT 395 INDEPENDENT WORK. (2-3)
Special problems for individual students who are capable of pursuing independent investigation in various areas of entomology. May be repeated for a maximum of six credits. Prereq: ENT 100.

ENT 402 FOREST ENTOMOLOGY. (3)
The principles of forest entomology, including the detection, collection, identification, appraisal of damage, and control of forest insect pests. Lecture, two hours; laboratory, two hours. Prereq: One year of biology or consent of instructor. (Same as FOR 402.)

ENT 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.

ENT 530 INSECT PEST MANAGEMENT. (3)
Principles of insect damage, populations and distributions. Various types of natural and applied control, including problems of insecticide toxicity, resistance and residues. Prereq: ENT 100.

ENT 532 MEDICAL ENTOMOLOGY. (4)
Study of arthropod vectors of disease. Structure, collection, identification, control measures and life history studies. Given alternate years. Prereq: BIO 200-202 or ZOO 107 or consent of instructor. (Same as ZOO 532.)

ENT 542 INSECT TAXONOMY. (4)
Methods and principle of systematic entomology and zoology; characteristics of taxonomic categories; and international rules of zoological nomenclature. Collection, preparation and identification of insect specimens. Lecture, two hours; laboratory, four hours. Prereq: ENT 100, and ZOO 104 or BIO 200-202. (Same as ZOO 542.)

ENT 545 PARASITOLOGY. (4)
Protozoan, helminth and arthropod parasites of man and domestic animals, emphasis on etiology, epidemiology, methods of diagnosis, control measures and life histories. Techniques for host examination and preparation of material for study. Prereq: ZOO 104 or BIO 200-202. (Same as ZOO 545.)

ENT 602 INSECT MORPHOLOGY. (4)
A study of internal and external insect structure, including function, and variation of form. Lecture, two hours; laboratory, four hours. Prereq: ENT 100 and consent of instructor. (Same as ZOO 602.)

ENT 606 INSECTICIDE CHEMISTRY AND TOXICOLOGY. (3)
Toxic action of insecticides; preparation, use, and analysis of insecticides; residues; analytical methods in insect toxicology. Lecture, two hours; laboratory, two hours. Prereq: Consent of instructor.

ENT 610 INSECT ECOLOGY AND BEHAVIOR. (3)
The biotic and physical factors influencing the distribution, abundance, and behavior of insects and insect populations. Three lecture hours. Prereq: Consent of instructor. (Same as ZOO 610.)

ENT 612 PRINCIPLES OF ANIMAL SYSTEMATICS. (3)
Theory and practice of animal classification, with study of appli-

cations of the International Code of Zoological Nomenclature. Prereq: At least two advanced survey courses in zoology and/or entomology, for example, ZOO 530, 570, 598, 611 or ZOO/ENT 620. (Same as ZOO 612.)

ENT 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; laboratory, four hours. Prereq: BIO 200-202, ENT 100, ZOO 104 and consent of instructor. (Same as ZOO 620.)

ENT 626 INSECT PATHOLOGY. (3)
Principles of insect pathology related to the etiology, pathogenesis, symptopathology, gross pathology, histopathology, epizootiology of insect diseases with emphasis on infectious diseases caused by occluded viruses, bacteria, fungi, and protozoans. Lecture, two hours; laboratory, two hours. Prereq: Consent of instructor.

ENT 630 INSECT PHYSIOLOGY. (4)
Principles of insect physiology, function of organs, circulation, reproduction, respiration, and digestion. Lecture, two hours; laboratory, four hours. Prereq: Consent of instructor. (Same as ZOO 630.)

ENT 650 ADVANCED APPLIED ENTOMOLOGY. (3)
Bionomics of insects; representative insecticides, their characteristics, formulation, scope of use, safety factors, and methods of application. Lecture, two hours; laboratory, two hours. Prereq: ENT 100 or 500.

ENT 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.

ENT 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 laboratory hours per week.

ENT 680 BIOLOGICAL CONTROL OF INSECTS. (3)
The history and principles of biological control and of integrated programs for insect control. The use of parasites, predators, pathogens, host resistance, electro-magnetic energy, phenomenes, and their interactions with insecticide control programs will be discussed. Prereq: Consent of instructor.

ENT 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
(1-6 credits equivalence.) May be repeated once.

ENT 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
(1-12 credits equivalence.) May be repeated once.

ENT 770 ENTOMOLOGICAL SEMINAR. (1)
Discussion of current research problems in entomology. May be repeated five times for a total of six hours.

ENT 780 SPECIAL PROBLEMS IN ENTOMOLOGY AND ACAROLOGY. (2-3)
Investigations of chosen insect problems, including original work. Discussion and assignment of current insect subjects. May be repeated once for a maximum of six credits. Prereq: Consent of the instructor.

ENT 790 RESEARCH IN ENTOMOLOGY AND ACAROLOGY. (1-6)
Independent research in entomology and acarology. May be repeated to a maximum of 12 hours. Prereq: Consent of instructor.

FORESTRY

FOR 100 ELEMENTS OF FORESTRY. (3)
A brief coverage of the general fields of forestry; development and importance; tree growth; principal forest regions and important timber species; forest management practices, utilization and products; state and federal forestry programs.

FOR 219 DENDROLOGY. (3)
Classification, nomenclature, identification and silvical characteristics of trees and other woody plants based on their morphological, phylogenetic and ecological relationships. Nominally three one-hour lectures per week, but weekend field trips will be taken in lieu of some class hours. Prereq: One semester of botany or equivalent. (Same as BOT 219.)

FOR 300 FOREST MEASUREMENTS. (4)
Basic forest surveying; units of measure and their application in determining volume in forest stands and products; statistical techniques and photogrammetry in volume estimate; site classification and growth determinations; continuous forest inventory and data processing techniques. Lecture, three hours; laboratory, two hours per week. Prereq: MA 122 or 113.

FOR 305 HARVESTING TIMBER CROPS. (3)
Principles and practices in the harvest of timber crops. Study of equipment choice, methods of planning, and operational techniques involved in movement of timber products. Time and motion studies. Three class hours per week with occasional extended field trips.

FOR 310 FOREST MANAGEMENT. (4)
The principles of sustained yield forest management, organization of the forest area, management objectives, forest valuation, regulation of the cut, and forest management plans. Three class hours per week, two laboratory hours per week. Prereq: MA 113 or 122.

FOR 315 FOREST POLICY AND ADMINISTRATION. (3)
The cultural influences that shape public and private forest policies. Forest administration as affected by forest policy. Prereq: Approval of instructor.

FOR 340 FOREST ECOLOGY. (3)
The study of the forest as a biological community with emphasis on the interrelationships between these organisms and the physical environment. Three class hours per week with occasional extended field trips. Prereq: FOR 219 or approval of instructor.

FOR 350 SILVICULTURE. (4)
Principles and techniques of intermediate cutting, natural and artificial regeneration, systems of reproduction, application of genetics and tree improvement to intensive forest management, and silviculture of some of the major forest types of the United States. Three class hours per week, two laboratory hours per week with occasional extended field trips. Prereq: FOR 340.

FOR 355 ARTIFICIAL REGENERATION OF FORESTS. (3)
Principles and practices in forest tree seed production, collection, and treatment. Tree nursery management and artificial reforestation practices. Two class hours per week, two laboratory hours per week with occasional extended field trips. Prereq: FOR 340, AGR 366 and AGR 367.

FOR 375 TAXONOMY OF FOREST VEGETATION. (1)
Field study of the identification and silvics of forest vegetation. Prereq: FOR 219.

FOR 376 SILVICULTURAL PRACTICES. (2)
Field study of the relationship between specific site characteristics and yield of forest stands and the application of cultural practices to forest stands. Prereq: FOR 350.

FOR 377 FOREST SURVEYING. (1)
The application of surveying principles and techniques of forest land areas. Prereq: CE 100.

FOR 378 FOREST MENSURATION. (2)
The application of mensurational principles and techniques in determining tree and stand volumes and growth; timber cruising; development of volume and stand tables. Prereq: FOR 300.

FOR 379 HARVEST AND UTILIZATION OF WOOD. (2)
Study and use of harvesting and milling equipment in the harvest and manufacture of wood and wood products.

FOR 400 WOOD IDENTIFICATION AND PROPERTIES. (3)
General anatomy of wood, identification of commercial species based on microscopic and macroscopic features, wood properties and uses. Two class hours per week, two laboratory hours per week. Prereq: BIO 106 and BIO 107, or BIO 200 and BIO 201.

FOR 402 FOREST ENTOMOLOGY. (3)
The principles of forest entomology, including the detection, collection, identification, appraisal of damage, and control of forest insect pests. Lecture two hours, laboratory two hours. Prereq: One year of biology or consent of instructor. (Same as ENT 402.)

FOR 405 MECHANICS AND PHYSICS OF WOOD. (3)
Elastic behavior and mechanical properties of wood. Liquid movement, thermal, electrical, acoustical, and viscoelastic properties of wood. Timber structural design. Two class hours per week, two laboratory hours per week. Prereq: FOR 400 or consent of instructor.

FOR 410 FOREST PATHOLOGY. (3)
Symptomatology, epidemiology, host-pathogen relations and control of selected diseases of forest trees. Two lecture hours; two laboratory hours. Prereq: BIO 106 and 107, BIO 200 and 201 or BOT 303. (Same as PPA 410.)

FOR 412 FOREST ECONOMICS. (3)
Social and economic values of forests; principles of resource alloca-

tion; demand for forest products; influencing factors and operation and planning of the forest economy. Three class hours per week. Prereq: ECO 260 and ECO 261.

FOR 415 WOOD SEASONING AND PRESERVATION. (3)
Principles and methods involved in air and kiln drying of wood; kiln design and operation. Agencies causing disintegration of wood, factors affecting penetration and absorption of preservative solutions in wood, wood preservatives and processes, plant equipment design and operation and economic considerations. Three class hours per week with occasional extended field trips.

FOR 420 FOREST PRODUCTS. (3)
Sources, processing, and utilization of forest products. Three class hours per week with occasional extended field trips. Prereq: FOR 400 or consent of instructor.

FOR 425 FOREST PHOTOGRAMMETRY. (3)
Use of aerial photographs in land and topographic mapping, forest type delineation, volume estimates, administration, and other aspects of land management. Capabilities and limitations of aerial photographs. Two class hours per week, two laboratory hours per week. Prereq: FOR 300 and FOR 310.

FOR 430 FOREST WILDLIFE AND RANGE MANAGEMENT. (3)
The principles and practices of wildlife and range ecology and management with emphasis on the forest environment. Two class hours per week, two laboratory hours per week with occasional extended field trips. Prereq: FOR 350 or consent of instructor.

FOR 440 FOREST RESOURCES FOR RECREATION. (3)
Study of resource-oriented recreation in the forest. The recreational development of forest lands and waters and basic forest land management policies and principles related thereto. Lecture, two hours; laboratory, two hours per week with occasional extended field trips. Prereq: Full senior standing in forestry or consent of instructor.

FOR 445 FOREST FIRE; CONTROL AND USE. (3)
The study of the ecology of fire; fire behavior, weather, fuels, prevention, detection, suppression, and control; the use and effect of prescribed burning in the forest ecosystem. Two class hours per week; two laboratory hours per week with occasional extended field trips. Prereq: FOR 350.

FOR 450 SENIOR SEMINAR IN FORESTRY (PROSEMINAR). (2)
Professional seminar in forestry. Discussion of current issues and the application of current forestry principles to actual practice. Prereq: Full senior standing (forestry).

FOR 460 FOREST WATERSHED MANAGEMENT. (3)
Principles and techniques involved in forest watershed management as related to the water resource. The influence of forestry practices on water movement into and through the watershed, water storage, water loss, vegetation and water yields, and water quality. Lecture two hours; laboratory, two hours per week, with occasional extended field trips. Prereq: AGR 366 and 367, FOR 350, or consent of instructor.

FOR 512 FOREST TREE PHYSIOLOGY. (3)
The fundamental principles of tree physiology with particular reference to the growth and development of forest species, and consideration of the influence of genetic and environmental factors on physiological processes in forest trees.

FOR 562 FOREST SOILS. (3)
The physical, chemical, and biological properties of soils as they relate to forest tree growth and the forest community. A study of the genesis, morphology, classification and utilization of soils for forestry. Three class hours per week with occasional extended field trips. Prereq: AGR 366 and 367 and consent of instructor. (Same as AGR 562.)

FOR 601 RESEARCH METHODS IN FORESTRY. (3)
A study of research methods, procedures, and techniques used in forestry. Major emphasis will be placed on problem analysis and methods of conducting organized research Prereq: Consent of instructor.

FOR 612 FOREST ECOSYSTEM ANALYSIS. (4)
A detailed analysis of the climatological, physiographic and biological parameters of the mixed-mesophytic forest and an evaluation of the effects of forest management practices within this region on site factors, off-site factors, and on other related uses of the forest. Lecture, two hours; laboratory, four hours. Prereq: FOR 350, FOR 460, consent of instructor.

FRENCH LANGUAGE AND LITERATURE

FR 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.

FR 101 ELEMENTARY FRENCH. (3)
The study of basic French through grammar and reading.

FR 102 ELEMENTARY FRENCH. (3)
A continuation of FR 101. The study of basic French through grammar and reading. Prereq: FR 101 or one year of high school French.

FR 104 ELEMENTARY FRENCH. (4)
The study of the basic principles of the language through grammar, reading, and oral practice.

FR 106 ELEMENTARY FRENCH REVIEW. (4)
A course designed to give remedial work to students who enter with two units of high school French but do not qualify for FR 201. Prereq: Two years of high school French.

FR 111 ELEMENTARY FRENCH (oral approach). (1)
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.

FR 112 ELEMENTARY FRENCH (oral approach). (1)
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. Prereq: FR 111.

FR 113 ELEMENTARY FRENCH (oral approach). (1)
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. Prereq: FR 112.

FR 114 ELEMENTARY FRENCH (oral approach). (1)
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. Prereq: FR 113.

FR 115 ELEMENTARY FRENCH (oral approach). (1)
A continuation of FR 104. Prereq: FR 114 or equivalent.

FR 116 ELEMENTARY FRENCH (oral approach). (1)
A continuation of FR 104. Prereq: FR 115.

FR 117 ELEMENTARY FRENCH (oral approach). (1)
A continuation of FR 104. Prereq: FR 116.

FR 118 ELEMENTARY FRENCH (oral approach). (1)
A continuation of FR 104. Prereq: FR 117.

FR 121 ORAL PRACTICE IN FRENCH I. (1)
This course is designed for beginning student who wish to develop the speaking skill by practicing dialogs with the instructor and among themselves. To be taken in conjunction with 101. Prereq: Concurrent with FR 101.

FR 122 ORAL PRACTICE IN FRENCH II. (1)
This course is designed for beginning students who wish to develop the speaking skill by practicing dialogs with the instructor and among themselves. To be taken in conjunction with 102. Prereq: Concurrent with FR 102.

FR 200 INTERMEDIATE GRAMMAR PRACTICE. (2)
An outline of the grammatical system of French. For potential majors in French. May be taken concurrently with FR 201. Open to French majors and others who have completed elementary college French or equivalent with a grade of B. Prereq: FR 102 or equivalent.

FR 201 INTERMEDIATE FRENCH. (3)
Reading, conversation and oral comprehension are the basic aims of this course, which is structured around contemporary texts. Prereq: FR 105 or two years of high school French and placement test.

FR 202 INTERMEDIATE FRENCH. (3)
A continuation of FR 201. Prereq: FR 201 or three years of high school French and placement test.

FR 203 FRENCH CONVERSATION AND COMPOSITION. (2)
The course will develop conversational skill and introduce 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, or may be taken concurrently. Required of French majors.

FR 204 INTRODUCTION TO FRENCH LITERATURE I. (3)
A study of selected readings from the literature of the Middle Ages to 1800. Lecture, discussion, oral reports. Prereq: FR 202.

FR 205 INTRODUCTION TO FRENCH LITERATURE II. (3)
A study of selected readings from the literature of the 19th and 20th centuries. Lecture discussion, oral reports. Prereq: FR 202.

FR 221 BEGINNING FRENCH I. (3)
Beginning French for undergraduates taking French as a second foreign language. Emphasis on reading skills and oral comprehension. Students completing the FR 221-222 sequence will be prepared to take courses in French literature. Prereq: Four semesters of another foreign language, or equivalent.

FR 222 BEGINNING FRENCH II. (3)
Continuation of FR 221. Prereq: FR 221.

FR 261 SURVEY OF FRENCH LITERATURE IN TRANSLATION. (3)
A broad survey course of masterpieces of French literature from the Middle Ages to the present, in English translation. No knowledge of French required. Closed to French majors.

FR 306 FRENCH CONVERSATION AND COMPOSITION. (3)
Discussion of selected topics and theme writing. Development of conversational skill and practice in writing stylistically appropriate formal French. Prereq: FR 203, or equivalent.

FR 395 INDEPENDENT WORK IN FRENCH. (3)
Directed study in French literature and linguistics. May be repeated once. Prereq: 3.0 standing in the Department and permission of instructor.

FR 406 ADVANCED FRENCH GRAMMAR AND COMPOSITION. (3)
The course aims to present vocabulary and grammatical structures necessary in writing long, logically developed compositions in correct formal French. Compositions will be discussed and analyzed in class. Prereq: FR 306.

FR 407 FRENCH PHONETICS. (3)
Phonetics and phonemics, theory and practice. Advanced corrective pronunciation drill on an individual basis, primarily in the laboratory. Three class hours, one laboratory hour. Prereq: FR 202 or equivalent.

FR 412 ADVANCED FRENCH CONVERSATION. (2)
A study of intonation and elocution in French. Three minute speeches in French will be prepared for each recitation. Will not count toward a French major. Prereq: FR 306 or equivalent.

FR 417 LINGUISTIC SURVEY OF FRENCH. (3)
The place of French and its dialects among the languages of the world, and an introduction to current lingustic theories as they bear on the structure and development of French. Prereq: FR 204, 205, or consent of instructor.

FR 421 TOPICS IN FRENCH LITERATURE IN TRANSLATION I. (3)
The study of an aspect of French literature (genre, theme, etc.) with emphasis on the earlier periods. No knowledge of French required. Not open to French majors. Topics are announced prior to preregistration.

FR 422 TOPICS IN FRENCH LITERATURE IN TRANSLATION II. (3)
The study of an aspect of French literature (genre, theme, etc.) with emphasis on the later periods. No knowledge of French required. Not open to French majors. Topics are announced prior to pre-registration.

FR 423 FRENCH LITERATURE IN TRANSLATION: TWENTIETH CENTURY. (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.

FR 435 A SURVEY OF FRENCH LITERATURE OF THE MIDDLE AGES.* (3)
Readings in modern translation with some analysis of original texts. Prereq: FR 204 and 205.

FR 436 A SURVEY OF FRENCH LITERATURE OF THE RENAISSANCE.* (3)
A study of the French Renaissance and its artistic expression from Marot to Montaigne. Prereq: FR 204 and 205.

FR 437 A SURVEY IN FRENCH LITERATURE OF THE 17th CENTURY.* (3)
A study of the representative writers of the 17th Century and the major literary movements. Prereq: FR 204 and 205.

FR 438 A SURVEY OF FRENCH LITERATURE OF THE 18th CENTURY.* (3)
A study of the representative writers of the 18th Century and the major literary movements. Prereq: FR 204 and 205.

FR 439 A SURVEY OF FRENCH LITERATURE OF THE 19th CENTURY. (3)
A study of the representative writers of the 19th Century and the major literary movements. Prereq: FR 204 and 2[illegible]

FR 440 A SURVEY OF FRENCH LITERATURE OF THE 20th CENTURY.* (3)
A study of the representative writers of the 20th Century and the major literary movements. Prereq: FR 204 and 205.

FR 450 CONTEMPORARY FRENCH CULTURE. (3)
A survey of French culture in the 20th Century with emphasis on the period following World War II. Conducted in French. Prereq: Two courses beyond FR 202.

FR 460 MASTERPIECES OF THE FRENCH NOVEL. (3)
A critical and historical study of the development of the French novel from the 17th Century to the present. Offered every third semester. Prereq: A minimum of one course from the 435-440 sequence.

FR 461 MASTERPIECES OF FRENCH DRAMA.** (3)
A critical and historical study of the development of French drama from the 17th Century to the present. Offered every third semester. Prereq: A minimum of one course from the 435-440 sequence.

FR 462 MASTERPIECES OF FRENCH POETRY.** (3)
A critical and historical study of the development of French poetry from Villon to the present. Offered every third semester. Prereq: A minimum of one course from the 435-440 sequence.

FR 507 FRENCH STYLISTICS. (3)
Objective analysis of style, individual and period, as well as introduction to stylistic theory and methodology.

FR 516 INTRODUCTION TO OLD FRENCH. (3)
An introduction to the study of early French, especially of the 11th through the 13th Centuries. Emphasis will be on understanding the language, with readings from selected literary works and discussion of Old French phonology and grammar. Prereq: FR 204, 205.

FR 517 INTRODUCTION TO THE PHONOLOGICAL STRUCTURE OF FRENCH. (3)
A study of the sound system and its functioning in the morphological system of French from the point of view of current phonological theory, with special attention to classical phonemics and to generative grammar.

FR 553 THE TEACHING OF MODERN FOREIGN LANGUAGES. (3)
A course for teachers and prospective teachers of French, Spanish, or German. (Required of graduate students in French.)

FR 603 THE DEVELOPMENT OF THE FRENCH LANGUAGE. (3)
A history of the phonology and grammar of French from the origins to the present, with analysis and study of appropriate documents, literary and otherwise, to illustrate these developments, along with some introduction to the basic concepts of historical linguistics. Prereq: FR 516.

FR 607 SYNTACTIC STRUCTURE OF FRENCH. (3)
An introduction to the study of French syntax in the light of current theoretical models.

FR 610 ROMANCE PHILOLOGY. (3)
A study of the historical development of the various Romance languages with reading of texts chiefly from the medieval period. Special attention will be given to historical phonology and morphology. Prereq: FR 603 or equivalent.

FR 611 OLD PROVENCAL. (3)
An introduction to the study of Provencal, especially of the 11th through the 13th Centuries. Emphasis will be on understanding the language, with readings from selected literary works. Discussion of Provencal phonology and grammar.

FR 612 THE OLD FRENCH CHANSON DE GESTE. (3)
A study of the medieval French epic, with special emphasis on works of the 12th Century and with readings from the three major Cycles and from the Crusade Cycle. Detailed discussion of theories of the origins and development of the genre. Prereq: FR 516.

FR 613 COURTLY LOVE AND THE COURTLY ROMANCE. (3)
The origins of the genre: *romans antiques*, the *matière de Bretagne*. Readings from the *Trisan*, *Marie de France*, *Chrètien de Troyes*, and the *Lancelot-Graal*. Prereq: FR 516.

*FR 435, 437, 439, 462 will normally be offered in the fall; FR 436, 438, 440, 461 in the spring.

**FR461 (spring 1974), 462 (fall 1974).

FR 614 THE SATIRICAL TRADITION. (3)
Realist currents in the medieval tradition: *fabliaux, dits, Roman de Renart, Les Quinze joies de mariage, Les Cent Nouvelles Nouvelles.* Prereq: FR 516.

FR 615 THE MEDIEVAL FRENCH DRAMA. (3)
The ecclesiatic origins of the drama, semi-liturgical drama, miracle plays of the 12th and 13th Centuries, secular works and the jongleurs, late farces and the development of the mystery play. Prereq: FR 516.

FR 616 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.

FR 617 MIDDLE FRENCH LYRIC. (3)
The new *ars poetica:* Machaut and Deschamps. Later lyric developments; Christine de Pisan, Charles d'Orleans, Villon, *les Grands rhétoriqueurs.* Prereq: Graduate standing.

FR 618 MEMORIALISTS AND HISTORIANS OF THE FRENCH MIDDLE AGES. (3)
Historians and biographers of the Crusades, the Hundred Years War, and the Burgundian conflict. Prereq: Graduate standing.

FR 619 THE EARLY LYRIC. (3)
Old Provencal Old French lyrics, from Guillaume IX d'Aquitaine to Rutebeuf. Prereq: FR 516 and consent of instructor.

FR 621 RABELAIS. (3)
Intensive study of Rabelais and his novels.

FR 622 MONTAIGNE. (3)
Intensive study of Montaigne and the *Essais.*

FR 623 FRENCH RENAISSANCE POETRY I. (3)
A study of the theory and practice of the major movements and poets of the first half of the 16th Century: the Rhétoriqueurs, the poets of Francois I's generation, the Lyons poets, and the poets of the Pléiade (Du Bellay and Ronsard). Prereq: Graduate standing.

FR 624 FRENCH RENAISSANCE POETRY II. (3)
A study of the theory and practice of the major movements and poets of the second half of the 16th Century: the poets of the Pléiade (including Ronsard) and the religious and Baroque poets from Du Bartas to Malherbe. Prereq: Graduate standing.

FR 625 THE CONTEURS OF THE FRENCH RENAISSANCE. (3)
A critical examination of the genre and the works of its many practitioners, with particular emphasis on the tales of Bonaventure des Périers, Marguerite de Navarre, and Noë du Fail. Prereq: Graduate standing.

FR 626 NON—FICTIONAL PROSE WRITERS OF THE FRENCH RENAISSANCE. (3)
A stylistic and thematic analysis of the major humanists, historians, writers of memoirs, and religious and political writers of the period: Amyot, Béze, Bodin, Calvin, Du Vair, La Boétie, La Noue, Mornay, Montluc, Pasquier, etc. Prereq: Graduate standing.

FR 630 CORNEILLE. (3)
Intensive study of Corneille comic and tragic plays with emphasis on values of his time and recent criticism. Prereq: Graduate standing.

FR 631 RACINE. (3)
Intensive study of Racine's plays with emphasis on values of his time and recent criticism. Prereq: Graduate standing.

FR 632 MOLIERE. (3)
Intensive study of Moliere's plays with emphasis on Molière as a mirror of the society of his time and as a reformer. Prereq: Graduate standing.

FR 633 SEVENTEENTH-CENTURY FRENCH PROSE. (3)
A study of the main currents of French Prose in the 17th Century with special emphasis on the novel.

FR 634 PRE-CLASSICAL FRENCH DRAMA. (3)
A study of the French theater from Jodelle to Racine's contemporaries, exclusive of Corneille, Racine and Molière.

FR 635 HISTORY OF IDEAS IN 17th CENTURY FRENCH LITERATURE. (3)
From Montaigne to Gassendi, including the French moralists.

FR 636 SEVENTEENTH-CENTURY NON-DRAMATIC POETRY. (3)
From Malherbe to Boileau and La Fontaine. Prereq: Graduate standing.

FR 640 VOLTAIRE. (3)
Intensive study of Voltaire and his literary and philosophical works. Prereq: Graduate standing.

FR 641 DIDEROT. (3)
Intensive study of Diderot and his literary, aesthetic, and philosophical works. Prereq: Graduate standing.

FR 642 ROUSSEAU. (3)
Intensive study of Rousseau and his fictional and non-fictional works. Prereq: Graduate standing.

FR 643 THE 18th-CENTURY FRENCH NOVEL. (3)
A critical analysis of the novels of Lesage, Marivaux, L'abbé Prévost, Bernardin de Saint-Pierre, Restif de la Bretonne and Choderlos de Laclos.

FR 644 EIGHTEENTH-CENTURY FRENCH THEATER. (3)
A study of its development and critical examination of the plays of Lesage, Voltaire, Sedaine, Diderot, with special emphasis on Marivaux and Beaumarchais. Prereq: Graduate standing.

FR 645 HISTORY OF IDEAS IN THE 18th CENTURY. (3)
Critical examination of the major philosophical, social, and political currents of the period. Prereq: Graduate standing.

FR 651 FRENCH ROMANTICISM I: PROSE. (3)
A study of the Romantic novel and story from Chateaubriand to Villiers de L'Isle-Adam. Prereq: Consent of instructor.

FR 652 FRENCH ROMANTICISM II: POETRY AND THEATER. (3)
A comprehensive review of French Romantic verse from Lamartine to Verlaine with some attention given to Romantic theater. Prereq: Consent of instructor.

FR 653 BAUDELAIRE, RIMBAUD, MALLARME. (3)
Representative works from three major poets of the late 19th Century. Prereq: Consent of instructor.

FR 654 THE FRENCH REALIST NOVEL. (3)
The novels of Balzac, Stendhal and the Goncourt brothers: structure, themes, style. Prereq: Consent of instructor.

FR 655 FLAUBERT. (3)
Intensive study of the prose writings of Gustave Flaubert. Prereq: Consent of instructor.

FR 656 THE FRENCH NATURALIST NOVEL. (3)
Emphasis is on the novels of Zola, Huysmans, Ceard and Maupassant. Prereq: Consent of instructor.

FR 661 TWENTIETH-CENTURY PROSE I: THE EARLY DECADES. (3)
A study of the major French writers in the period until 1930, with special emphasis on Gide, Proust, and Romains. Prereq: Graduate standing.

FR 662 TWENTIETH-CENTURY PROSE II: THE LITERATURE OF COMMITMENT. (3)
A study of this movement, from Péguy to Sartre, with special emphasis on the novelists of the 1930's (exclusive of Malraux).

FR 663 MALRAUX. (3)
Intensive study of the life and writings of André Malraux. Prereq: Graduate standing.

FR 664 FRENCH EXISTENTIALIST LITERATURE. (3)
A study of the novels, plays, and other literary writings centering on the works of Sartre, Camus, and de Beauvoir. Prereq: Graduate standing.

FR 665 MAJOR INTELLECTUAL CURRENTS IN MODERN FRENCH LITERATURE. (3)
An examination of the intellectual preoccupations of French writers (exclusive of existentialism) from Bergson and Valéry to the present. Prereq: Graduate standing.

FR 666 THE FRENCH THEATER SINCE WORLD WAR I. (3)
A study of the works of the major "traditionalists" including Claudel, Cocteau, Giraudoux, Montherlant, Anouilh. Prereq: Graduate standing.

FR 668 PROUST. (3)
Intensive study of the works of Marcel Proust, with special emphasis on *A la recherche du temps perdu.* Prereq: Graduate standing.

FR 669 SURREALISM. (3)
Examination of the movement and close analysis of the works of its most outstanding figures. Prereq: Graduate standing.

FR 670 THEATER OF THE ABSURD. (3)
Study of avant-garde French theater from its beginnings to the present, including such writers as Jarry, Appollinaire, Vildrac,

Vitrac, Adamov, Ionesco, Beckett, Genet. Prereq: Graduate standing.

FR 671 THE NEW NOVEL. (3)
Examination of the development of the new novel and critical analysis of the works of such writers as Butor, Le Clézio, Robbe-Grillet, Sarraute, Simon. Prereq: Graduate standing.

FR 672 CONTEMPORARY POETRY I. (3)
A critical study of the major modern French poets up to World War II. Prereq: Graduate standing.

FR 673 CONTEMPORARY POETRY II. (3)
A critical study of the major modern French poets since World War II. Prereq: Graduate standing.

FR 714 SEMINAR IN THE HISTORY OF THE FRENCH LANGUAGE. (3)
Intensive study of a particular aspect of the development of Modern French. Prereq: FR 603 or equivalent.

FR 715 SEMINAR IN MEDIEVAL FRENCH STUDIES. (3)
Special and intensive study of a single problem in Medieval French literature or of paleography and the editing of Old French texts. Prereq: Any two graduate courses in Medieval literature.

FR 716 SEMINAR IN FRENCH LITERATURE OF THE RENAISSANCE. (3)
Special and intensive study of a particular aspect of French Renaissance literature, according to the needs of the students enrolled. Prereq: Any two graduate Renaissance courses.

FR 717 SEMINAR IN 17th-CENTURY FRENCH LITERATURE. (3)
Intensive study of a special problem in 17th Century French literature. Prereq: Consent of instructor.

FR 718 SEMINAR IN 18th-CENTURY FRENCH LITERATURE. (3)
Special and intensive study of a single problem in 18th Century French literature. Prereq: Any two graduate 18th Century courses.

FR 719 SEMINAR IN 19th-CENTURY FRENCH LITERATURE. (3)
Intensive study of a special topic in 19th Century French literature. Prereq: Consent of instructor.

FR 720 SEMINAR IN 20th-CENTURY FRENCH LITERATURE. (3)
Special and intensive study of a single problem in 20th Century French literature.

FR 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

FR 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

FR 780 SPECIAL STUDIES IN FRENCH. (3)
Selected studies and investigations in the French language and literature, permitting the student to work in areas of special interest, and providing opportunity for original endeavor. May be repeated once. Prereq: Consent of instructor.

GEOGRAPHY

GEO 151 ELEMENTS OF PHYSICAL GEOGRAPHY. (3)
The basic earth environment discussed from the standpoint of process. Weather, landforms, climates, vegetation and soils are emphasized. Fulfills elementary certification requirements for Education and General Studies requirement.

GEO 152 REGIONAL GEOGRAPHY OF THE WORLD. (3)
A study of the geography of the World by region with emphasis on the world's landscapes as explained by natural and human processes. Fulfills elementary certification requirement for Education and General Studies requirement.

GEO 201 INTRODUCTORY FIELD STUDIES IN GEOGRAPHY. (3)
Techniques of obtaining and verifying data in the field, association of geographic names, technical and descriptive terms of geographic phenomena with classification and report. May be repeated once.

GEO 205 ELEMENTS AND TECHNIQUES OF MAP MAKING. (3)
Fundamental training in projections, scales, lettering and symbolization, simple map drafting and map reproduction including emphasis on the conceptual planning and designing of maps as a medium for communication.

GEO 210 GEOGRAPHY OF ENVIRONMENTAL QUALITY. (3)
Interactions of man and the ecosystem; deterioration of environmental quality in the context of physical processes and spatial distributions; case studies of the effects of pollution and outlook for future control.

GEO 221 MAP READING AND MILITARY GEOGRAPHY. (1)
A course in map and aerial photograph reading to include military geography and land navigation. Prereq: None, except for ROTC students who must enroll in this course concurrently with MS 201, be physically fit to pursue program, have successfully completed MS 101 and 102 or have consent of the PMS.

GEO 251 INTRODUCTION TO WEATHER AND CLIMATE. (3)
A study of the atmosphere directed toward a basic understanding of the elements and controls of weather and climate. Attention is given to instruments, maps and observation techniques.

GEO 252 ELEMENTS OF HUMAN GEOGRAPHY. (3)
A study of the spatial distributions of significant elements of human occupance of the earth's surface, including basic concepts of diffusion, population, migration, settlement forms, land utilization, impact of technology on human occupance of the earth. (Fulfills elementary certification requirement for Education and General Studies requirement.)

GEO 255 GEOGRAPHY OF ECONOMIC ACTIVITIES (3)
The interaction of economic and geographic factors on the locational patterns of man's activities.

GEO 501 FIELD STUDIES IN GEOGRAPHY. (3)
Introduction to geography in the field. Student participation in use of topographic maps, aerial photographs, and sampling techniques for the study of rural land use and urban, industrial, and recreational location rationale. Organized local and regional field trips. May be repeated once.

GEO 505 CARTOGRAPHY. (3)
A course in the construction and interpretation of maps. Prereq: GEO 205.

GEO 520 GEOGRAPHY OF THE UNITED STATES AND CANADA (3)
A systematic review of the physical, economic, historic, and cultural characteristics that distinguish U.S. and Canadian regions. Topical emphasis on the geographical aspects of regional problems.

GEO 522 GEOGRAPHY OF KENTUCKY. (3)
A study of the cultural, economic and environmental characteristics of Kentucky. Emphasis is placed on Kentucky geography in a regional and national context.

GEO 524 GEOGRAPHY OF LATIN AMERICA. (3)
A study of countries and geographic regions of Mexico, Central America, and South America. Prereq: One geography course.

GEO 526 GEOGRAPHY OF EUROPE. (3)
A study of the countries of western Europe; their physical characteristics, their cultural endowments, and the expression of these in regional variations in the European landscape.

GEO 528 GEOGRAPHY OF ASIA. (3)
A systematic study of the physical, cultural, economic, and political patterns and processes in the five main realms of Asia-Southwest, South, Southeast, East, and Soviet Union; with more intensive analysis of particular regions or dynamic changes.

GEO 530 GEOGRAPHY OF SOUTH ASIA. (3)
A study of the human and economic geography of India, Pakistan, Bangladesh, Ceylon, Nepal, Sikkim and Bhutan including the basic physical and cultural regionalisms, land use and population problems, patterns of industrialization, and urban growth and economic development.

GEO 532 GEOGRAPHY OF SOUTHEAST ASIA. (3)
A study of the human, economic, and political patterns and processes in mainland and insular Southeast Asia, emphasizing the basic regions and subregions and the dynamic changes affecting them.

GEO 534 GEOGRAPHY OF AUSTRALIA AND THE PACIFIC ISLANDS. (3)
A study of the geographic problems and adjustments of the peoples and countries of the Pacific area. Reference to the strategic nature of the location. Prereq: One geography course.

GEO 536 GEOGRAPHY OF AFRICA. (3)
A regional study of Africa with emphasis on Africa south of the Sahara. Topical focus on political, social, economic, and developmental problems.

GEO 540 URBAN GEOGRAPHY. (3)
A study of the location, growth and internal structure of American and world cities. Emphasis will be on topical issues such as poverty, minority groups and civil disturbances with the social geographic context of the city.

GEO 542 POLITICAL GEOGRAPHY. (3)
A study of politico-geographic phenomena in their areal context, such as the analysis of boundaries, geographical patterns resulting from the application of governmental authority, the political viability of state units, and the spatial (territorial) variations and interrelationships of political activities and systems.

GEO 544 POPULATION GEOGRAPHY. (3)
An analysis of population distributions, locational arrangements of growth, densities, and migration flows; spatial relationships between population variables and social, economic, and environmental factors.

GEO 550 GEOGRAPHY OF NATURAL RESOURCES. (3)
A study of the characteristics of resources, their management and mismanagement. Implications of resource development, and the role of perceptions and attitudes in decision making related to man's use of natural resources.

GEO 551 CLIMATOLOGY. (3)
A study of climatic classification systems and of world problem climatic areas. Prereq: GEO 251 or consent of instructor.

GEO 560 INDEPENDENT WORK IN GEOGRAPHY. (3)
Individual research involving such problems as: (1) materials and methods in teaching geography; (2) the historical evolution of geography; (3) map reading and interpretation; (4) special area studies; (5) other topics may be elected by consent of instructor. May be repeated once. Prereq: Major and a standing of 3.0 in the Department.

GEO 565 TOPICS IN GEOGRAPHY. (3)
Discussion, readings, and papers focusing on relevant topics in geography directed by a staff member having specific competence for the topics under study. Current research developments in particular geographic subfields will be stressed. Prereq: Consent of instructor.

GEO 601 FIELD METHODS IN GEOGRAPHY. (3)
Field research methodology. Designed as an aid to advanced students preparing for Master or Ph.D. level thesis work. Topics include; field problem design; source materials; areal sampling; questionnaire composition; interviewing techniques; field mapping; logistics; time table assessment, organized field exercise. Prereq: Consent of instructor for students in allied subjects such as anthropology, sociology, or psychology. May be repeated once.

GEO 602 SEMINAR IN THEORETICAL GEOGRAPHY. (3)
A systematic review of the theoretical character of spatial patterns. Emphasis on the philosophy of science and theoretical developments in geography. Prereq: Consent of instructor.

GEO 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.

GEO 630 REGIONAL STUDY OF SPECIAL AREAS. (3)
The application of the methods of regional interpretation to special areas such as the U.S.S.R., Mediterranean Basin, Caribbean Region, Mexico, Central Europe, etc. May be repeated once. Prereq: A prior major or minor in geography or consent of instructor.

GEO 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 505 or equivalent, or consent of the instructor.

GEO 640 TRANSPORTATION GEOGRAPHY. (3)
Conceptual and descriptive study of transport facilities and patterns of movement with special reference to the influence of geographic factors in the creation, transformation, and maintenance of transportation forms and functions; the bearings of transportation on urban and regional development and on industrial location; its role as an "organizing force" in economic geography, interaction of transportation, and regional development in different areas of the world. Prereq: GEO 255 or equivalent, or consent of instructor.

GEO 643 URBAN TRANSPORTATION PLANNING. (3)
A detailed review of the transportation planning process; inventory methodologies; trip generation, distribution and assignment with associated mathematical models and theories; prediction of future travel; land and use models; modal split; developing and testing proposed systems; simulation. (Same as CE 643.) Prereq: CE 543 or equivalent and STA 381 or 681 or equivalent statistics course.

GEO 651 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 551, or consent of instructor.

GEO 652 SOIL CLASSIFICATION AND GEOGRAPHY. (3)
A critical evaluation of the concepts of soil classification, with particular reference to the current U.S. scheme. Study of geographic locations and the nature of their soil associations as related to gross considerations of soil genesis. (Same as AGR 652.) Prereq: AGR 573, 581, or consent of instructor.

GEO 655 SPECIAL STUDY OF SYSTEMATIC GEOGRAPHY. (3)
The application of the methods of systematic geography to particular special studies in topical areas, such as conservation, urban areas, climatology, cartography, or others. 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 six hours.

GEO 695 SOCIAL ECOLOGY. (3)
The study of the adaptation of human populations to their environment. An elaboration of the principles governing community organization with special emphasis given to urban and metropolitan communities. (Same as SOC 695.)

GEO 700 QUANTITATIVE METHODS IN GEOGRAPHY. (3)
A survey of the applications of quantitative techniques to geographical problems, with emphasis on the use of models in current geographic literature. Special emphasis will be given to the interpretation of recent findings in physical, urban, economic, and regional geography, and in the preparation of the student for the further use of certain techniques in his own research. Prereq: An elementary course in statistical methods.

GEO 702 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.

GEO 707 SEMINAR IN DEVELOPMENT OF GEOGRAPHIC THOUGHT. (3)
An analytical review of the evolution of geographic thought, in terms of concepts, methodologies, and scholars, emphasizing the basic literature through a series of topics. Prereq: Geography major or consent of instructor.

GEO 710 RESEARCH METHODS AND METHODOLOGY IN GEOGRAPHY. (3)
A comprehensive review of the problems involved in designing geographical research, planning field work, analysis of data, and in writing geographic reports. Prereq: GEO 560 or equivalent.

GEO 715 SEMINAR IN SYSTEMATIC GEOGRAPHY. (3)
Urban geography; population geography; political geography; transportation geography. (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.

GEO 720 SEMINAR IN THE GEOGRAPHY OF THE UNITED STATES AND CANADA. (3)
Research seminar in topics or problems related to geographic aspects of the United States and Canada. Topics will be chosen in keeping with the interest of the professors in charge. May be repeated once. Prereq: At least one year of graduate study in geography.

GEO 725 APPLIED GEOGRAPHY IN DEVELOPMENTAL ANALYSIS. (3)
A systematic review and critical evaluation of the application of geographic concepts and methods of survey, analysis and interpretation in the study of regional developmental problems with particular reference to the developing nations and underdeveloped areas in the United States, Canada, and Europe. Prereq: GEO 560 or equivalent.

GEO 730 SEMINAR IN REGIONAL GEOGRAPHY. (3)
Australia; Southeast Asia; Himalaya and Central Asia; other world regions in keeping with the regional specialization of the professor in charge. May be repeated twice for a total of nine credits. Prereq: Appropriate 500 level course in regional area, or consent of instructor.

GEO 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

GEO 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

GEO 771 ADVANCED SEMINAR IN GEOGRAPHY. (3)
The study of selected topics or current systematic concepts in geography. For Ph.D. candidates. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

GEO 772 SPECIAL RESEARCH PROBLEMS IN GEOGRAPHY. (3)
Open to doctoral candidates who have the necessary training and ability to conduct research on a selected problem. Prereq: Approval of the director of graduate studies. May be repeated for a total of 12 credits.

GEOLOGY

GLY 140 GENERAL PHYSICAL GEOLOGY. (4)
A first course in the principles of physical geology, including topics from mineralogy, geochemistry, and geophysics. High school chemistry recommended. Lecture, three hours; laboratory, two hours.

GLY 142 GENERAL HISTORICAL GEOLOGY. (4)
A first course in historical geology, including a study of the development of earth's fundamental features and a review of the history of life. Lecture, three hours; laboratory, two hours per week. Prereq: GLY 140 or 146.

GLY 144 INTRODUCTION TO THE EARTH. (3)
A first course in the principles of geology, including topics from mineralogy, geochemistry, geophysics, and other fields of physical geology. High school chemistry recommended. Three lecture hours a week except that two hours of laboratory work will be substituted for each of between eight and 15 lectures.

GLY 146 EARTH HISTORY. (3)
A first course in historical geology, including topics in the development of the earth and the history of life. Three lecture hours a week except that two hours of laboratory work will be substituted for each of between eight and 15 lectures. Prereq: GLY 140 or GLY 144.

GLY 210 EARTH RESOURCES. (3)
A study of the origin, geological occurrence, geographical distribution, conservation, and environmental impact of the production of the world's metallic minerals, industrial minerals, and fuels. Three lecture hours a week except that two hours of laboratory work will be substituted for each of between four and 10 lectures. Prereq: GLY 140 or GLY 144.

GLY 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; laboratory, two hours. Prereq: a course in elementary geology.

GLY 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.

GLY 225 FIELD STUDIES IN GEOLOGY. (3)
An introduction to field geology involving the observation, measurement, evaluation, and mapping of rocks in the field. Nine hours of field or laboratory work per week. Prereq: GLY 140 or GLY 144.

GLY 227 ELEMENTARY FIELD WORK IN REGIONAL GEOLOGY. (6)
Eight weeks in Colorado in the field. Students work with those in GLY 424 and 425. Offered only during eight-week summer session. Special fee. Prereq: GLY 140 or 144.

GLY 240 ELEMENTARY GEOLOGY FOR ENGINEERS. (4)
An introduction to the principles of geology. Lecture, three hours. One three-hour laboratory per week.

GLY 242 ENVIRONMENTAL GEOLOGY. (3)
The environment discussed in geologic context, covering such topics as the problems arising from energy and natural resource requirements, land and water use, and development of building sites. Application to community problems. Three lecture hours a week except that two hours of laboratory may be substituted for each of up to 10 lectures. Prereq: GLY 144.

GLY 360 THE MINERAL WORLD. (3)
A first course in mineralogy emphasizing the relation of minerals to specific geologic environments. About 60 minerals and mineral groups will be studied. High school chemistry highly recommended. Two lecture hours and two laboratory hours a week except that two additional hours of laboratory will be substituted for each of up to seven lectures. Prereq: GLY 140 or GLY 144.

GLY 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.

GLY 401 PALEONTOLOGY. (3)
A study of fossil invertebrates, their nature, classification, and geological distribution. Lecture, two hours; laboratory two hours. Prereq: GLY 142 or 146.

GLY 420 STRUCTURAL GEOLOGY. (3)
An introduction to earth structures. Advanced geologic map interpretation. Prereq: GLY 142 or 146; PHY 203 or 213.

GLY 423 FIELD WORK IN REGIONAL GEOLOGY. (6)
Geological mapping in the field in Colorado. Offered only during the eight-week summer session. Special fee. Forty hours/week field work. Prereq: Geology major with junior standing.

GLY 424 FIELD WORK AND REPORT IN REGIONAL GEOLOGY. (7)
Geological mapping in the field in Colorado and preparation of report. Offered only during the eight-week summer session. Special fee. Prereq: Geology major with junior standing.

GLY 450 STRATIGRAPHY AND SEDIMENTATION. (3)
Basic 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; laboratory, two hours per week. Prereq: GLY 142.

GLY 460 ELEMENTARY MINERALOGY. (4)
A study of fundamentals of mineralogy including crystallography, occurrence and identification of common and abundant minerals. Two class hours per week; laboratory, four hours per week. Prereq: CHE 112 or concurrent.

GLY 461 ELEMENTARY PETROLOGY. (3)
The elementary study of igneous, sedimentary and metamorphic rocks. Prereq: GLY 460 or 360.

GLY 501 STRATIGRAPHIC PALEONTOLOGY. (3)
The use of fossils and fossil assemblages for zonation and correlation; and the problems arising from the application of this method as illustrated by specific examples. Practice in the analysis of sample invertebrate faunas for purposes of correlation. Lecture, two hours per week; laboratory, two hours. Prereq: GLY 401, 450.

GLY 510 ORE DEPOSITS. (3)
Mineral deposits other than petroleum and natural gas. Distribution, mode of occurrence, origin, methods of search for and uses. Lecture, two hours; laboratory, two hours. Prereq: GLY 360.

GLY 511 PETROLEUM GEOLOGY. (2)
The origin and accumulation of petroleum and natural gas. A study of geological methods used in exploratory work. Geology of principal producing fields.

GLY 530 LOW TEMPERATURE GEOCHEMISTRY. (3)
An introduction to the geochemistry of sediment deposition and diagenesis, weathering, and other topics in aqueous geochemistry. Prereq: GLY 360 or 461, MA 114, or consent of instructor.

GLY 531 IGNEOUS AND METAMORPHIC GEOCHEMISTRY. (3)
A discussion of the processes and principles of chemistry as they apply to the mineralogic and petrologic problems associated with the formation igneous and metamorphic rocks. Prereq: GLY 461, consent of instructor.

GLY 533 ROCK MECHANICS. (3)
An engineering science course leading to an understanding of the stresses and methods of determining these stresses. Stability of excavations. Prereq: MET 301, EM 302, GLY 240. (Same as CE 533.)

GLY 540 ADVANCED GENERAL GEOLOGY. (3)
An advanced course for geology majors serving to integrate information from more specialized upper-division courses into the framework of the science of geology. Prereq: Geology major with senior standing.

GLY 552 SEDIMENTARY PETROLOGY. (3)
Detailed description of sedimentary rock types, their origin and classification. Megascopic and microscopic examination of textures and structures of sediments. Mineralogy of sediments and the significance of sedimentary environments. Lecture, two hours; laboratory, two hours. Prereq: GLY 450.

GLY 560 OPTICAL MINERALOGY. (3)
A study of the optical properties of minerals by means of the petrographic microscope. Prereq: GLY 360, PHY 203.

GLY 561 STRUCTURAL MINERALOGY. (3)
Principles of morphological crystallography, crystal chemistry, and structural mineralogy. The structure and physical properties of major mineral groups. Designed for geology majors emphasizing mineralogy or petrology. Prereq: CHE 108 or 112; GLY 360.

GLY 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 203 or 213.

GLY 571 INTRODUCTORY GEOPHYSICS GRAVITY AND MAGNETISM. (3)
A general introduction to geophysics emphasizing the Earth's gravitational and magnetic fields, including studies of exploration techniques. Prereq: MA 114 and PHY 231.

GLY 572 INTRODUCTORY GEOPHYSICS-SEISMOLOGY. (3)
A general introduction to geophysics emphasizing exploration and earthquake seismology. Prereq: MA 114 and PHY 231.

GLY 612 MINERAL DEPOSITS. (3)
Lecture, two hours; laboratory, two hours.

GLY 620 TECTONICS. (3)
A study of the structural features of the earth's crust with an analysis of the mechanics involved. Lecture, three hours; or lecture, two hours, laboratory, two hours. Prereq: PHY 211, 213; GLY 420.

GLY 624 MESOSCOPIC STRUCTURES. (3)
The analysis of structures of mesoscopic scale in deformed rocks, particularly metamorphic tectonites, and their extrapolation to larger structures; also the study of certain mesoscopic features in igneous rocks and features in sediments useful in basin analysis and the determination of chronologic sequence and environment of deposition. Lecture, two hours; laboratory, two hours. Prereq: GLY 420.

GLY 631 ADVANCED PROSPECTING. (3)
Study of the principles involved in the geophysical investigation of the minerals of the earth's crust. Lecture and recitation, two hours; laboratory, three hours. (Same as CE 631.)

GLY 633 CHEMICAL MINERALOGY. (3)
An advanced mineralogy course placing emphasis on crystal chemistry and the interpretation of phase relations in rock systems. Prereq: GLY 461, GLY 562.

GLY 650 SEDIMENTOLOGY. (3)
The classification and interpretation of sedimentary rocks, and study of sedimentary processes. Prereq: GLY 450.

GLY 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.

GLY 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.

GLY 654 CARBONATE PETROLOGY. (3)
The composite, classification, and interpretation of environments of deposition and diagenesis of carbonate rocks and modern carbonate sediments. Lecture, two hours; laboratory, two hours. Prereq: GLY 450.

GLY 655 HYDROGEOLOGY. (3)
A study of hyrologic processes and systems in geology, including topics in fluvial geomorphology and groundwater flow. Prereq: GLY 552 or consent of instructor.

GLY 660 PETROGRAPHY. (3)
Chiefly the study of igneous and metamorphic rocks with the petrographic microscope, also a consideration of occurrence and classification, and of metamorphic facies. An introduction to the petrography of sedimentary rocks. Lecture, one hour; laboratory, four hours per week. Prereq: GLY 560.

GLY 665 IGNEOUS AND METAMORPHIC PETROLOGY. (3)
The occurrence, origin and classification of igneous and metamorphic rocks. Phase equilibria and the physical conditions of formation will be emphasized. Prereq: GLY 660, GLY 531.

GLY 670 SELECTED TOPICS IN GEOPHYSICS. (3)
Study of topics of current interest in geophysics. Subject matter will vary from term to term. May be repeated to a maximum of twelve credits. Lecture, two hours and laboratory, two hours. Prereq: GLY 571 or 572.

GLY 671 EARTHQUAKE SEISMOLOGY. (3)
A study of wave propagation and earthquake phenomena stressing both theory and delineation of earth structure. Lecture, two hours and laboratory, two hours. Prereq: GLY 572.

GLY 681 MINERALOGICAL AND CHEMICAL ANALYSIS OF SOILS. (4)
Laboratory emphasis on instrumental methods and techniques used in quantitative and qualitative mineralogical and chemical analysis of soils and relation of these analyses to physical, chemical and biological systems. Lecture, one hour; discussion, one hour; laboratory, four hours. Prereq: CHE 226, AGR 581 or equivalent or consent of instructor. (Same as AGR 681.)

GLY 720 GRADUATE TECTONICS SEMINAR. (3)
Discussion and study of advanced topics in Tectonics. May be repeated to a maximum of 12 hours. Prereq: GLY 620 or consent of instructor.

GLY 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.

GLY 732 CHEMICAL SEDIMENTOLOGY. (3)
Topics in low-temperature and aqueous geochemistry. Seminar involving review of current literature and laboratory investigation of significant geochemical problems. Two class hours and two laboratory hours per week. Prereq: GLY 530 and 552, or 650 or 654.

GLY 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 440, GLY 531, GLY 665, or consent of instructor.

GLY 741 CLAY MINERALOGY. (3)
A comprehensive study of the crystal structures of clay minerals commonly found in soils and sediments. Lecture and discussion, two hours; laboratory, two hours. Prereq: GLY 212 and 213, AGR 581, 681, or equivalent, or consent of instructor. (Same as AGR 741.)

GLY 760 PETROLOGY SEMINAR. (2)
Review of classic works and recent developments in important and controversial aspects of igneous and metamorphic petrology. Prereq: GLY 665 or consent of instructor.

GLY 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

GLY 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
May be repeated indefinitely (1-12 credits equivalence.)

GLY 782 INDIVIDUAL WORK IN GEOLOGY. (1-3)
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 nine credits.

GERMANIC LANGUAGES AND LITERATURES

GER 021 GERMAN FOR READING KNOWLEDGE. (0)
This course is designed to meet the needs of upper division and graduate students who are preparing for the graduate reading examination, who need a reading knowledge of German in their minor, or who require a review of German grammar.

GER 121 BASIC GERMAN. (4)
Fundamentals of German with development of the four basic skills.

GER 122 BASIC GERMAN. (4)
Continuation of GER 121. Prereq: GER 121, or one year high school German, or equivalent.

GER 123 ELEMENTARY GERMAN. (3)
The essentials of grammar with practice in reading and writing German. (For correspondence study only.)

GER 124 ELEMENTARY GERMAN. (3)
Continuation of GER 123. Prereq: GER 123 or one year of high school German. (For correspondence study only.)

GER 125 GERMAN GRAMMAR REVIEW. (4)
Designed to help those students who require remedial review of German grammar with minimal oral approach in order to qualify for GER 221 or 201. Students cannot receive credit for GER 121, 122, 127 or 128 if credit has been received in GER 125. Prereq: Two years of high school German.

GER 127 ELEMENTARY SPOKEN GERMAN. (4)
Designed to meet the needs of students preferring an oral approach to basic German. Laboratory practice and some reading. Four class hours per week and one laboratory hour per week.

GER 128 ELEMENTARY SPOKEN GERMAN. (4)
Continuation of GER 127. Four class hours per week; one laboratory hour per week. Prereq: GER 127 or equivalent.

GER 201 TECHNICAL GERMAN. (3)
Fundamentals and practice in reading scientific and technical German. Designed primarily for students with interest in science. This course is an alternate to GER 221. Prereq: GER 122 or two years high school German, or equivalent.

GER 202 TECHNICAL GERMAN. (3)
Continuation of German 201. Prereq: GER 201, three years high school German, or equivalent. This course is an alternate to GER 222.

GER 205 ORAL GERMAN. (3)
Emphasis upon increasing the student's command of spoken German. Required for German majors. Prereq: GER 122 or equivalent.

GER 206 GERMAN COMPOSITION. (3)
Emphasis upon increasing the student's command of written German. Required for German majors. Prereq: GER 122 or equivalent.

GER 221 INTERMEDIATE GERMAN. (3)
Review and furthering of oral and reading skills based upon cultural and literary materials. Prereq: GER 122 or two years high school German, or equivalent.

GER 222 INTERMEDIATE GERMAN. (3)
Continuation of GER 221. Prereq: GER 221 or three years high school German, or equivalent.

GER 261 A SURVEY OF GERMAN LITERATURE IN TRANSLATION. (3)
Using anthologies or special materials in English translation the course surveys major German literary works and highlights them against their historical-cultural background.

GER 300 GERMAN LITERATURE TO THE REFORMATION. (3)
An introduction to German literature from the earliest times to the period of the Reformation with selections in modern German translation as required. Prereq: GER 222 or equivalent.

GER 302 GERMAN LITERATURE FROM BAROQUE TO ENLIGHTENMENT. (3)
An introduction to German literature highlighting the Baroque period and the Enlightenment. Prereq: GER 222 or equivalent.

GER 304 CLASSICAL GERMAN LITERATURE. (3)
An introduction to the classic period in German literature with some attention to the Sturm und Drang, but emphasizing Schiller and Goethe. Prereq: GER 222 or equivalent.

GER 306 GERMAN 19th CENTURY LITERATURE. (3)
An introduction to German Literature of Romanticism and Realism of the 19th Century. Prereq: GER 222 or equivalent.

GER 308 MODERN GERMAN LITERATURE. (3)
An introduction to German literature of the 20th Century. Prereq: GER 222 or equivalent.

GER 310 THE GERMAN LYRIC. (3)
An introduction to German lyric poetry. Prereq: GER 222 or equivalent.

GER 312 GERMAN CULTURE AND CIVILIZATION. (3)
An introduction to German civilization. Prereq: GER 222 or equivalent.

GER 314 READINGS IN GERMAN PERIODICALS. (3)
A survey of selected German language magazines, journals, or newspapers with concentration on a current area of literary, linguistic, or general cultural interest. Prereq: Five semesters of German.

GER 396 INDEPENDENT WORK IN GERMAN. (3)
This course is designed for students who wish to do advanced work in German on any subject. Prereq: Major and a standing of 3.0 in the Department. May be repeated once.

GER 412 MODERN GERMAN LITERATURE IN TRANSLATION. (3)
A study in depth of the author's artistic development and of the structure and content of their major works. Authors treated are novelists Kafka, Hesse, and Mann or dramatists Brecht, Frisch, and Durrenmatt. The course is conducted in English and may be repeated for a total of six hours.

GER 506 TUTORIAL IN MINOR GERMANIC LANGUAGE. (3)
Fundamentals, on the basis of tutorial instruction, in certain Germanic languages for which no formal courses are already available, as Old Saxon, etc. Knowledge of a Germanic language is essential. May be repeated to a maximum of 12 hours. Prereq: Consent of Department and instructor.

GER 516 HISTORY OF GERMAN LITERATURE. (3)
A history of the development of German literature from the "Hildebrandshed" to Hauptmann, with attention to social, political and philosophical background. Prereq: Five semesters of German.

GER 520 GERMANIC PROSEMINAR. (3)
The proseminar is designed primarily to introduce graduate or advanced undergraduate students into the methods of scholarly research based upon the study of a specific area of Germanic language or literature. Topic will vary, and will be announced. Representative components which may be treated in this course are Lessing, Schiller, Goethe, Buchner, Kleist, Grillparzer, Hebbel, Hauptmann, 18th (19th, 20th) Century prose narrative, 18th (19th, 20th) Century drama, semantics, and expressionism. The course may be repeated for a total of 12 hours. Prereq: Six additional hours of German beyond GER 222, or consent of instructor.

GER 522 GERMAN IMPRESSIONISM. (3)
A study of German literary impressionism with authors of the *Jahrhundertwende* or *Jugendstil* as Altenberg, Dehmel, Hofmannsthal, Keyserling, Liliencron, Mann, Rilke, and Schnitzler. Prereq: Five semesters of German.

GER 532 THE GERMAN LYRIC. (3)
An intensive study of the German lyrical poem from the Age of the Baroque to the present. Prereq: Six semesters of German.

GER 534, 535 LIFE AND WORKS OF GOETHE. (3 ea.)
This course follows the unfolding of Goethe's genius from his first lyrics through *Faust*. His principal literary works will be read and attention devoted to autobiographical material, letters and diaries. Prereq: Six semesters of German.

GER 536 INTRODUCTION TO THE HISTORY OF THE GERMAN LANGUAGE. (3)
This course in Germanic philology acquaints the student with the position of German in the European language group and traces the development of the language to the present. Special emphasis is given to the relationship of German and English words. Prereq: Six semesters of German.

GER 537 INTRODUCTION TO MIDDLE HIGH GERMAN. (3)
This is a literary course with a necessary minimum of Middle High German grammar. Selections will be read from epic and lyric poetry of the period and reports will be given on assigned topics. Prereq: Six semesters of German.

GER 538 ADVANCED GERMAN CONVERSATION AND COMPOSITION. (3)
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.

GER 539 STRUCTURE OF THE GERMAN LANGUAGE. (3)
An introduction to the phonology, morphology and syntax of modern German by means of concepts and methods of linguistic science. Prereq: Six semesters of German or consent of instructor.

GER 553 THE TEACHING OF GERMAN. (3)
The course is designed for teachers and prospective teachers of the language. Theory and practice, with emphasis upon modern methodology and practical problems encountered by the teacher of beginning German. Required of graduate students in German. This course should precede student teaching.

GER 621 INTRODUCTION TO GERMAN BIBLIOGRAPHICAL STUDIES. (3)
An introduction to bibliography, original research, and textual criticism. Required of graduate students in German.

GER 622 THEORIES OF LITERATURE IN GERMAN. (3)
An introduction to theories of literature with emphasis upon those of Germany and continental Europe.

GER 624 GERMAN LITERATURE OF THE 16th AND 17th CENTURIES. (3)
A survey of the major literary documents of the German Reforma-

tion, Renaissance, and Baroque, with special attention given to one period, and involving extensive readings in the texts of the period.

GER 625 GERMAN LITERATURE OF THE 18TH CENTURY. (3)
A survey of the literary themes and forms of the Aufklarung and Sturm und Drang, with special emphasis on selected aspects of German letters of the period 1700-1775.

GER 626 THE AGE OF GOETHE (1770-1830). (3)
A seminar devoted to the investigation of one or more topics in the literature and social development of Germany during the period 1770-1830.

GER 627 GERMAN DRAMA OF THE 19TH CENTURY. (3)
This course is a study of the German drama from Schiller's "Die Braut von Messina" to 1870.

GER 628 THE GERMAN NOVELLE. (3)
This course traces the origin and development of the German Novelle from Goethe to Thomas Mann.

GER 630, 631 TWENTIETH CENTURY GERMAN LITERATURE. (3 ea.)
Extensive readings, discussions and comprehensive reports on the leading literary minds and movements of this century.

GER 635 GOTHIC. (3)
Readings; phonology and morphology of Gothic. Prereq: Reading knowledge of German and GER 536, or consent of instructor.

GER 636 OLD HIGH GERMAN. (3)
Readings; phonology, morphology, and dialects of Old High German. Prereq: Reading knowledge of German and GER 536, or consent of instructor.

GER 640 STUDIES IN GERMANIC LANGUAGE AND LITERATURE. (3)
Exploration in some depth of a theme, genre, author, or period. Topic will vary, and will be announced. Representative components which may be treated are earlier German literature, medieval epic, medieval German lyric, early New High German language and literature, late romanticism, idealism, realism, naturalism, impressionism, expressionism, symbolism, textual criticism, historical linguistics, structure of modern German, dialectology. The course may be repeated for a total of 12 hours with the approval of the departmental director of graduate studies.

GER 642 MEDIEVAL GERMAN LITERATURE. (3)
A survey of the literature of the Middle High German period, with special attention to one major genre or author, and involving extensive readings in the texts of the period. Prereq: GER 537.

GER 643 LONGER EPIC VERSE OF THE GERMAN MEDIEVAL PERIOD. (3)
A study of German medieval heroic verse, the courtly novel, or the so-called Spielmannsepik, with emphasis depending upon composition of the class.

GER 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

GER 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

GER 778 SEMINAR: MAIN CURRENTS OF ROMANCE AND GERMAN LITERATURE. (3)
Studies of the principal works of the French, German and Spanish literatures. Lectures, student reports.

GER 781 SPECIAL STUDIES IN GERMAN. (3)
Selected studies and investigations in the German language and literature, permitting the student to work in areas of special interest, and providing opportunity for original endeavor. May be repeated to a maximum of 12 credits.

GER 790 GERMANIC SEMINAR. (3)
Topic to be selected from a Germanic literary or linguistic area. The seminar may be repeated for a total of 12 hours with the approval of the departmental director of graduate studies.

SCANDINAVIAN
(Offered as required)

GER 500 SWEDISH. (3)
Rapid coverage of morphology, phonology and syntax of modern Swedish and reading of selected literary texts. Prereq: Reading knowledge of German; consent of instructor.

GER 501 SWEDISH LITERATURE FROM BELLMAN TO THE PRESENT. (3)
Readings in Swedish literature of the period. Prereq: GER 500.

GER 504 DANISH. (3)
Rapid coverage of morphology, phonology, and syntax of modern Danish and reading of selected literary texts. Prereq: Reading knowledge of German; consent of instructor.

GER 505 DANISH LITERATURE FROM HOLBERG TO THE PRESENT. (3)
Readings in Danish literature of the period. Prereq: GER 504 or equivalent.

GER 510 MEDIEVAL SCANDINAVIAN LITERATURE IN TRANSLATION. (3)
Old Norse-Icelandic literature: Eddas, scaldic verse, sagas. Ballads and folk-literature. The cycles of Sigurth and Volund; heroic poetry. Comparison with related themes in other medieval literatures.

GER 511 SCANDINAVIAN LITERATURE IN TRANSLATION: HOLBERG TO LAGERKVIST. (3)
Ludvig Holberg: The literature of the Enlightenment in Scandinavia; the Romantic Movement in Denmark, Sweden and Norway. The Modern Breakthrough in Scandinavia; Georg Brandes, J. P. Jacobsen, Henrik Ibsen. National Romanticism: the Kalevala, Selma Lagerlof, Knut Hamsun. Modernism: August Strindberg, Par Lagerkvist. Attention will be drawn to literary relationships between Scandinavia and the Continent.

GER 610 OLD ICELANDIC. (3)
Rapid coverage of morphology, phonology and syntax of Old Icelandic, with some attention to linguistic affinities within the Indo-European and Germanic groups of languages. Prereq: Reading knowledge of German; consent of instructor. Alternate years.

GER 611 OLD ICELANDIC. (3)
Reading of selected saga texts and Elder Edda, with attention to the development of Icelandic literature from the 10th Century to the present. Prereq: GER 610. Alternate years.

GRADUATE SCHOOL

GS 600 SPECIAL TOPICAL GRADUATE COURSE. (2-3)
An interdisciplinary, topical or experimental course to be approved by the dean of the Graduate School. A particular course can be offered no more than twice under the number, GS 600. May be repeated to a maximum of six credits. Prereq: Consent of the instructor.

HEALTH PHYSICAL EDUCATION, AND RECREATION

COURSES FOR MEN AND WOMEN

HPR 100-125 SERVICE COURSE. (1 ea.)
May be repeated for a maximum of six credits. Only two credits for service courses may count in the minimum degree requirement of 130 credits.

HPR 126 CONCEPTS OF HEALTH, FITNESS AND LEISURE. (3)
Modern concepts of health, fitness and leisure covering such topics as drugs, alcohol, venereal disease; air and water pollution; the impact of leisure on society; and the contributions of regular exercise to human well being. Instruction in life-time sports skills will be covered in laboratory sessions. Lecture, two hours; laboratory, two hours.

HPR 140 PROFESSIONAL ORIENTATION. (2)
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.

HPR 150, 151 PHYSICAL EDUCATION AND RECREATION ACTIVITIES. (2 ea.)
Theory and practice of activities recommended for physical education and recreation programs. Six hours per week laboratory required of all freshman physical education and recreation majors.

HPR 152 TECHNIQUES OF SWIMMING. (2)
Intermediate level swimming and diving skills. Includes skills relating to survival, lifesaving, synchronized swimming, and skin diving. One hour lecture and three hours laboratory per week. Prereq: Intermediate skill test first day of class.

HPR 185 JUMPING (HORSEBACK). (1)
Practice in jumping over different obstacles for show and hunting. Prereq: Horsemanship or consent of instructor. (Same as ASC 185.)

HPR 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. Laboratory, four hours per week.

HPR 192 MODERN DANCE II. (2)
Advanced techniques for creative dance. Special emphasis on the development of movement themes as motivated by specific content. Laboratory, four hours per week. Prereq: HPR 191.

HPR 241 BASKETBALL COACHING FUNDAMENTALS. (2)
Theory and practice in coaching fundamentals involved in basketball. Four hours laboratory per week.

HPR 242 FOOTBALL COACHING FUNDAMENTALS. (2)
Theory and practice in coaching fundamentals of football.

HPR 243 TRACK AND FIELD TEACHING AND COACHING. (2)
The development of the skills essential in teaching and coaching track and field events for men and women. Lecture, one hour; laboratory, three hours.

HPR 244 BASEBALL AND SOFTBALL COACHING FUNDAMENTALS. (2)
Theory and practice in coaching fundamentals involved in baseball and softball. Six hours laboratory per week.

HPR 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; laboratory, two hours per week. Prereq: Skills competence and/or consent of instructor.

HPR 250, 251 PHYSICAL EDUCATION AND RECREATION ACTIVITIES. (2 ea.)
Theory and practice of activities recommended for physical education and recreation programs. Six hours laboratory per week required of all sophomore physical education and recreation majors.

HPR 252 WATER SAFETY LEADERSHIP. (2)
Leadership training in the teaching of swimming, lifesaving, diving, synchronized swimming, competitive swimming, camp waterfront, beach and pool operation and exhibition. Four hours laboratory per week. Prereq: Senior Lifesaving Certificate (Red Cross) and Special Skill Test.

HPR 286 EQUESTRIAN DRESSAGE. (2)
The technique of training dressage. One hour lecture and two hours laboratory. Prereq: Horsemanship. (Same as ASC 286.)

HPR 290 HISTORY AND PHILOSOPHY OF THE DANCE. (3)
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.

HPR 291 FOLK DANCE. (2)
American and European Folk Dances will be studied with special attention to the Longways, Circles, Squares and Couple Dance Forms. The English Country Dances will be stressed as well as the Appalachian region traditional forms. Lecture, one hour per week; laboratory, two hours per week.

HPR 202 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; laboratory, two hours per week.

HPR 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; laboratory, two hours per week.

HPR 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; laboratory, two hours. Prereq; HPR 293.

HPR 340 ATHLETIC TRAINING. (2)
Consideration is given to the prevention, treatment and rehabilitation of injuries. Films and other visuals, visiting physicians and team trainers will be used to supplement instruction. The student will have an opportunity to gain practical experience. Lecture, one hour; laboratory, three hours.

HPR 343 HISTORY AND PRINCIPLES OF PHYSICAL EDUCATION. (3)
Study of the historical development of physical education and an interpretation of the biological, psychological, and sociological principles of physical education.

HPR 344 PHYSICAL EDUCATION IN THE SECONDARY SCHOOL. (3)
Required for teacher certification in physical education. Theory and practice in methods of teaching physical education activities and supervising programs in the secondary school. One hour per week of lecture, and four hours laboratory. May be repeated by women for a maximum of six credits. Prereq: HPR 343 or consent of instructor.

HPR 350 TENNIS AND PHYSICAL CONDITIONING. (2)
Theory and practice of physical conditioning and tennis activities recommended for physical education and recreation programs for people of all ages. Six laboratory hours per week. Prereq: Completion of 10 hours of lower division professional physical education courses.

HPR 355 THE COACHING OF SWIMMING. (2)
Theory and practice of coaching competitive events in swimming, springboard diving, and synchronized swimming. Also includes direction of championship meets, water shows, demonstrations, and experience in leadership responsibilities in these areas. Lecture, two hours per week; laboratory, two hours. Prereq: HPR 252 or consent of instructor.

HPR 356 SPORTS OFFICIATING FOR MEN. (1)
The theory and practice of officiating football, volleyball, basketball, swimming, and other sports. Officiating in college intramurals and high school athletics will be required. One hour lecture, two hours laboratory.

HPR 357 SPORTS OFFICIATING FOR MEN. (1)
The theory and practice of officiating basketball, track, baseball, tennis, and other sports. Officiating in college intramurals and high school athletics will be required. One hour lecture, two hours laboratory.

HPR 358 SPORTS OFFICIATING FOR WOMEN. (1)
Instruction, interpretation of rules, and practice in officiating field hockey, volleyball, and other sports. Preparation for Women's National Official's rating in athletics. One hour lecture, two hours laboratory.

HPR 359 SPORTS OFFICIATING FOR WOMEN. (1)
Instruction, interpretation of rules, and practice in officiating basketball, softball, tennis, and other sports. Preparation for Women's National Official's rating in athletics. One hour lecture, two hours laboratory.

HPR 360 PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOL. (3)
An introduction to the necessary skills needed for the planning and conduct of modern elementary physical education programs. Emphasis is placed on teaching basic movement skills, fundamental rhythmic and sports skills. Two hours lecture; two hours laboratory. Prereq: Junior standing in education or consent of instructor.

HPR 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.

HPR 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; laboratory, two hours per week. Prereq: HPR 360, or consent of instructor.

HPR 386 APPLIED DRESSAGE. (1)
The principles and practice of dressage movements in training for position and collection. Two hours laboratory. Prereq: HPR 286. (Same as ASC 386.)

HPR 388 EQUITATION TEACHING. (3)
The techniques of horsemanship and methods of instruction. Two hours lecture and two hours laboratory. Prereq: Horsemanship and ASC 202. (Same as ASC 388.)

HPR 390 DANCE ACTIVITIES IN THE ELEMENTARY SCHOOL. (2)
Designed for teachers of elementary children to give depth in significant phases of physical education of the elementary child.

Special emphasis is given to acquisition of skills and understandings of the total dance program. Lecture, one hour per week; laboratory, two hours per week. Prereq: HPR 360 or consent of instructor.

HPR 391 THEATER DANCE I. (2)
Theory and practice of techniques for dance evolving from primitive Jazz and the Blues. Lecture, one hour per week; laboratory, two hours per week. Prereq: HPR 191, 192.

HPR 392 THEATER DANCE II. (2)
Dance techniques from modern Jazz, dance for television, musical comedy and stage plays. Lecture, one hour per week; laboratory, two hours per week. Prereq: HPR 391.

HPR 393 RHYTHMICAL FORMS AND ANALYSIS. (3)
A study of rhythmical forms of movement with an analysis of music and other forms of accompaniment media. Prereq: HPR 191, 192.

HPR 395 INDEPENDENT WORK IN HEALTH AND SAFETY OR PHYSICAL EDUCATION OR RECREATION. (3)
Prereq: Major and 3.0 standing in area or consent of instructor. May be repeated for a maximum of 12 credits.

HPR 420 PHYSIOLOGY OF EXERCISE. (3)
An in-depth study of the immediate and long term effects of exercise on the human organism. Lecture, two hours; laboratory, two hours. Prereq: ANA 206, PGY 206 or the equivalent.

HPR 445 INTRODUCTION TO TESTS AND MEASUREMENTS. (3)
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 laboratory, two hours per week.

HPR 472 KINESIOLOGY. (3)
A quantitative and qualitative study of human motion as it relates to locomotor and physical education activities. Lecture, two hours; laboratory, two hours. Prereq: ANA 206, PGY 206, or the equivalent.

HPR 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 laboratory. Prereq: HPR 386. (Same as ASC 486.)

HPR 491 DANCE IN EDUCATION. (3)
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 laboratory. Prereq: PGY 206, HPR 572, and a beginning course in dance, or consent of instructor.

HPR 540 ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION. (3)
Policies and procedures of administration on the secondary school and collegiate levels. Special emphasis on construction and care of facilities, equipment, and supervision of personnel. Prereq: HPR 344 or equivalent.

HPR 546 PHYSICAL EDUCATION WORKSHOP. (2)
A concentrated study in a specific sport or activity or field of emphasis in physical education. May be repeated for a maximum of six credits. Lecture, one hour per week; laboratory, two hours per week.

HPR 547 PSYCHOLOGY OF SPORT AND PHYSICAL ACTIVITY. (3)
Prereq: Undergraduate psychology course and accompanied by basic statistics.

HPR 560 MOTOR DEVELOPMENT IN INFANTS AND YOUNG CHILDREN. (3)
An analysis of the processes of learning to move and moving to learn in infants and young children. Emerging interrelationships among motor, social, emotional, and cognitive forms of behavior are explored. Laboratory experiences are provided in early childhood education programs. Prereq: PSY 104, 106.

HPR 572 KINESIOLOGY AND ITS APPLICATION. (3)
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 laboratory. Prereq: ANA 206 and PGY 206, 207.

HPR 579 ADAPTED PHYSICAL EDUCATION. (3)
A study of programs of physical education for atypical students, with emphasis upon specific postural faults and other abnormalities commonly found in a school population. To include training and experience in procedures, adapting the physical education program to accommodate these students. Lecture, two hours per week; laboratory, two hours per week. Prereq: HPR 343, PE 572.

HPR 592 CHOREOGRAPHY FOR GROUPS. (2)
The building of dances for groups in Ballet, Modern, and Theater dance forms. Lecture, one hour per week; laboratory, two hours per week. Prereq: HPR 491.

HPR 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; laboratory, four hours per week. Prereq: HPR 191, 192, 291, 292, 390, 391, 392, 393, 592.

GRADUATE COURSES FOR MEN AND WOMEN

HPR 610 IMPLEMENTATION OF RECREATION SERVICES FOR THE ILL OR DISABLED. (3)
The organization, coordination and administration of recreation programs designed to meet the needs of ill or disabled persons in treatment centers and those residing in the community. Prereq: HPR 571, 575 or consent of instructor.

HPR 611 THERAPEUTIC APPLICATIONS OF RECREATION. (3)
A study of recreation as a therapeutic agent in the management of ill and/or disabled persons, including the mentally ill, physically handicapped, medically incapacitated and mentally retarded. Prereq: HPR 571, 575 or consent of instructor.

HPR 644 RESEARCH TECHNIQUES APPLIED TO HEALTH, PHYSICAL EDUCATION AND RECREATION. (3)
A critique of research procedures for purposes of developing more efficient research designs applicable to problems in health, physical education and recreation. Should be preceded or accompanied by basic statistics and introduction to measurement.

HPR 645 MEASUREMENT THEORY IN HEALTH, PHYSICAL EDUCATION AND RECREATION. (3)
An analysis of the various procedures employed in constructing and using measuring instruments in teaching and research programs in health, physical education and recreation. Should be preceded or accompanied by basic statistics and introduction to measurement.

HPR 646 INTEGRATED DEVELOPMENT. (3)
An analysis of the literature in the area of integrated development. Emphasis on development of skills in the use of research techniques, materials and resources in investigating potential problems in this area of depth. Prereq: HPR 546 and 643.

HPR 650 CURRICULUM AND PROGRAM DEVELOPMENT. (3)
A study of fundamental principles basic to the development of the over-all curriculum in physical education with special emphasis upon the proper selection and organization of physical education activities to meet the educational and recreational needs of all students. Prereq: HPR 343, 344, 540.

HPR 651 FACILITIES, CONSTRUCTION, AND EQUIPMENT. (2)
Principles and standards for maintaining facilities, and planning construction; purchase and care of equipment. Prereq: HPR 540.

HPR 676 CURRENT ISSUES IN RECREATION. (3)
An in-depth analysis into the pertinent issues and challenges confronting the recreation profession.

HPR 685 ADMINISTRATIVE PRACTICES IN RECREATION. (3)
A study of administrative functions concerned with policy determination, public relations, personnel practices, and routine details confronting the chief recreation officer and his staff associates. Prereq: HPR 580 or consent of instructor.

HPR 690 ORGANIZATION AND ADMINISTRATION OF THE DANCE IN EDUCATION. (3)
Special emphasis is placed upon the organization and administration of the program in dance to meet the needs of students from elementary through college levels. Some attention will be given to dance production, festivals and social dance functions in schools. Prereq: HPR 290, 491, 592, 595.

HPR 720 SPORTS MEDICINE. (3)
A study of the basic areas covered in sports medicine with readings and discussions of current international trends in the research and

practice in this field. Prereq: Twelve semester hours, credit in the field of biological science; consent of instructor.

HPR 741 CURRENT STUDIES AND TRENDS IN HEALTH AND PHYSICAL EDUCATION. (3)
A study of modern trends in health and physical education and standards of evaluation in relation to the history of the various systems, including a review of the principles and objectives.

HPR 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
(1 to 6 credits equivalence.) May be repeated once.

HPR 770 SEMINAR IN PHYSICAL EDUCATION. (3)
Each semester some contemporary topic in the field of physical education will be studied intensively. May be repeated to a maximum of nine credits.

HPR 780 SEMINAR IN RECREATION. (3)
Each semester some contemporary topic in the field of recreation will be studied intensively. May be repeated to a maximum of nine credits.

HPR 782 INDEPENDENT RESEARCH. (3)
Systematic investigation of a problem selected from the areas of health, safety, physical education or recreation. Satisfies the research requirement for the Master's Degree in Plan B. Repeatable with new problem. May be repeated to a maximum of nine credits.

RECREATION

HPR 170 INTRODUCTION TO RECREATION SERVICES. (3)
Designed to give the student an understanding of the principles and practices by which recreation agencies function, and acquaint him with the foundation upon which the profession is built.

HPR 280 RECREATION PROGRAM PLANNING AND LEADERSHIP. (3)
A study of the essential elements and basic principles involved in the organization, supervision, promotion, and evaluation of various types of recreation programs.

HPR 370 FUNDAMENTALS OF CAMPING. (2)
An introduction to camping as an educational program. Qualifying for the American Camping Association's Camp Crafts Award is required.

HPR 374 PRINCIPLES OF OUTDOOR RECREATION. (2)
Philosophy, principles, resources, administrative and program practices for outdoor recreation.

HPR 379 FIELD STUDIES IN RECREATION. (2)
This course provides opportunities to study the objectives, programs and methods of agencies providing recreation services. Supervised observations will be supplemented by short-term volunteer service in several agencies. May be repeated once. Lecture, one hour per week; laboratory, two hours per week.

HPR 471 OUTDOOR EDUCATION THROUGH CAMPING. (2)
The theory and practice of the use of camping as an adjunct to the classroom in achieving educational objectives. Prereq: HPR 370 or consent of instructor.

HPR 478 SENIOR SEMINAR IN RECREATION. (3)
Readings and reports on special topics in recreation and parks. Required of all senior recreation majors.

HPR 570 LANDSCAPE DESIGN OF PARK AND RECREATION AREAS. (3)
A study of standards, principles, and procedures of planning and design for recreational needs with emphasis on resource development for human use. Lecture, one hour; studio, four hours. Prereq: HOR 331 or permission of instructor. (Same as HOR 570.)

HPR 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; laboratory, two hours per week.

HPR 573 ADMINISTRATION AND ORGANIZATION OF RECREATION. (3)
This course is designed to equip students and community leaders with workable procedures for developing and operating recreation programs in communities of various sizes and with varying political and social structures.

HPR 575 INTERPRETATIONS OF LEISURE AND RECREATION. (3)
Designed to provide students interested in recreation as a profession, as an adjunct to other work, or as informed citizens with a basic understanding of the significance of leisure and the objectives of recreation.

HPR 577 PRACTICUM IN RECREATION. (3-9)
Extensive practical work experiences under the immediate supervision of qualified practitioners and recreation faculty coordinator. Prereq: Recreation major only.

HEALTH AND SAFETY

HPR 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; laboratory, two hours per week.

HPR 307 INTRODUCTION TO SAFETY EDUCATION. (2)
The history and philosophy of the accident prevention movement designed to acquaint the student with the underlying factors and theories of accident correction and prevention. Special emphasis is given to the administration and supervision of physical education, athletic, and recreation programs.

HPR 330 SCHOOL HEALTH EDUCATION. (3)
A study of personal health problems with emphasis upon student-teacher relationships.

HPR 430 METHODS OF TEACHING HEALTH EDUCATION. (3)
Basic organization and planning of elementary and secondary school health and safety programs for the classroom teacher. Major emphasis on curriculum development and teaching techniques. Prereq: HPR 330.

HPR 507 DRIVER AND TRAFFIC SAFETY EDUCATION. (3)
Analysis of traffic accidents, attitude factors, essential knowledge of automobile operation and traffic laws and regulations. Laboratory experience is devoted to improvement of the students' driving skill and an understanding of how to structure laboratory lessons in the dual control automobile.

HPR 509 WORKSHOP IN HEALTH AND SAFETY. (2)
Designed as a short course in current aspects of school health or safety education with emphasis upon the needs of teachers.

HPR 530 ADMINISTRATION OF HEALTH AND SAFETY EDUCATION. (3)
Consideration is given to the administration, organization and function of the total school health and safety program. Textbook evaluation and materials suitable for school health and safety instructor will be stressed. The role of school in public health will be defined.

HPR 607 ADVANCED TOPICS IN SAFETY EDUCATION. (3)
Designed for safety education supervisors, school administrators and teachers. An in-depth study of the psychological and sociological aspects of safety and research in all aspects of safety education. Prereq: Background in safety education.

HPR 609 SEMINAR IN HEALTH AND SAFETY EDUCATION. (3)
Overview of the problems confronting persons in these fields and selected research findings applicable to these areas. Emphasis is given to gaining a better understanding of research data and to a greater utilization of research findings in both school and community health and safety endeavors. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

HEALTH RADIATION SCIENCES

HRS 690 RESEARCH IN RADIOLOGICAL HEALTH. (1-3)
Research in the area of radiological health. Prereq: Graduate standing in the bioradiation sciences.

HRS 695 RESEARCH IN RADIATION DOSIMETRY. (1-3)
Independent directed research on theoretical and practical problems in the measurement of radiation. Prereq: Graduate standing in one of the bioradiation sciences.

HRS 710 SEMINAR IN BIORADIATION SCIENCES. (1)
Topics of current interest relating to radiation and its biomedical significance will be discussed. May be repeated for a maximum of four credit hours with approval of instructor. Prereq: Graduate standing in a radiation-related science.

HRS 715 ADVANCED PROBLEMS IN RADIATION DOSIMETRY. (2-6)
Advanced problems in radiation dosimetry. To be taken concurrent-

ly with supervised individual study. Problems in radiation measurement, distribution of energy, computation of dose, and biological and medical effects of an advanced nature will be analyzed, discussed, and described in written reports. Problems will require literature search and utilization of advanced analytical techniques. Prereq: Completion of formal course work in medical radiation dosimetry program or consent of instructor.

HRS 720 ADVANCED PROBLEMS IN RADIOLOGICAL HEALTH. (2-4)
Advanced problems in radiological health and related areas in physics, biology, or medicine will be analyzed. Prereq: Completion of formal course work in radiological health specialty program or consent of instructor.

HISTORY

HIS 104 A HISTORY OF EUROPE TO 1713. (3)
A survey of the growth of Europe from the 12th Century Renaissance through the Age of Louis XIV, preceded by a brief consideration of the Graeco-Roman heritage.

HIS 105 A HISTORY OF EUROPE, 1713 TO THE PRESENT. (3)
A survey of European developments from the Age of the Enlightenment to the present. A continuation of HIS 104.

HIS 108 HISTORY OF THE UNITED STATES THROUGH 1865. (3)
This course traces the nation's development through the Civil War. It is designed to meet the demands for a general understanding of American history. This course fulfills the requirements for the elementary teachers' certificate.

HIS 109 HISTORY OF THE UNITED STATES SINCE 1865. (3)
A continuation of HIS 108, from 1865 to the present.

HIS 202 HISTORY OF BRITISH PEOPLE TO THE RESTORATION. (3)
From the Roman period to the Stuart period. A general survey of the various epochs and phases of the English people at home and abroad.

HIS 203 HISTORY OF THE BRITISH PEOPLE SINCE THE RESTORATION. (3)
From the Stuart period to the present. A continuation of HIS 202.

HIS 208 COLONIAL LATIN AMERICA. (3)
A survey of the origins and development of Latin American Colonies and their struggle for independence.

HIS 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.

HIS 229 THE ANCIENT NEAR EAST AND GREECE TO THE DEATH OF ALEXANDER THE GREAT. (3)
Covers the birth of civilization in Egypt and Mesopotamia, and the history of the ancient Near East and Greece to the conquest of Greece by Philip of Macedon.

HIS 230 THE HELLENISTIC WORLD AND ROME TO THE DEATH OF CONSTANTINE. (3)
Covers the conquests of Alexander the Great, and the main features of the Hellenistic World, the Roman Republic and the Roman Empire to the death of Constantine.

HIS 240 HISTORY OF KENTUCKY. (3)
A general survey of the chief periods of Kentucky's growth and development from 1750 to the present.

HIS 247 THE MIDDLE EAST FROM THE RISE OF ISLAM TO THE FRENCH REVOLUTION. (3)
A survey of Muslim civilization in Asia, Africa, and Europe with particular attention to the roles of Arab, Turkic, Mongol, Persian, and European groups. Prereq: HIS 104, 105, or consent of instructor.

HIS 248 THE MIDDLE EAST SINCE THE FRENCH REVOLUTION. (3)
A continuation of HIS 247. A survey of major developments in the Middle East with emphasis on the response to nationalism and change, international rivalry in the area, collapse of the Ottoman Empire, and emergence of modern political units. Prereq: HIS 105 or consent of instructor.

HIS 254 HISTORY OF SUB-SAHARAN AFRICA. (3)
A survey of the social institutions, value systems and political organization of Sub-Saharan Africa since the 16th Century but with particular emphasis on the 19th and 20th Centuries.

HIS 260 AFRO-AMERICAN HISTORY. (3)
A study of the Black experience in America, involving an examination of the African heritage, slavery, the rise of segregation and the ghetto, and aspects of contemporary race relations. Prereq: HIS 108-109 or equivalent.

HIS 270 EARLY MIDDLE AGES. (3)
A survey of European history from the Fourth through the Mid-10th Centuries.

HIS 271 LATER MIDDLE AGES. (3)
A survey of European history from the 13th through the 15th Centuries.

HIS 285 HISTORY OF RUSSIA TO 1825. (3)
A broad survey of the life of the Russian people and the development of the state from the Ninth Century through the reign of Alexander I. Although emphasis will be placed on political, economic, and social trends, cultural and intellectual achievements will also be discussed.

HIS 286 HISTORY OF RUSSIA SINCE 1825. (3)
A continuation of HIS 285, this course covers the last century of the Tsarist regime (1825-1917) and the evolution of the Soviet system that followed. Emphasis will be placed on the problems that led to the collapse of the monarchy, on the revolutionary movement, and on the Communist state and society under Lenin and Stalin.

HIS 295 EAST ASIA TO 1800. (3)
A survey of Chinese, Japanese and Korean History from earliest times to 1850. Emphasis on political, economic, social and intellectual developments.

HIS 296 EAST ASIA SINCE 1800. (3)
A continuation of HIS 295. A survey of the political and economic modernization of traditional Far Eastern society with emphasis on nationalistic reactions to Western pressure and international rivalry in the Far East.

HIS 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.

HIS 350-359 TOPICS IN HISTORY. (3 ea.)
Readings, research, and discussions in seminar format to illuminate problems of historical and contemporary significance, in areas of special faculty competence. May be repeated once. Two class hours and one conference per week. Prereq: Consent of instructor mandatory.

HIS 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.

HIS 490 MODERN EUROPE. (3)
This course is offered to meet a demand for a broader course which will equip students who are going to teach European history in the present high school curriculum. Prereq: HIS 104 and 105.

I. EUROPEAN HISTORY

HIS 204 INTRODUCTION TO THE EAST EUROPEAN WORLD. (3)
A survey of the geographic, ethnic, political, socio-economic, religious, cultural, and ideological factors which form the historical experiences of the East European peoples. Prereq: HIS 104, 105.

HIS 500 PRE-CLASSICAL AND CLASSICAL GREECE. (3)
A history of Greece from earliest times to the death of Alexander the Great.

HIS 501 FOURTH CENTURY GREECE AND THE HELLENISTIC WORLD. (3)
A history of Greece and the Greek world from the death of Alexander to the Roman conquest of Egypt. Prereq: HIS 500 or consent of instructor.

HIS 502 A HISTORY 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.

HIS 503 A HISTORY OF THE ROMAN EMPIRE. (3)
A study of the foundation of the Roman Empire, the development of Imperial institutions, social and intellectual developments of the Graeco-Roman world, the decline of Rome and the barbarian invasions of the Fourth Century. Prereq: HIS 502 or consent of instructor.

HIS 504 GREEK AND ROMAN MEDICINE. (3)
An historical introduction to the development of Greek and Roman medicine, from the Pre-Socratic philosophers through Oribasius and early Byzantine medicine. Prereq: A course in ancient history, or classics, or philosophy (ancient); basic knowledge of anatomy; consent of instructor.

HIS 509 ROMAN LAW. (3)
An historical introduction to the development of Roman law, from the Twelve Tables through the Codex Justinianus. Prereq: A course in ancient history, or classics, or consent of instructor.

HIS 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.

HIS 511 MEDIEVAL CIVILIZATION II. (3)
A continuation of HIS 510. The specific topics for a given semester will be listed in the class schedule book.

HIS 512 MEDIEVAL INSTITUTIONS TO THE MID-10TH CENTURY. (3)
A survey of medieval political, social, economic and ecclesiastical institutions from the Fourth Century to the breakup of the Carolingian Empire. Prereq: HIS 270, 271. (Alternating in the fall semester with HIS 510.)

HIS 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 15th Century. Prereq: HIS 270, 271.

HIS 519 THE ERA OF THE RENAISSANCE. (3)
A historical description and analysis of the development of political, economic, social, religious, intellectual and cultural institutions of Europe from Petrarch to Erasmus. Prereq: HIS 104.

HIS 520 THE ERA OF THE REFORMATION. (3)
An historical description and analysis of the development of the religious, intellectual, cultural, political, economic and social institutions of Europe from Luther to the Treaty of Westphalia. Prereq: HIS 104.

HIS 521 THE AGE OF ABSOLUTISM. (3)
A study of the development of absolute monarchies from Louis XIV; the European rivalries at home and abroad; benevolent despotism and the Age of Enlightenment. Prereq: HIS 104 or equivalent.

HIS 523 EUROPE, 1814-1870. (3)
This course treats the successive political changes in 1823, 1830, 1848, and 1870, together with the outstanding commercial, cultural, and scientific developments of European life after 1815.

HIS 524 EUROPEAN DIPLOMACY 1870-1918. (3)
An analysis of diplomatic policy of the great continental history in the period indicated. Domestic developments are considered when appropriate to an understanding of international affairs. Prereq: HIS 105 or consent of instructor.

HIS 525 EUROPEAN DIPLOMACY SINCE 1918. (3)
A study of the origins and consequences of the two World Wars with special emphasis on diplomatic affairs and the impact of modern totalitarianism on them. Prereq: HIS 105 or consent of instructor.

HIS 528 CULTURAL AND INTELLECTUAL HISTORY OF EUROPE FROM THE RENAISSANCE TO THE FRENCH REVOLUTION. (3)
An interpretive anlaysis of the growth of ideas in Europe within their cultural setting. Emphasis upon the 17th and 18th Centuries.

HIS 530 SOCIAL HISTORY OF EUROPE IN THE 18th CENTURY. (3)
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.

HIS 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.

HIS 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. Prereq: HIS 105 or equivalent.

HIS 533 MODERN EUROPEAN IMPERIALISM. (3)
A comparative analysis of the motives, policies and socio-political effects of European overseas expansion in the 19th and 20th Centuries. Prereq: HIS 105.

HIS 534 RUSSIA IN THE 20TH CENTURY I. (3)
A survey of the reign of Nicholas II (1894-1917), the Revolutionary and Civil War period (1917-1921), and the consolidation of the Soviet regime to the beginning of Stalin's dictatorship in the late 1920's. Prereq: HIS 105 and consent of instructor.

HIS 535 RUSSIA IN THE 20TH CENTURY II. (3)
A continuation of HIS 534, this course examines the principal features of Soviet society under Stalin's dictatorship and the evolution of Soviet internal and external policy under his successors. Prereq: HIS 105 and consent of instructor.

HIS 536 INTELLECTUAL AND CULTURAL HISTORY OF RUSSIA AND EAST EUROPE TO 1890. (3)
A study of the main intellectual currents with special emphasis on ideological confrontations between East and West Europe. Prereq: HIS 204 and 286.

HIS 537 INTELLECTUAL AND CULTURAL HISTORY OF RUSSIA AND EAST EUROPE FROM 1890 TO THE PRESENT. (3)
Continuation of HIS 536. Prereq: HIS 204 and 286.

HIS 538 THE EAST EUROPEAN WORLD FROM 1770-1920. (3)
An intensive analysis of the problems which favored or frustrated (1) the modernization and national self-assertion of the East European peoples and (2) their consolidation into the Russian-led "Second World."

HIS 539 THE EAST EUROPEAN WORLD FROM 1920 TO THE PRESENT. (3)
Continuation of HIS 538.

HIS 540 HISTORY OF MODERN FRANCE TO 1815. (3)
The course of French history to 1815, including the development of French political, administrative, legal, social, economic and cultural achievements and institutions and their contribution to the modern world. Prereq: Permission of instructor.

HIS 541 HISTORY OF MODERN FRANCE SINCE 1815. (3)
Continuation of HIS 540.

HIS 542 GERMAN HISTORY 1815-1914. (3)
This course is designed as a study of domestic development in Germany. While political history is emphasized due consideration is given to social, economic and intellectual trends. Prereq: HIS 104, 105 or consent of instructor.

HIS 543 GERMAN HISTORY SINCE 1914. (3)
Examines the fall of Imperial Germany, the Weimar Republic, Hitlerian period, and the post 1945 era. The course is primarily concerned with internal affairs, but attention is directed to the international scene when crucial. Prereq: HIS 104, 105 or consent of instructor.

HIS 544 A HISTORY OF ITALY 1789-1890. (3)
An examination of the developments leading to Italian unification and an analysis of the problems faced during the United States' first 20 years. Prereq: HIS 104-105.

HIS 545 A HISTORY OF ITALY, 1890 TO THE PRESENT. (3)
A continuation of HIS 544, this course will deal with political, economic, social and cultural developments in Italy since 1890, including an examination of Fascism and post-World War II Italy. Prereq: HIS 104-105.

HIS 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.

HIS 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, or consent of instructor.

II. ENGLAND AND THE BRITISH EMPIRE

HIS 550 ENGLISH CONSTITUTIONAL HISTORY TO 1603. (3)
A study of the backgrounds of the English constitution.

HIS 551 ENGLISH CONSTITUTIONAL HISTORY SINCE 1603. (3)
A continuation of HIS 550. The constitutional struggle between the Stuart kings and Parliament; triumph of constitutional monarchy; rise of the Cabinet; effect of democracy in recent times.

HIS 552 BRITISH SOCIAL HISTORY DURING THE TUDOR-STUART PERIOD. (3)
A study of the effects of demographic and economic changes upon life in town and country, with emphasis upon changing social aspirations.

HIS 554 BRITISH HISTORY 1815-1901. (3)
A detailed study of Britain's political, social, diplomatic and industrial development in the 19th Century.

HIS 555 BRITISH HISTORY SINCE 1901. (3)
A detailed study of Britain in the 20th Century with special consideration of Britain in World War I and World War II, and her position in the contemporary world.

HIS 556 THE BRITISH EMPIRE TO 1860. (3)
Origin of the British Empire, 1783 to 1860; development of British sea power; the early growth and development of Canada, Australia, New Zealand, South Africa, and India.

HIS 557 THE BRITISH EMPIRE AND COMMONWEALTH. (3)
A continuation of HIS 556. Great Britain and the growth of the Dominions and the Commonwealth since 1860. Prereq: HIS 202 and 203.

HIS 558 HISTORY OF CANADA. (3)
A brief survey of Canada under the French; the development under British control; evolution of the Dominion; relation with the United States and British Commonwealth of Nations. Prereq: One year of college history.

III. AMERICAN HISTORY

HIS 560 COLONIAL AMERICA TO 1748. (3)
A study of the origins and development of the English colonies; their relations with England and European states. Emphasis on imperial policies and colonial autonomy. Prereq: One year of American or European history.

HIS 561 COLONIAL AMERICA AND INDEPENDENCE, 1748-1789. (3)
This course deals with England's triumph over France in the New World, the drastic change in her colonial policy and the rise of opposition to it, the war for American independence, and the establishment of the United States under the Constitution. Prereq: One year of American or European history.

HIS 562 THE NEW NATION, 1789-1828. (3)
An intensive study of the most significant men, events, and trends in the first generation of American national growth. Prereq: HIS 108.

HIS 563 EXPANSION AND CONFLICT, 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.

HIS 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.

HIS 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.

HIS 566 RECENT HISTORY OF THE UNITED STATES SINCE 1939. (3)
An intensive study of the development and maturation of the United States from World War II to the present, synthesizing military, diplomatic, social, economic, political and cultural changes. Prereq: One year of American history.

HIS 567 CIVIL WAR AND RECONSTRUCTION. (3)
A study of events immediately preceding the outbreak of conflict, of the military campaigns, and of the social, economic, and political developments during the periods of war and reconstruction. Prereq: HIS 108—109.

HIS 568 CULTURAL AND INTELLECTUAL HISTORY OF THE UNITED STATES TO 1865. (3)
An interpretive analysis of the growth of ideas in the United States within their cultural setting before 1865. Prereq: HIS 108 or consent of instructor.

HIS 569 CULTURAL AND INTELLECTUAL HISTORY OF THE UNITED STATES SINCE 1865. (3)
An interpretive analysis of the growth of ideas in the United States within their cultural setting since 1865. Prereq: HIS 109 or consent of instructor.

HIS 570 ECONOMIC AND SOCIAL HISTORY OF THE UNITED STATES TO 1865. (3)
The emergence of the United States from an underdeveloped economy to an industrial state. Interwoven in the theme of economic growth are the social ramifications of change and the role of government in American economic activity. Prereq: HIS 108 and 109, or consent of instructor. Offered in alternate years.

HIS 571 ECONOMIC AND SOCIAL HISTORY OF THE UNITED STATES SINCE 1865. (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, or consent of instructor. Offered in alternate years.

HIS 572 AMERICAN CONSTITUTIONAL HISTORY TO 1865. (3)
A study of the origins and development of American constitutional institutions from 1603 to 1865, with emphasis on political, economic and social influences.

HIS 573 AMERICAN CONSTITUTIONAL HISTORY SINCE 1865. (3)
A continuation of HIS 572 from 1865 to the present, with emphasis on constitutional problems posed by the industrial revolution and the warfare state.

HIS 574 THE DIPLOMACY AND FOREIGN POLICY OF THE UNITED STATES TO 1919. (3)
A survey designed to acquaint the student with the principles of American foreign policy and its historical evolution. Prereq: HIS 108 or equivalent.

HIS 575 THE DIPLOMACY AND FOREIGN POLICY OF THE UNITED STATES SINCE 1919. (3)
A continuation of HIS 574. Foreign policy after the United States became a world power. Prereq: HIS 109 or equivalent.

HIS 576 THE AMERICAN FRONTIER. (3)
A course dealing specifically with American westward expansion. Prereq: HIS 108 and 109 or equivalent.

HIS 577 THE AMERICAN FRONTIER. (3)
A continuation of HIS 576. It will consider the trans-Mississippi West.

HIS 578 HISTORY OF THE OLD SOUTH. (3)
A study of the colonial beginnings and expansion of southern life, economics, and society. The growth of slavery, staple agriculture, and sectional politics will constitute the major interest. Prereq: HIS 108.

HIS 579 HISTORY OF THE NEW SOUTH. (3)
The evolution of southern life and society, agrarian politics, relationships with other sections, industrial growth, and new leadership.

HIS 580 U.S. URBAN HISTORY TO 1865. (3)
A study of urban America from colonial times to 1865, emphasizing origins and growth of cities and their impact upon the development of the United States.

HIS 581 U.S. URBAN HISTORY SINCE 1865. (3)
A continuation of HIS 580, tracing changes and developments which have occurred since 1865.

HIS 582 IMMIGRATION AND AMERICAN HISTORY, 1815 TO THE PRESENT. (3)
A study of the role of the immigrant in American history, emphasizing the impact of large scale immigration upon the receiving society and changes effected by the migration upon the new arrivals themselves, in the century after 1815, and the consequences of restriction in the decades since World War I.

HIS 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.

HIS 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

HIS 590 JAPANESE HISTORY TO 1800. (3)
A broad survey of the political, social, economic, and intellectual history of Japan from earliest times to the zenith of shogunate rule under the Tokugawa family.

HIS 591 JAPANESE HISTORY SINCE 1800. (3)
A continuation of HIS 590, from 1800 to present.

HIS 592 DIPLOMATIC HISTORY OF EAST ASIA SINCE 1787. (3)
A study of the international relations between China, Japan, and Korea and their relations with the major Western Powers.

HIS 593 EAST ASIAN HISTORY SINCE WORLD WAR II. (3)
A study of the revolutionary political, economic and social changes occurring in China, Japan, and Korea in the aftermath of World War II. Important political and institutional developments and their relations to pre-war trends will be emphasized.

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.

HIS 600 EUROPEAN HISTORIOGRAPHY. (3)

HIS 603 AMERICAN HISTORIOGRAPHY. (3)

HIS 606 HISTORICAL CRITICISM. (3)
Required of every entering graduate student in history.

HIS 611, 612 READINGS IN ANCIENT HISTORY. (3 ea.)
An intensive study of the bibliography of Greek and Roman history, primary (in translation) and secondary, criticism and analysis of selected books, and of recent articles in professional journals. Prereq: Consent of instructor.

HIS 613, 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.

HIS 621, 622 READINGS IN EUROPEAN HISTORY, 1500-1815. (3 ea.)
These courses are designed to provide systematic and extensive reading over broad areas of the period indicated, to acquaint the student with the standard source materials and literature of the field, and to provide opportunity for critical discussion of outstanding issues. Prereq: An undergraduate course in European history.

HIS 623, 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.

HIS 625, 626 READINGS IN BRITISH AND BRITISH EMPIRE HISTORY. (3 ea.)
An intensive study of the bibliography of British and British Empire history, primary and secondary, with readings, analyses and criticisms of selected titles in the literature of the field and of recent published research in the professional journals. Prereq: An undergraduate course in British history.

HIS 631, 632 READINGS IN UNITED STATES HISTORY TO 1865. (3 ea.)
These courses are designed to provide systematic and extensive reading over broad areas of American history in the period indicated, to acquaint students with source materials and the secondary literature of the field, and to provide opportunity for critical discussion of books and issues. Prereq: An undergraduate course in American history.

HIS 633, 634 READINGS IN UNITED STATES HISTORY SINCE 1865. (3 ea.)
These courses are designed to provide systematic and extensive reading over broad areas of American history in the period indicated, to acquaint students with source materials and the secondary literature of the field, and to provide opportunity for critical discussion of books and issues. Prereq: An undergraduate course in American history.

HIS 635 READINGS IN MODERN RUSSIAN HISTORY I. (3)
A guided program (with readings ordinarily in the English language) to provide graduate students with a more sophisticated understanding of the Tsarist regime from the reign of Peter the Great to the collapse of the monarchy in 1917. Oral reports and bibliographies will be required, and emphasis will be placed on internal developments, usually with a central theme to be chosen by the instructor. Prereq: Consent of instructor.

HIS 636 READINGS IN MODERN RUSSIAN HISTORY II. (3)
A continuation of HIS 635, this course will concentrate on the revolutionary events of 1917 and the subsequent evolution of the Soviet regime. Prereq: Consent of instructor.

HIS 637, 638 READINGS IN LATIN AMERICAN HISTORY. (3 ea.)
Supervised reading at the graduate level of a select topical bibliography covering of the main themes of colonial Latin American history or the modern period. Prereq: HIS 208 and 209 or consent of instructor.

HIS 639 READINGS IN EAST ASIAN HISTORY. (3)
Supervised reading at the graduate level of a select topical bibliography covering the main themes of Chinese history during the Ch'ing Dynasty (1644-1912) and Japanese history during the Tokugawa period (1615-1867). Prereq: Consent of instructor.

HIS 640 READINGS IN EAST ASIAN HISTORY. (3)
Supervised reading at the graduate level of a select topical bibliography covering the main themes of Chinese history since 1895 and Japanese history since 1868. Prereq: Consent of instructor.

HIS 695 INDEPENDENT WORK. (1-3)
Under special conditions selected students may investigate problems, with weekly reports to instructor. Prereq: Consent of instructor. May be repeated for a maximum of nine credits.

COURSES IN THE 700 GROUP

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

HIS 700 SPECIAL PROBLEMS IN HISTORY. (3)
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.

HIS 705 SEMINAR IN ANCIENT HISTORY. (3)
Select topics in Greek and Roman history, with an intensive study of a particular area or aspect of the ancient world. Prereq: Reading knowledge of at least one ancient language and one modern foreign language, or consent of instructor.

HIS 706 SEMINAR IN MEDIEVAL HISTORY. (3)
Directed research on a common problem. Prereq: Latin and one modern European language.

HIS 710 SEMINAR IN AMERICAN HISTORY, 1607-1783. (3)
May be repeated to a total of six credits.

HIS 711 SEMINAR IN AMERICAN HISTORY, 1783-1865. (3)
May be repeated to a total of six credits.

HIS 712 SEMINAR IN AMERICAN HISTORY, 1865 TO THE PRESENT. (3)
May be repeated to a total of six credits.

HIS 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.

HIS 720 SEMINAR IN MODERN EUROPEAN HISTORY, 1500-1714. (3)
May be repeated to a total of six credits.

HIS 721 SEMINAR IN MODERN EUROPEAN HISTORY, 1714-1870. (3)
May be repeated to a total of six credits.

HIS 722 SEMINAR IN MODERN EUROPEAN HISTORY, 1870 TO THE PRESENT. (3)
May be repeated to a total of nine credits.

HIS 730 SEMINAR IN MODERN BRITISH HISTORY. (3)

THESES

HIS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

HIS 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

HOME ECONOMICS

HE 100 INTRODUCTION TO HOME ECONOMICS. (1)
Development and scope of home economics as a profession, its wide variety of career opportunities, with analysis of interests, aptitudes, proficiencies and education related to success in these areas. Lecture, one hour; discussion (optional), one hour.

HE 575 COMMUNITY ANALYSIS. (3)
A study of communal structure and processes with special emphasis on strategies of field investigation of particular communities. Prereq: SOC 101 or equivalent or consent of instructor. (Same as SOC 413 in Colleges of Arts and Sciences and Agriculture.)

HE 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

HONORS

HON 101 FRESHMAN COLLOQUIUM. (3)
The Greek World View: an interdisciplinary course in history of ideas. Readings from Greek classics vary at the discretion of the facultly. Satisfies freshman English requirement.

HON 102 FRESHMAN COLLOQUIUM. (3)
The Christian World View in the Middle Ages: an interdisciplinary course in history of ideas, continuing HON 101. Readings vary at the discretion of the faculty. Satisfies freshman English requirement.

HON 103 FRESHMAN COLLOQUIUM. (3)
Rise of the Near Eastern Tradition in Antiquity: an interdisciplinary course in history of ideas. Readings vary at the discretion of the faculty. Satisfies freshman English requirement.

HON 201 SOPHOMORE COLLOQUIUM. (3)
The Premises of Modern Civilization. Renaissance through the 19th Century: an interdisciplinary course in history of ideas. Readings at the discretion of the faculty. May be used to fulfill three hours of Area V requirement. Prereq: Sophomore standing or completion of HON 102.

HON 202 SOPHOMORE COLLOQUIUM. (3)
Dominant Ideas of the 20th Century: an interdisciplinary course in history of ideas, continuing HON 201. Readings at the discretion of the faculty. May be used to fulfill three hours of Area V requirement. Prereq: Sophomore standing.

HON 203 SOPHOMORE COLLOQUIUM. (3)
The Roman World View: an interdisciplinary course in history of ideas. Readings vary at the discretion of the faculty. May be used to fill three hours of Area V requirement. Prereq: HON 101 or 102 or 103, and/or sophomore standing.

HON 300 SPECIAL COURSE. (1-3)
Interdisciplinary, topical, experimental course to be approved by Honor sub-committee, taught by one or several instructors. Open to HP students and selected others at junion-senior level. Maximum 3 credits.

HON 301 JUNIOR-SENIOR COLLOQUIUM. (3)
A proseminar in history of ideas: topics vary from semester to semester. May be repeated once for a total of six hours. Prereq: Junior standing, or HON 201, 202.

HON 302 JUNIOR-SENIOR COLLOQUIUM. (3)
A proseminar in history of ideas: topics vary from semester to semester. May be repeated once for a total of six hours. Prereq: Junior standing, or HON 301.

HON 395 INDEPENDENT WORK—JUNIORS AND SENIORS. (3-15)
Prereq: Upper division status, membership in Honors Program, consent of Honors Director.

The following Honors Program courses are described under the department indicated:

A-H 209-99	EDF 395-99	MA-396-99
ANT 120-99	GEO 152-99	NUR 899
ANT 121-99	GLY 140-99	PHI 100-99
CHE 110-99	GLY 142-99	PHY 231-99
CHE 112-99	MA 115-99	PHY 232-99
CHE 115-99	MA 116-99	PS 151-99
CS 150-99	MA 215-99	PS 201-99
ECO 260-99	MA 216-99	PSY 104-99
ECO 261-99	MA 395-99	PSY 106-99
		SOC 101-99

HORTICULTURE

HOR 108 INTRODUCTION TO LANDSCAPE ARCHITECTURE. (0)
An introductory course for landscape architecture majors to give insight to the scope and nature of the landscape architecture profession and curriculum. Lecture, two hours.

HOR 203 RECREATIONAL HORTICULTURE. (3)
A basic course designed to familiarize students with the recreational aspects of the field of horticulture.

HOR 205 HISTORY OF LANDSCAPE ARCHITECTURE. (3)
A study of landscape design through past civilizations and how these have influenced our present approach to dealing with our landscape. Three hours lecture.

HOR 206 CONTEMPORARY LANDSCAPE ARCHITECTURE. (2)
A survey of contemporary landscape architecture, its evaluation and implications for the future of the practice. Prereq: HOR 205.

HOR 300 PRINCIPLES OF HORTICULTURAL PRODUCTION. (3)
A course which deals with the various fundamental aspects of the production and harvesting of horticultural crops. Lecture, two hours; laboratory, two hours per week. Prereq: A course in botany.

HOR 327 ORNAMENTAL PLANTS I. (3)
A detailed study of evergreen and deciduous plants, their identification size, shape, effects produced, the conditions required for their use and suitability for landscape uses. For ornamental majors. Offered alternate years. Lecture, one hour; laboratory, four hours. Prereq: An approved course in biological science and approval of instructor.

HOR 329 ORNAMENTAL PLANTS II. (2)
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; laboratory, two hours. Prereq: HOR 327.

HOR 330 ORNAMENTAL PLANTS III. (3)
The identification, culture, and use of garden plants, including annuals, perennials, bulbs, flowering vines, rock and water garden species. Lecture, two hours; laboratory, two hours.

HOR 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, two hours; laboratory, two hours. Prereq: One course in art.

HOR 332 LANDSCAPE DESIGN II. (4)
Studio design course which emphasizes project-type design with emphasis on site design at a variety of scales. Lecture, one hour; studio, six hours. Prereq: HOR 331.

HOR 335 FLORICULTURE I. (3)
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, two hours; laboratory, two hours. Prereq: A course in botany and a course in soils.

HOR 340 FLORAL DESIGN. (2)
An adaptation of design principles to the art of floral decoration. Four class hours per week. Prereq: Consent of instructor.

HOR 402 POMOLOGY: DECIDUOUS FRUITS I. (3)
A detailed study of the care and management of commercial plantings of deciduous fruits (both small and tree). Lecture, two hours; laboratory, two hours. Prereq: A course in botany.

HOR 440 LANDSCAPE CONSTRUCTION I. (3)
A study to develop solutions for problems involving surface drainage, grading, earth volume calculation, surfacing materials, and the use of working drawing and specifications in landscape architectural situations. Lecture, two hours; laboratory, two hours. Prereq: MA 109 or equivalent.

HOR 441 LANDSCAPE CONSTRUCTION II. (3)
A continuation of the study of landscape construction to develop competences in performing calculations necessary to solve problems of simple structures, subsurface drainage systems, and road alignment. Lecture, two hours; studio, two hours. Prereq: HOR 440, one course plane surveying.

HOR 502 POMOLOGY: DECIDUOUS FRUITS II. (3)
A course dealing with the theory of plant growth and fruit development in deciduous fruits (both small and tree fruits). Prereq: HOR 402, or consent of instructor.

HOR 510 VEGETABLE CROPS. (3)
A study of the fundamental principles underlying commercial production of vegetables. Lecture, two hours; laboratory, two hours. Prereq: AGR 366. Offered in fall of odd-numbered years.

HOR 512 GREENHOUSE VEGETABLE CROPS. (3)
Principles of vegetable crop production in environmentally controlled growing structures; methods for controlling the environment; vegetable crops adapted to greenhouse production. Lecture, two hours; laboratory, two hours.

HOR 515 TURF MANAGEMENT. (3)
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, two hours; laboratory, two hours. Prereq: One course in botany and one course in soil science. Offered fall of odd-numbered years.

HOR 522 LANDSCAPE PLANTING DESIGN. (3)
A detailed study of the use of various plant materials to express the principles of landscape design. Lecture, two hours; laboratory, two hours. Prereq: HOR 331, 527.

HOR 523 LANDSCAPE PLANNING AND DESIGN. (4)
An introduction to planning principles and methods and their relationships to the social and physical shaping of the environment. The application of land use planning methods and principles. Lecture, one hour; studio, six hours. Prereq: Majors or consent of instructor.

HOR 524 FLORICULTURE II. (3)
A detailed study of specific groups of florists' crops, with particular reference to methods of control of flowering and growth. Lecture, two hours; laboratory, two hours. Prereq: HOR 335.

HOR 525 PLANT PROPAGATION. (3)
A detailed study of the methods of propagating certain horticultural plants. Includes cuttings, grafting, and budding. Lecture, two hours; laboratory, two hours. Prereq: One course in botany. Offered fall of even-numbered years.

HOR 570 LANDSCAPE DESIGN OF PARK AND RECREATION AREAS. (3)
A study of standards, principles, and procedures of planning and design for recreational needs with emphasis on resource development for human use. Lecture, one hour; studio, four hours. Prereq: HOR 331 or permission of instructor. (Same as HPR 570.)

HOR 575 ADVANCED LANDSCAPE DESIGN. (5)
A studio course which emphasizes problem-solving techniques ranging in scale from the project level to the regional scale. Students will be exposed to interdisciplinary design approaches as a team effort. Lecture, one hour; studio, eight hours. Prereq: HOR 523 or consent of instructor.

HOR 576 SEMINAR IN LANDSCAPE ARCHITECTURE. (1-2)
An analysis of topics of design theory, planning concepts or other contemporary philosophies related to the field of landscape architecture. May be repeated to a maximum of four credits. Prereq: Majors or consent of instructor.

HOR 582 SPECIAL PROBLEMS IN HORTICULTURE. (1-4)
May be repeated for a maximum of nine credits. Prereq: Consent of instructor.

HOR 732 MINERAL NUTRITION OF PLANTS. (3)
Discussion of accumulation, translocation, and utilization of mineral elements by higher plants. Emphasis will be placed on the relationship between these processes and plant metabolism. Prereq: BOT 701 or BCH 515 or consent of instructor. (Same as BOT 732, AGR 732.)

HOR 734 PHYSIOLOGY OF GROWTH AND DEVELOPMENT. (3)
A critical evaluation of research in selected aspects of plant growth and development. Emphasis will be on effects of growth environment. Prereq: BOT 701 or consent of instructor. (Same as BOT 734, AGR 734.)

HOR 736 PHYLOGENY OF CULTIVATED PLANTS. (3)
Lecture and discussion of concepts and experimental techniques concerned with the origin and phylogeny of cultivated plant species. Lecture, two hours; laboratory, two hours per week. Prereq: AGR 506, BIO 620 or consent of instructor. (Same as AGR 736.)

HOR 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

HOR 770 SEMINAR. (1)
May be repeated twice for a total of three credits.

HOR 790 RESEARCH IN HORTICULTURE. (1-4)
May be repeated to a maximum of nine credits. Prereq: Approval of instructor.

HOUSING AND INTERIOR DESIGN

HID 102 BASIC DESIGN FOR HOME ECONOMICS. (2)
Application of basic principles of design to home economics through the use of the art elements. A laboratory provides opportunity of working with and applying the elements and principles to the student's major area of study. One hour lecture and two hours laboratory. (Same as TC 102.)

HID 261 SOCIO-ECONOMICS OF HOUSING. (3)
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.

HID 330 INTERIOR DESIGN I. (3)
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 101, 261; and ME 105 or for non-majors, approval of instructor.

HID 332 INTERIOR DESIGN III. (3)
Analysis and organization of components, materials, and space relative to human scale and habitatability. Influence factors of architecture, function, and economics on the design of interior environments for the family and the public. Lecture, one hour; studio, five hours. Prereq: HID 330.

HID 339 INTERIOR DESIGN STUDIO III. (2)
Creative aspects of interior design and refinement of presentation portfolio material. Prereq: HID 332.

HID 363 HOUSEHOLD EQUIPMENT. (3)
Electrical and gas household equipment and small appliances, their selection, maintenance, operation and cost. Lecture, two hours; laboratory, two hours. (Same as MFE 363.)

HID 530 INTERIOR DESIGN V. (3)
Advanced studio experience in any aspect of the interior environment. Emphasis is placed on client contact, field experience, and professional ethics of the design trade. Lecture, one hour; studio, five hours. Prereq: HID 339.

HID 536 INTERIOR DESIGN COMPONENTS. (3)
Creative experience in the origination of a functional or decorative component required to complete an interior environment: wall-covering, floor covering, textile print, lighting, furniture. Studio experience to cover: subject selection, material selection, shop draw-

ings, and full or half scale prototype. Studio, six hours. Prereq: HID 530, 537, or consent of instructor.

HID 537 HISTORY OF FURNITURE. (4)
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. Prereq: HIS 104 and 105.

HID 538 MATERIALS AND COMPONENTS. (3)
A study of specific human and material needs encountered in the design of interiors: lighting, acoustics, field measurements, specifications, cost accounting and purchasing, shop drawings, and models. Studio emphasis to be placed on team projects. Lecture, one hour; studio five hours. Prereq: HID 530.

HID 593 SPECIAL PROBLEMS IN SHELTER AND INTERIOR DESIGN. (1-3)
Advanced in-depth study of a specific phase of the interior environment. Senior or graduate standing. May be repeated for a total of six credits. Prereq: HID 536 or consent of instructor.

HID 772 SEMINAR IN INTERIOR DESIGN. (2)
Investigation, analysis, and proposal of new and experimental aspects of the interior environment. Lecture, two hours. May be repeated for a total of six hours.

HID 783 SPECIAL PROBLEMS IN INTERIOR DESIGN. (1-3)
Advanced work on a specific subject with client contact and field experience. Emphasis is placed on data gathering studies that preceed creative graphic presentations and material decisions. Graduate standing. May be repeated for a total of six credits.

HUMAN DEVELOPMENT AND FAMILY RELATIONS

HF 153 INTRODUCTION TO FAMILY DEVELOPMENT. (3)
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.

HF 254 PSYCHOLOGY OF THE CHILD. (3)
An introduction to the scientific study of infancy, childhood, and adolescence. Prereq: PSY 104 and 106 or 210. (Same as PSY 200.)

HF 255 CHILD DEVELOPMENT. (3)
The interrelation of physical, social, emotional and intellectual development and its effects upon the behavior and guidance of children from conception to age six; with directed observation of children in the Early Childhood Laboratory. Prereq: PSY 104, or equivalent, or concur. Lecture-discussion, three hours; laboratory, one hour.

HF 350 CHILD GUIDANCE. (3)
Theories and practice in guiding children's development both at home and in the Early Childhood Laboratory with participation in Early Childhood Laboratory guidance. Prereq: HF 153 or six hours in social or behavioral science or consent of instructor.

HF 353 MARITAL AND FAMILY DYNAMICS. (3)
Consideration of factors involved 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; laboratory, two hours. Prereq: HF 153 or six hours in social or behavioral science or consent of instructor.

HF 357 CONTEMPORARY ADOLESCENCE. (3)
A survey of contemporary adolescent development and behavior with special emphasis on the multiple forces which affect this state of development. Prereq: Six hours in social or behavioral science or consent of instructor.

HF 358 HEALTH AND THE FAMILY. (3)
Stress is placed on planning and development of individual and family activities and programs for maintaining good health. Attention is given to community, state and national programs having significance for the health of individuals and families.

HF 395 GUIDING CHILDREN'S ROUTINES. (3)
Participation in supervised activities such as rest and food service in the nursery school. Lecture, one hour; laboratory, four hours. Prereq: HF 350.

HF 396 SEMINAR IN EARLY CHILDHOOD. (1)
Discussion and evaluation of teaching experiences, early childhood 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.

HF 540 INTENSIVE STUDY OF THE CHILD AND THE FAMILY. (3)
Techniques in the study of the development of the individual child and individual families. Methods of assessing the developmental impact of the family and other social environments on development in addition to methods relevant to assessing how children operate in various ecologies. Prereq: Six hours in social or behavioral science or consent of instructor.

HF 541 SUPERVISED TEACHING IN THE EARLY CHILDHOOD LABORATORY I. (3)
Supervised teaching experience with preschool groups in a laboratory school. Laboratory, seven hours. Prereq: HF 350, 540, or equivalent or concurrent or consent of instructor.

HF 542 SUPERVISED TEACHING IN THE EARLY CHILDHOOD LABORATORY II. (3)
Supervised teaching experiences with preschool groups in a laboratory school. Laboratory, seven hours. Prereq: HF 350, 540, or equivalent or concurrent or consent of instructor.

HF 551 WOMAN IN CONTEMPORARY SOCIETY. (3)
An examination of the status of women in terms of historical, psychological and social developments and the effects of participation in modern roles on family life. Prereq: Six hours of social sciences or consent of instructor.

HF 552 ORGANIZATION AND ADMINISTRATION OF EARLY CHILDHOOD EDUCATION PROGRAMS. (3)
Organization and administration, including housing, equipment, program, records, parent cooperation. Field trips. Prereq: HF 350 or consent of instructor.

HF 553 THE CHILD IN HIS FAMILY. (3)
Preparation and presentation of research reports of studies of family influences on the personality and development of children. Prereq: HF 153, and six credits in sociology and/or psychology.

HF 555 CREATIVE EXPERIENCES AND CONCEPT DEVELOPMENT: PRESCHOOL YEARS. (3)
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; laboratory, two hours. Prereq: HF 350 or concurrent or consent of instructor.

HF 557 INFANT DEVELOPMENT. (3)
Study of development, care and guidance of the child during prenatal, natal, and infant periods. Prereq: Six hours in social or behavioral sciences or consent of instructor.

HF 595 SPECIAL PROBLEMS IN CHILD DEVELOPMENT AND FAMILY RELATIONSHIPS. (1-3)
Intensive work on specific problems. May be repeated for a total of six credits. Prereq: Consent of instructor.

HF 604 THE DISADVANTAGED CHILD IN EARLY CHILDHOOD PROGRAMS. (3)
A study of the psycho-social characteristics of disadvantaged children and families including language and cognitive development. Survey of early childhood education programs and related services for the disadvantaged. A review of methods of child guidance in the family and early childhood programs for the disadvantaged, parent involvement, and the role of para-professionals. Three lecture hours; one laboratory hour per week. Prereq: HF 555 or equivalent or permission of instructor.

HF 605 PRACTICUM IN DIRECTING EARLY CHILDHOOD PROGRAMS. (4)
Supervised experience and study in the processes of teaching, staff supervision, staff development, and evaluation of staff performance in early childhood programs. Two lecture hours; four laboratory hours. Prereq: HF 541 or 542 or equivalent or consent of instructor.

HF 653 FAMILY THEORY AND DYNAMICS. (3)
A survey and critical evaluation of family theory in the areas of mate selection, marital satisfaction, spousal relations and the process of parenthood and child rearing in addition to evaluations of current research in these areas. Prereq: An advanced undergraduate course in the family or consent of instructor. (Same as SOC 653.)

HF 655 THEORY AND DYNAMICS OF HUMAN DEVELOPMENT. (3)
Advanced study of theory and research relating to the processes and outcomes of human development throughout the life cycle.

HF 658 ADOLESCENT DEVELOPMENT. (3)
A survey of theory and research in adolescent development with

HF 775 SEMINAR IN CHILD DEVELOPMENT. (3)
Preparation and presentation of reports of current investigations in child development. May be repeated once for a total of six credits. Prereq: Consent of instructor.

HF 785 SPECIAL PROBLEMS IN CHILD DEVELOPMENT AND FAMILY LIVING. (1-3)
Independent advanced work. May be repeated for a total of six credits. Prereq: Consent of instructor.

HF 790 FAMILIAL AND DEVELOPMENTAL RESEARCH METHODS. (3)
The study of research techniques and methodological problems involved in home economics research on the family. Emphasis is placed on research concerning interrelations between the family and its environment, development within the family, and family dynamics. Prereq: Consent of instructor.

JOURNALISM

JOU 201 ETYMOLOGY. (3)
A study of words and their fundamental values with reference to development of a writing vocabulary. Prereq: Consent of instructor.

JOU 203 PRINCIPLES OF NEWS WRITING. (3)
Lectures and readings on the development of the modern news style. Practice in effective writing. Designed for non-Communication School majors. Credit is not permitted for both JOU 203 and 204.

JOU 204 WRITING FOR THE MASS MEDIA. (3)
A course designed to introduce majors in the communications fields to practices and techniques in preparation of information materials for the printed and broadcast media. Designed for majors in the School of Communications. Credit is not permitted for both JOU 203 and 204.

JOU 241 COMMUNICATIONS PRACTICUM. (1-4)
Supervised laboratory work in the media of mass communications, with meetings for evaluation of work, study of techniques, analyses of problems, and reports. May be repeated to a maximum of four credits.

JOU 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.

JOU 501 NEWS REPORTING. (3)
A reporting course which emphasizes special fields of information, news gathering, and news evaluation.

JOU 503 COPYREADING AND EDITING. (3)
Instruction and practice in newspaper deskwork. Preparation of local, state, telegraph, and radio news and features; picture editing, and page make-up. Lecture, one hour; laboratory, four hours. Prereq: JOU 501.

JOU 507 FEATURE WRITING. (3)
Instruction and practice in writing features. Lectures, readings, and reports directed toward discovering, gathering, organizing, writing, and marketing feature articles. Prereq: Senior standing or consent of instructor.

JOU 509 MAGAZINE ARTICLE WRITING. (3)
Lectures, personal conferences, and practice in writing and submitting material for publication in magazines; study of the markets for this material; free-lance article writing. Prereq: Senior or graduate standing, or consent of instructor.

JOU 511 EDITORIAL WRITING. (2)
A study of editorials, editorial columns, and editorial pages. Publication of copy encouraged.

JOU 513 SUPERVISION OF HIGH SCHOOL PUBLICATIONS. (1-3)
A study of the problems that confront the adviser of the high school newspaper or magazine. Open to advisers or prospective advisers with consent of the instructor.

JOU 531 LAW OF THE PRESS. (3)
A study of the special laws of libel, copyright, and regulatory provisions that pertain to the press. Prereq: Senior standing.

JOU 535 HISTORY OF JOURNALISM. (3)
A study of the rise and development of American journalism and newspapers. Prereq: Senior standing.

JOU 537 SEMINAR IN PUBLIC OPINION. (3)
A detailed examination of techniques developed and used by the press in influencing public opinion. Specific cases studied. Latter part of course devoted to the preparation of newspaper campaigns dealing with current problems of society. Prereq: Senior or graduate standing.

JOU 539 REPORTING PUBLIC AFFAIRS. (3)
Instruction and practice in reporting the news originating in courts and other public institutions. Prereq: JOU 501 and senior standing.

JOU 541 PUBLIC RELATIONS. (3)
Lectures and practice dealing with the aims and methods of writing news and special articles for public relations programs of business, schools, colleges, libraries, and of social service organizations.

JOU 561 NEWSPAPER AND MAGAZINE ADVERTISING. (3)
Relation of newspapers and magazines with advertisers with emphasis upon the preparation of local display and national advertising. Prereq: Consent of instructor.

JOU 563 ADVERTISING PROCEDURES. (3)
Study of organizations and functions of advertising institutions and of product analysis, and research, consumer motivation, production methods, copy and layout. Lecture, two hours; laboratory, two hours. Prereq: JOU 561.

JOU 575 TYPOGRAPHY. (2)
Instruction and practice in typographic composition. Use of type faces in news editing. Study of typography in the make-up of American newspapers. Laboratory, four hours. Prereq: Consent of instructor.

JOU 581 INTRODUCTION TO PRESS PHOTOGRAPHY. (3)
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.

JOU 599 ADVANCED WRITING FOR THE MASS MEDIA. (3)
A course designed to provide communications majors advanced training in reporting and writing articles on current events, public issues, personalities, culture and entertainment for newspapers, magazines and the broadcast media. Twice weekly seminars; laboratory and independent work by students as needed to complete assignments; individual consultation between instructor and students. Prereq: Consent of instructor required.

LAW

FIRST-YEAR SUBJECTS

LAW 802 LEGAL BIBLIOGRAPHY. (1)
Practical problems in the use of statutes, reports, digests, encyclopedias, annotated cases, citation books, periodicals, reference tables, and indices.

LAW 804 LAW AND LEGAL INSTITUTIONS. (2-3)
A perspectives course for first-year law students treating the function of law and the legal system in society rather than particular areas of substantive or adjective law. The court system and the legislative and administrative systems are studied and evaluated as to function and role with the purpose of understanding how the institutional parts relate and how the lawyer perceives their operation with particular emphasis on law as an instrument of social change.

LAW 805 TORTS. (4)
Intentional torts and defenses, negligence, causation, duties of occupants of land and manufacturers and vendors of chattels, contributory negligence, strict liability, deceit, defamation, malicious prosecution, interference with advantageous relations.

LAW 807 PROPERTY. (4)
Basic course in property: possession, gifts, bona fide purchasers of personalty. Estates, uses, easements, and rights incident to ownership.

LAW 810 CRIMINAL LAW. (3)
Jurisdiction; the criminal act, complete and incomplete; criminal intent, actual and constructive; duress and mistake of fact, of law; justification; parties in crime; crimes against the person and crimes against property.

LAW 811 CRIMINAL PROCEDURE. (3)
Arrest, preliminary examination, bail, methods of prosecution, the grand jury, indictment and information, arraignment and pleas, nolle prosequi and motions to quash, trial and verdict, motions after trial.

LAW 812 CONTRACTS. (4)
Formation of contracts, offer, acceptance, consideration. Statute of Frauds, parol evidence rule, contracts for benefit of third persons,

assignments, performance of contracts, express and implied conditions, impossibility of performance, discharge and illegal contracts.

LAW 815 PRACTICE AND PROCEDURE I. (3)
Common law forms, theory of the case, composition of pleadings, demurrer, aider, duplicity, traverses, pleas, motions; code and federal rule pleading, claims, answers, objection and correction of pleadings, parties and joinders of actions.

LAW 818 REMEDIES. (3)
Nature of damages; nature of specific relief; personal interests; contractual interests; property interests; specific relief and the government.

LAW 820 CONSTITUTIONAL LAW. (4)
Governmental powers under the Constitution, federal judiciary, President, and intergovernmental relations; right, privileges, and immunities under the Constitution. National citizenship, due process, and equal protection.

LAW 824 LEGAL RESEARCH TUTORIAL. (1)
A conference course for tutorial instruction in legal research and writing, in fundamentals of legal analysis, and in the solution of selected legal problems.

SECOND-YEAR SUBJECTS

LAW 817 PRACTICE AND PROCEDURE II. (2-3)
Venue, service of summons, provisional remedies, discovery and pretrial practice, summary judgment, trials, verdict, judgment and appeals, including final judgment rule, and appeal practice; res judicata; correction of judgments; extraordinary remedies.

LAW 819 THE FEDERAL COURTS AND THE FEDERAL SYSTEM. (3)
The nature of the federal judicial function and its development, distribution of power among federal and state courts, Supreme Court review of state court decisions, the law applied in federal district courts, federal question and diversity jurisdiction, federal habeas corpus, removal jurisdiction and procedure.

LAW 825 LEGISLATION. (2-3)
Nature and scope of legislative power; organization of legislative bodies; legislative process; legislation and the courts; interpretation of statutes.

LAW 830 LEGAL HISTORY. (2)
Basic introduction to the development of the common law in England prior to 1700. Topics covered include the nature of the common law, the feudal background, the development of the central courts, original writs and the forms of action, the origins of jury trial, the growth of equity jurisdiction, the rise of Parliament, judicial protection of individual rights, and the development of the law merchant.

LAW 835 THE LEGAL PROFESSION. (2)
A study of professional problems including: ethics, discipline, unauthorized practice, duty to court and client, bar admission and organization, fees and office procedure.

LAW 850 BUSINESS ASSOCIATIONS I. (3)
A study of traditional agency concepts (including the vicarious liability relationship in tort and contract); informal organizational relationships (joint enterprise, joint venture, voluntary unincorporated associations); organization, dissolution, and liquidation of partnerships; special problems pertaining to partnership property; limited partnerships.

LAW 851 BUSINESS ASSOCIATIONS. (4)
An elective course for second-year law students treating the basic legal introduction to the different forms of business organization; with primary emphasis on the nature and structure (under American law) of the modern business corporation. Major areas covered include: partnership planning (formation of partnerships, rights in partnership property, rights of partners on dissolution and liquidation); steps required for organizing a corporation (including legal consequences of defective incorporation); nature of corporate entity concept; control and management of the corporation (including special problems of the close corporation); fiduciary duties of directors and controlling shareholders under state law; nature and special characteristics of the shareholders derivative suit. Prereq: Completion of first year of law study generally is expected.

LAW 852 BUSINESS ASSOCIATIONS II. (3)
A study of basic corporation law principles, including: organizing the corporation; defective incorporation; pre-incorporation transactions; control and management of the corporation (with emphasis on the special problems of the close corporation); the corporate entity concept; duties of directors and controlling shareholders; shareholders' derivative suits and right of inspection.

LAW 853 FEDERAL CORPORATION LAW. (2 or 3)
An elective course for advanced law students treating the body of substantive federal corporation law newly generated by the federal securities acts, emphasizing particularly its impact on fiduciary responsibilities of directors and controlling shareholders in the management of corporate affairs. Specific attention is given to proxy control (under Section 14, 1934 Securities Exchange Act); to federal regulation of insider trading (Sections 10b and 16b); to corporate disclosure and inside trading as affected by SEC v. Texas Gulf Sulphur; and to other related matters, including tender offers and the effects of newly developed federal law on state directors' and officers' indemnification statutes. Prereq: Completion of first year of law study generally is expected.

LAW 860 TAXATION I. (3)
Problems in federal and state income taxation.

LAW 870 OIL AND GAS. (2)
Oil and gas leases—infants, married women, life tenants, and others as parties; the granting clause—lessee's interest, lessee's right to ejectment; the habendum clause—duration of lease; etc.

LAW 873 LAND DEVELOPMENT LAW. (3)
An elective course for second-year law students. A basic study of the body of land development law, including: land transfers, land sales contracts; deed covenants; recording acts; title insurance; contemporary landlord and tenant law; and public utility, subdivision and zoning regulations. The indicated problem areas are treated together to illuminate the lawyer's role in the land development process.

LAW 876 TRUSTS AND ESTATES. (4)
An elective course for second-year law students. Examination of rules governing interstate distribution of property; formal requirements governing execution, alteration and revocation of wills; requisite elements of express trusts and requirements for their creation, special rules relating to charitable trusts and spendthrift trusts; rules concerning construction of wills and trusts and general rules governing administration of decedents' estates and trusts.

LAW 880 COMMERCIAL LAW. (4)
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.

LAW 883 CONSUMER DEBTOR-CREDITOR RELATIONS. (2-3)
Consumer installment credit agreements: creation, regulation, and enforcement; security interests; debt collection, small claims actions and wage garnishment; consumer bankruptcy and wage earner plans.

LAW 885 COMMERCIAL DEBTOR-CREDITOR RELATIONS. (2-3)
Minimizing risk of loss through bankruptcy by business creditors and debtors; Uniform Commercial Code versus the federal Bankruptcy Act; non-bankruptcy creditors' and debtors' remedies in commerical context, including assignments and arrangements under state law; commercial bankruptcy; rehabilitation under Bankruptcy Act.

LAW 887 INSURANCE. (2-3)
Nature of contract, insurable interest, making the contract, concealment, representations, warranties, implied conditions of forfeiture, waiver and estoppel, rights under the contract, and construction of the policy.

LAW 890 EVIDENCE. (4)
Rules of admissibility, real, circumstantial, testimonial and documentary evidence, witnesses, hearsay rule and its exceptions, procedure of admissibility, law and fact, judge and jury, burden of proof and presumption, judicial notice, and parol evidence rule.

LAW 891 DAMAGES. (2-3)
Nature of damages, voidable consequences, counsel fees, certainty, compensation, damage for nonpecuniary injuries, interest, damages for death, and eminent domain.

LAW 897 POVERTY LAW. (3)
An elective course for consideration of the kinds of legal problems shared by poor people, including their access to legal services and disadvantages in administrative and other legal processes; treating also the practice of poverty law as to ethical, professional and economic issues, with appraisal of the policy implications and challenges of the 'rule of law in the welfare state' and emphasis on interrelationships among lawyers and professionals working with poor people. Prereq: None directly, although completion of first-year law courses is expected for second and third-year elective courses.

LAW 898 ENVIRONMENTAL LAW. (3)
An elective course for study of the role of the legal system in regulating the series of interrelated subsystems that make up the

physical environment, including: water and air pollution, solid waste disposal, and strip mining. The legal problems and principles treated emphasize: the constitutional limitations on the public's power to implement planning proposals; the relationship between federal, state and local governments; the structure of agencies designed to regulate the quality of the environment; the standards for the exercise of administrative discretion; the openness of administrative hearing procedures; and the scope of judicial review of administrative decisions. Prereq: None directly, although completion of first-year law courses is expected for second and third-year elective courses.

LAW 925 INTERNATIONAL LAW. (3)
Introduction to the legal process by which interests are adjusted and decisions reached on the international scene. Treaties, the law of international organizations, the "common law" of nations and national laws with significant international ramifications are examined to determine their effect on international cooperation and coercion.

LAW 930 GOVERNMENT REGULATION OF BUSINESS. (2-3)
The body of law structuring economic organization and activities in a free enterprise national system. Major matters considered in the course are government creation and regulation of the legal monopolies, controls over collaborative conduct of competing economic entities, and legal controls over the vertical distributive relationship of suppliers, dealers, and customers.

LAW 935 UNFAIR TRADE. (2-3)
Analysis of the various common law unfair competition areas; examination of statutory relief in areas of trade marks, copyright, and misleading advertising; survey and analysis of various portions of Federal Trade Commission Act and Robinson-Patman Act.

THIRD-YEAR SUBJECTS

LAW 827 SOCIAL LEGISLATION (SOCIAL PROVISIONS FOR INDIVIDUAL WELFARE). (2-3)
This course will cover the law of state and federal programs for individual welfare and economic security (such as Social Security and Unemployment Compensation), emphasizing the securing of rights of recipients under the programs and the complying with corresponding liabilities of employers and others.

LAW 828 WORKMEN'S COMPENSATION. (2-3)
A study of statutes, administrative reports, regulations, legislative hearings and judicial decisions relating to modern social legislation, including Social Security, Workmen's Compensation, medical care insurance, unemployment insurance, wages and hours, and public assistance.

LAW 855 CORPORATION FINANCE LAW. (3)
A study of selected problems in advanced corporation law, including: corporate promotion and capitalization (with special emphasis on senior securities and their characteristics); corporate distributions (dividends); recapitalizations (elimination of accrued dividends); public regulation of security issues (Securities Act of 1933 and state Blue Sky laws).

LAW 865 TAX PLANNING. (3)
Donative transfers of property, including inter vivos transfers and wills; income, estate, and gift tax consequences of the various methods of disposition; administration of estates.

LAW 868 TAXATION III. (3)
Advanced income tax problems of business organization—of corporations and their shareholders connected with dividends and other distributions, liquidation and reorganization; of partners and partnerships; and of trusts and estates.

LAW 872 LAND USE PLANNING. (2-3)
A comprehensive survey of the basic legal devices to control the use of land, theories of land use planning, nuisance, private agreements, zoning and zoning procedure, the role of the federal government in land planning, exercise of eminent domain, and selected Kentucky problems, such as rural zoning and proposed New Towns for Appalachia.

LAW 875 SECURITIES REGULATION. (2-3)
The body of law relating to the issuance, distribution and trading of corporate securities with primary emphasis on federal regulation of the securities business.

LAW 877 FUTURE INTERESTS. (2)
An advanced elective course for third-year law students treating in depth future interests of ownership in property, including: the kind of future interests, rules as to class gifts, the rule against perpetuities, and powers of appointment with emphasis on the lawyer's use of future interests in estate planning and the pitfalls relating thereto.

LAW 878 TRUSTS. (3)
Uses and Statute of Uses; trusts creation; elements; transfer of beneficiary's interest; administration, termination, and modification; charitable trusts; resulting and constructive trusts; powers. Types of future interests; construction problems; limitations to classes, rule against perpetuities, illegal restraints and conditions.

LAW 881 SALES FINANCING AND COMMERCIAL TRANSACTIONS PLANNING. (2)
An analysis of and practice in the planning, negotiating, and formalizing of the security devices and financing patterns which facilitate the sale of goods under the Uniform Commercial Code.

LAW 892 STATE AND LOCAL GOVERNMENT LAW. (3)
An advanced course in the legal problems caused by the great variety of functions performed by state and local governments; including historical development of traditional functions, configuration of contemporary intergovernmental relations, examination of areas of conflict, and in-depth consideration of lawyer roles in dealing with special problems of financing, borrowing money, and furnishing services as to health, education, natural resources, transportation, and welfare.

LAW 905 CONFLICT OF LAWS. (3)
Nature of the subject, penal laws, procedure, judgments, domicile, capacity, form, particular subjects, litigation, family law, inheritance, foreign administrators.

LAW 908 COMPARATIVE LAW. (2-3)
Foreign legal materials are analyzed to determine how the normative ordering concepts and procedures of other cultures might aid in the solving of certain American legal dilemmas. Materials from the Scandinavian, Soviet, and Japanese systems of jurisprudence are those most closely scrutinized.

LAW 910 LABOR LAW.
History, organization, and structure of American labor unions; obligations and prerogatives of employers; questions of representation; privileges and obligations of unions; collective bargaining and dispute settlement.

LAW 914 RELATIONAL TORTS. (3)
An advanced study of relational interests and their injury as contrasted with injuries to personality and property; including examples of this in modern society relative to relations of trade, employment, family, neighbors, and citizens; treating also the equitable remedies and new theories of liability being used in litigation to enlarge the legal protection of relational interests.

LAW 915 FAMILY LAW. (2-3)
Contracts to marry; the marriage status; annulment, divorce and separation; parent and child; infants and incompetent person.

LAW 920 ADMINISTRATIVE LAW. (3)
Establishment of administrative tribunals, limits on discretion. Notice and hearing, orders, methods of judicial relief, scope of judicial review.

LAW 950 SEMINAR. (2-3)
Seminar in selected legal problems. Normally, each seminar is centered upon a particular field of legal learning, such as Office Practice, Current Constitutional Litigation, etc. May be repeated for a total of 10 credits.

LAW 960 PRACTICE COURT. (1)
This course, conducted mainly under the Kentucky code (but treated to give a fair understanding of like work in other states) is designed to fit students for actual court practice following training in substantive law.

LAW 961 MOOT COURT. (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court, and legal writing. May be repeated for a total of six credits.

LAW 962 LAW JOURNAL. (1-3)
This course, required of all members of the Law Journal staff, offers experience in legal writing, editing, and the process of publication of a scholarly periodical. May be repeated for a total of three credits.

LAW 963 LEGAL AID. (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court and legal writing. May be repeated three times for a maximum of six credits.

LAW 964 LAW CLERKSHIP. (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court and legal writing. May be repeated three times for a maximum of six credits.

LAW 965 LEGAL INTERNSHIP. (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court and legal writing. May be repeated three times for a maximum of six credits.

LAW 966 PUBLIC ASSISTANCE—CLINICAL. (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court and legal writing. May be repeated three times for a maximum of six credits.

LAW 967 NARCO-CLINICAL. (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court and legal writing. May be repeated three times for a maximum of six credits.

LAW 968 RESEARCH PROBLEMS. (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court and legal writing. May be repeated three times for a maximum of six credits.

LAW 969 SENIOR RESEARCH PROBLEMS. (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court and legal writing. May be repeated three times for a maximum of six credits.

LAW 970 LEGAL DOCUMENTS DRAFTING. (1-3)
Independent study of legal problems under faculty supervision and supervised training in legal aid, moot court and legal writing. May be repeated three times for a maximum of six credits.

LIBRARY SCIENCE

LS 500 LIBRARY SCIENCES AND ADMINISTRATION. (3)
An introduction to the field of library science with emphasis upon various types of services performed by libraries, the growth and development of library services as well as the profession and basic concepts of administration applied to libraries including such areas as organization, personnel, planning and financing.

LS 501 LIBRARY OPERATIONS. (3)
Introduction to the principles, concepts, methods and problems in organizing library collections for effective use, with special emphasis in the areas of acquisitions, circulation systems, cataloging, and calssification of books and non-book materials as practiced in small libraries.

LS 502 REFERENCE AND INFORMATION SERVICES. (3)
An introduction to reference services, activities, and functions. Emphasis will also be placed upon essential reference materials, including encyclopedias, dictionaries, atlases, yearbooks, indexes, and other guides to sources of information.

LS 509 ADMINISTRATION OF MEDIA CENTERS. (3)
Leadership responsibility of the librarian in an age of changing media of communication, the philosophy of the modern school and the librarian's role in implementing it, acquiring, organizing and assisting faculty in learning to use all available media. Relation of the individual school to the district materials center, type of personnel, equipment and collections needed in cash.

LS 510 CHILDREN'S LITERATURE AND RELATED MATERIALS. (3)
A survey of children's literature, traditional and modern. Reading and evaluation of books with emphasis on the relationship of the materials to the needs and interests of children. Covers various types of materials for use by and with children of grades 1-6.

LS 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.

LS 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.

LS 525 PROFESSIONAL FIELD EXPERIENCE. (3)
Supervised work in an actual library to provide the student with operational library experience under the direction of a practicing librarian available to a limited number and only to those without previous library experience. Laboratory, 10 hours per week. Prereq: Nine hours of library science and consent of instructor.

LS 586 UTILIZATION OF EDUCATIONAL MEDIA. (3)
Surveys the broad area of educational media with an emphasis on utilization and the advantages and disadvantages of the various media. Provides experience in relating educational technology to productive learning activity. (Same as EDC 544.)

LS 600 ADMINISTRATIVE BEHAVIOR IN LIBRARY MANAGEMENT. (3)
An emphasis upon human behavior in library administration including an understanding of group process, interpersonal relationships, communications, motivation, leadership, and developing as awareness of self in the administrative process. Prereq: LS 500.

LS 601 TECHNICAL PROCESSING I. (3)
The organization and operation of acquisitions work and the theory and application of the principles of cataloging and classification. Emphasis on descriptive cataloging, subject cataloging, and classification. Provides practice in the use of the Anglo-American Cataloging Rules, the Library of Congress Subject Headings, and the unabridged Dewey Decimal Classification scheme. Prereq: LS 501.

LS 602 BIBLIOGRAPHY OF SOCIAL SCIENCES. (3)
Survey and evaluation of library materials in the social sciences with emphasis on reference and bibliographical sources in the following areas: anthropology, business, economics, education, geography, history, law, political science, psychology, sociology, and other closely related subjects. Prereq: LS 502 or equivalent.

LS 603 BIBLIOGRAPHY OF THE HUMANITIES. (3)
Survey and evaluation of library materials in the humanities, with emphasis on reference and bibliographical sources in the following areas, the arts, language, literature, music, philosophy, religion and other closely related subjects. Prereq: LS 502.

LS 604 BIBLIOGRAPHY OF SCIENCE. (3)
A survey and evaluation of library materials in the sciences with emphasis on reference and bibliographical sources in the following areas: agriculture, astronomy, biology, chemistry, mathematics, natural resources, zoology, and other closely related material. Prereq: LS 502.

LS 605 INTRODUCTION TO INFORMATION SCIENCES. (3)
Introduction to major areas of information science and technology. Consideration is given to the nature of information science and technology as a field of study, the analysis and design of information systems, basic computer systems, and specific components of information storage and retrieval systems. (Same as CMO 605.)

LS 606 AUTOMATION AND THE LIBRARY. (3)
Introduction to the theory and practice of automation and its implication and application to libraries. A survey and evaluation of electronic and other automated systems for document processing in libraries. Prereq: LS 605, or consent of instructor.

LS 608 METHODS OF RESEARCH IN LIBRARIANSHIP. (3)
Basic tools, techniques and methods of library research. Consideration 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.

LS 609 PUBLIC LIBRARIES. (3)
An analysis of public library objectives and of the services provided and techniques employed to achieve them. Some attention is given to special problems of public library management and to trends in public library development. Prereq: LS 500.

LS 610 ACADEMIC LIBRARIES. (3)
History, aims and functions of university and college libraries including organization, collection building and evaluation, finance and personnel. Recent trends in national and regional cooperation. Undergraduate libraries, community colleges and the "library college" will also be reviewed.

LS 611 SPECIAL LIBRARIES I. (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. Prereq: LS 500.

LS 613 LIBRARY SYSTEMS ANALYSIS. (3)
Role of systems analysis in libraries with emphasis on the analysis, design, and implementation of library systems. The application of tools and techniques used in systems analysis, such as flow charting, data gathering techniques. An introduction to electronic data processing and statistical evaluation methods. Prereq: LS 605.

LS 614 INFORMATION STORAGE AND RETRIEVAL SYSTEMS. (3)
Investigates the flow of information through information storage and retrieval systems; abstracting, indexing, file organization, storage, search strategy, dissemination of information and its utilization. Consideration will also be given to special problems of vocabulary control, semantic and syntactic controls, determination of user requirements and the evaluation of in system performance. Prereq: LS 605, or consent of instructor. (Same as CMO 614.)

LS 617 HISTORY OF BOOKS AND PRINTING TO 1800. (3)
The making of books from earliest times to the end of the 18th Century, including the manuscript book, the invention and spread of printing, type design, methods and styles of illustration. Technological, economic and political aspects will also be emphasized.

LS 618 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.

LS 620 RARE BOOKS BIBLIOGRAPHY. (3)
Introduction to descriptive bibliography and to a wide range of bibliographic reference works necessary for a modern special collections or rare book librarian. Topics include incunabula research, paper and watermarks, the canons of description, and recent trends in institutional collections. Prereq: LS 617.

LS 621 SPECIAL COLLECTIONS. (3)
The acquiring, processing and servicing of rare books, manuscripts and other special materials. Attention is given to the criteria for building a collection and for its interpretation through descriptive guides and catalogs, and to the relation of the special collection department to the research worker and the library as a whole.

LS 622 SPECIAL LIBRARIES II (BY TYPE). (3)
Development, present status and intensive study of a single type of special library such as theological, business, hospital, and institutional libraries and librarianship, etc. May be repeated to a maximum of six credits.

LS 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, engineering, and other topics. Prereq: LS 502. May be repeated for credit when topics vary to maximum of nine hours.

LS 624 TECHNICAL PROCESSING II. (3)
Advance study of the organization and operation of technical processing, including special problems in acquisitions work and the cataloging of special types of library material, such as serials, incunabula, and non-book materials. Special emphasis on the Library of Congress Classification. Prereq: LS 601.

LS 625 HISTORY OF BOOKS AND PRINTING 1800 TO THE PRESENT. (3)
The history of printing technology, publishing and bookselling since the French Revolution, focusing on the rise of a mass reading public in the 19th Century. Book design and illustration will be considered as reflections of changing artistic fashion under such headings as—Victorian Medievalism; Art Nouveau, Dada, and "Concrete Poetry."

LS 626 GOVERNMENT PUBLICATIONS. (3)
Study of the nature and scope of government documents, including problems and methods of acquisition, organization, and reference use of federal, state, local and international publications. Prereq: LS 502 or equivalent.

LS 627 HISTORY OF LIBRARIES. (3)
Development of libraries from earliest times to the present with special reference to the relationship of the library to the contemporary social, economic, cultural and political trends.

LS 628 LIBRARY BUILDINGS. (3)
Relationship between physical structure and library function; problems in planning and building procedures, library equipment, acoustics, illumination, and materials of construction. Prereq: LS 500.

LS 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.

LS 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. Prereq: LS 511 and LS 609.

LS 640 MEDICAL LIBRARIANSHIP. (3)
Emphasis is on introducing the student both to the basic bibliographic tools—indexes, abstracts, basic texts, etc.—used in the health sciences as well as to those administrative and technical problems peculiar to a health sciences library environment. A practical approach to such problems is emphasized in class lectures and seminars.

LS 641 LAW LIBRARIANSHIP. (3)
A study of the materials of legal research and reference work. Emphasis is placed on the methods of effective research and the actual use of legal materials in the solution of practical reference problems. The selection, cataloging, classification, and storage of materials in a law collection are considered. The specialized requirements of law librarianship and law library administration are treated.

LS 687 MULTI-MEDIA MATERIALS. (3)
The function, evaluation, selection, acquisition, preparation for use, and preservation of multi-media materials in a library program. Prereq: LS 501, 502, or equivalent.

LS 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. Prereq: LS 500 and 600 or equivalent.

LS 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 types of libraries: school, public, extension through bookmobile, and institutional services, regional and state plans. Prereq: LS 504, 505.

LS 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. Prereq: LS 617 and 625.

LS 703 SEMINAR: TECHNICAL SERVICES. (3)
Survey and analysis of technical services in libraries, with special attention both to historical and recent developments, controversial issues, current trends, and literature of the field. Prereq: LS 501 and 601 and 503 or permission of instructor.

LS 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.

LS 705 SEMINAR: INFORMATION SCIENCES. (3)
An investigation of the parameters of the information sciences from an interdisciplinary approach. Investigation and analysis of the literature of communications, management science, cybernetics, information theory to identify the similarities and differences. From this investigation, both qualitative and quantitative concepts of the directions of information science will be derived. Prereq: LS 605 or consent of instructor. (Same as CMO 705.)

LS 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.

LS 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.

LS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

LINGUISTICS

LIN 301 INTRODUCTION TO LINGUISTICS. (3)
Introduction to the nature of language, to theories about language structure, and to language variations and relationships. Special emphasis on languages usually studied and to the relevance of language for humanities and behavioral sciences. Prereq: Fourth semester of a foreign language, or concurrently.

LIN 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; ANT 515.)

LIN 516 DESCRIPTIVE LINGUISTICS: MORPHEMICS. (3)
An explanation of some of the ways speech-sounds are put together in patterns so as to form languages. Prereq: Consent of instructor. (Same as ENG 516; ANT 516.)

LIN 517 SYNTAX. (3)
Introduction to current theoretical problems in syntax as represented by Chomsky, Fillmore, Pike and others. Practice in rule-writing for different types of languages. Prereq: LIN 301 or consent of instructor.

MANAGEMENT AND FAMILY ECONOMICS

MFE 161 MANAGEMENT AND DECISION MAKING IN THE FAMILY. (3)
Introduction to the principles of management applied to the use of individual and family resources. Emphasis is given to decision making as a key component in the management process.

MFE 360 MANAGEMENT OF HUMAN RESOURCES. (3)
Application of managerial principles and procedures to the development and use of human resources. Emphasis given to the use of time, energy, and community resources to achieve family goals. Prereq: MFE 161.

MFE 362 CONSUMER PROBLEMS. (3)
Consumer buying, its social and economic aspects. Analysis of problems of manufacturer, merchant, and consumer in order to understand the needs and responsibilities of each group. Prereq: ECO 260.

MFE 363 HOUSEHOLD EQUIPMENT. (3)
Electrical and gas household equipment and small appliances, their selection, maintenance, operation and cost. Lecture, two hours; laboratory, two hours. (Same as HID 363.)

MFE 364 HOME MANAGEMENT AND FAMILY RELATIONSHIPS. (4)
One-half semester residence practicum focusing upon the application of managerial principles and practices to problems of family living and household operation in settings simulating a variety of home conditions. Prereq: MFE 161 and NFS 206.

MFE 368 DEMONSTRATION TECHNIQUES. (3)
Techniques of planning and presenting demonstrations relating to family use of resources (including equipment, food, clothing, housing, etc.) Emphasis upon presentation to live audiences as well as through media (video tape, T.V., etc.). Lecture, two hours; laboratory, two hours. Prereq: One of the following: MFE 363, NFS 204, TCM 227, HID 102, HF 350, or consent of instructor.

MFE 462 PERSONAL AND FAMILY FINANCE. (3)
A study of individual and family financing as related to planning the use of credit, savings, investments, insurance, taxes, home ownership and estates. Prereq: ECO 260.

MFE 561 THE ECONOMICALLY DISADVANTAGED CONSUMER. (3)
Study of consumer problems of economically disadvantaged families. Examination of factors associated with family consumption problems in disadvantaged situations. Consideration of consumer education efforts to assist economically disadvantaged families. Prereq: MFE 161, 362; or consent of instructor.

MFE 562 FAMILY MANAGEMENT FOR MULTI-ROLES. (3)
Consideration of social, psychological, and economic factors associated with prevailing and emerging multi-role life styles. Examination of resource demands and managerial and consumer competencies relating to multi-role situations. Prereq: MFE 161, HF 153; or consent of instructor.

MFE 563 FAMILY CONSUMERS AND THE LAW. (3)
Survey of present and pending consumer laws of fundamental concern in the management of family resources. Examination of the family's reciprocal linkages with the marketing and legal systems with emphasis upon the family's development of successful linkages with nonfamily organizations, consumer rights and responsibilities, and upon existing and needed provisions for consumer protection and education. Prereq: MFE 161, ECO 260; or consent of instructor.

MFE 586 FIELD INSTRUCTION IN MANAGEMENT AND FAMILY ECONOMICS. (6)
Intensive field experience in the specialized setting of the student's choice. Laboratory, 18 hours per week. Prereq: MFE 161, nine credits in management and family economics and consent of the Department Chairman.

MFE 596 SPECIAL PROBLEMS IN MANAGEMENT AND FAMILY ECONOMICS. (1-3)
Intensive work on specific phases of field. Senior or graduate standing. May be repeated for a total of six credits. Prereq: Consent of instructor.

MFE 602 CONSUMER ECONOMICS. (3)
A study of consumer economics with emphasis upon application of the theories and principles toward solution of problems of the individual and family unit as a part of the total economy. Prereq: ECO 260 or its equivalent; MFE 362, 462, or consent of instructor.

MFE 662 SOCIAL AND ECONOMIC DECISIONING IN THE FAMILY. (3)
Special study of social and economic decisions affecting family resource management. Prereq: MFE 364.

MFE 668 ALLOCATION OF FAMILY RESOURCES. (3)
Study of the contributors to and the recipients of family resources. Emphasis upon the recognition and analysis of patterns of resource utilization and the effect of definite factors such as standard of living on those patterns. Prereq: MFE 161, 360, 462; or consent of instructor.

MFE 773 SEMINAR IN MANAGEMENT AND FAMILY ECONOMICS. (3)
Study of emerging critical issues and research in management and family economics. May be repeated to a maximum of six credits. Prereq: Graduate standing.

MFE 786 SPECIAL PROBLEMS IN MANAGEMENT AND FAMILY ECONOMICS. (1-3)
Independent advanced work in management and family economics. May be repeated for a total of six credits. Graduate standing and consent of Department chairman.

MATHEMATICS

MA 101 AN INTRODUCTION TO MATHEMATICS. (3)
A course designed to provide a survey of ideas and methods in mathematics for students in non-technical areas.

MA 109 PRE-CALCULUS MATHEMATICS. (3)
A one-semester course covering selected topics in algebra, trigonometry and analytic geometry; designed to develop the manipulative skills prerequisite to the successful study of calculus. (Note: This course is not available for credit to persons who have received credit in any mathematics course of a higher number with the exception of MA 201 and 202.)

MA 110 COLLEGE ALGEBRA AND TRIGONOMETRY.* (5)
An integrated course in algebra and trigonometry covering the standard materials of these two courses. Offered for non-degree credit only.

MA 111 COLLEGE ALGEBRA*. (3)
Standard course. Offered for non-degree credit only.

MA 113 CALCULUS. (4)
A course in one-variable calculus, including topics from analytic geometry. Derivatives and integrals of elementary functions and applications. Prereq: A knowledge of elementary algebra and trigonometry.

MA 114 CALCULUS II. (4)
A continuation of MA 113. Primarily stressing techniques of integration. Prereq: MA 113 or equivalent.

*Offered on a pass-fail basis only. Since this course does not count toward graduation, it will not be used in calculating grade-point average.

MA 115 ELEMENTARY ANALYSIS I (HONORS MATHEMATICS). (4)
MA 115, 116, 215, and 216 constitute a four-semester sequence of honors mathematics and when completed will include at least the following topics: Real number system, least upper bound axiom, functions, integral and differential calculus, elementary differential equations and vector algebra. Prereq: ACT MA score in 90th percentile or permission of the Department.

MA 116 ELEMENTARY ANALYSIS II. (4)
Continuation of MA 115. Prereq: MA 115 or consent of Department.

MA 117 CALCULUS FOR MATHEMATICS MAJORS I. (4)
A course paralleling MA 113, but topics to be presented in such a way as to benefit persons wishing to major in mathematics. Prereq: An acquaintance with trigonometry.

MA 118 CALCULUS FOR MATHEMATICS MAJORS II. (4)
A course paralleling MA 114, but topics to be presented in such a way as to benefit mathematics majors. Prereq: MA 113 or 117.

MA 121 MATHEMATICS OF FINANCE. (3)
Offered by correspondence only. See University Independent Study Catalog.

MA 122 FUNDAMENTAL CONCEPTS OF MATHEMATICS I. (3)
A course in finite mathematics with emphasis on elementary logic and probability.

MA 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.

MA 201 FUNDAMENTALS OF ELEMENTARY MATHEMATICS. (3)
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.

MA 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 the instructor.

MA 213 CALCULUS III. (4)
MA 213-214 is a year course in linear algebra, multivariate calculus and differential equations. Partial and directional derivatives, chain rule. Multiple integrals. Rudiments of linear algebra and vector analysis. Surface integrals, Green's and Stokes' theorems. Taylor series, local extrema. First and second order differential equations. Prereq: MA 114 or equivalent.

MA 214 CALCULUS IV. (3)
A continuation of MA 213. Prereq: MA 213 or equivalent.

MA 215 ELEMENTARY ANALYSIS III. (4)
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.

MA 216 ELEMENTARY ANALYSIS IV. (3)
Continuation of MA 215. Prereq: MA 215 or consent of Department.

MA 217 CALCULUS FOR MATHEMATICS MAJORS III. (4)
A course paralleling MA 213, but topics to be presented in such a way as to benefit persons wishing to major in mathematics. Prereq: MA 114 or 118.

MA 21 2CALCULUS FOR MATHEMATICS MAJORS IV. (3)
A course paralleling MA 214, but topics to be presented in such a way as to benefit persons majoring in mathematics. Prereq: MA 213 or 217.

MA 261 INTRODUCTION TO NUMBER THEORY. (3)
Topics from classical number theory, including discussions of mathematical induction, prime numbers, division algorithms, congruences, and quadratic reciprocity. Prereq: Consent of instructor.

MA 262 LINEAR ALGEBRA. (3)
Vectors, vector spaces, linear transformations, matrices and determinants. Prereq: Consent of instructor.

MA 341 TOPICS IN GEOMETRY. (3)
Selected topics in geometry including Euclidean and some non-Euclidean geometrics. Primarily for secondary teachers. Prereq: Consent of instructor.

MA 351 ELEMENTARY TOPOLOGY I. (3)
A beginning course, with particular emphasis on point-set topology in Euclidean spaces. Prereq: Consent of instructor.

MA 352 ELEMENTARY TOPOLOGY II. (3)
A continuation of MA 351, to include a discussion of metric spaces, completeness, general topological spaces, compactness, connectedness. Prereq: MA 351 or consent of instructor.

MA 361 ELEMENTARY MODERN ALGEBRA I. (3)
A beginning course, with particular emphasis on groups and rings. Prereq: Consent of instructor.

MA 362 ELEMENTARY MODERN ALGEBRA II. (3)
A continuation of MA 361 to include a discussion of fields and topics in linear algebra. Prereq: MA 361 or consent of instructor.

MA 371 ELEMENTARY SET THEORY AND NUMBER SYSTEMS. (3)
Elementary logic and set theory. Construction and properties of the positive integers, integers, rational numbers and real numbers. Arithmetic of infinite cardinal numbers. Equivalence and order relations. Isomorphism of algebraic systems, congruences. Prereq: Consent of instructor.

MA 395-396 PROBLEM SEMINAR. (3 ea.)
Reports on current research papers. Problems from various fields of mathematics. Prereq: Consent of instructor.

MA 398, 399 INDEPENDENT WORK IN MATHEMATICS. (3 ea.)
Reading courses for upper division students of high standing. Prereq: Major and a standing of 3.0 in the Department.

MA 410 MATHEMATICS FOR THE SOCIAL AND MANAGEMENT SCIENCES. (3)
This course will include topics in mathematics that have found application in the social and management sciences. The areas to be covered include linear algebra, matrix theory, linear programming, game theory, differentiation, maximization and minimization problems, differential and difference equations, probability and decision theory. Applications will be emphasized. Prereq: Consent of instructor.

MA 415 GRAPH THEORY. (3)
This is to be a basic course in the theory of linear undirected graphs. The topics to be studied are the following: definitions and basic concepts, trees, connectivity, traversability, factorization, planarity and matrices. In addition, algorithm for finding spanning trees, testing z-connectivity, finding Euler trails, finding a maximum matching in a bipartite graph, and testing planarity will be presented at appropriate times. In conjunction with their algorithms there will be applications to Operations research, genetics and other areas. About 55 percent of the course will be spent on the general theory of graphs, 30 percent on algorithms and 15 percent on applications of these algorithms. Prereq: CS 150 or equivalent.

MA 421 ELEMENTARY NUMERICAL ANALYSIS. (3)
Computer arithmetic. Discussion of the various types of errors. Solution of systems of linear algebraic equations—elementary discussion. Solution of a single non-linear algebraic equation. Polynomial interpolation. Numerical differentiation and integration. (This course could serve as an introduction both for the specialist and the non-specialist.) (Same as CS 421.)

MA 423 INTRODUCTORY PROBABILITY. (3)
Set theory; fundamental concepts of probability, including conditional and marginal probability; random variables and probability distributions (discrete and continuous); expected values and moments; moment-generating and characteristic functions; random experiments; distributions of random variables and functions of random variables; limit theorems. Prereq: MA 214. (Same as STA 423.)

MA 432 METHODS OF APPLIED MATHEMATICS I. (3)
Partial differentiation, Jacobians, implicit function theorem, uniform convergence of series, line and surface integrals, Green's and Stokes' theorems. Prereq: MA 214 or equivalent.

MA 433 METHODS OF APPLIED MATHEMATICS II. (3)
Elementary complex variable theory with applications. Complex field, analytic functions, Cauchy theorem, power series, residue theory. Prereq: MA 432 or 471.

MA 441 GEOMETRY I. (3)
Euclidean, affine, projective spaces, and the classical groups. Prereq: MA 361 or consent of instructor.

MA 442 GEOMETRY II. (3)
Selected topics chosen from among: hyperbolic geometrics, spherical and elliptical geometries, differential geometry, geometric inequalities, circular transformations, manifolds and differential manifolds. Prereq: MA 441 or consent of instructor.

MA 462 MATRIX ANALYSIS. (3)
Algebra of matrices, elementary theory of vector spaces and inner product spaces, existence, uniqueness and computability of solutions of simultaneous linear equations, generalized inverses of matrices, Gaussian elimination, basic iterative methods, eigenvalues and eigenvectors, rational functions of square matrices, Householders's method, QR method and positive definite matrices. Prereq: MA 262 or consent of instructor.

MA 471 ADVANCED CALCULUS I. (3)
The first half of a year sequence which will cover the standard topics of uniformity, integrals and derivatives in a n-space, Stokes' theorem, and selected other topics. Prereq: MA 214 and 351 or equivalent.

MA 472 ADVANCED CALCULUS II. (3)
A continuation of MA 471. Prereq: MA 471 or consent of instructor.

MA 481 DIFFERENTIAL EQUATIONS I. (3)
Brief review of linear differential equations and matrix algebra, eigenvalues and eigenvectors of matrices, systems of linear differential equations with constant coefficients, applications, Sturm separation and comparison theorems, Sturm-Liouville theory for second-order equations and applications. Prereq: MA 214 or equivalent.

MA 482 DISCRETE METHODS AND MODELS IN APPLIED MATHEMATICS. (3)
Probability on finite sample spaces, combinatorial mathematics, finite Markov chains, linear programming, theory of games. Prereq: MA 214 or equivalent. (Same as STA 482, CS 482.)

MA 483 DIFFERENTIAL EQUATIONS. (3)
A continuation of MA 481. Topics will include perturbation theory; power series techniques and regular singular point theory; asymptotics; eigenfunction expansions; qualitative behavior of linear and nonlinear differential equations. Prereq: MA 481, or equivalent.

MA 485 FOURIER SERIES AND BOUNDARY VALUE PROBLEMS. (3)
An introductory treatment of Fourier series and its application to the solution of boundary value problems in the partial differential equations of physics and engineering. Orthogonal sets of functions, Fourier series and integrals, solution of boundary value problems, theory and application of Bessel functions and Legendre polynomials. Prereq: MA 432 or equivalent. (Same as EM 585.)

MA 501-502 SEMINAR IN SELECTED TOPICS. (3 ea.)
Various topics from the basic graduate courses. Designed as a course for teachers of lower division mathematics and usually offered in connection with a summer institute. May be repeated once. Prereq: Teaching experience in the field of mathematics and consent of instructor.

MA 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 471 or consent of instructor. (Same as STA 524.)

MA 525 NUMERICAL SOLUTION OF ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS. (3)
Topics may include numerical solution techniques for linear and non-linear ordinary differential equations; single step methods; predictor-corrector techniques; stability, accuracy and precision of methods; two point boundary value problems; numerical solution of linear and nonlinear problems in partial differential equations by finite difference and variational methods; specific problems, depending on the interests of the audience, such as the nonlinear wave equation with shock waves. Prereq: MA 421, or equivalent, and computer programming ability.

MA 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 471 or consent of instructor. (Same as STA 531.)

MA 532 ORDINARY DIFFERENTIAL EQUATIONS. (3)
Successive approximations and elementary existence theorems for scalar and vector equations, qualitative behavior of solutions as functions of initial conditions and parameters, linear systems with constant and periodic coefficients, stability theorems for second order linear and nearly linear equations, second order boundary value problems and regular singular point theory. Prereq: MA 462 and either 432 or 471.

MA 533 PARTIAL DIFFERENTIAL EQUATIONS. (3)
Elementary existence theorems, equations of first order, classification of linear second order equations, the Cauchy and Dirichlet problems, potential theory, the heat and wave equations, Green's and Riemann functions, separation of variables, systems of equations. Prereq: MA 532 and MA 472 or equivalent.

MA 535 VECTOR AND TENSOR ANALYSIS. (3)
Orthogonal coordinate systems and transformations, curvilinear coordinates, convariant and contravariant vectors, tensors, metric tensor, eigenvectors and transformations to principal axes, vector differential operators in curvilinear coordinates, Christoffel symbols, covariant differentiation.

MA 536 OPERATIONAL CALCULUS AND GENERALIZED FUNCTIONS. (3)
Testing functions; differentiation and integration of distributions generalized functions; convolutions; Fourier and Laplace transforms; applications to linear differential equations. Prereq: MA 432 or 481.

MA 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. (Same as CS 538.)

MA 551 TOPOLOGY I. (3)
Topological spaces, products, quotients, subspaces, connectedness, compactness, local compactness, separation axioms, convergence. Prereq: Consent of instructor.

MA 561 MODERN ALGEBRA I. (3)
Algebraic structures, quotient structures, substructures, product structures, groups, permutation groups, groups with operators, and the Jordan-Holder theorem. Prereq: Consent of instructor.

MA 565 LINEAR ALGEBRA. (3)
Review of finite dimensional linear algebra, the rank of a matrix, systems of linear equations, determinants, characteristic and minimal polynomials of a matrix, canonical forms for matrices, the simplicity of the ring of linear mappings of a finite dimensional vector space, the decomposition of a vector space relative to a group of linear mappings and selected topics of a more advanced nature. Prereq: MA 262 or consent of instructor.

MA 566 THEORY OF NUMBERS. (3)
Divisibility, prime numbers, congruences and residues, Diophantine equations. Prereq: Consent of instructor.

MA 570 MULTIVARIATE CALCULUS. (3)
A self-contained course in n-dimensional analysis, including the general form of Stokes' theorem. Prereq: MA 432 or equivalent.

MA 571 ANALYSIS I. (3)
Sequences and series of real and complex numbers, sequences of functions, Riemann-Stieltjes integration, Lebesque measure and integration. Prereq: MA 471 or consent of instructor.

MA 572 ANALYSIS II. (3)
Continuation of MA 571. Absolutely continuous functions on the real line, L^p-spaces, beginning theory of Banach spaces including the Hahn-Banach, closed graph, and open mapping theorems. Prereq: MA 571 or consent of the instructor.

MA 573 APPLIED COMPLEX ANALYSIS. (3)
Boundary value problems, analytic continuation, contour integration, special functions. Prereq: MA 433.

MA 585 BOUNDARY VALUE PROBLEMS OF MATHEMATICAL PHYSICS. (3)
A continuation of MA 485. Topics may include integral equations, calculus of variations and variational methods; Green's and Riemann functions and their applications; successive approximation techniques and applications. Prereq: MA 485, or equivalent.

MA 611 INDEPENDENT WORK IN MATHEMATICS. (3-9)
Reading course for graduate students in mathematics. Prereq: Major in mathematics, a standing of at least 3.0 and consent of instructor. May be repeated to a maximum of nine credits.

MA 615 CONVEX ANALYSIS AND OPTIMIZATION. (3)
Convex sets and convex functions. Separation and Hellytype theorems. Duality theory and minimax theorems. Algorithmic procedures for constrained and unconstrained problems. May be repeated to a maximum of six credits. Prereq: MA 472 or consent of instructor.

MA 624 ADVANCED PROBABILITY I. (3)
Markov chains, birth and death processes, renewal theory, central limit theorem, stochastic processes. Prereq: MA/STA 524 or 531. (Same as STA 624.)

MA 632 ADVANCED DIFFERENTIAL EQUATIONS. (3)
General existence and uniqueness theorems, linear systems, regular and singular eigenvalue problems, stability theory, nonlinear oscillation theory, asymptotic theory, equations with retarded argument. Prereq: MA 532 or consent of instructor.

MA 633 THEORY OF PARTIAL DIFFERENTIAL EQUATIONS. (3)
A continuation of MA 533. Topics may include hypoelliptic operators and interior regularity of solutions; P(D)-convexity and existence theorems; regularity up to the boundary; applications of the maximum principle; semi-group theory for evolution equations; perturbation methods; well-posed and improperly posed problems; equations with analytic coefficients; a symptotic behavior of solutions; nonlinear problems. Prereq: MA 533.

MA 635 THEORY OF TENSORS. (3)
Graded tensor algebra of a module over a ring, groups as modules over the integers, vector spaces over fields and the module of vector field germs, vector fields on open sets in vector spaces and on

manifolds, graded exterior algebras, and integration of forms. Prereq: MA 561 or consent of instructor.

MA 637 APPROXIMATION THEORY. (3)
Approximation problems in linear normed spaces; Weierstrass theorem and extensions; Muntz theorem; characterization of polynomials of best approximation; approximation of L^p spaces; interpolation processes, entire functions as approximants. Prereq: MA 433 and 571.

MA 638 ADVANCED NUMERICAL ANALYSIS. (3)
Computational methods for algebraic equation systems, both linear and nonlinear. Algebraic and differential eigenproblems. Lambda matrices. Special-purpose methods suitable for linear programming and for the large sparse matrices which arise in the analysis of structures. Prereq: MA/CS 538.

MA 641, 642 DIFFERENTIAL GEOMETRY. (3 ea.)
Tensor products, exterior algebra, differentiable maps, manifolds, geodesics, metric properties of curves in E^n fundamental forms, surfaces. Prereq: Consent of instructor.

MA 643 SELECTED TOPICS IN GEOMETRY. (3)
The course will consist of a study of various topics in modern geometry. It may include topics from algebraic, analytic, differential, and non-Euclidean geometry. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

MA 651 TOPOLOGY II. (3)
Embedding and metrization, compact spaces, uniform spaces and function spaces. Prereq: MA 551.

MA 653 DIMENSION THEORY. (3)
Lebesque covering dimension: weak and strong inductive dimension; equivalence and non-equivalence for metric spaces of the various definitions of dimension. Prereq: MA 651.

MA 654 ALGEBRAIC TOPOLOGY I. (3)
Homotopy and homology theories, complexes and applications. Prereq: MA 551, 561, 651 or equivalent.

MA 655 ALGEBRAIC TOPOLOGY II. (3)
Singular homology theory and applications, homology of products, singular and Cech cohomology with applications. Prereq: MA 654.

MA 661 MODERN ALGEBRA II. (3)
Rings, fields of quotients, rings of polynomials, formal power series, modules, exact sequences, groups of homomorphisms, natural isomorphisms, algebras and tensor algebras. Prereq: MA 561 or consent of instructor.

MA 667 GROUP THEORY. (3)
A study of homomorphisms for groups, finite groups, solvable groups, nilpotent groups, free groups, and abelian groups. Prereq: MA 661.

MA 671 FUNCTIONS OF A COMPLEX VARIABLE I. (3)
Differentiation and integration, contour integration, poles and residues, Taylor and Laurent series, and conformal mapping. Prereq: MA 571, 572.

MA 672 FUNCTIONS OF A COMPLEX VARIABLE II. (3)
A continuation of MA 671 to include the Riemann Mapping theorem, Dirichlet problem, multiple valued functions, Riemann surfaces and applications. Prereq: MA 671.

MA 673 SEVERAL COMPLEX VARIABLES. (3)
Hartog's theorem, domains of holomorphy, pseudoconvexity, Cousin problems, differential forms, deRham's theorem, cohomology of domains of holomorphy, Levi's problem, Weierstrauss preparation theorem sheaves, Stein manifolds, entire functions of several variables. Prereq: MA 672.

MA 678 CALCULUS OF VARIATIONS. (3)
The ordinary problem for the plane and space; Weierstrass, the necessary conditions of Euler, Weierstrass, Legendre, and Jacobi. The parametric problem; the isoperimetric problem. Sufficiency conditions. Prereq: Consent of instructor.

MA 681 FUNCTIONAL ANALYSIS I. (3)
General theory of normed linear spaces including the Hahn-Banach separation theorems, principle of uniform boundedness and closed graph theorem. Dual spaces and representation theorems for linear functionals. Abstract measure theory and Riesz representation theorem for C(X). Prereq: MA 572 or consent of instructor.

MA 682 FUNCTIONAL ANALYSIS II. (3)
Weak and weak-star topologies, reflexive spaces, convexity in linear spaces, operators, adjoint operators, spectral theory and Fourier transforms. Prereq: MA 681.

MA 683 CONVERGENCE AND SUMMABILITY. (3)
Fundamental limit ideas applied to infinite series, infinite products, etc. Summability of Cesaro, Holder, Abel, etc. Prereq: MA 571 or consent of instructor.

MA 685 FOURIER ANALYSIS. (3)
The content of this course is variable. Topics to be selected from the classical Fourier analysis and harmonic analysis on locally compact abelian groups. Prereq: MA 572 or consent of instructor.

MA 687 INTEGRAL EQUATIONS. (3)
Systems of ordinary linear equations, linear operators, orthogonal systems, linear integral equations of the second kind, theorems of Fredholm, Volterra's equation. Prereq: Consent of instructor.

MA 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 STA 703.)

MA 715 SELECTED TOPICS IN OPTIMIZATION. (3)
Topics will be selected from the areas of Mathematical Control Theory, Integer Programming, Combinatorial Optimization, Large Scale Optimization, Nonlinear Programming, Dynamic Optimization, etc. May be repeated for a maximum of nine credits. Prereq: Consent of instructor.

MA 732 SELECTED TOPICS IN DIFFERENTIAL AND INTEGRAL EQUATIONS. (3)
Advanced topics in theory of differential (ordinary or partial) and integral equations such as topological dynamics, almost periodic solutions, stochastic differential equations, integro-differential and differential-difference equations, generalized functions as solutions, non-linear partial differential equations, singular integral equations.

MA 751, 752 SELECTED TOPICS IN TOPOLOGY. (3 ea.)
Prereq: MA 651.

MA 753, 754 SELECTED TOPICS IN FUNCTIONAL ANALYSIS. (3 ea.)
Prereq: MA 682.

MA 755, 756 SELECTED TOPICS IN TOPOLOGICAL ALGEBRA. (3 ea.)
Topics chosen from: Lie groups, transformation groups, topological groups, semigroups, rings, semirings, and lattices. Also reports on and discussion of recent advances in topological algebra. Prereq for MA 755: MA 651 or consent of instructor.

MA 757 SEMINAR IN TOPOLOGY. (3)
Review of current research in topology. Prereq: Consent of instructor.

MA 761 HOMOLOGICAL ALGEBRA. (3)
Homological algebra, modules, exact sequences, functors, homological dimension, extension problems. Prereq: Consent of instructor.

MA 762 THEORY OF RINGS. (3)
Decomposition and structure theory of rings and modules. Prereq: Consent of instructor.

MA 763 THE THEORY OF FIELDS. (3)
Separable and inseparable extensions, splitting fields, normal extensions, fundamental theorems of Galois' theory, and transcendental extensions. Prereq: MA 561 or 661.

MA 764, 765 SELECTED TOPICS IN ALGEBRA. (3 ea.)
Reports and discussion on recent advances in group theory, ring theory, and homological algebra. Prereq: MA 661 and consent of instructor.

MA 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

MA 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

MA 771, 772 SELECTED TOPICS IN THE THEORY OF COMPLEX VARIABLES. (3 ea.)
Prereq: Consent of instructor.

MA 773, 774 SELECTED TOPICS IN ANALYSIS. (3 ea.)
May be repeated once for a maximum of six credits. Prereq: Consent of instructor.

MA 777, 778 MATHEMATICAL SEMINAR. (3 ea.)
May be repeated once for a total of six credits. Prereq: Consent of instructor.

MECHANICAL ENGINEERING

ME 001 THE ENGINEERING PROFESSION (FRESHMAN). (0)

ME 002 THE ENGINEERING PROFESSION (FRESHMAN). (0)

ME 007 THE ENGINEERING PROFESSION (SENIOR). (0)

ME 008 THE ENGINEERING PROFESSION (SENIOR). (0)
Lectures on professional growth, conduct and ethics. Activities of the student branches of the corresponding professional societies. May be repeated.

ME 105 BASIC ENGINEERING GRAPHICS. (2)
Freehand sketching and lettering. Orthographic and axonometric drawings and sketches. Use and care of instruments. Use of scales. Dimensioning. Auxiliary views. Sectioning. Fasteners. Pencil techniques. Charts, maps and diagrams. Six hours a week. (Same as CE 105.)

ME 151 MANUFACTURING ENGINEERING. (3)
A background course in the area of manufacturing processes and systems. Includes a study of machining operations, foundry mechanization, forging, sheet metal work, powder metal products, production molding and production machines and processes. Some laboratory work in machining and plant visitations. Lecture three hours; laboratory, three hours. Prereq: Consent of instructor.

ME 220 ENGINEERING THERMODYNAMICS I. (3)
Fundamental principles of thermodynamics. Prereq: PHY 231. Concur: MA 214.

ME 310 ENGINEERING EXPERIMENTATION I. (3)
An instrumentation laboratory to provide the student with an understanding of the characteristics and application of instrumentation related to basic measurements in mechanical engineering. Principles and application of technical writing and information retrieval. Lecture, two hours; laboratory, two hours. Prereq or concur: ME 330.

ME 311 ENGINEERING EXPERIMENTATION II. (3)
A laboratory to instruct the student in the performance of basic mechanical engineering components and systems. Performance of experiments, application of theory and reporting. Introduction to experimentation. Introduction to error analysis. Lecture, one hour; laboratory, four hours. Prereq: ME 310, 321, 330.

ME 312 ENGINEERING EXPERIMENTATION III. (3)
An experimental laboratory concerned with the analysis and/or synthesis of complex mechanical systems with emphasis on original work by the student. Lecture, one hour; laboratory, four hours. Prereq: ME 311, 325.

ME 321 ENGINEERING THERMODYNAMICS II. (3)
Continuation of ME 220. Prereq: ME 220 and MA 214.

ME 325 ELEMENTS OF HEAT TRANSFER. (3)
Fundamental principles of heat transfer. Prereq: ME 321, MA 214.

ME 330 FLUID MECHANICS. (3)
Fundamental principles of fluid flow. Prereq: ME 220.

ME 341 MACHINE DESIGN. (3)
Design of complete mechanical devices emphasizing the reduction to practice by working drawings, design layouts and mechanical sketching. Lecture, one hour; laboratory, six hours.

ME 343 CONTROL THEORY. (3)
Fundamentals of automatic control theory; describing differential equations; LaPlace transformation and over-all transfer functions; frequency response and stability in terms of Bode and Nyquist diagrams; Root-Locus procedures and non-linearities. Prereq: MA 214.

ME 344 MECHANICAL DESIGN. (3)
Fundamentals of design with methods of approximation. Introduction of optimum design considerations. Synthesis and problems on the design of various mechanical elements. Prereq: ME 151, EM 302.

ME 346 MECHANICAL SYSTEMS DESIGN. (3)
A course using a modified case method to teach the principles involved in designing complete mechanical systems. A unique problem is chosen each semester. The system to be designed is usually one not presently in existence, but for which a need exists. The student is required to synthesize a general solution to a problem, apply analytical techniques to arrive at a more detailed solution, and finally prepare a report presenting by freehand sketches and written descriptions his solution to the problem. Lecture, one hour; laboratory, six hours. Prereq: ME 344.

ME 347 DYNAMIC ANALYSIS OF DESIGN PROBLEMS. (3)
A course emphasizing the role of analysis in design. Actual design objectives are met through the use of mathematical modeling techniques and the application of the principles of dynamics, kinematics and vibrations. Prereq: EM 313.

ME 350 SAFETY ENGINEERING. (3)
A study of industrial accidents prevention, accident statistics, industrial and general hazards, fire protection, codes and standards of safety. The course is designed for those who may enter the fields of design or production engineering. Prereq: ME 151.

ME 352 PLANT LAYOUT. (3)
Selection of processes and machines, material handling systems, and plant requirements. Lecture, two hours; drawing room, three hours. Prereq: ME 151.

ME 356 MOTION AND TIME STUDY. (3)
Principles and uses of motion economy and fundamentals of time study. Lecture, two hours; laboratory, two hours. Prereq: ME 151.

ME 358 ECONOMIC ANALYSIS OF MECHANICAL SYSTEMS. (3)
Formulation of economic relationships. Familiarization with alternate mechanical systems and application of economic principles of selection of alternates. Prereq: ME 321 or permission of instructor.

ME 359 MANAGEMENT ENGINEERING. (3)
Analysis of systems for material control, quality control, and production control. Includes application of linear programming, Monte Carlo, queueing, and other research techniques. Prereq: STA 423 or 481.

ME 360 INTERNAL COMBUSTION ENGINES. (4)
A study of internal combustion engine cycles and the characteristics and performance of actual engines, valves, gears, and materials of construction. Lecture, three hours; laboratory, two hours. Prereq: ME 321.

ME 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 concur. registration.

ME 366 THERMAL POWER SYSTEMS. (3)
Application of basic thermodynamics, fluid mechanics and heat transfer to the analysis of thermal systems. Internal and external combustion power plant systems and non-combustion thermal systems are analyzed. Commercial aspects of thermal systems are studied. Prereq: ME 321.

ME 371 SEMINAR. (1)
Studies of current engineering literature, preparation and presentation of bibliographies and reports through the use of the Engineering Index and Industrial Arts Index. Two hours a week. Prereq: Senior classification.

ME 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.

ME 475 INTRODUCTION TO NUCLEAR ENGINEERING. (3)
Introduction to basic topics of nuclear science. Interaction of radiation with matter. Design and operation of nuclear reactors, shielding, instrumentation, health physics, fuel cycles, use of radiosotopes. Prereq: PHY 232: MA 214.

ME 480 THERMAL ENVIRONMENTAL ENGINEERING. (3)
An introductory course emphasizing the engineering systems aspects of thermal environmental design. A case study approach treats measurement problems, modeling, and equipment specification for design of environmental systems. Examples drawn from terrestrial, space and marine environments. Prereq: Consent of instructor.

ME 514 NUCLEAR REACTOR ANALYSIS I. (3)
Neutron cross-sections, the fission process. Infinite medium criticality calculations, the four factor formula. Neutron diffusion and slowing down theory. Age theory, criticality calculations for the homogeneous reactor, elementary reactor kinetics. Reflected reactors multigroup methods. Control rod theory, heterogeneous reactors. Prereq: PHY 554, MA 432.

ME 515 FUEL MANAGEMENT AND ECONOMICS OF NUCLEAR REACTORS. (3)
Nuclear fuels, fuel element claddings, burnup, fission products and waste handling, processing and recycling of fissile materials, isotope separation, and applications. Fuel cycle performance of typical reactors. Uranium resources and cost, nuclear plant costs and the interrelation between convectional and nuclear power costs. Prereq: ME 475 or ME 514.

ME 517 INSTRUMENTATION FOR RESEARCH. (3)
An exploration of modern instrumentation techniques and problems; transducer principles; analysis of dynamic response of instrumentation systems; theory of measurements; random processes; pressure; temperature, strain gages and inertial measurement techniques; magnetic, optical, electrostatic and other recording systems; automatic data reduction; measurement of errors. Prereq: Consent of instructor.

ME 530 GAS DYNAMICS. (3)
Consideration of the mass, energy and force balances applied to compressible fluids. Isentropic flow, diabatic flow, flow with friction, wave phenomena, and generalized one-dimensional gas dynamics. Prereq: ME 321.

ME 540 DYNAMIC SIMULATION OF MECHANICAL SYSTEMS. (3)
The computer solution of mechanical systems with emphasis on development of mathematical models, experimental determination of system parameters, transient and steady-state system response, and the effects of backlash coulomb friction, and non-linear springs. Simulation of actual multi-degree-of-freedom systems. Prereq: CS 221, EM 313.

ME 564 PROPULSION SYSTEM DESIGN. (3)
Design of systems for aircraft or missile propulsion. Centrifugal compressors, axial-flow compressors, turbine and exhaust systems, and combustion chambers. Prereq: ME 530.

ME 567 AIR POLLUTION ENGINEERING AND ECONOMICS. (3)
The mechanical engineering aspects of air pollution resulting from combustion processes. Lecture, two hours; laboratory, three hours. Prereq: MA 214, ME 321 or equivalent, ME 330 or equivalent.

ME 583 BIOTECHNOLOGY. (3)
The human body as a mechanical system responding to sustained and transient forces and pressures, such as occur in flight, space flight and industrial environments. The physical and behavioral reaction of organisms to dynamic, thermal, radiative and gravitational stresses. Mechanical, hydraulic and pneumatic performance of body subsystems. Use of the human parameters in the design of protective and prosthetic devices and life support systems. Prereq: Consent of instructor.

ME 590 ELEMENTS OF AERO-SPACE TECHNOLOGY. (3)
Flight performance of airborne and ballistic vehicles. Space vehicle propulsion and structures. The space environment. Man in space. Prereq: ME 321 and 330.

Prerequisite for graduate work: Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics.

ME 611 NUCLEAR REACTOR ANALYSIS II. (3)
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. Prereq: ME 514, PHY 555 or concur.

ME 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. Prereq: ME 620.

ME 620 ADVANCED ENGINEERING THERMODYNAMICS I. (3)
Critical treatment of the laws of thermodynamics, relations among thermodynamic properties; stability of systems; thermodynamic processes; selected special topics. Prereq: ME 321.

ME 621 ADVANCED ENGINEERING THERMODYNAMICS II. (3)
Broad coverage of statistical mechanics, kinetic theory and theory of fluctuations. Relations between quantum and classical statistics; Boltzmann integro-differential equation and its consequences; applications to reaction equilibrium, property evaluation, and other topics. Prereq: ME 620.

ME 625 ADVANCED HEAT CONDUCTION. (3)
Comprehensive study of heat conduction; derivation of governing equations; discussion of the various boundary conditions; review of classical heat conduction solutions; discussion of current problems, methods of solution and engineering applications of heat conduction. Prereq: MA 432.

ME 626 ADVANCED HEAT CONVECTION. (3)
Comprehensive study of heat convection; derivation of equations of convection of mass, momentum, and energy; boundary layer equations; classical solutions of laminar convection problems; turbulent convection; analogies between momentum and energy. Prereq: ME 625.

ME 627 RADIATION HEAT TRANSFER. (3)
Principles of thermal radiation, the determination of radiation properties, and the analysis of radiation heat transfer. Results of recent radiation researches are included in the discussions. Prereq: ME 325 or equivalent.

ME 630 FLUID DYNAMICS I. (3)
Stress at a point (introduced as a tensor of rank two). Equation of conservation of mass, rate of strain tensor, derivation of Navier-Stokes equation, source-sink flows, motion due to a doublet, vortex flow, two and three-dimensional irrotational flow due to a moving cylinder with circulation, two-dimensional airfoils. Prereq: ME 330, MA 432.

ME 631 FLUID DYNAMICS II. (3)
A continuation of ME 630 with emphasis on viscous flow. Exact and approximate solutions, boundary layer theory. Jets, wakes, rotating systems, compressible boundary layer and hydrodynamic stability. Prereq: ME 630 or consent of instructor.

ME 632 COMPRESSIBLE FLUID FLOW. (3)
Review and extension of one-dimensional gas dynamics. Subsonic flow, Hodograph method. Supersonic flow, perturbation method, method of characteristics, oblique shocks. Unsteady wave motion and shock waves. Compressible boundary layers and interacting wave motion and shock waves. Prereq: ME 330, MA 432.

ME 634 TURBULENT FLOWS. (3)
Physical and analytical description of turbulent flows, isotropic turbulence, boundary layers and shear flows, free turbulence in jets and wakes. Measurement techniques. Prereq: ME 631 or consent of instructor. (Offered every other year.)

ME 642 ADVANCED KINEMATICS OF MACHINERY I. (3)
Fundamentals in the analysis and synthesis of mechanisms including coupler curves, guided plane systems and linkage design. Prereq: Approval of director of graduate study.

ME 643 ADVANCED KINEMATICS OF MACHINERY II. (3)
A continuation of ME 642, dealing with the motion of rigid planes passing through multiple positions. Theory and application. Prereq: ME 642.

ME 645 SYSTEMS CONCEPTS AND ANALYSIS. (3)
Conceptual development and study of complex systems; their synthesis and design; analysis and optimization of system parameters. Input-output relationships; formulation of mathematical models, parameters and constraints on physical systems. Prereq: Consent of instructor.

ME 647 SYSTEM OPTIMIZATION. (3)
A course in the theory and application of optimization techniques with emphasis on large engineering systems. Prereq: MA 433 or CS 220.

ME 649 DYNAMIC ANALYSIS OF MECHANICAL SYSTEMS AND COMPONENTS. (3)
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. Prereq: MA 432.

ME 651 SYSTEM OPTIMIZATION II. (3)
Introduction to optimal control and its applications, calculus of variations, dynamic programming, maximum principle, differential game theory, adaptive control systems, learning systems. Prereq: ME 647.

ME 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.

ME 664 EXPERIMENTAL METHODS IN NUCLEAR ENGINEERING. (3)
A lecture and laboratory course covering the utilization of radiation in engineering, measurement and analysis of parameters pertinent to reactor design and operation, and radiation shielding; reactor response and control studies using analog computer. Prereq or concur: ME 514.

ME 665 NUCLEAR REACTOR DYNAMICS. (3)
Analysis of dynamic behavior of nuclear reactor systems; transfer

function methods applied to nuclear reactor operation and control, stability and analysis from Nyquist and Bode plots, effects of feedback and compensation; instrumentation for reactor start-up and operate conditions. Prereq: ME 343, ME 514.

ME 666 RADIATION DAMAGE AND SHIELDING. (3)
A study of the effects of radiation on reactor materials and instrumentation. Macroscopic study of radiation absorption applied to radiation shielding and heat generation in reactors. Prereq: PHY 554.

ME 667 NUCLEAR REACTOR DESIGN. (4)
The development of a reactor design from a set of specifications. The synthesis of reactor theory, heat transfer, properties of materials and economics. Prereq: ME 514.

ME 685 BIOFLUID MECHANICS. (3)
Rheology of biological fluids with special emphasis on blood; hemodynamics and related blood trauma; biological flow instrumentation; fundamental investigation of circulatory processes; and engineering implication of biological flow processes. Lecture, two hours; laboratory, three hours. Prereq: ME 330.

ME 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

ME 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

ME 772 BIO-MECHANICS SEMINAR. (1)
A weekly meeting of the staff and graduate students in engineering, physiology science, biophysics, psychology, etc.; for the discussion of research and recent developments in biomedical engineering such as biodynamics. May be repeated two times. Prereq: Consent of instructor.

ME 780 SPECIAL PROBLEMS IN MECHANICAL ENGINEERING. (3)
This course consists of individual work in one of the various fields of mechanical engineering. May be repeated three times for a total of 12 credits. Prereq: Approval of instructor.

ME 781 SPECIAL PROBLEMS IN BIOENGINEERING. (3)
Discussion of advanced and current topics in bioengineering. Individual work on research problems of current interest. May be repeated to a maximum of nine credits.

ME 782 ADVANCED TOPICS IN HEAT TRANSFER. (3)
Contemporary topics in heat transfer will be discussed using the current literature. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

ME 783 TOPICS IN ADVANCED SYSTEMS THEORY. (3)
A survey and evaluation of current research results in systems theory. A course designed to permit full utilization of specialized abilities of individual and visiting faculty. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

MEDICAL TECHNOLOGY

MT 820 INTRODUCTION TO MEDICAL TECHNOLOGY. (1)
Presentation of information about the profession of medical technology and the various phases of laboratory medicine involved in the training for and practice of the specialty. Taught by lectures, films, demonstrations and field trips.

MT 830 MEDICAL TECHNOLOGY SEMINAR. (1)
An introduction to disease processes, their manifestations and related laboratory studies used in diagnosis and treatment. Taught by lectures.

MT 832 INTRODUCTION TO LABORATORY METHODOLOGY. (4)
An introductory course in theory of medical laboratory techniques basic to the various disciplines of medical technology. Lecture: two hours; laboratory: four hours per week. Prereq: Admission to the professional program in medical technology.

MT 843 CLINICAL HEMATOLOGY LECTURES. (2)
A study of the principles of hematologic methodologies and of disease processes such as the anemias and leukemias. Particular emphasis will be given to evaluation of methodologies and to correlation of laboratory data with disease. Prereq: Admission to senior year of medical technology curriculum or permission of Department Chairman.

MT 844 CLINICAL CHEMISTRY LECTURES. (3)
A study of biologically important elements and compounds found in various body fluids in health and disease. Emphasis will be given to the theory and evaluation of various methodologies involved in the quantitation of these substances. Prereq: Admission to the senior year of the medical technology curriculum or permission of the Department Chairman.

MT 845 ELECTRONICS AND INSTRUMENTATION FOR THE MEDICAL LABORATORY. (3)
A review of basic electricity, gas laws, optics and an introduction to electronic components with application of these principles and information to clinical laboratory instruments. There will be emphasis on operation, detection of malfunction, and the establishment of maintenance programs. Prereq: Admission to senior (clinical year) of medical technology curriculum. Offered on a pass-fail basis.

MT 846 URINALYSIS AND MISCELLANEOUS CLINICAL MICROSCOPY. (3)
A course covering qualitative and quantitative studies, both chemical and microscopic, of urine; studies of miscellaneous materials such as gastric secretions, cerebrospinal fluids and other body fluids, and lectures on basic principles of histologic technique. Lecture, one hour; laboratory: four hours per week. Prereq: Admission to senior (clinical year) of medical technology curriculum.

MT 853 MEDICAL LABORATORY ORGANIZATION AND MANAGEMENT. (1)
An introduction to the principle, general aspects involved in medical laboratory organization and management. Prereq: Admission to senior (clinical year) of medical technology curriculum. Offered on a pass-fail basis.

MT 854 MEDICAL PARASITOLOGY. (2)
Detailed study of the protozoan and helminth parasites of man as found in blood, feces or other body tissues or fluids. Prereq: Admission to the professional program in medical technology.

MT 855 CLINICAL SEROLOGY. (2)
Clinical serology relative to antibody identification of spirochetal, bacterial and autoimmune diseases with emphasis on the immunologic techniques involved. Prereq: Admission to senior (clinical year) of medical technology curriculum.

MT 856 CLINICAL BACTERIOLOGY LECTURES. (3)
A review of human pathogenic microorganisms and their relationship to disease. Emphasis will be placed on laboratory approaches to infectious disease. Prereq: Admission to the senior year of the medical technology curriculum or permission of the Department Chairman.

MT 857 MEDICAL MYCOLOGY. (2)
A brief course with emphasis on the techniques for isolation and identification of the systemic and subcutaneous fungi and the distinguishing cultural and microscopic characteristics of the dermatophytes. Prereq: Admission to senior (clinical year) of medical technology curriculum.

MT 858 IMMUNOHEMATOLOGY AND BLOOD BANKING. (2)
A course covering basic immunohematologic principles and their application in pre-transfusion studies and antibody identification. It will also include the preparaotion of blood components and the handling of special problems in blood banking, such as transfusion reactions and hemolytic disease of the newborn. Prereq: Admission to senior (clinical year) of medical technology curriculum.

MT 860 BLOOD COLLECTION. (1)
Experience collecting venous and capillary blood specimen for many types of studies. This will include collection from both ambulatory and bed patients of all ages. May be repeated to a maximum of two hours. Prereq: Admission to senior (clinical year) of medical technology curriculum. Offered on a pass-fail basis.

MT 863 CLINICAL HEMATOLOGY LABORATORY. (3)
Practice and mastery of the basic skills required in a clinical hematology laboratory to include particle counting, cellular morphology and coagulation with an introduction to special methodologies used in clinical hematology for the diagnosis of diseases. Laboratory, six hours per week. Prereq: Concurrent registration in MT 843.

MT 864 CLINICAL CHEMISTRY LABORATORY. (3)
Practice in the performance of various types of techniques and use of instruments involved in quantitation of elements and compounds in various body fluids in health and disease. Laboratory, six hours per week. Prereq: Concurrent registration in MT 844.

MT 866 CLINICAL BACTERIOLOGY LABORATORY. (3)
Experience in the techniques of isolation and identification of pathogenic microorganisms from all types of clinical specimen. Laboratory: Six hours per week. Prereq: Concurrent registration in MT 856.

MT 895 ADVANCED TOPICS IN MEDICAL TECHNOLOGY (INDEPENDENT STUDY). (1-2)
An elective for superior students wishing to study selected subjects in depth or carry out a limited laboratory project. Prereq: Permission of department chairman.

MEDICINE

MED 831 MEDICAL CLERKSHIP. (13)
The third-year medical clerkship is a supervised clinical experience in which the students participate in the diagnosis and care of hospitalized patients. The clerks are assigned to a team of house officers. Together they make work rounds and attend the same seminars and conferences. In addition, the faculty conducts a series of conferences for the students. These sessions emphasize basic medical information. The clerks are assigned to all patients admitted to the Medical Service, assuring exposure to a wide variety of acute and chronic illness. In most instances, the students are able to assist in the patient's management throughout the entire hospital course. Increasing responsibility is delegated as clinical experience is gained. Prereq: Admission to third year in College of Medicine.

MED 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.

METALLURGICAL ENGINEERING AND MATERIALS SCIENCE

MET 001 THE ENGINEERING PROFESSION (FRESHMAN). (0)

MET 003 THE ENGINEERING PROFESSION (SOPHOMORE). (0)

MET 201 MATERIALS SCIENCE. (3)
Microscopic and macroscopic structure as related to the properties of materials with engineering applications. Prereq or concur: MA 114 and freshman chemistry.

MET 311 MATERIALS SCIENCE I. (3)
Atomic structure and bonding in engineering materials; the structure and discipline of crystalline materials; elastic and plastic behavior or crystalline materials; introduction to the theory of dislocations and strengthening of materials. Prereq: MA 214.

MET 312 MATERIALS SCIENCE II. (3)
Solidification and structure of cast materials; solid state processes and the role of defects in material behavior; the application of thermodynamics to solids. Prereq: MET 311, CHE 220.

MET 314 METALLURGICAL ANALYSIS. (2)
An independent laboratory required of all seniors to provide an integrated application of theories, practices and techniques to a problem of metallurgical interest. The course will culminate in a project report. Laboratory, six hours. Prereq: MET 413.

MET 361 STRUCTURE AND PROPERTIES OF ALLOYS I. (4)
Phase diagrams through ternary metal systems; dependence of physical, mechanical and electrical properties on microstructure and alloy distribution; precipitation hardening; introduction to quantitative metallography. Lecture and recitation, three hours; laboratory, three hours. Prereq: PHY 232 and 242.

MET 362 STRUCTURE AND PROPERTIES OF ALLOYS II. (4)
X-rays diffraction and metallography; deformation, hardening and softening of alloy systems; the iron-carbon system. Lecture and recitation, three hours; laboratory, three hours. Prereq: MET 361.

MET 371 SEMINAR. (1)
General discussions of metallurgical subjects; preparation and delivery of papers and reports; extemporaneous speaking, and the briefing of technical books and articles in current literature. Two hours. Prereq: Permission of instructor.

MET 372 SEMINAR. (1)
A continuation of MET 371. Prereq: Permission of instructor.

MET 395 INDEPENDENT WORK IN METALLURGICAL ENGINEERING. (1-3)
Research for undergraduate departmental students. Prereq: Major and approval of departmental chairman. May be repeated for a total of six credits.

MET 412 ELECTRONIC PROPERTIES OF MATERIALS. (3)
Modern ideas on the engineering properties of solids, crystallographic properties; relationship of properties to structure and electronic properties of materials. Lecture and recitation, three hours.

MET 413 MATERIALS SCIENCE III. (3)
Applications of reaction kinetics to heat treatment of materials; mass transfer and reaction kinetics; theory of reaction rates; oxidation and corrosion; electronic properties of materials. Prereq: MET 312.

MET 421 SOLIDIFICATION AND CASTING. (4)
Ferrous and non-ferrous foundry practice. Application of engineering principles to the design and production of castings. Lecture, three hours; laboratory, three hours. Prereq: MET 312.

MET 42 FERROUS ALLOYS PROCESSING. (3)
Materials processing: production, mechanical working, other shaping and treating processes; structure and properties of commercial alloys. Emphasis on ferrous metals. Prereq: MET 442.

MET 426 NON-FERROUS ALLOYS PROCESSING. (3)
Continuation of MET 425. Materials processing, structure and properties, with emphasis on non-ferrous metals. Prereq: MET 425.

MET 435 MECHANICAL METALLURGY. (3)
Introductory elasticity and plasticity theory; crystallographic nature of slip and twinning; fracture. Lecture and recitation, two hours; laboratory, three hours. Prereq: MET 312 and EM 302.

MET 436 STRUCTURE AND PROPERTIES OF ALLOYS III. (3)
Solidification of molten alloys; fundamentals of metal working; application of metal working theories to forging, rolling, extrusion, drawing a sheet forming. Prereq: MET 435.

MET 442 EXTRACTIVE METALLURGY. (3)
The principles and processes employed in the preparation, treatment and production of various metals of economic or strategic importance; process economics. Prereq: MET 361 and CHE 440.

MET 443 MINERALS BENEFICIATION. (3)
Principles and mechanics of beneficiation involved in the preparation of mine products, principles of plant design and current developments. Prereq: PHY 232.

MET 444 MINERALS BENEFICIATION LABORATORY. (1)
Application of the principles studied in MET 443. Laboratory, three hours. Prereq or concur: MET 443.

MET 451 METALLURGICAL THERMODYNAMICS. (3)
Solution thermodynamics; partial molal quantities; ideal and non-ideal solutions; application of thermodynamics to phase equilibria; heterogeneous equilibria; free energy-composition relationships; temperature-pressure relationships; nitrogen in iron and steel and the iron-carbon system. Prereq: MET 312.

MET 505 VISCOELASTICITY. (3)
A study of the physical and mathematical phenomenological description of the mechanical behavior of polymeric materials. One-dimensional linear phenomena are emphasized. Topics are: viscoelastic response in shear; relations between modulus and compliance; one-dimensional dynamical problems; stress analysis; thermal effects. Prereq: EM 302 or consent of instructor.

MET 506 MECHANICS OF COMPOSITE MATERIALS. (3)
The analysis of laminated and fiber reinforced materials. Response of composite structures to static and dynamic loads. Thermal stresses. Failure criteria. Prereq: EM 302 or consent of instructor.

MET 531 POWDER METALLURGY. (3)
Study of the principles of powder metallurgy relating to alloys of unusual compositions, metal and non-metal combinations, porous and laminated products, composite metals, and high-melting alloys. Prereq: Consent of instructor.

MET 532 COMPOSITE MATERIALS. (3)
Preparation, testing, design, and nature of composite materials. Prereq: Consent of instructor.

MET 534 PHYSICAL STRUCTURE OF POLYMERS. (3)
Chemical compositions and structures of polymer molecules and their monomeric ingredients; relations between structure, properties, and applications. Prereq: CME 220, CHE 230 or 236.

MET 536 CERAMIC ENGINEERING. (3)
The nature of ceramic materials. The forming and thermal treatment of ceramic products. Consideration of the various properties usually encountered and required of ceramic materials inclusive of cements. Prereq: Consent of instructor.

MET 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.

MET 541 ADVANCED EXTRACTIVE METALLURGY. (3)
Continuation of MET 442. Recent developments in the extraction of common metals; sources and production of metallic orea; extraction of valuable constituents; prevention of metallurgical environmental pollution; recovery of metals from scrap. Prereq: MET 442 or consent of instructor.

MET 550 CORROSION. (3)
The fundamental principles of corrosion control and the basic mechanisms related to a better understanding of the causes of corrosion. The application of principles to practical situations. Prereq: Consent of instructor.

MET 551 ADVANCED CHEMICAL METALLURGY I. (3)
Study of reactions occurring during refining, based on principles of ferrous metallurgy. Prereq: Consent of instructor.

MET 552 POLYMERIC MATERIALS. (3)
Relating properties to structure; properties of polymer materials; mechanical, electrical and thermal properties of amorphous and crystalline polymers, molding and fabrication, polymers as additives, biomedical application, selection of polymers, design. Prereq: MET 301 or CHE 230 or CHE 236, or consent of instructor. (Same as CE 552.)

MET 553 THERMODYNAMICS OR POLYMER SYSTEMS. (3)
Configurations of polymer chains, configurational and frictional properties of macromolecules in dilute solution, statistical thermodynamics of polymer solutions, rubber elasticity, membrane phenomena. Prereq: CME 220, CHE 236, or CHE 230, or consent of instructor.

MET 566 CRYSTALLOGRAPHY AND X-RAY METALLOGRAPHY. (4)
Elements of crystallography, nature of x-rays, diffraction by crystal lattice, the structure factor and crystal structure determinations in metallic lattices, x-ray camera and diffractometer techniques and application of these to determination of phase diagrams, preferred orientation and residual stresses. Lecture, three hours; laboratory, three hours. Prereq: MET 361.

Prerequisite for graduate work: Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics. Degrees offered are a Master of Science in Metallurgical Engineering and a Doctor of Philosophy in Physical Metallurgy.

MET 632 MATERIALS SCIENCE II. (3)
Continuation of MET 532. Classification of solids; atomic structure and bonding; relation of structure to properties; deformation behavior and failure. Prereq: MET 532.

MET 633 SPECIAL PURPOSE ALLOY STEELS. (3)
Fundamental principles of the more complicated and special alloy steels and their heat treatment. Carbon, mild alloy, N.E., S.A.E., tool and super alloys are included. Alternate alloy steels for application are considered. Prereq: Consent of instructor.

MET 635 ADVANCED MECHANICAL METALLURGY II. (3)
Theory of dislocations in crystals and their role in strength, plasticity, work hardening and fracture of crystalline solids. Prereq: MET 535.

MET 637 MATERIALS ENGINEERING. (3)
Factors in specification and testing of materials. Materials for lightweight construction, mechanical and electrical applications, and severe service conditions are treated. Material failures, trouble shooting and testing are discussed. Lecture, two hours; laboratory, three hours. Prereq: Consent of instructor.

MET 641 ADVANCED PRODUCTION METALLURGY. (3)
Principles and practices used in the production of alloys with special stress upon any particular group of alloys that the student may choose. Reference reading and laboratory work are emphasized. Lecture, two hours; laboratory, three hours. Prereq: Consent of instructor.

MET 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.

MET 659 ADVANCED PHASE DIAGRAMS. (3)
Review of thermodynamic fundamentals and application to binary pressure-temperature-composition diagrams. Construction and interpretation of ternary temperature-composition diagrams. Review and discussion of important ternary diagrams. Prereq: MET 451 or equivalent.

MET 661 ADVANCED PHYSICAL METALLURGY I. (3)
Study of the theory of phase transformations in metallic systems. Analysis of rate controlling processes for nucleation and growth controlled phase changes and for order-disorder reactions. Prereq: MET 463 or permission of instructor.

MET 662 ADVANCED PHYSICAL METALLURGY II. (3)
Solidification theory and mechanisms. Diffusion in solids. Prereq: MET 661 or permission of instructor.

MET 663 THEORETICAL STRUCTURAL METALLURGY. (3)
Interatomic forces of crystal bonding; free electron; zone theory; equilibrium and rate of approach thereto; thermal behavior, structure and free energy of alloy phases; equilibrium diagrams; diffusion; order-disorder change; nucleation and phase growth. Prereq: MET 461.

MET 666 DIFFRACTION METHODS IN METALLURGY. (4)
Application of thin foil electron transmission methods to the study of the defect structure of metals, theory of electron diffraction contrast phenomena, sample preparation, x-ray theory and methods applied to the study of deformation characteristics of metals, order-disorder transformations, and crystal structure analysis. Lecture, two hours; laboratory, six hours. Prereq: MET 566.

MET 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
(1-6 credits equivalence.) May be repeated once.

MET 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
(1-12 credits equivalence.) May be repeated indefinitely.

MET 771 SEMINAR. (0)
Review of current literature in the field of metallurgical engineering and presentation of papers thereon. Presentation of talks on departmental research. Group and panel discussions. Required of all graduate students every semester.

MET 781 SPECIAL PROBLEMS, LITERATURE AND LABORATORY. (1-3)
Literature research and planning of research programs; shop problems and technical writing, including a term paper, are required. Consultation and lecture by appointment. May be repeated for a total of nine credits.

MET 782 SPECIAL PROBLEMS, LITERATURE AND LABORATORY. (3)
A continuation of MET 781. Laboratory, six hours; consultation and lecture by appointment. May be repeated twice for a maximum of nine credits.

MICROBIOLOGY

See also courses listed under Biology.

MB 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.

MB 110 ELEMENTARY MEDICAL MICROBIOLOGY. (4)
A study of the characteristics and habits of microorganisms and of their relation to medicine, surgery, and public health. Lecture and recitation, two hours; laboratory, four hours. Prereq: PGY 206; CHE 100.

MB 200 PRINCIPLES OF BACTERIOLOGY. (4)
Lecture and recitation, two hours; laboratory, four hours. (An alternative course for students who do not have the prerequisites for MB 400.) Prereq or concur: CHE 104 or 112. (This course is a prerequisite to a significant number of courses in this area of study.)

MB 210 BACTERIOLOGY OF FOODS. (4)
Dairy and miscellaneous food products; food preservation; food poisoning. Standard methods for official food and public health laboratories. Lecture, two hours; laboratory, four hours. Prereq: MB 200 or 400 and CHE 112.

MB 220 BACTERIOLOGY OF WATER AND SEWAGE. (4)
Microbiology of water; methods of purification. Sewage disposal methods. Operation of swimming pools. Standard and other methods for examination. Lecture, two hours; laboratory, four hours. Prereq: MB 102, or 200 or 400 and CHE 112.

MB 350 SEMINAR. (1)
Review of current literature in microbiology; presentation of papers on work in progress in the Department or on assigned topics; reports on meetings of national scientific societies. Required of all seniors. May be repeated to a maximum of four credits. Two hours.

MB 395 INDEPENDENT WORK. (3)
Students are assigned special problems in laboratory work and reference reading. Laboratory, six hours. May be repeated to a maximum of 18 credits. Prereq: Major and standing of 3.0 in the Department.

MB 400 GENERAL BACTERIOLOGY. (4)
Microorganisms; their morphology, classification, physiology, relation to certain fermentations, to food, to soil fertility, and to disease. Lecture and recitation, two hours; laboratory, four hours. Prereq: CHE 104 or 112.

MB 410 APPLIED BACTERIOLOGY. (2)
A course in bacteriological analysis to supplement courses 200 and 400. Laboratory, four hours. Prereq: MB 200 or 400; or 102 and CHE 112.

MB 500 PATHOGENIC BACTERIOLOGY. (4)
Human and animal pathogenic microorganisms, especially their morphological, cultural, and pathogenic properties. Lecture, two hours; laboratory, four hours. Prereq: MB 200 or 400 or 102 and CHE 112.

MB 512 GROWTH AND DEATH OF BACTERIA. (4)
Physiological aspects of bacterial growth and death; chemotherapy and disinfection. Two class hours per week; laboratory, four hours per week. Prereq: MB 102 or 200, CHE 232, consent of instructor.

MB 520 METABOLISM OF MICROORGANISMS. (4)
Chemical changes produced by microorganisms; properties of their enzymes; the physiology of their growth. Lecture or conference, two hours; laboratory, four hours. Prereq: CHE 232; reading knowledge of German or French.

MB 550 IMMUNOLOGY AND SEROLOGY. (5)
The theories and mechanisms of infection and immunity; preparation, standardization, and uses of biological products; serology. Lecture, two hours; laboratory, six hours. Prereq: MB 500.

MB 610 BACTERIOLOGY OF FOODS. (4)
Dairy and miscellaneous food products; food preservation; food poisoning. Standard methods for official food and public health laboratories. Lecture, two hours; laboratory, four hours. Prereq: MB 200 or 400 and BIO 108; CHE 112.

MB 620 BACTERIOLOGY OF WATER AND SEWAGE. (4)
Microbiology of water; methods of purification. Sewage disposal methods. Operation of swimming pools. Standard and other methods for examination. Lecture, two hours; laboratory, four hours. Prereq: MB 200 or 400; or 102 and CHE 112.

MB 660 ELECTRON MICROSCOPY. (3)
Theory, operation and uses of the magnetic electron microscope and the vacuum unit for metal shadow casting. Lecture, one hour; laboratory, four hours. Prereq: PHY 232, 242.

MB 670 VIRUSES AND RICKETTSIAE. (4)
Natures, activities, and methods of laboratory cultivation of viruses and rickettsiae; their relation to bacteria, plants, and animals. Lecture, two hours; laboratory, four hours. Prereq: MB 550.

MB 700 HISTORY OF BACTERIOLOGY. (2)
Conference, two hours. Prereq: MB 550.

MB 712 BACTERIAL ANATOMY, TAXONOMY AND NOMENCLATURE. (3)
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. Lecture and conference, two hours; laboratory, two hours. Prereq: MB 550; recommended MB 660, CHE 232.

MB 714 MICROBIAL GENETICS. (4)
The nature and action of genetic material in microorganisms. Lecture and conference, two hours; laboratory, four hours. Prereq: Basic courses in genetics and microbiology; CHE 232.

MB 722 METABOLISM OF MICROORGANISMS. (4)
Continuation of MB 520. Lecture or conference, two hours; laboratory, four hours. Prereq: MB 520.

MB 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

MB 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

MB 770 SEMINAR. (0-1)
Review of current literature in microbiology; presentation of papers on work in progress in the Department or on assigned topics; reports on meetings of national and instructional scientific and professional societies and symposia. Required of all graduate students. Two hours. May be repeated to a maximum of 10 credits.

MB 790 RESEARCH IN BACTERIOLOGY. (3-6)
Laboratory, 10 hours. May be repeated to a maximum of 12 credits.

MB 795 RESEARCH IN BACTERIOLOGY. (3-6)
Laboratory, 10 hours. May be repeated to a maximum of 24 credits. Prereq: Master's degree or equivalent.

MILITARY SCIENCE (ARMY ROTC)

BASIC COURSE

MS 101 MILITARY HISTORY. (2)
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.

MS 102 U.S. DEFENSE ESTABLISHMENT. (2)
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.

MS 201 SMALL UNIT TACTICS. (1)
Course in small unit tactics, patrolling, leadership and command.

MS 202 INSURGENCY STUDIES. (2)
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).

MS 221 MAP READING AND MILITARY GEOGRAPHY. (1)
A course in map and aerial photograph reading to include military geography and land navigation. Prereq: None, except for ROTC students who must enroll in this course concurrently with MS 201, be physically fit to pursue program, have successfully completed MS 101 and 102 or have consent of the PMS.

ADVANCED COURSE

MS 301 LEADERSHIP AND MANAGEMENT I. (3)
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 and qualification exam. Consent of PMS.

MS 302 ADVANCED TACTICS. (3)
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 and qualification exam. Consent of PMS.

MS 341 LEADERSHIP AND MANAGEMENT II. (3)
An advanced study of logistics, operations, military administrations, personnel management, military justice, world change and military implications, service orientation and leadership training. Prereq: MS 301, 302.

MS 342 COMMAND MANAGEMENT. (3)
An advanced study of logistics, operations, military administration, personnel management, military justice, world change and military implications, service orientation and leadership training. Prereq: MS 301, 302.

MS 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.

MS 11 ARMY ROTC SUMMER CAMP. (0)
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

MUSIC PERFORMANCE COURSES (SPECIAL FEE)

Prereq: Satisfactory audition and/or approval of instructor.

	Undergraduate Courses (1-3)	Graduate Courses (1-4)
Cello	MUP 106, 206, 306, 406	506, 606
Piano	MUP 101, 201, 301, 401	501, 601
Voice	MUP 102, 202, 302, 402	502, 602
Organ	MUP 103, 203, 303, 403	503, 603
Violin	MUP 104, 204, 304, 404	504, 604
Viola	MUP 105, 205, 305, 405	505, 605
String Bass	MUP 107, 207, 307, 407	507, 607
Flute	MUP 108, 208, 308, 408	508, 608
Oboe	MUP 109, 209, 309, 409	509, 609
Clarinet	MUP 110, 210, 310, 410	510, 610
Bassoon	MUP 111, 211, 311, 411	511, 611
Trumpet	MUP 112, 212, 312, 412	512, 612
French Horn	MUP 113, 213, 313, 413	513, 613
Trombone	MUP 114, 214, 314, 414	514, 614
Baritone	MUP 115, 215, 315, 415	515, 615
Tuba	MUP 116, 216, 316, 416	516, 616
Saxophone(alto)	MUP 117, 217, 317, 417	517, 617
Percussion	MUP 118, 218, 318, 418	518, 618
Harp*	MUP 119, 219, 319, 419	519, 619
Harpsichord	MUP 120, 220, 320, 420	520, 620
Viola De Gamba	MUP 121, 221, 321, 421	521, 621
Historical Instruments*	322, 422	522, 622

One-Hour Credit

*Consult the School of Music before enrolling in this course.

The following may register for one-hour credit performance courses: (1) Music majors electing a secondary instrument or a major instrument credit by direction of the adviser to fulfill degree performance requirements. (2) Students from other divisions of the University desiring elective credit but only upon approval of Department of Music.

Students in one-credit hour performance courses for secondary instrument credit will be taught in studio groups of four or less.

Each undergraduate one-hour credit course may be repeated twice for a total of three credits.

Each graduate one-hour credit course may be repeated three times for a total of four credits.

Two-Hour Credit

Music majors who are in the B.M. in Music Education or B.A. in Music degree programs may register for two hours credit. Graduate student registration in these courses will be by direction of the adviser. Not open to non-music students. Each undergraduate two-hour credit course may be repeated twice for a total of six credits. Each graduate two-hour credit course may be repeated three times for a total of eight credits.

Three-Hour Credit

Students working toward the B.M. or M.M. degrees in Applied Music may register for three hour's credit each semester. D.M.A. students may register for a two or three hour's credit upon the consent of their adviser. Not open to non-music students. Each undergraduate three-hour course may be repeated twice for a total of nine credits. Each graduate course may be repeated three times for a total of 12 credits. Not offered during summer sessions.

Four-Hour Credit

Only a student in the Master of Music in Applied Music Program may register for four hour's credit, and only on the 600 level, if so directed by his adviser and with the written approval of the Director of Graduate Studies. Each four-credit course may be repeated once for a total of eight credits. Not offered during the summer session.

CLASS INSTRUCTION OF INSTRUMENTS

MUC 150 CLASS INSTRUCTION IN PIANO. (1)
A beginning course in the fundamentals of playing the piano. Two class hours per week. Prereq: For music majors; other students by permission of instructor.

MUC 151 CLASS INSTRUCTION IN PIANO. (1)
A beginning course in the fundamentals of playing the piano. For music majors; other students by permission of instructor. Two class hours per week. Prereq: MUC 150.

MUC 152 CLASS INSTRUCTION IN PIANO. (1)
A course in the fundamentals of playing the piano. For music majors; others by permission of instructor. Two class hours per week. Prereq: MUC 151.

MUC 153 CLASS INSTRUCTION IN PIANO. (1)
A course in the fundamentals of playing the piano. For music majors; others by permission of instructor. May be repeated with permission of instructor for a total of two credits. Two class hours per week. Prereq: MUC 152.

MUC 157 CLASS INSTRUCTION IN PERCUSSION INSTRUMENTS. (1)
A beginning course in the fundamentals of playing and teaching percussion instruments. Prereq: For music majors only; others by permission of instructor.

MUC 158 CLASS INSTRUCTION IN WOODWIND INSTRUMENTS. (1)
A beginning course in the fundamentals of playing and teaching woodwind instruments. For music majors only; others by permission of instructor.

MUC 161 CLASS INSTRUCTION IN STRING INSTRUMENTS. (1)
A beginning course in the fundamentals of playing and teaching violin, viola, cello and string bass. For music majors only; others by permission of instructor.

MUC 163 CLASS INSTRUCTION IN BRASS INSTRUMENTS. (1)
A beginning course in the fundamentals of playing and teaching of brass instruments. For music majors only, others by permission of instructor.

CHAMBER MUSIC ENSEMBLES

MUC 170 STRING ENSEMBLE. (1)
The study of string instrument chamber music through performance. May be repeated seven times for a total of eight credits. Laboratory, two hours. Prereq: Permission of instructor.

MUC 171 BRASS ENSEMBLE. (1)
The study of brass instrument chamber music through performance. May be repeated seven times for a total of eight credits. Laboratory, two hours. Prereq: Permission of instructor.

MUC 172 WOODWIND ENSEMBLE. (1)
The study of woodwind instrument chamber music through performance. May be repeated seven times for a total of eight credits. Laboratory, two hours. Prereq: Permission of instructor.

MUC 173 PERCUSSION ENSEMBLE. (1)
The study of percussion instrument chamber music through performance. May be repeated seven times for a total of eight credits. Laboratory, two hours. Prereq: Permission of instructor.

MUC 174 CHAMBER SINGERS. (1)
Study of vocal chamber music through performance. May be repeated seven times for a total of eight credits. Laboratory, two hours. Prereq: Permission of instructor.

MUC 175 JAZZ ENSEMBLE. (1)
Study of jazz through performance. May be repeated three times for a total of four credits. Laboratory, two hours. Prereq: Permission of instructor.

MUC 176 PIANO ENSEMBLE. (1)
Study of piano ensemble chamber music through performance. May be repeated seven times for a total of eight credits. Laboratory, two hours. Prereq: Permission of instructor.

LARGE MUSICAL ORGANIZATIONS

MUC 187 CONCERT BAND (SPRING SEMESTER). (1)
A large concert band primarily for the general student desiring continuation of instrumental music experience. Laboratory, three hours per week. Prereq: Permission of instructor. May be repeated three times for a total of four credits.

MUC 188 SYMPHONIC BAND (SPRING SEMESTER). (1)
A select band engaged in preparation and performance of a variety of music composed for this medium. May be repeated three times for a total of four credits. Laboratory, four hours per week. Prereq: Audition and permission of instructor.

MUC 189 WIND ENSEMBLE (SPRING SEMESTER). (1)
The University's most select band for performance of challenging literature in the wind repertoire. May be repeated three times for a total of four credits. Laboratory, four hours per week. Prereq: Permission of instructor.

MUC 190 MARCHING BAND (FALL SEMESTER ONLY). (1)
Preparation for and performance at University athletic functions primarily football games. May be repeated three times for a total of four credits. Prereq: Permission of instructor.

MUC 191 ORCHESTRA. (1)
Students who have demonstrated the required ability are given an opportunity to study and perform standard orchestral literature. May be repeated seven times for a total of eight credits. Admission by audition.

MUC 192 UNIVERSITY CHORISTERS. (1)
Admission by audition, ordinarily for music majors only. Three one hour meetings per week. May be repeated seven times for a total of eight credits.

MUC 195 UNIVERSITY CHORUS. (1)
Any student in the University may be admitted to the University Chorus after consultation with the director. Two meetings per week. May be repeated seven times for a total of eight credits.

MUC 196 OPERA WORKSHOP. (1)
Study of the principles and techniques of opera production through class presentation of scenes and complete works. Prereq: Permission of instructor. May be repeated three times for a total of four credits.

MUC 570 ADVANCED CHAMBER MUSIC ENSEMBLE. (1)
Study of chamber music through performance. May be repeated to a maximum of two credits. Laboratory, two hours. Prereq: Permission of instructor.

MUC 596 OPERA WORKSHOP. (1)
Study of the principles and techniques of opera production and direction through class presentation of scenes and complete works. May be repeated two times for a total of three

MUS 102 MUSIC HISTORY: ORIENTATION AND SURVEY. (2)
A study of basic music terminology, and preparatory historical survey of music periods designed to orient the entering freshman music major as to the development of musical styles and representative composers.

MUS 103 MUSIC HISTORY. (3)
A survey of the history of music from ancient times through the Renaissance (up to approximately 1600). Required of all music majors. Prereq: Music majors—MUS 102; non-music majors—consent of instructor.

MUS 120 FOREIGN LANGUAGE VOCAL DICTION. (1)
A study of diction factors in Italian, German, and French vocal music. Two class hours a week. May be repeated for a total of three hours. Prereq: Permission of instructor.

MUS 170 THEORY I—ELEMENTARY AURAL THEORY. (1)
Development of aural responsiveness to the harmonic and melodic elements of music, and of sightsinging techniques as an aid to music comprehension. Prereq: Satisfactory completion of Theory Placement Examination.

MUS 171 THEORY I—ELEMENTARY WRITTEN THEORY. (2)
The acquisition of harmonic vocabulary and development of part-writing techniques, elementary counterpoint, free composition, and analysis. This course must be taken concurrently with MUS 170. Prereq: Satisfactory completion of Theory Placement Examination.

MUS 172 THEORY I—ELEMENTARY AURAL THEORY. (1)
The continuation of the aural and sightsinging techniques of MUS 170. Lecture, one hour; laboratory, one hour. Prereq: MUS 170.

MUS 173 THEORY I—ELEMENTARY WRITTEN THEORY. (2)
The continuation of the work of MUS 171. Must be taken concurrently with MUS 172. Lecture, three hours per week. Prereq: MUS 171.

MUS 200 INTRODUCTION TO MUSIC. (3)
A study of the elements of music as they apply to the listening experience; designed for the non-music major with no prior knowledge of music. Emphasis will be placed upon developing an awareness and understanding of musical styles from the Renaissance to the present.

MUS 202 HISTORY OF MUSIC. (3)
A survey of the history of music from the Baroque through the Classical periods (approximately 1600-1827). Required of all music majors. Prereq for music majors—MUS 102; for non-music majors—consent of instructor.

MUS 203 HISTORY OF MUSIC. (3)
A survey of the history of music from the Romantic period to the present (approximately 1827 to present). Required of all music majors. Prereq for music majors—MUS 102; for non-music majors—consent of instructor.

MUS 260 MUSIC FUNDAMENTALS AND SKILLS FOR CLASSROOM TEACHERS. (3)
Designed to aid elementary teachers in the College of Education in learning to read music. Keyboard and autoharp experiences are stressed. For non-music majors or classroom teachers. Two hours lecture; one hour laboratory.

MUS 261 METHODS AND MATERIALS OF TEACHING MUSIC IN THE ELEMENTARY GRADES. (3)
Principles, techniques, and procedures for teaching music in grades 1-6. Opportunities for using current materials are included. Prereq: MUS 260 or permission of the instructor.

MUS 262 VOCAL MUSIC METHODS AND MATERIALS SEMINAR I. (2)
Fundamentals of singing, posture, breathing, diction. Reading of choral literature suitable for the junior and senior high school chorus. Beginning conducting. Accompanying. Two lecture hours and one laboratory hour per week. Prereq: MUS 172, 173.

MUS 263 INSTRUMENTAL MUSIC METHODS AND MATERIALS SEMINAR I. (2)
Study of the history and philosophy of music education in the public schools and a study of the methods and materials in teaching instrumental music in the elementary schools. Laboratory band and orchestra experience with secondary instruments. Observations in the public schools with emphasis in the elementary and junior high school levels. Two lecture hours and one laboratory hour per week. Prereq: MUS 172, 173.

MUS 264 VOCAL MUSIC METHODS AND MATERIALS SEMINAR II. (2)
Warm-up exercises, vocalizing, sight-reading in the chorus. Vocal styles. Reading and conducting choral literature suitable for the junior and senior high school chorus. Analyzing vocal problems. The teenage voice, including the boy's changing voice. Two lecture hours and one laboratory hour per week. Prereq: MUS 262.

MUS 265 INSTRUMENTAL MUSIC METHODS AND MATERIALS SEMINAR II. (2)
A study of the organization and administration of the school instrumental program. Overview of methods and materials and the beginning of repertoire study for school bands and orchestras. Continuation of observations and visitations. Continuation of laboratory band and orchestra experiences. Study of the fundamentals of conducting. Two lecture hours and one laboratory hour per week. Prereq: MUS 263.

MUS 270 THEORY II—AURAL THEORY. (2)
A continuation of the development of aural responsiveness to the harmonic and melodic elements of music, and of sightsinging techniques as an aid to music comprehension. Prereq: MUS 170, 172.

MUS 271 THEORY II—WRITTEN THEORY. (2)
A continuation of the acquisition of harmonic vocabulary and development of part-writing techniques, elementary counterpoint, free composition, and analysis. This course must be taken concurrently with MUS 270. Prereq: MUS 171, 173.

MUS 272 THEORY II—AURAL THEORY. (2)
The continuation of the aural and sightsinging techniques of MUS 270. Prereq: MUS 270.

MUS 273 THEORY II—WRITTEN THEORY. (2)
The continuation of the work of MUS 271. This course must be taken concurrently with MUS 272. Prereq: MUS 271.

MUS 300 HISTORY OF JAZZ. (3)
A survey of jazz from its New Orleans beginnings to the present. Emphasis will be on the various styles and functions of jazz, particularly as they have been affected by changing social-cultural patterns during the 20th Century. Prereq: MUS 200 or consent of instructor.

MUS 358 CONDUCTING I. (2)
A study of the technique and practice of fundamentals of conducting. Two meetings a week. Prereq: Junior standing in music.

MUS 360 GENERAL MUSIC IN THE ELEMENTARY SCHOOL. (2)
Methods, materials and techniques of teaching general music in Grades 1-6 including study of the child's voice, rote singing and repertory, part singing, rhythmic development, listening experience, notation and use of accompanying instruments. Three class periods per week. Prereq: Junior standing in music.

MUS 362 VOCAL MUSIC METHODS AND MATERIALS SEMINAR III. (2)
The large chorus. Organizational details, rehearsal procedures, public performances. Techniques of vocal production applied to the total choral teaching situation. Interpretation, balance, blend and intonation. Conducting. Accompanying. Prereq: MUS 262, 264.

MUS 363 INSTRUMENTAL MUSIC METHODS AND MATERIALS SEMINAR III. (2)
A continuation of MUS 263 and 265. A more intensive study of the rehearsal techniques used with high school bands and orchestras. Laboratory band and orchestra for conducting techniques and secondary instrument playing. Marching band techniques and procedures. Current trends in instrumental music education. Study of literature for all instrumental ensembles. Continued observation in the public schools with emphasis on high school bands and orchestras. Prereq: MUS 263, 265.

MUS 364 VOCAL MUSIC METHODS AND MATERIALS SEMINAR IV. (2)
The small ensemble and the larger chorus. Understanding of style to the performance of music of all periods. Conducting the small and large ensemble. Two lecture hours and one laboratory hour per week. Prereq: MUS 262, 264, 362.

MUS 365 INSTRUMENTAL MUSIC METHODS AND MATERIALS SEMINAR IV. (2)
A summary of the administrative procedure for the high school band and orchestra director. Advanced conducting with emphasis on rehearsal procedures using advanced music for the high school ensemble. Assignment to public school instrumental teacher for teaching participation. Two lecture hours and one laboratory hour per week. Prereq: MUS 263, 265, 363.

MUS 370 THEORY III—ADVANCED HARMONY AND COUNTERPOINT. (2)
A study of the 19th Century harmonic idioms through projects in analysis and composition. Three meetings a week. Prereq: MUS 273.

MUS 371 INSTRUMENTATION AND ARRANGING. (2)
A basic course in instrumentation and arranging for typical school instrumental and vocal ensembles. Prereq: MUS 273.

MUS 372 MUSICAL ANALYSIS. (2)
A study of musical style through structural, harmonic and melodic analyses. Prereq: MUS 273.

MUS 395 INDEPENDENT WORK IN MUSIC. (3)
May be repeated once for a total of six credits. Prereq: Major in music and a standing of 3.0 in the Department.

MUS 500 MUSIC OF THE MIDDLE AGES. (3)
The development of Western music through the 14th Century. Prereq: MUS 202, 203, or MUS 200 and permission of instructor.

MUS 501 MUSIC OF THE RENAISSANCE. (3)
A survey of vocal and instrumental music of the 15th and 16th Centuries. Prereq: MUS 202, 203, or MUS 200 and permission of instructor.

MUS 502 MUSIC OF THE BAROQUE ERA. (3)
The history of vocal and instrumental music in the Baroque style from 1600 to 1750. Prereq: MUS 202, 203, or MUS 200 and permission of instructor.

MUS 503 MUSIC OF THE CLASSIC PERIOD. (3)
The development of music in the Classic style from the early 18th Century to 1800. Prereq: MUS 202, 203 or MUS 200 and permission of instructor.

MUS 504 MUSIC OF THE 19th CENTURY. (3)
A study of master works of music composed in the 19th Century. Prereq: MUS 202, 203 or MUS 200 and permission of instructor.

MUS 505 MUSIC OF THE 20th CENTURY. (3)
A stylistic study of representative compositions of the 20th Century. Prereq: MUS 202, 203 or MUS 200 and permission of instructor.

MUS 506 HISTORY OF AMERICAN MUSIC. (3)
A study of music in America from colonial times to ca. 1920. Prereq: MUS 202 and 203 or MUS 200 and permission of instructor.

MUS 520 VOCAL SOLO LITERATURE. (3)
A stylistic study of solo vocal music from the Baroque to the present. Prereq: MUS 202, 203 or MUS 200 and permission of instructor.

MUS 521 ORGAN LITERATURE. (3)
A course of study designed to give the organ student a practical knowledge of the development of the organ, its construction, the standard literature, and teaching materials. Prereq: MUS 202, 203 or MUS 200 and permission of instructor. (Fall semester only.)

MUS 522 PIANO LITERATURE. (3)
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 202, 203 or MUS 200 and permission of instructor.

MUS 524 STRING LITERATURE. (3)
A historical and analytical study of music written for strings. Prereq: MUS 202, 203 or MUS 200 and permission of instructor.

MUS 530 COLLEGIUM MUSICUM. (3)
The study and realization of performance practices in music from antiquity to the present. May be repeated twice for credit.

MUS 561 CURRENT PRACTICES IN ELEMENTARY AND SECONDARY SCHOOL MUSIC. (2)
Contemporary philosophies and objectives of music in the elementary and secondary schools. The in-service training of the classroom teacher; the music specialist as a resource person. Techniques for developing the child's musical interest and capacity for music. The status of music in America's public schools. Open to music teachers only. Prereq: MUS 360 and 362, or 361 and 363 or the equivalent.

MUS 565 VOCAL PEDAGOGY. (2)
For teachers of voice, supervisors of music and choir directors. The study of physical and psychological problems in the teaching of voice production, the study of breath control, diction, resonance, interpretation, and repertory.

MUS 568 GENERAL MUSIC IN THE SECONDARY SCHOOL. (2)
Techniques and materials for general music activities in junior and senior high schools, emphasizing teaching of music as a humanistic discipline. Prereq: Junior standing in music.

MUS 570 ORCHESTRATION. (2)
This course includes a study of the individual instruments of the orchestra and band with practice in scoring for these instruments. Prereq: MUS 371.

MUS 571 ORCHESTRATION. (2)
A continuation of MUS 570. Prereq: MUS 570.

MUS 572 COUNTERPOINT. (2)
Study of 16th Century contrapuntal techniques.

MUS 573 COUNTERPOINT. (2)
Study of 18th Century contrapuntal techniques.

MUS 574 COMPOSITION. (2)
A basic course in original composition and orchestration. Prereq: MUS 371.

MUS 575 COMPOSITION. (2)
A continuation of MUS 574. Prereq: MUS 574.

MUS 578 ANALYTICAL TECHNIQUES. (2)
Studies in the analysis of stylistic practices in the music of the 18th and 19th Centuries. Prereq: MUS 272 and 273, MUS 372 or equivalent.

MUS 601 HISTORY OF PERFORMANCE PRACTICES. (3)
A survey of practices in the performing of European music from the later Middle Ages to 1800, based on evidence from contemporary sources.

MUS 617 RESEARCH METHODS. (3)
A course designed to acquaint the student in music education with the basic research techniques and materials in music.

MUS 618 RESEARCH METHODS. (3)
A survey of basic research techniques and materials in musicology and theory. Prereq: A reading knowledge of French or German.

MUS 620 ADVANCED GERMAN VOCAL LITERATURE. (3)
An intensive study of the stylistic and interpretive characteristics of German solo vocal literature.

MUS 621 ADVANCED VOCAL LITERATURE. (3)
An intensive study of the stylistic and interpretive characteristics of the solo vocal literature other than German.

MUS 622 SYMPHONIC LITERATURE. (3)
An intensive study of orchestral literature from the classical period to the present. Prereq: MUS 202 and 203, or MUS 200 and permission of instructor.

MUS 623 OPERA LITERATURE. (3)
The development of opera as an art form, and analysis of representative operas from various areas. Prereq: MUS 202 and 203, or MUS 200 and permission of instructor.

MUS 624 CHAMBER MUSIC LITERATURE. (3)
An intensive study of the development of instrumental chamber music. Prereq: MUS 202 and 203, or MUS 200 and permission of instructor.

MUS 625 CHORAL LITERATURE. (3)
A survey of choral literature from the 16th Century to the present time. Prereq: MUS 202, and MUS 203 or MUS 200 and permission of instructor.

MUS 650 MUSIC EDUCATION WORKSHOP. (1-4)
Intensive study of advanced methods and materials in one of the following areas of music education: elementary and general music, the school orchestra, the school band, choral music. May be repeated once for a total of two, three or four credits.

MUS 671 ADVANCED MUSICAL ANALYSIS. (3)
A course designed to show the changing aspects of musical style through analysis of representative compositions from all periods. Prereq: At least eight hours of upper-division theory or consent of instructor.

MUS 672 ADVANCED MUSICAL ANALYSIS. (3)
A continuation of MUS 671. Prereq: MUS 671.

MUS 673 ADVANCED COMPOSITION. (2)
May be repeated two times for a total of six credits. Prereq: MUS 575.

MUS 674 PEDAGOGY OF THEORY. (2)
The teaching of music theory.

MUS 675 PEDAGOGY OF THEORY. (2)
A continuation of MUS 674. Prereq: MUS 674.

MUS 677 CONTEMPORARY MUSIC IDIOMS. (3)
An intensive study of compositional procedures in music since 1920. Prereq: MUS 505 (may be taken concurrently with the consent of instructor).

MUS 700 MEDIEVAL NOTATION. (3)
The study and transcription of the notation of Medieval music from the earliest plainchant sources to mannered notation of the late Ars Nova in Italy and France. Three class hours per week; one laboratory hour per week. Prereq: MUS 500 (may be taken concurrently) and consent of instructor.

MUS 701 RENAISSANCE NOTATION. (3)
The study and transcription of the notation of Renaissance polyphony from the time of the Burgundian school through Palestrina and contemporaries, and of the various keyboard and lute tablatures of the 16th and 17th Centuries. Three class hours per week; one laboratory hour per week. Prereq: MUS 501 (may be taken concurrently) and consent of instructor.

MUS 702 SEMINAR IN MUSICOLOGY. (3)
Study and research in specific musicological problems. May be repeated twice for credit. Prereq: Permission of instructor.

MUS 703 STUDIES IN MUSIC HISTORY. (2)
Intensive studies of a musical genre, a composer, or a school of composers.

MUS 718 DOCTORAL SEMINAR. (3)
A seminar for Ph.D. and qualified D.M.A. students. Prereq: Two semesters for residency, and fluent reading knowledge of French and German.

MUS 719 INDEPENDENT WORK IN MUSICOLOGY. (1-3)
May be repeated for a total of six hours. Prereq: Four to six hours of graduate credit in the area of specialization and consent of instructor.

MUS 750 ADMINISTRATION AND SUPERVISION OF PUBLIC SCHOOL MUSIC. (3)
A study of current trends in school music, curricula, testing programs, and other supervisory procedures. (Same as EDC 750.)

MUS 751 HISTORY AND PHILOSOPHY OF MUSIC EDUCATION. (3)
A historical survey of thought concerning the place and significance of music in the education of the individual and the group. (Same as EDC 751.)

MUS 762 MUSIC IN HIGHER EDUCATION. (3)
Historical and comparative studies in the teaching and administration of music in colleges and universities. Includes case studies in administration, music in European higher education and the relationship of music to all other elements of the academic program. Prereq: MUS 751.

MUS 766 SEMINAR IN MUSIC EDUCATION. (3)
Advanced professional study in the theory and practice of music education. May be repeated once for total of six credits. Prereq: Permission of instructor.

MUS 767 INDEPENDENT WORK IN MUSIC EDUCATION. (1-3)
May be repeated for a total of six hours. Prereq: Four to six hours of graduate credit in area of specialization and consent of instructor.

MUS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

MUS 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

MUS 770 PSYCHOLOGY OF MUSIC. (3)
A study of the processes of musical thinking and the effects of music on human behavior.

MUS 799 INDEPENDENT WORK IN MUSIC THEORY. (1-3)
May be repeated for a total of six hours. Prereq: Four to six hours of credit in area of specialization and consent of instructor.

NURSING

NUR 201 FUNDAMENTALS OF HEALTH AND NURSING. (4)
A study of the fundamentals of health and nursing care, including the nursing process, major health problems, organization for health care, an exploration of basic human needs, and the technical and behavioral skills basic to implementing nursing care plans. Lecture, two hours per week; laboratory, four hours per week. Prereq: Sociology, three credits; psychology, three credits.

NUR 610 CONCEPTS AND THEORIES IN NURSING. (6)
Study of formulation of concepts and theories in Nursing and the testing of existing theories in clinical practice. Lecture discussion, two hours. Prereq: Admission to graduate program in nursing.

NUR 612 SYSTEMATIC INQUIRY IN NURSING. (3)
Provides for the development of skills needed to understand and evaluate nursing research to identify problems in nursing which may be studied, and to formulate a study proposal. Prereq: Admission to graduate program in nursing.

NUR 620 PROBLEMS IN CLINICAL NURSING. (2-6)
This course provides opportunity for the study of nursing programs in particular clinical areas and for the further development of techniques of nursing intervention. Discussion, one hour; varied laboratory hours. Prereq: Enrollment in graduate program in nursing.

NUR 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.

NUR 650 PHYSICAL AND HEALTH ASSESSMENT. (6)
Study of common disease processes, diagnostic procedures and

clinical judgments in the provision of primary health care is covered. Normal physiological, biological and psychologic processes are reviewed in depth as a baseline for assessing and understanding health-illness status and competence in clinical management. Lecture, two hours; laboratory, eight hours. Prereq: Graduate standing.

NUR 660 BASIC MIDWIFERY I. (6)
The course covers care of the child-bearing woman throughout the pregnancy cycle as well as her family in various settings. Management of common complications of pregnancy and introductory experiences in normal deliveries are included as well as various aspects of family planning, including clinical management of spacing and limitation programs. Genetics and fertility as pertinent aspects of family planning, counseling and guidance are covered. Lecture, two hours; laboratory, eight hours. Prereq: NUR 650.

NUR 670 BASIC MIDWIFERY II. (6-9)
Classroom and intensive field experiences are provided in the recognition and care of deviations from normal throughout the pregnancy cycle. Emphasis is placed on the role of the nurse midwife in providing intrapartal care. Management of the newborn immediately following birth and during the period of hospitalization is included. Concentrated field experiences in the above areas are required. Competency must be demonstrated in all aspects of the midwifery specialty. Lecture, two-three hours; laboratory, eight-12 hours. Prereq: NUR 650; NUR 660.

NUR 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

NUR 781 INDEPENDENT STUDY IN NURSING. (1-3)
An elective course which gives the student an opportunity to explore independently a topic of special interest. May be repeated to a maximum of four credits. Prereq: Consent of adviser.

NUR 811 MATERNAL-CHILD HEALTH NURSING. (10)
A family-centered base utilizing the basic needs and a scientific nursing approach to studying the multi-faceted nursing aspects of the maternity cycle and children: birth through adolescence are emphasized. Laboratory experiences are included. Lecture, four hours; laboratory, 12 hours. Prereq: NUR 201 and admission to junior standing in College of Nursing.

NUR 813 SEXUAL BEHAVIOR: ATTITUDES AND VALUES. (4)
Course is designed to focus on the development of attitudes and values, either positive or negative, in regard to human sexuality and role functioning. Differentiation would be made between what is considered the rationale for professional behavior and response toward sexual behavior, and what is personal. Lecture/discussion: two hours. Field experience arranged. Prereq: Junior standing.

NUR 815 DRUGS AND DRUG ADMINISTRATION: M-CH. (1)
A lecture/discussion course on the drugs particular to the care of maternal, infant and pediatric patients, with actions, interactions and reactions; methods of administration will be taught and practiced in NUR 811. Prereq: Junior standing in the College of Nursing: concurrent with NUR 811.

NUR 821 PSYCHIATRIC NURSING. (10)
A course for students in nursing concerned with the mental health needs of families, individuals and communities and their varying abilities to meet these needs. Emphasis is placed on psychosocial aspects of maturational/situational crises which confront the family, individual and/or community and preventive/remedial aspects of nursing care in resolution of crises. Lecture, four hours; laboratory, 12 hours. Prereq: Junior standing in the College of Nursing.

NUR 823 CURRENT PSYCHIATRIC THERAPIES. (2)
A discussion of current psychiatric therapies, their uses and relevance to nursing (includes transactional analysis, reality therapy, behavior modification, conjoint family therapy and rational behavior therapy). Field trips. Prereq: Junior standing in the College of Nursing.

NUR 825 CONTEMPORARY LITERATURE IN THE MENTAL HEALTH FIELD. (2)
A seminar approach to the study of contemporary literature in the field of mental health. Includes current popular books, periodicals, and other media and their effects on mental health of individuals, groups and communities. Prereq: Junior standing in the College of Nursing.

NUR 827 DRUGS AND DRUG ADMINISTRATION: P-MH. (1)
A lecture/discussion course on the drugs particular to the care of psychiatric-mental health patients, with actions, interactions and reactions; methods of administration will be taught and practiced in NUR 821. Prereq: Junior standing in the College of Nursing; concurrent with NUR 821.

NUR 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.

NUR 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.

NUR 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.

NUR 836 THE NURSING PROFESSION. (3)
This course offers content and opportunity for the student to explore identification with the profession as she approaches the time she will assume professional practice. Deals with historical aspects, current trends, and problems in nursing. Prereq: Senior standing.

NUR 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.

NUR 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.

NUR 850 PHYSICAL AND HEALTH ASSESSMENT. (6)
This course is designed to provide the general principles of obtaining health histories and physical assessment of patients. Management of common individual and family health problems is also covered. Normal physiological, biologic and psychologic processes are reviewed as a baseline for assessing and understanding health-illness status and management. Lecture, two hours; laboratory, eight hours. Prereq: Admission to the College of Nursing.

NUR 860 BASIC MIDWIFERY. (6)
Guided experience is provided in the care of the child-bearing woman and her family throughout the pregnancy cycle—in the home, clinic and hospital setting. Management of problems or complications common to pregnancy is included as well as introductory experience in normal deliveries. Aspects of family planning are covered, including clinical management of spacing and limitation programs. Lecture, two hours; laboratory, eight hours. Prereq: NUR 850.

NUR 870 ADVANCED MIDWIFERY. (6)
This course includes recognition and care of deviations from normal throughout the pregnancy cycle. Emphasis is placed on the role of the nurse midwife in providing intrapartal care. Management of the new born immediately following birth and during the period of hospitalization is included. Lecture, two hours; laboratory, eight hours. Prereq: NUR 850, 860.

NUR 871 FIELD PRACTICUM IN MIDWIFERY. (8)
In-depth clinical experience is provided in intrapartal care throughout one academic semester. Competency must be demonstrated during all phases of labor, delivery and after-care during this concentrated laboratory experience. Lecture, two hours; laboratory, 12 hours per week. Prereq: NUR 850, 860, 870.

NUR 895 ELECTIVE STUDY IN NURSING. (1-4)
An independent study project investigating an area of interest under the guidance of faculty. May encompass library study or patient care utilizing aspects of scientific approach. Prereq: Approval of sponsoring instructor and associate dean.

NUR 899 HONORS STUDY IN NURSING. (1)
An independent study project pursued with the guidance of faculty during the junior or senior year. The project must include scientific approach and written reporting of the project. Prereq: Grade-point average of 3.0 and endorsement of appropriate faculty.

NUTRITION AND FOOD SCIENCE

NFS 101 FOOD AND NUTRITION FOR MAN. (4)
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.

NFS 204 PRINCIPLES OF FOOD PREPARATION. (3)
Basic physical and chemical principles involved in preparation of foods in the Basic Four food groups. Skills, sanitation, standards, and economics involved in preparation of foods of quality and maximum nutrient content. Lecture, one hour; laboratory, four hours.

NFS 206 MEAL PLANNING AND SERVICE. (3)
To give students experience in planning and buying foods within different economic levels. Stress work simplification and social, cultural and personal aspects of family meal planning and dining. Develop creative expression in preparation and service of meals for all occasions. Lecture, one hour and laboratory, four hours.

NFS 302 APPLIED NUTRITION. (3)
Food nutrient composition in relation to meeting National Research Council recommended nutrient allowances 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; laboratory, two hours. Prereq: NFS 101, CHE 104, PGY 206 or ZOO 104.

NFS 311 NUTRITIONAL BIOCHEMISTRY. (3)
Properties and nutritive values of food. Functions of food for maintenance of body processes. Metabolism of food in the body. Lecture, two hours; laboratory, three hours. Prereq: CHE 104, PGY 206, NFS 302 and consent of instructor.

NFS 340 INSTITUTION MARKETING. (3)
Economics of food and supplies for institutions. Factors that influence selection and purchase. Field trips to wholesale houses, distribution centers and food production plants. Lecture, two hours; laboratory, two hours. Prereq: ECO 260.

NFS 342 INSTITUTION FOODS. (4)
Large quantity food preparation and service. Using modern equipment in preparation of large quantities of food. Food cost accounting, job analysis, and time studies. Lecture, two hours; laboratory, four hours. Prereq: NFS 204.

NFS 344 FOOD SERVICE ACCOUNTING. (3)
Application of accounting principles to food service in the cafeteria, lunch room, tea-room, restaurant, residence hall, hospital and other institutions. Lecture, one hour; laboratory, four hours. Prereq: NFS 340; ECO 260.

NFS 503 COMMUNITY NUTRITION. (3)
Study of nutrition education programs on a community level. Experience is provided for presenting nutrition in health clinics, schools, and state institutions. Lecture, two hours; laboratory, two hours. Prereq or concur: NFS 302. May be repeated for a total of six credits.

NFS 505 EXPERIMENTAL FOODS. (3)
Study of factors that affect results obtained in cooking and food preparation processes. Experimental work under controlled conditions. Lecture, one hour; laboratory four hours. Prereq: NFS 204, 311.

NFS 507 WORKSHOP IN APPLIED NUTRITION. (2)
The application of scientific knowledge of nutrition to the promotion of positive health. Emphasis is given to communications techniques and their use in field work.

NFS 508 SEMINAR IN NUTRITION. (1)
Investigations of recent research in nutrition. Prereq: Senior or graduate standing. May be repeated twice for a total of three credits.

NFS 512 NORMAL AND THERAPEUTIC NUTRITION. (5)
Application of elementary biochemistry to understanding the utilization and function of nutrients in the body. Correlating metabolic changes due to disease with diet therapy. Lecture, four hours; laboratory, two hours. Prereq: NFS 311, CHE 236.

NFS 514 FOOD PRESERVATION. (3)
Principles of home food preservation. Canning, dehydration, and freezing of fruits, vegetables and meats; pickling of fruits and vegetables; making of jams, jellies and preserves; brining. Lecture, two hours; laboratory, two hours. Prereq: MB 200, NFS 204.

NFS 516 FOOD FOR CHILDREN. (3)
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.

NFS 517 FOOD FOR SPECIAL OCCASIONS. (3)
Advanced work in culinary arts and skills. Preparation of attractive and appetizing dishes to help the homemaker in planning buffet suppers, receptions, picnics, wedding parties, formal meals. Laboratory, six hours. Prereq: NFS 204, 206.

NFS 540 THE SCHOOL LUNCH. (3)
Designed for teachers who manage the lunch room. Consideration is given to equipment, menus, purchase, storage, preparation and service of food. Lecture, two hours; laboratory, two hours. Prereq: NFS 204, ECO 260.

NFS 542 INSTITUTION EQUIPMENT. (3)
Selection, arrangement, cost and care of equipment; problems of lighting, heating, ventilation and refrigeration. Two field trips are taken to neighboring cities to see equipment in use in institutions. Prereq: NFS 342.

NFS 546 INSTITUTION ORGANIZATION AND MANAGEMENT. (3)
Principles of institution organization, types of institution service, personnel and financial management. Legal aspects of institution management. Personal and professional qualifications of an institution manager. Prereq: NFS 340, 342.

NFS 548 INSTITUTION ADMINISTRATION. (3)
Application of scientific principles are developed in various aspects of food service management. Prereq: Approval of instructor. May be repeated twice for a total of nine credits.

NFS 560 FOOD AND THE CONSUMER. (3)
Trends in consumer economics, food availability and consumption as they affect family nutrition. Role of regulatory services in consumer protection in foods. Prereq: Six hours in social sciences and three hours in foods or nutrition, or consent of instructor.

NFS 590 FIELD WORK IN NUTRITION. (1)
Nutrition problems at different age levels, correlated with surveys and experimental studies to show the relation between diet selection and its physical and mental effects. Lecture and laboratory. May be repeated three times for a maximum of four credits. Prereq: NFS 503, or approval of instructor.

NFS 591 SPECIAL PROBLEMS IN FOODS AND NUTRITION. (1-3)
Intensive work on a specific phase of the field. Senior or graduate standing. May be repeated for a maximum of six credits. Prereq: Consent of instructor.

NFS 594 SPECIAL PROBLEMS IN INSTITUTION MANAGEMENT. (1-3)
Intensive work on specific problems. Senior or graduate standing. May be repeated for a total of six credits. Prereq: Consent of instructor.

NFS 603 ADVANCED COMMUNITY NUTRITION. (3)
Study of nutrition surveys and of bases for judging community nutrition. Emphasis is placed upon economic, geographic, social and educational causes of malnutrition. Experience is given in development of nutrition programs. Prereq: NFS 503. May be repeated once for a total of six credits.

NFS 610 HUMAN NUTRITION I. (4)
The application of biochemical, analytical and preparative analysis of blood, urine and tissues to the analysis of nutrient metabolism and human health status. Lecture, two hours; laboratory, six hours. Prereq: NFS 311, CHE 236, NFS 512.

NFS 771 SEMINAR IN NUTRITION. (2)
May be repeated twice for a total of six credits.

NFS 781 SPECIAL PROBLEMS IN FOODS AND NUTRITION. (1-3)
Independent advanced work on a specific problem. May be repeated for a total of six credits.

NFS 784 SPECIAL PROBLEMS IN INSTITUTION MANAGEMENT. (1-3)
Independent advanced work. May be repeated for a total of six credits.

OBSTETRICS AND GYNECOLOGY

OBG 831 OBSTETRICS CLERKSHIP. (7)
During a five-week clerkship, the student is expected to become completely familiar with the normal physiology of human reproduction and pathologic processes which may adversely affect the female genital tract. This is accomplished by intensive participation in the care of hospitalized patients on both the obstetric and gynecologic services. The student is given the opportunity to examine and evaluate all patients admitted to the hospital as a member of the patient care team. During this interval, basic concepts are

further developed and elaborated during the course by conferences and seminars. Prereq: Admission to third year, College of Medicine.

ORAL BIOLOGY

OB 810 STERILIZATION AND DISINFECTION. (1)
Introduction to germ therapy and application of microbiological knowledge in the dental operatory. Mechanisms of action of the more common physical and chemical methods of microbiological control are discussed in reference to maintenance of dental office sanitation and drug treatment.

OB 820 PHYSIOLOGY FOR DENTAL STUDENTS. (3)
Oral Biology 820 is a comprehensive course in mammalion physiology with emphasis on those aspects of the subject particularly relevant to the practice of dentistry. The interactions of basic physiology and clinical science is stressed throughout. Four lecture-discussion hours per week. Prereq: Acceptance to College of Dentistry or permission of instructor.

OB 821 ORAL BIOLOGY. (2)
This is a one-semester course presented concurrently with physiology and biochemistry. By means of lectures and seminars, emphasis is placed on those aspects of basic biology especially relevant to the clinical practice of dentistry. Certain biological topics of special interest to the dentist, which are covered briefly or not at all in the basic science offerings, are presented in detail. The interaction of biological science and clinical dental science is stressed throughout. Prereq: Admission to the College of Dentistry.

OB 831 PHARMACOLOGY AND DENTAL THERAPEUTICS. (2)
This course provides dental students with a basic understanding of the mode of action of drugs, particularly those which are used in the practice of clinical dentistry and the interaction of those drugs with other therapeutic agents. Lectures, conferences and laboratory exercises deal with the pharmacodynamic action and the therapeutic application of drugs.

ORAL DIAGNOSIS AND ORAL MEDICINE

ODM 610 DEVELOPMENTS IN ORAL MEDICINE. (2)
A seminar course for graduate students in dentistry, covering medical implications of dental treatment and current research in oral medicine. Two class hours per week. Prereq: Admission to graduate program of the College of Dentistry.

ODM 820 ORAL RADIOLOGY. (1)
This course deals with x-ray and image production, dark room procedures, radiation hygiene and protection, occlusal, panoramic and advanced radiographic techniques and interpretation. Prereq: CDS 816.

ODM 830 CLINICAL ORAL DIAGNOSIS I. (2)
This course consists of three components: examination, diagnosis, and treatment planning for patients the student will treat in third-year clinics, emergency clinic assignment where the student will treat patients with acute oral problems, and treatment planning seminars where patients with difficult treatment planning problems will be discussed.

ODM 831 PRINCIPLES OF MEDICINE AND PATHOLOGY. (1)
This course is designed to give the student an integrated exposure to the related fields of oral medicine, radiation biology, internal medicine and psychiatry. The incorporation of the diverse materials 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. Lecture/discussion: two hours per week.

ODM 840 CLINICAL ORAL DIAGNOSIS II. (1)
The course includes examination, diagnosis and treatment planning procedures for patients treated in the clinics by fourth-year dental students. Each student is also assigned to provide emergency care to patients seen in the emergency room of the College of Dentistry.

ORAL PATHOLOGY

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.

OP 651 GRADUATE ORAL PATHOLOGY. (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.

OP 830 ORAL PATHOLOGY. (2)
Programmed instruction and computer assisted instruction formats are utilized. The student learns salient features of the pathology and patient management of commonly encountered diseases of the head and neck regions. With the individualized approach to instruction, the student has the option to progress at his own rate. Prereq: Parts I and II of PAT 324.

ORAL SURGERY

OS 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.

OS 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 techniques of biopsy, as well as the removal of teeth.

OS 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.

OS 840 CLINICAL ORAL SURGERY. (3)
This is a clinical course in which the students receive instructions in conjunction with patient care.

ORTHODONTICS

ORT 610 CRANIO-FACIAL FORM. (3)
Applied radiographic anatomy for graduate students in dentistry. Prereq: Admission to graduate dental programs, D.D.S. or D.M.D. degree.

ORT CDS 611 CHILD GROWTH AND DEVELOPMENT, PART I. (2)
A seminar course on nature and physiologic control of physical growth, for graduate students in dentistry. Prereq: Admission to a graduate program of the College of Dentistry; D.D.S. or D.M.D. degree.

ORT 620 ORAL-PHARYNGEAL FUNCTION, PART I. (2)
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.

ORT 621 ORAL-PHARYNGEAL FUNCTION, PART II. (2)
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

ORT 660 ORTHODONTIC SEMINAR-CLINIC. (2)
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.

ORT 661 ORTHODONTIC SEMINAR-CLINIC. (3)
Seminar, laboratory and clinical instruction in orthodontic theory and practice. Three class hours per week; 15 laboratory hours per week. Prereq: ORT 660.

ORT 700 ORTHODONTIC SEMINAR. (1)
Seminar in orthodontic theory and practice for advanced graduate and post-doctoral students in orthodontics; may be repeated to a maximum of five credits. Three class hours per week. Prereq: ORT 660, 661.

ORT 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.

ORT 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.

ORT 820 CHILDREN'S DENTISTRY II. (1)
An introduction to mixed dentition orthodontic diagnostic criteria: including facial and dental classification; cephalometric evaluation; cast analysis; etiology determination, and treatment planning.

ORT 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.

ORT 840 CLINICAL ORTHODONTICS. (2)
This is a clinical course in which the students receive instructions in conjunction with patient care. Prereq: ORT 830.

PATHOLOGY

PAT 324 HUMAN PATHOLOGY. (4)
This course constitutes a general survey of human disease with particular emphasis on diseases of interest to dental students. Lectures, 32 hours; laboratory, 97 hours. Prereq: Consent of instructor. (Same as CPH 824).

PAT 421 FUNDAMENTAL HUMAN PATHOLOGY. (4)
This course will provide a general survey of the various types of reactions to injury; regeneration, repair, the granulomata and the fundamentals of neoplasia. The emphasis will be upon the pathogenesis, mechanisms, and natural history of disease processes with particular stress on the interrelationships of structural and metabolic abnormalities. For non-medical students and graduate students. Prereq: ANA 511, 512, 513, PGY 511, BCH 511 or equivalents and permission of Department chairman.

PAT 422 SYSTEMATIC HUMAN PATHOLOGY. (7)
The study of disease of each organ system. For non-medical students. Prereq: For graduate students: ANA 511, 512, 513, PGY 511, BCH 511 or equivalent; permission of Department chairman.

PAT 826 PRINCIPLES OF HUMAN PATHOLOGY. (3)
A course in the principles of human pathology in which the fundamental reactions to injury are interpreted in the perspective of basic science. Prereq: Enrollment in a Medical Center College or consent of the dean.

PAT 839 FORENSIC MEDICINE. (1)
The third-year Medico-Legal Series is designed to cover information in three interrelated areas, most of which are not formally taught in most medical schools. These are: (1) Forensic medicine as seen by a forensic pathologist with emphasis on the possibilities and limitations of the field; (2) the interrelation between law and medicine with emphasis on problems for medicine and how to make the two systems interact better; and (3) legal medicine as the lawyer sees it with emphasis on the legal responsibilities of physicians. Prereq: Admission to the third-year medical curriculum.

PEDIATRICS

PED 831 CHILDREN'S CLERKSHIP. (13)
This 10-week basic clerkship is shared by the Departments of Pediatrics, Surgery, and Neurology and is designed to give the student experience in the diagnosis and management of diseases in children, training in preventive pediatrics, and study of normal growth and development. The time is divided between the inpatient hospital wards, Care-by-Parent Unit, outpatient clinics, and the nurseries for both the newborn and premature. Patients are assigned for diagnosis, suggested management, and study. The presenting problem may be medical, surgical, or neurological in nature. Three to four patients are assigned each student on starting an inpatient rotation and then two to three new patients per week. An average of four new patients per week are investigated while on the outpatient service, and a number of other outpatients are assigned for continuing care as well as for acute medical conditions. While assigned to the Care-by-Parent Unit, the student has the opportunity to study his patient and to observe the mother-child relationships. The entire pediatric house staff and faculty are available at all times for consultation. Students participate in rounds, seminars, and conferences that emphasize general concepts as well as specific medical information. Prereq: Admission to third year, College of Medicine.

PEDODONTICS

CDS 612 CHILD GROWTH AND DEVELOPMENT, PART II. (2)
A seminar course for graduate students in dentistry covering emotional and intellectual growth of children, and diseases and congenital anomalies of children. 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.

PDO 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 programs; D.D.S. or D.M.D. degree.

PDO 820 CHILDREN'S DENTISTRY I. (2)
Introduction to dentistry for children. Emphasizes management of normal child in dental treatment environment. Concepts of clinical dentistry applicable to the child patient are discussed.

PDO 830 CHILDREN'S DENTISTRY III. (3)
Continuation of ORT 820 with emphasis on the handicapped child, exodontics, surgical procedures for the child patient and traumatic injuries to the teeth of children. Comprehensive dental treatment is provided for each child by the third-year dental students.

PDO 840 CLINICAL DENTISTRY FOR CHILDREN. (4)
This course basically provides the student with clinical experience in treating children. It gives him the opportunity to use the methods of working with children and parents as well as becoming more proficient with his technical procedures.

PERIODONTICS

PER 661 MODERN CONCEPTS IN PERIODONTICS. (2)
A seminar course designed to present the present understanding of the etiology of periodontal disease and current techniques for treatment of periodontal problems. Two class hours per week. Prereq: Admission to graduate programs of College of Dentistry, D.D.S. or D.M.D. degree.

PER 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.

PER 820 CLINICAL AND DIDACTIC COURSE IN PERIODONTICS. (3)
A clinical and didactic course in Periodontics covering the procedures of phase I therapy and introduction to periodontal surgical techniques. Lecture, one hour; laboratory, three hours. Prereq: PER 810.

PER 830 PERIODONTICS III. (3)
This clinical course is primarily supplemented by didactic sessions. It offers the student the opportunity to treat patients with more advanced periodontal disease as well as providing didactic material as a basis for advanced treatment procedures. Most treatment procedures and diagnostic considerations in periodontics are based upon histological evidence. Therefore, histology and histopathology will be stressed as they relate to diagnosis and treatment.

PER 840 CLINICAL PERIODONTICS. (4)
This is a clinical course in which the students receive instruction and supervision in carrying out the planned periodontal treatment needs of patients assigned to them for total dental care. The majority of instruction is received by the students in the clinic, much of it at chair-side with their patient present.

PHARMACOLOGY

PHA 521 GENERAL PHARMACODYNAMICS AND TOXICODYNAMICS. (2)
A fundamental discussion of the response of the living organism to

drugs analyzed primarily on the cellular and subcellular levels. Factors which affect the absorption, distribution and the 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 essay. Prereq: Consent of instructor.

PHA 522 SYSTEM PHARMACOLOGY. (2)
This course is aimed to give a fundamental understanding of the pharmacodynamic action of drugs most commonly used in medical practice except those directly affecting the nervous system. Prereq: PHA 521; consent of instructor.

PHA 541 BIOLOGICAL ASSAY. (4)
Review of selected specialized methods in study of the effects of drugs including the study of the estimation of potencies of treatments against some standardized scale. Two hours lecture, five hours laboratory. Prereq: Consent of the Department chairman.

PHA 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.

PHA 558 NEUROPHARMACOLOGY. (2)
A study of drugs which modify the function of all parts of the nervous system, including the brain, spinal cord and nerve fibers which connect with all parts of the body. Lecture, 25 hours total; laboratory, 10 hours total. Prereq: Consent of the instructor.

PHA 560 WHOLE-BODY AUTORADIOGRAPHY. (2)
Primarily a laboratory exercise which acquaints the student with the details for autoradiography of whole-body sections. The technique allows one to visualize the distribution of radioactively labeled drugs and chemicals in the entire body of a small laboratory animal. Laboratory, four hours. Prereq: Consent of the instructor.

PHA 601 PRINCIPLES OF MEDICAL PHARMACOLOGY.* (5)
Discussion of the pharmacodynamic principles by which the main classes of drugs exert their action living organisms. Prereq: Consent of instructor.

PHA 610 SEMINAR IN PHARMACOLOGY. (1)
May be repeated indefinitely.

PHA 612 QUANTITATIVE PHARMACODYNAMICS. PHARMACOKINETICS. (2)
Quantitative treatment of dynamics of drug absorption, distribution, metabolism and excretion, including development of mathematical models for these processes and application of techniques such as analog simulation. Prereq: PHA 521 and consent of instructor. (Same as PHR 612.)

PHA 616 ADVANCED PHARMACOLOGY.* (4)
Work conducted outside the thesis area and with a preceptor, other than the thesis director, by special arrangement. Prereq: Consent of one of the instructors. Lecture, two hours; laboratory, four hours per week.

PHA 621 ADVANCED PHARMACODYNAMICS. (3)
Continuation of PHA 521 with particular emphasis on recent developments in the field. Prereq: PHA 521, consent of Department chairman.

PHA 632 PRINCIPLES OF PHARMACOLOGY, LABORATORY.* (2)
Experimental study of drug action, emphasis being placed on whole animals and isolated organ effects. Prereq: Consent of instructor.

PHA 634 PHARMACOLOGY OF CARDIOVASCULAR DRUG THERAPY.* (3)
A discussion of the mechanism of action, dosing theory, toxicity and metabolism of drugs used as therapeutic agents in the treatment of cardiovascular disease. Prereq: Consent of instructor.

PHA 641 BIOASSAY WITH HUMAN SUBJECTS. (2)
Discussion and illustration of statistical principles and techniques which form the basis of bioassay. Special emphasis is placed on analysis of variance techniques for experimental designs useful in parallel line quantitative assays. Prereq: STA 670, PHA 541, PHA 521, or equivalent. Consent of instructor.

PHA 645 PHYSIOLOGY AND PHARMACOLOGY OF BIOLOGICAL MEMBRANES AND TRANSPORT. (1)
Advanced study of the structure, functions and permeability of biological membranes and the effect of change of chemical environment upon them. Prereq: BCH 514/515 or PCH 400 or CHE 552 or equivalent, PGY 502/503 or 511 or equivalent, PHA 521, consent of instructor.

PHA 650 HOST-CONTAMINANT RELATIONSHIPS. (2)
The course deals with the effects of microbial associates on various systems of the animal host with special reference to gastrointestinal, cardiovascular, defensive functions and aging. Materials will be presented as a comparative study between gnotobiotic and conventional animals. Prereq: BSC 421/422, CHE 220, 230, 444, ZOO 200, MB 200, 550 or equivalent, consent of instructor.

PHA 658 ADVANCED NEUROPHARMACOLOGY. (4)
A study of the general theories of the mode of action of drugs upon nervous tissue and a review of the effects of analgesics, sedatives, hypnotics, anesthetics, 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.

PHA 660 PHARMACOLOGY OF STEROIDS. (4)
Lectures and laboratory work dealing with the chemistry, metabolism and pharmacology of steroids. Emphasis will be placed on methods of research which will be illustrated in laboratory exercises. Prereq: CHE 232, BCH 514/515 or PCH 400 or CHE 522 or equivalent, PHA 521. Consent of instructor.

PHA 663 PHYSICAL AND CHEMICAL DISPOSITION OF DRUGS. (2)
Seminars and discussions of the physical and chemical factors which affect the disposition of drugs in biological tissues and fluids. The topics discussed will change somewhat from year to year; they will be chosen for their importance and current or personal interest. Prereq: Consent of the instructor.

PHA 664 ADVANCED MOLECULAR PHARMACOLOGY. (2)
An advanced discussion of actions of drugs at the molecular level. The mechanism by which drugs alter the biochemical machinery which operates in the maintenance in the cellular integrity will be emphasized. Chemical events which occur when drug molecules interact with macromolecules with cell constituents which modulate the activities of cell will be discussed. Prereq: PHA 521 and consent of instructor.

PHA 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.

PHA 666 HUMAN PHARMACOLOGY. (3)
Discussion of pharmacodynamics and practical therapeutic applications of drugs particularly as related to humans. Two class hours per week; laboratory, two hours. Prereq: PHA 521, 522, 541, 641. Consent of instructor.

PHA 670 CLINICAL PSYCHOPHARMACOLOGY. (2)
Purposes, indications and contraindications, methods of administration and effects of psychotropic drugs on human behavior. Prereq: PHA 521, 522, PSY 210, 330 and 336 or equivalent and consent of the Director of Graduate Studies in Pharmacology.

PHA 671 INTEGRATIVE PSYCHOPHARMACOLOGY. (2)
Mechanisms of action of psychotropic drugs. Prereq: Same as for PHA 670, PSY 505 and 507 or 509, PGY 516, ANA 516, and PHA 670 are strongly recommended.

PHA 680 APPLIED TOXICOLOGY. (3)
The course will acquaint students with the various toxicological principles as they apply to problems arising from the complexities of modern society. Lectures, demonstrations and informal discussions. Prereq: Consent of the Director of Graduate Studies in Toxicology. (Offered as a Conjoint course.)

PHA 750 RESEARCH IN PHARMACOLOGY. (1-5)
May be repeated to a maximum of 15 credits.

PHA 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
(1-6 credits equivalence.) May be repeated.

PHA 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
(1-12 credits equivalence.) May be repeated indefinitely.

PHA 770 SEMINAR IN TOXICOLOGY. (1)
Prereq: Consent of Director of Graduate Studies in Toxicology.

PHA 790 RESEARCH IN TOXICOLOGY. (1-5)

PHA 821 MEDICAL PHARMACOLOGY I. (5)
This course aims to give a fundamental understanding of the pharmacodynamic action of drugs most commonly used in medical practice. Prereq: Admission to second-year medical curriculum.

*Will be taught, in most part, on the University of Louisville campus.

PHARMACY

PHR 222 DRUGS, MEDICINES, AND SOCIETY. (3)
The course is designed to enable the university graduate to be sufficiently sophisticated in his understanding of the physiological and behavioral effects of medicines, environmental toxicants, and psychoactive chemicals that he may make informed decisions regarding their use in his life, home and community. This course provides such information in the context of drug development, standardization, distribution, control, use and misuse in a modern society. (Note: It is felt that this course might be of particular interest to freshmen.)

PHR 300 ORGANIC PHARMACEUTICAL CHEMISTRY. (5)
A comprehensive course in the preparation and properties of aliphatic compounds with emphasis on those compounds which are related to pharmacy. Lecture, three hours; laboratory, six hours. Prereq: CHE 112 and 113.

PHR 302 ORGANIC PHARMACEUTICAL CHEMISTRY. (5)
A course similar to PHR 300 in which the aromatic compounds are studied. Official products are emphasized in their proper sequence as the course progresses. Lecture, three hours; laboratory, six hours. Prereq: PHR 300.

PHR 303 HISTORY AND ETHICS OF PHARMACY. (3)
A study of the development of the profession of pharmacy, emphasizing the historical background and ethical principles upon which the profession rests. The nature and place of pharmaceutical services in society are considered. The moral standards and professional conduct required of a pharmacist are stressed.

PHR 310 PHARMACEUTICAL ANALYSIS AND CONTROL. (5)
A study of the quantitative analytical techniques commonly used to assure the potency, quality, and stability of raw materials and finished pharmaceutical dosage forms. Four class hours per week; laboratory, three hours per week. Prereq: CHE 112 and 113 or equivalent.

PHR 330 PHARMACOGNOSY. (3)
A study of immunological antibiotic, allergenic, endocrine and related proteinaceous products. The processing, standardization, and utilization of these products are discussed in relation to the appropriate infectious and pathological disease conditions. Anti-infectant chemical agents are discussed also. Prereq: CHE 232, MB 200 and BIO 202, 203.

PHR 334 PHYSIOLOGY AND PHARMACODYNAMICS. (5)
Basic human anatomy and physiology with strong emphasis on the functioning of the nervous, muscular, endocrine, excretory, respiratory, circulatory, digestive and reproductive systems, including principal anomalies of these systems and the pharmacodynamics of typical drugs. Lecture, four hours; laboratory, three hours. Prereq: BIO 202, 203, or ZOO 220, and CHE 232.

PHR 335 MICROSCOPIC PHARMACOGNOSY. (2)
This lecture-laboratory course discusses and teaches the microscopic features of crude drug sections and powders. Pollen and fiber morphology is included. Photomicrographic techniques are examined. Two two-hour lecture-laboratory periods. Prereq: BIO 202 or BOT 200.

PHR 340 PRINCIPLES OF MEDICINAL CHEMISTRY. (3)
A course designed to introduce the fundamental concepts of the application of chemical principles to the study of medicinal agents. Basic heterocyclic chemistry as is needed to develop the chemistry of physiologically active molecules. Physiochemical properties of drugs and their relation to physiological activity, and fundamental consideration of the metabolic changes in drug molecules are major areas of development of the course presentation. Prereq: PHR 400 or equivalent.

PHR 342 PHARMACOGNOSY. (4)
A study of important drugs of vegetable and animal origin. The pharmacological and chemical nature, economic importance, extraction and biosynthesis of these products is discussed with suitable background material. Lecture, three hours; laboratory, three hours. Prereq: CHE 232 and BIO 202.

PHR 346 PHYSIOLOGY AND PHARMACODYNAMICS. (5)
A continuation of PHR 334. Lecture, four hours; laboratory, three hours. Prereq: PHR 334.

PHR 380 ENVIRONMENTAL TOXICOLOGY. (2)
This course is concerned with the recognition, evaluation, and control of toxicologic factors arising in man's environment; their influence on the health and well-being of the citizen and the community. Measures currently employed or under investigation for the control, elimination, or mitigation of biologic, physical, and toxicologic factors deleterious to man and his environment will be considered. Prereq: PHR 863 or permission of the instructor.

PHR 395 INDEPENDENT WORK IN PHARMACEUTICAL CHEMISTRY. (1-3)
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.

PHR 400 BIOCHEMISTRY. (4)
A fundamental course in the chemistry and interrelationships of carbohydrates, lipids, and proteins, as well as the role of enzymes, vitamins, and hormones in physiological processes. Prereq: CHE 232, 233, or equivalent.

PHR 404 CHEMISTRY OF MEDICINAL PRODUCTS. (3)
A study of the official and more important non-official medicinal agents with respect to their physical and chemical properties, relationships of chemical structure to physiological activity, as well as their potential incompatabilities. Prereq: PHR 400 or equivalent.

PHR 406 CHEMISTRY OF MEDICINAL PRODUCTS. (3)
Continuation of PHR 404 including considerations of such topics as alkaloids, glycosides, steroids, and other chemotherapeutic agents. Lecture, three hours. Prereq: PHR 404.

PHR 450 PHARMACOLOGY AND TOXICOLOGY. (5)
A presentation of the pharmacodynamic actions, modes of administration, toxic manifestations of drugs, and the relationship of pharmacodynamic action to therapeutic use. Lecture, four hours; laboratory, two hours. Prereq: PHR 334, 346, 400.

PHR 462 PHARMACOLOGY AND TOXICOLOGY. (5)
A continuation of PHR 450. Lecture, four hours; laboratory, two hours. Prereq: PHR 450 or equivalent.

PHR 474 INDEPENDENT PROBLEMS IN TOXICOLOGY. (1-3)
Selected problems requiring literature and laboratory research are designed to meet specific needs of graduate minors in toxicology and satisfy professional elective requirements for pharmacy students. Prereq: Permission of the instructor. May be repeated for a total of six credits.

PHR 475 INDEPENDENT PROBLEMS IN PHARMACOGNOSY. (1-3)
Selected problems requiring literature and laboratory research are designed to meet specific needs of graduate minors in pharmacology and satisfy professional elective requirements for pharmacy students. Prereq: Permission of the instructor. May be repeated for a total of six credits.

PHR 476 INDEPENDENT PROBLEMS IN PHARMACOLOGY. (1-3)
Selected problems requiring literature and laboratory research are designed to meet specific needs of graduate minors in pharmacology and satisfy professional elective requirements for pharmacy students. Prereq: Permission of the instructor. May be repeated for a total of six credits.

PHR 486 POISON INFORMATION AND CONTROL. (3)
A course designed to prepare individuals to organize and supervise (or gather data for) poison information centers. Subject matter includes: functions of poison information centers, sources for poison information for centers, type formulations of chemical specialties (household chemicals, cleansers, solvents, polishes, etc.), industrial chemicals, drugs and medicaments, cosmetics, etc., organizations and operation of centers and the role of cooperating specialists. Prereq: Permission of instructor.

PHR 510 MODERN METHODS IN PHARMACEUTICAL ANALYSIS. (5)
A course which deals with the application of modern analytical methods, primarily instrumental methods, in the determination of the strength, purity, and quality of drugs and pharmaceuticals. Laboratory exercises include analysis of raw materials and finished dosage forms. Three class hours and four laboratory hours per week. Prereq: CHE 226.

PHR 540 INDUSTRIAL PHARMACEUTICAL TECHNOLOGY. (4)
This course is designed to give the student a basic understanding of the technology used in the perparation of the principal type of dosage forms by the pharmaceutical industry. Two class hours and four laboratory hours per week. Prereq: PHR 825 or equivalent.

PHR 545 STERILE PARENTERALS AND DEVICES. (2-3)
The course will describe the fundamental concepts, principles and techniques involved in the characterization, development, evaluation and preparation of sterile products. Lecture, two credits; lecture with laboratory, three credits. Prereq: PHR 815 and PHR 825; consent of instructor or equivalent background.

PHR 612 QUANTITATIVE PHARMACODYNAMICS. PHARMACOKINETICS. (2)
Quantitative treatment of dynamics of drug absorption, distribu-

tion, metabolism and excretion, including development of mathematical models for these processes and application of techniques such as analog simulation. Prereq: PHA 521, MA 112 and consent of instructor.

PHR 620 NATURAL PRODUCTS CHEMISTRY. (3)
Chemistry of natural products. A course designed to establish a bridge between organic chemistry, biochemistry and biology in terms of such areas as biogenesis, biotransformations, isolation, degradation, structure elucidation and synthesis of natural products of interest as medicinal agents. Prereq: PHR 400 or equivalent and consent of instructor.

PHR 622 ADVANCED BIOPHARMACEUTICS. (2)
An advanced treatment of the factors affecting drug availability from dosage forms and the influence of the route of administration and the dosage regimen on drug availability. Prereq: PHR 612.

PHR 624 BIOTOXICOLOGY. (3 or 5)
An advanced course in toxicology and toxicodynamics concerned with the sources, isolation, purification identification as well as the physiologic effects on man, animals, and plants of the various toxic substances encountered in the occupations, home, as well as rural and urban environments. Special attention will be given to type compounds as well as structive-activity relationships. Lecture, three hours; laboratory, four hours. Prereq: BCH 514, 515, CHE 532, PHA 521, and PGY 503 or PHR 334 and 346; or consent of instructor.

PHR 625 BIOTOXICOLOGY. (3 or 5)
A continuation of PHR 620. Prereq: PHR 620 or permission of the instructor.

PHR 626 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. Prereq: PHR 624, 625 or permission of the instructor.

PHR 630 PHARMACEUTICAL RATE PROCESSES. (3)
Kinetics of reactions of pharmaceutical interest; mechanisms of drug decomposition and theoretical approaches to stabilization and preservation; accelerated stability analysis. Prereq: Physical chemistry and chemical kinetics.

PHR 631 EQUILIBRIUM PHENOMENA IN PHARMACEUTICAL SYSTEMS. (3)
An advanced study in special topics of a physical chemical nature which are applicable to pharmacy, with special emphasis on physical properties and molecular structure, solubility, complexation and equilibria in solution. Prereq: Physical chemistry.

PHR 632 PHARMACEUTICAL DISPERSE SYSTEMS. (3)
The theoretical considerations basic to the technology of pharmaceutical disperse systems. Topics include colloidal dispersions, suspensions, emulsions, and rheology. Prereq: Physical chemistry.

PHR 640 ADVANCED PHARMACEUTICAL CHEMISTRY I. (3)
Chemistry of chemotherapeutic agents. A course bridging synthetic organic chemistry and biological activity and considering those organic compounds used as therapeutic agents in infectious diseases emphasizing the sythesis, relationship between chemical structure, biological activity, molecular modification and metabolism. Prereq: Advanced organic chemistry and consent of instructor.

PHR 642 ADVANCED PHARMACEUTICAL CHEMISTRY II. (3)
Chemistry of pharmacodynamic agents. A course similar to PHR 640, but considering those agents altering physiological activity such as antihistaminics, anesthetics, antispasmodics, hypnotics, etc. Prereq: Advanced organic chemistry and consent of instructor.

PHR 760 TOPICS IN PHARMACEUTICAL SCIENCES. (2-4)
This course deals with emerging concepts in pharmaceutical sciences which are not being covered in other courses. May be repeated for a maximum of 10 hours. Prereq: Consent of instructor.

PHR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated indefinitely. (1-6 credits equivalence.)

PHR 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

PHR 776 SEMINAR IN PHARMACEUTICAL SCIENCES I. (1)
Reports and discussion of pertinent research and literature in the pharmaceutical sciences. Required of all graduate students. Prereq: Graduate standing.

PHR 778 SEMINAR IN PHARMACEUTICAL SCIENCES II. (1)
Reports and discussion of pertinent research and literature in the pharmaceutical sciences. Required of all graduate students. Prereq: Graduate standing.

PHR 780 SPECIAL PROBLEMS IN PHARMACEUTICAL SCIENCES. (1-6)
Selected problems of laboratory or literature nature in which a student pursues a topic of interest to him under the supervision of a faculty member particularly qualified in that area. May be repeated once. Prereq: Consent of instructor.

PHR 790 RESEARCH IN PHARMACEUTICAL SCIENCES. (1-12)
Research work to be conducted in selected areas of pharmaceutical sciences. Prereq: Approval of student's special committee and consent of instructor.

PHR 805 PHARMACEUTICAL CALCULATIONS. (3)
A systematic study of arithmetical problems encountered in pharmacy.

PHR 810 PHARMACY AND THE HEALTH CARE SYSTEM. (2)
A study of philosophy of health care and the relationship of pharmacy to the health needs of society. Consideration is also given to the development of pharmacy as a profession, its present status in health care and its future challenge. Orientation to the Medical Center and the Clinical Pharmacy Programs is also stressed. Lecture, two hours.

PHR 814 PATIENT CARE SERVICES AND CLINICAL PHARMACY PRACTICE. (2)
An introduction to the clinical environment, medical practices, and other health care services. The various health care services and their interrelationships in patient care are stressed. Considerable emphasis is given to the methodology used by the clinical pharmacist, his contributions to patient care, and how he interacts with the other health professions. Lecture, three hours. Prereq: PHR 810.

PHR 815 INTRODUCTION TO PHARMACEUTICAL SYSTEMS. (4)
This course is designed to give the student an understanding of technology useful in the preparation of the principal type of dosage forms of drugs. Lecture, three hours; laboratory, three hours.

PHR 816 PATIENT CARE SERVICES AND CLINICAL PHARMACY PRACTICE. (3)
A continuation of PHR 814. Lecture, two hours; laboratory, three hours. Prereq: PHR 814.

PHR 818 BASIC SCIENCES AND PATIENT CARE. (1)
Weekly interdisciplinary seminar and conference sessions are presented to demonstrate the relationship of basic science disciplines and pharmaceutical education to the care of patient. Prereq: Admission to the Doctor of Pharmacy program. Offered on an Honors, Pass, Fail basis only (H, P, F).

PHR 819 BASIC SCIENCES AND PATIENT CARE. (1)
Continuation of PHR 818. Prereq: Admission to the Doctor of Pharmacy degree program and PHR 818.

PHR 820 PRESCRIPTION COMPOUNDING AND DISPENSING. (4)
The application of principles presented in pervious pharmacy courses to the compounding techniques necessary for today's prescription practice. Lecture, three hours; laboratory, three hours. Prereq: PHR 814, 845.

PHR 824 HUMAN PATHOLOGY. (4)
This course constitutes a general survey of human disease with particular emphasis on diseases of interest to dental students. Lectures, 32 hours; laboratory, 97 hours. Prereq: Consent of instructor. (Same as PAT 824)

PHR 825 PHYSICAL PHARMACY. (4)
A study of quantitative or theoretical principles as they apply to Pharmacy. The course is intended to provide a basis for analyzing and interpreting the physical and chemical aspects of systems of interest to pharmacists. Lecture, three hours; laboratory, three hours. Prereq: 815.

PHR 830 PHARMACY ADMINISTRATION. (3)
An examination of the socio-economic factors and trends affecting pharmacy practice. The channels of distribution, the pharmaceutical industry and the consumer are considered. Stressed also is the development of a basic knowledge of the administrative aspects of pharmacy practice. Prereq: ECO 260.

PHR 835 PHARMACEUTICAL LAW. (2)
A study of important legislation, regulations and rulings related to the practice of pharmacy. Prereq: PHR 810.

PHR 838 COMMUNITY PHARMACY PRACTICE. (3)
An introduction to the economic, administrative, and professional considerations in owning a pharmacy or practicing in a community pharmacy. Prereq: PHR 830.

PHR 845 BIOPHARMACEUTICS. (4)
This course deals with the interrelationships of absorption, distribution, metabolism, storage and excretion of drugs with the physical-chemical properties of body tissues, drugs and drug dosage forms. The receptor site concept of drug action will also be introduced. Lecture, three hours; laboratory, three hours. Prereq: PHR 825.

PHR 862 PHARMACOTHERAPEUTICS I. (7)
A presentation of the physiochemical properties, systheses, pharmacodynamic mechanisms, toxicology mechanisms, and therapeutic applications of modern drug products, with emphasis on structure-activity relationships and the application of pharmaceutical/pharmacological principles in rational therapeutics. Lecture, seven hours. Prereq: PHR 346.

PHR 863 PHARMACOTHERAPEUTICS II. (7)
A continuation of PHR 862. A presentation of the physiochemical properties, syntheses, pharmacodynamic 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, seven hours. Prereq: PHR 862.

PHR 866 HOSPITAL PHARMACY PRACTICE I. (3)
The administrative and professional principles and concepts of hospital pharmacy practice. Emphasis placed on the development, functions and organization of the hospital and the relationship of the pharmacy as a component of the hospital. Prereq: PHR 870, or permission of Department chairman.

PHR 868 HOSPITAL PHARMACY PRACTICE II. (3)
A study of the administrative and professional principles and concepts of hospital pharmacy practice. Emphasis is placed upon the development of trends affecting hospital pharmacy; the administrative organization of the pharmacy; organizing and planning of the department; business management of the pharmacy and analysis of the professional service and activities of the hospital pharmacy. Prereq: PHR 866.

PHR 870 CLINICAL ORIENTATION CLERKSHIP. (6 or 10)
This course acquaints the student with the techniques and various considerations involved in the diagnosis and evaluation of disease states and their treatment. It affords the student opportunity to gain an appreciation of the scientific, social, emotional and psychological aspects of illness and provides the student with ability to work with other health professionals. Laboratory, 18-30 hours. Prereq: PHR 820. Offered on an Honors, Pass, Fail basis only (H, P, F).

PHR 872 NON-PRESCRIPTION PHARMACEUTICALS AND SUPPLIES. (3)
A study of various non-prescription pharmaceuticals, medical and surgical supplies and appliances commonly found in community pharmacy practice. Their evaluation, rational use and therapeutic efficacy will be stressed. The use of home remedies and their limitations in the treatment of minor ailments will be considered. Prereq: PHR 346.

PHR 874 DRUG LITERATURE EVALUATION. (3)
This course apprises the student of the pharmacological and toxicological principles and techniques employed in the clinical evaluation of drugs and enables the student to use more effectively the clinical literature. It is designed as a natural continuation of PHR 863. Lecture, three hours. Prereq: PHR 863.

PHR 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 pharamacotherapeutic knowledge to clinical drug use. Lecture, five hours. Prereq: PHR 863, 874.

PHR 878 DISEASE PROCESSES AND ADVANCED PHARMACOTHERAPEUTICS II. (8)
A continuation of PHR 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: PHR 863, 874.

PHR 880 INTRODUCTION TO INSTITUTIONAL PRACTICE. (3)
A presentation of the fundamental concepts and procedures involving the acquisition, distribution and control of drugs by pharmacists in hospitals. It is designed to acquaint the student with hospital pharmacy as a speciallized area of practice. Prereq: PHR 830.

PHR 881 PHARMACY PRACTICE CLERKSHIP. (3, 6, 9, or 12)
This clerkship is designed to provide the student with a faculty directed, integrated experience in the provision of pharmaceutical services in a variety of patient care settings under the supervision of selected pharmacy practitioners on a one-to-one basis of student to practitioner. This experience includes participation in new and innovative pharmacy practice models as well as in traditional practice settings. Each three-credit block consists of four weeks of full-time (not less than 40 hours per week) or directed clerkship experience. The student may elect the type(s) of clerkship experience(s) in blocks of three credits, up to a maximum of 12 hours. Prereq: PHR 820, 862, 863, and permission of instructor. Offered on a pass/fail basis only.

PHR 890 CLINICAL PHARMACY SEMINAR. (1)
Topics in areas of clinical pharmacy concepts and principles of practice emphasizing the technical and professional knowledge and abilities required for involvement of the pharmacist in the health care team. Prereq: Admission to the Doctor of Pharmacy program. May be repeated to a maximum of two credits.

PHR 892 CLINICAL DRUG COMMUNICATIONS. (1-5)
The course is designed as a natural continuation of PHR 874 and serves the specific purpose of providing instruction and experience of such a nature and quality as to promote the professional role of the pharmacist in the communication of clinical pharmacology data and therapeutics information. May be repeated to a maximum of 10 credits. Lecture, one hour; laboratory, 4-16 hours.

PHR 895 INDEPENDENT PROBLEMS IN CLINICAL PHARMACY. (1-3)
Selected problems in patient care, drug information, pharmacy administration, and pharmaceutical technology as related to pharmaceutical services. May be repeated to a maximum of six credits. Prereq: Permission of instructor.

PHR 896 INDEPENDENT PROBLEMS IN PHARMACY. (1-3)
Selected problems pertaining to the various aspects of pharmacy which may include such problems as pharmaceutical procedures, pharmaceutical formulations, phamaceutical history, and pharmaceutical economics. Prereq: Permission of the instructor. May be repeated to a maximum of six credits.

PHILOSOPHY

PHI 100 INTRODUCTION TO PHILOSOPHY. (3)
An introduction to philosophical studies with emphasis on issues of knowing, reality, and meaning related to human existence.

PHI 120 INTRODUCTORY LOGIC. (3)
An introduction to philosophical studies with emphasis on theory and practice of deduction, selected issues in induction and scientific method, and questions of ordinary argumentation.

PHI 130 INTRODUCTORY ETHICS. (3)
An introduction to philosophical studies with emphasis on a critical study of principles of moral action and social and political values.

PHI 260 HISTORY OF WESTERN PHILOSOPHY I. (3)
An introductory study of the development of Western philosophy from ancient through late medieval times including systematic work in logic, metaphysics, epistemology and ethics by such philosophers as Plato, Aristotle, Augustine and Aquinas.

PHI 270 HISTORY OF WESTERN PHILOSOPHY II. (3)
An introductory study of the development of Western philosophy from early modern to recent times including systematic work in logic, metaphysics, epistemology and ethics by such philosophers as Occam, Descartes, Hume and Kant.

PHI 300 UNDERGRADUATE SEMINAR. (3)
A study of current issues in philosophy as found in the journals and outstanding recent books. Prereq: Undergraduate major in Department of Philosophy.

PHI 395 INDEPENDENT WORK. (3)
Open only to students who have distinguished themselves in philosophy or in allied subjects. Prereq: Major and standing of 3.0 in Department. May be repeated three times for a total of 12 credits.

PHI 418 EXISTENTIALISM. (3)
A systematic study of the fundamental concepts and problems of

existentialism. Readings selected from such philosophers as Kierkegaard, Nietzsche, Sartre, Marcel, Heidegger, and Jaspers.

PHI 440 GREAT RELIGIONS. (3)
A descriptive survey of several religions as they developed within their culture, for example, Hinduism, Buddhism, Confucianism, Judaism, Christianity.

PHI 520 INTERMEDIATE LOGIC. (3)
An intermediate course in logic which reviews the logic of propositions, develops the logic of quantification and introduces metalogical issues in the construction, consistency and completeness of deductive systems. Prereq: PHI 120 or consent of instructor.

GROUP A

PHI 504 TOPICS IN THE HISTORY OF ANCIENT AND MEDIEVAL PHILOSOPHY. (3)
A selective study of representative issues and texts in Ancient and Medieval Philosophy, with special emphasis upon historical continuity and the interrelation of thinkers and problems. Possible topics: Plato and Aristotle; Neo-Platonism; Aristotle and Aquinas; the Renaissance Critique of Medieval Thought. May be repeated to a maximum of six credits.

PHI 509 TOPICS IN THE HISTORY OF MODERN PHILOSOPHY. (3)
A selective study of representative issues and texts in Modern Philosophy, with special emphasis upon historical continuity and interrelation of thinkers and problems. Possible topics: British Empiricism; Leibniz and Locke; Descartes and his Critics; Hobbes and Rousseau; Hume and Kant; Philosophy and the Rise of Modern Science. May be repeated to a maximum of six credits.

PHI 513 NINETEENTH CENTURY PHILOSOPHY. (3)
An examination of the major topics and trends in 19th Century philosophy. Prereq: PHI 270 or consent of instructor.

PHI 514 AMERICAN PHILOSOPHY. (3)
A critical survey of American philosophical movements, notably idealism, pragmatism, realism, naturalism, logical positivism, and phenomenology.

PHI 515 CONTEMPORARY ANALYTIC PHILOSOPHY. (3)
A study of philosophical developments in the 20th Century, with concentration on the analytic movements (logical atomism, logical positivism, and linguistic analysis).

PHI 516 PHENOMENOLOGY. (3)
An account of the Phenomenological movement from Husserl to the present with emphasis on the development of a phenomenological method including elements such as Intentionality, Reduction, Constitution and their relations to the Structure of Appearance. Prereq: PHI 270.

GROUP B

PHI 530 ETHICAL THEORY. (3)
A study of ethical theories by detailed examination of a few selected works. Theories considered may include naturalism, intuitionism, noncognitivism, utilitarianism, universalizability, and natural law.

PHI 535 SOCIAL AND POLITICAL PHILOSOPHY. (3)
A critical examination of some philosophical problems concerning the nature and evaluation of social and political organizations. For example, questions concerning the nature, justification, and limits of political power may be explored in connection with a study of important classical positions. Prereq: One course in philosophy.

PHI 537 PHILOSOPHY OF LAW. (3)
Concept of law; relations between law and morals; nature of legal reasoning; analysis of legal concepts; justification of punishment.

PHI 545 PHILOSOPHY OF RELIGION. (3)
An analysis of the philosophical issues raised by religion, such as the problem of religious knowledge, the nature of religious language, science and religion, concepts of God, death, and evil.

PHI 592 AESTHETICS. (3)
Problems of method in aesthetics; major types of aesthetic theory. Aesthetic materials of the arts in literature, music, and the space arts. Form and types of form. Meaning in the arts. Interrelations of the arts. Lectures, discussions, reports. (Same as A-H 592.)

GROUP C

PHI 550 METAPHYSICS. (3)
Examination of efforts by philosophers to construct general conceptions of the world. Recent approaches to philosophy and metaphysical investigation. Prereq: two courses in philosophy or consent of instructor.

PHI 555 EPISTEMOLOGY. (3)
A study of the origins, nature, kinds and validity of knowledge, with accent both on traditional epistemological problems and on analyses of epistemological concepts.

PHI 560 PHILOSOPHY OF SCIENCE. (3)
An examination of the logical and epistemological foundations of empirical science, including fundamentals of concept formation, criteria of cognitive significance, logic of explanation and prediction, and testing and confirmation of theories and laws. Prereq: PHI 120 or equivalent or consent of instructor.

PHI 562 PHILOSOPHY OF THE SOCIAL SCIENCES. (3)
An examination of the foundations of the social sciences, focusing upon the character of the theories and concepts used to explain human behavior, including the role of laws and the nature of confirmation.

PHI 565 PHILOSOPHY OF LANGUAGE. (3)
An investigation of problems current in the philosophy of language such as meaning and reference, the nature of analysis, linguistic relativity and the relation of linguistics to philosophy.

PHI 570 PHILOSOPHY OF HISTORY. (3)
An examination of the theories and methods utilized by historians with special attention to the problems of laws and explanations in history, the nature of historical knowledge and narrative, and the roles of causal judgments and historical understanding. Attention will also be given to theoretical interpretations of history as offered by Marx, Hegel, Toynbee and others.

PHI 575 PHILOSOPHY OF MIND. (3)
An examination of problems current in the philosophy of mind, such as the concept of person, the relation of mind and body, the relation of minds and machines, knowledge of other minds, and the roles of dispositions and volitions in human action. Attention will be given to the philosophical analysis of such psychological categories as consciousness, feeling, emotion, perception, imagination, thinking and will.

GRADUATE SEMINARS

PHI 625 ADVANCED LOGIC. (3)
Intensive study of selected topics arising from propositional as well as lower and higher order predicate logic, e.g., Modal Logic, Many-valued Logic, Quantification Theory, Class Logic and Paradoxes. The course will stress the diversity of approaches to these issues within formal logic. Prereq: PHI 520 or consent of instructor.

PHI 680 SPECIAL TOPICS IN PHILOSOPHY. (3)
Studies in philosophical problems which either cut across or lie outside the standard areas of philosophical inquiry. May be repeated to a maximum of six credits.

PHI 700 SEMINAR IN ANCIENT PHILOSOPHY. (3)
Intensive study of original works of such major classical philosophers as Plato and Aristotle. May be repeated twice for a total of nine credits. Prereq: PHI 260 or equivalent.

PHI 705 SEMINAR IN MEDIEVAL PHILOSOPHY. (3)
An intensive study of the issues treated by one or more Medieval philosophers, e.g., Augustine, Aquinas, Scotus or Ockham. Prereq: PHI 505.

PHI 710 SEMINAR IN MODERN PHILOSOPHY. (3)
Intensive study in the major works of such prominent philosophers of modern times as Descartes, Locke, Hume, Kant, and Hegel. May be repeated twice for a total of nine credits. Prereq: PHI 270 or equivalent.

PHI 715 SEMINAR IN RECENT PHILOSOPHY. (3)
Intensive study of major philosophers of the 20th Century such as Russell, Wittgenstein, J. L. Austin, and Merleau-Ponty. May be repeated twice for a maximum of nine credits. Prereq: PHI 515 or its equivalent.

PHI 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

PHI 790 RESEARCH IN PHILOSOPHY. (3)
This course is primarily intended for advanced students who desire and are prepared to do research in philosophy. May be repeated three times for a total of 12 credits.

PHYSICAL THERAPY

PT 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.

PT 807 INTRODUCTION TO PHYSICAL THERAPY ADMINISTRATION. (1)
Introduction to basic management techniques and philosophy. Includes: nature of management, planning, organizing, controlling, standards and appraisal, objectives, task analysis, and job design. Prereq: Admission to the physical therapy curriculum or consent of instructor.

PT 808 ADVANCED PHYSICAL THERAPY ADMINISTRATION. (3)
Emphasis is placed on operational aspects of Physical Therapy Department including: relationship to total facility operation, designing and equipping a department, contracts, salaries, fees, personnel policies, records, data processing, budget process, medical-legal implication, continuing education, and the consultative process. Prereq: PT 807 or consent of instructor.

PT 815 BASIC CLINIC SKILLS. (3)
Theory and technics of basic physical therapeutic procedures of hydrotherapy, electrotherapy, and massage. Rationale, physiological effects, indications and contraindications are presented in lecture. Technics are demonstrated and practiced in laboratory. Prereq: Admission to the physical therapy curriculum.

PT 816 SUMMER CLERKSHIP. (2)
The student participates in a 17-day session at a specialized camping facility for handicapped children (Camp Kysoc). They participate in the 24-hour-per-day care of these children in conjunction with students from other specialties, e.g., general, special, and physical education, recreation, social work, and nursing. Prereq: Admission to the physical therapy curriculum. Offered on a pass-fail basis only.

PT 817 ELECTRODIAGNOSIS. (2)
This course is designed to introduce the physical therapy student to methods of evaluating the status of muscle and nerve within the parameters of their electrical characteristics. Included are theories and rationale for tissue excitability tests, nerve conduction velocities and electromyography. Prereq: Admission to the physical therapy curriculum.

PT 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.

PT 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. Offered on a pass-fail basis only.

PT 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. Offered on a pass-fail basis only.

PT 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. Offered on a pass-fail basis only.

PT 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 outpatient facilities. Prereq: Admission to the physical therapy curriculum. Offered on a pass-fail basis only.

PT 839 CLINICAL INTERNSHIP IN PHYSICAL THERAPY. (9)
Supervised internship through which the student acquires understanding and skill in physical therapy procedures. Offered on a pass-fail basis only.

PT 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.

PT 846 MEDICAL LECTURES II. (2)
A presentation of neurological and psychiatric disease, mental retardation and cerebral palsy. Prereq: Admission to the physical therapy curriculum.

PT 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.

PT 848 MEDICAL LECTURES IV. (1)
Continuation of PT 847. Prereq: Admission to the physical therapy curriculum.

PT 856 THERAPEUTIC EXERCISE I. (4)
Includes evaluation, exercise programs, rehabilitation, orthotics and prosthetics. The neurophysiological basis for exercise is explored. Program planning and progression are emphasized. Two hours lecture; two hours laboratory per week. Prereq: Admission to the physical therapy curriculum.

PT 857 THERAPEUTIC EXERCISE II. (3-6)
Continuation of PT 856. Lecture, four hours; laboratory, two hours per week. Prereq: Admission to the physical therapy curriculum.

PT 858 THERAPEUTIC EXERCISE III. (2)
Continuation of PT 856 and PT 857. Prereq: Admission to the physical therapy curriculum.

PT 867 RESEARCH METHODOLOGY. (3-4)
This course will introduce physical therapy students to the scientific method of problem solving. Although basic procedures are covered in lecture, such as formulation of the problem, the hypothesis, literature search, and research design, much of the work will be done independently by the student with individual conference with the instructor. To complete the requirements, the student must write an introduction to, and design an experiment for, an original research project. Prereq: Admission to the physical therapy curriculum.

PT 868 RESEARCH PROBLEMS. (3)
This course is intended to introduce the student to methods of analyzing data and problems of writing a scientific paper for publication. Students are required to collect and analyze data as it relates to their research problems. Also required is an oral presentation of their finished manuscript. Prereq: Admission to the physical therapy curriculum.

PT 898 INDEPENDENT STUDY. (1-2)
The student will pursue in depth a particular aspect of physical therapy or related fields. May be repeated to a maximum of four credits. Prereq: Senior standing or consent of the instructor.

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 pro-

gressively 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.

PHYSICS AND ASTRONOMY

Note: It is assumed that all prerequisites include, in addition to any specific course listed, the phrase "or equivalent," or "permission of the instructor."

PHY 140 ACOUSTICS OF MUSIC INSTRUMENTS. (3)
First musical sounds themselves will be analyzed. Then the tone production of the following musical instruments will be studied: keyboard string instruments, bowed string instruments, brass instruments, organ pipes and woodwinds. Lecture, discussion and demonstrations, three hours per week.

PHY 151 INTRODUCTION TO PHYSICS. (3)
A lecture demonstration course covering the mechanics of solids, liquids, and gases; heat; and sound. Credit is not given to students who already have credit for PHY 201, 211, 231 or 250.

PHY 152 INTRODUCTION TO PHYSICS. (3)
A lecture demonstration course covering magnetism and electricity, and optics. Credit is not given to students who already have credit for PHY 203, 213, 232, or 251.

PHY 201 GENERAL ELEMENTARY PHYSICS. (4)
Same as PHY 211, but without laboratory. Prereq: Same as PHY 211. Credit is not given to students who already have credit for PHY 211, 231, or 250.

PHY 203 GENERAL ELEMENTARY PHYSICS. (4)
Same as PHY 213, but without laboratory. Prereq: Same as PHY 201. Credit is not given to students who already have credit for PHY 213, 232, or 251.

PHY 211 GENERAL ELEMENTARY PHYSICS. (5)
An elementary course covering the mechanics of solids, liquids, and gases; and heat. Lecture, two hours; recitation, two hours; laboratory, two hours. Credit is not given to students who already have credit for PHY 231 (or 250) and 241. Prereq: High school or college algebra, plane geometry.

PHY 213 GENERAL ELEMENTARY PHYSICS. (5)
Continuation of PHY 211, covering magnetism and electricity, sound, optics and radiation physics. Lecture, two hours; recitation, two hours; laboratory, two hours. Prereq: PHY 211 or equivalent. Credit is not given to students who already have credit for 232 (or 251) and 242. This course is a prerequisite to a significant number of courses in this and related areas of study.

PHY 231 GENERAL UNIVERSITY PHYSICS. (3)
An advanced general course covering the mechanics of solids, liquids, and gases; heat; and sound. Lecture, two hours; recitation, two hours. Prereq: MA 114 concur.

PHY 232 GENERAL UNIVERSITY PHYSICS. (3)
An advanced general course covering electricity, magnetism, and optics. Lecture, two hours; recitation, two hours. Prereq: PHY 231 or 250; MA 213 concur. This course is prerequisite to a significant number of courses in this and related areas of study.

PHY 241 GENERAL UNIVERSITY PHYSICS LABORATORY. (2)
An advanced general laboratory course involving experiments on the mechanics of solids, liquids, and gases; and heat. Prereq: PHY 231 or 250 concur.

PHY 242 GENERAL UNIVERSITY PHYSICS LABORATORY. (2)
An advanced general laboratory course involving experiments on electricity, magnetism, sound and light. Prereq: PHY 241; PHY 232 or 251 concur. This course is prerequisite to this and related areas of study.

PHY 250 HONORS UNIVERSITY PHYSICS. (3)
An advanced general course covering the mechanics of solids, liquids, and gases; heat; and sound. Lecture two hours, recitation two hours. Prereq: MA 114 concurrent. Enrollment in Honors Program, or equivalent academic competence. (Satisfies same requirements as PHY 231 or 250.)

PHY 251 HONORS UNIVERSITY PHYSICS. (3)
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 concur. Enrollment in Honors Program, or equivalent academic competence. (Satisfies same requirements as PHY 232 or 251.)

PHY 260 PRINCIPLES OF MODERN PHYSICS. (3)
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 or 251.

PHY 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.

PHY 401 SPECIAL TOPICS IN PHYSICS AND ASTRONOMY FOR ELEMENTARY AND HIGH SCHOOL TEACHERS. (2-4)
Selected topics in physics and astronomy of special interest to teachers will be discussed. When the course is offered, a specific title with specific credits, the number of hours in lecture-discussion and laboratory will be announced. Two-four lecture/discussion hours and zero-four laboratory hours per week. May be repeated to a maximum of eight credits. Prereq: Open only to elementary school and/or high school teachers; consent of the instructor is required.

PHY 404 MECHANICS. (3)
A lecture and problem course covering the fundamental laws of mechanics. Newton's Laws, statics and dynamics of a particle and rigid bodies, and oscillatory motion. Prereq: PHY 232 or 251, 242; MA 214 concur.

PHY 416 ELECTRICITY AND MAGNETISM. (3)
A lecture and problem course covering the theory of electrostatic fields, conductors, dielectrics, and steady currents. Prereq: PHY 232 or 251, 242; MA 213.

PHY 417 ELECTRICITY AND MAGNETISM. (3)
A continuation of PHY 416. A lecture and problem course covering electromagnetic induction, magnetic fields, magnetic materials, alternating currents and electromagnetic radiation. Prereq: PHY 416.

PHY 472 INTERACTION OF RADIATION WITH MATTER. (3)
Sources of radiation; penetration of charged particles, electromagnetic radiation, and neutrons through matter; excitation and ionization processes; radiation detection and spectroscopy; dosimetry of ionizing radiations. Prereq: PHY 260. Same as RM 472.

PHY 504 ADVANCED MECHANICS. (3)
A continuation and extension of PHY 404. Includes dynamics of a particle, rigid bodies, Lagrange's equations, constrained motions, and oscillations. Prereq: PHY 404; MA 214.

PHY 508 OPTICS. (3)
A lecture and problems course covering the basic phenomena of geometrical and physical optics. Topics include thick lenses, apertures, wave motion, interference, diffraction, polarization, double refraction, and the theory of selected optical instruments. Prereq: PHY 232 or 251, 242; MA 213.

PHY 510 SPECTROSCOPY. (3)
A lecture and problems course dealing with the production, recording, measuring, and interpretation of atomic and molecular spectra. Topics include basic principles of atomic structure, spectrographs, photometry, interpretation of spectra in fields of atomic structure and spectrographic analysis. Prereq: PHY 232 or 251, 242; MA 213.

PHY 512 EXPERIMENTAL PHYSICS: ELECTRICITY AND MAGNETISM. (2)
An advanced laboratory course in electrical measurements. Special projects are elected by the student to explore certain physical relations through standard electrical measurements. Prereq: PHY 416.

PHY 514 ELECTRONICS. (3)
A lecture and laboratory course on the theory and application of solidstate and vacuum tube electronic devices. Lecture, two hours; laboratory, two hours. Prereq: PHY 416.

PHY 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 or 251, 242; MA 213.

PHY 524, 525 SOLID STATE PHYSICS. (3 ea.)
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 for PHY 524; PHY 232 or 251, 242; MA 213; Prereq for PHY 525: PHY 524.

PHY 530 EXPERIMENTAL PHYSICS: SPECTROSCOPY. (2)
An advanced laboratory course in the use and properties of various light sources, spectrographs, photographic materials, and photometric methods; analysis of unknown materials by spectrographic methods. Prereq: PHY 508 or 510.

PHY 535 EXPERIMENTAL PHYSICS: ATOMIC AND NUCLEAR. (2)
Measurement of e, e/m, h/e, resonance potentials, x-ray absorption, half-lives, beta-ray and gamma-ray absorption, gamma spectra, specific activity, alpha-particle ranges, and radiation dosage. Prereq: PHY 260.

PHY 538 EXPERIMENTAL PHYSICS: LIGHT. (2)
An advanced laboratory course dealing with the properties of lenses, mirrors, prisms, gratings, and combinations of these elements in optical systems. The important phenomena of optics are studied experimentally by means of microscope, telescope, spectrometer, interferometer, polarimeter. Prereq: PHY 508.

PHY 545 RADIATION HAZARDS AND PROTECTION. (2)
An analysis of common radiation hazards encountered in medicine and research, regulations for safe usage of radiation, and procedure for safe use of radiation. One class hour per week, two laboratory hours. Prereq: College physics; one year biology.

PHY 546 GENERAL MEDICAL RADIOLOGICAL PHYSICS. (2)
Following a mathematics and physics review, the nature, origin, uses and dosimetric aspects of radiation will be discussed. Application in the fields of diagnostic radiology, therapeutic radiology and nuclear medicine will be emphasized. Prereq: PHY 260 or consent of instructor. (Same as RM 546.)

PHY 547 MEDICAL RADIATION IMAGING—I, PHYSICAL ASPECTS OF DIAGNOSTIC RADIOLOGY. (2)
Medical radiation and the generation of information; x-ray circuits and operation of the x-ray apparatus; the radiological image and the retrieval of information; x-ray image intensification; image intensifiers; fluoroscopy; cinefluorography; special procedures and patient dosimetry. Prereq: PHY 260, or RM 546 or consent of instructor. (Same as RM 547.)

PHY 548 THE PHYSICS OF RADIATION THERAPY. (2)
The terminology and advanced methods of treating various diseases using beam devices such as x-rays, Co-60, and linear accelerators as well as brachytherapy (interstitial and intracavitary implantation of radioactive sources). Emphasis will be placed upon "treatment planning" including dose calculation and methods of optimizing tumor to healthy tissue dosage by both hand and computer methods. Prereq: PHY 260 or RM 546 or consent of instructor. (Same as RM 548.)

PHY 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 or 251, 242; MA 213.

PHY 555 FUNDAMENTAL ATOMIC AND NUCLEAR PHYSICS. (3)
A continuation of PHY 554. Prereq: PHY 554.

PHY 567 INTRODUCTION TO LASERS AND MASERS. (3)
Basic principles of laser action; atomic transitions; population inversion; two- and three-level systems; optical resonators; pumping methods; applications. Prereq: Consent of instructor and senior standing.

PHY 598 INTRODUCTION TO QUANTUM MECHANICS. (3)
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 complicatons of purely mathematical nature. Basic postulates; Schrodinger's wave equation and its applications. Prereq: PHY 232 or 251, 242; MA 214.

PHY 600 SELECTED TOPICS IN ADVANCED PHYSICS. (2-3)
Topics of an advanced and specialized nature such as the theory of angular momentum, topics in advanced theoretical nuclear physics, topics in advanced statistical mechanics. May be repeated twice. Prereq: Consent of instructor.

PHY 604 CLASSICAL MECHANICS. (3)
A lecture and problems course covering the methods of Lagrange and Hamilton and their application to particles, systems of particles, and continuous media; variational principles; and transformation theory. Prereq: PHY 504; MA 214.

PHY 611 ELECTROMAGNETIC THEORY I. (3)
A lecture and problem course treating electrostatics, boundary conditions, potential problems, energy in electric and magnetic fields, magnetic materials and Maxwell's equations. Prereq: PHY 416; MA 214.

PHY 613 ELECTROMAGNETIC THEORY II. (3)
Continuation and extension of PHY 611. Includes theory of electromagnetic waves and applications to optical phenomena of reflection, refraction, polarization and absorption. Prereq: PHY 611.

PHY 624, 625 THEORY OF THE SOLID STATE. (3 ea.)
A lecture and problem course covering the fundamental theories of the structure and properties of solids, including lattice dynamics, electron propagation, electrical thermal and optical properties. Prereq: PHY 524, 525 and 714.

PHY 629 NUCLEAR PHYSICS I. (3)
A lecture and problem course dealing with advanced experimental nuclear physics. Topics include properties of nuclei, nuclear transformations, observational methods, radioactivity and interaction of radiation with matter. Prereq: PHY 604.

PHY 630 NUCLEAR PHYSICS II. (3)
A lecture and problem course concerned with the theories of the structure of atomic nuclei. Topics include nuclear shell structure, internuclear forces, nuclear binding energies, and theory of nuclear reactions. Prereq: PHY 714.

PHY 631 ATOMIC STRUCTURE. (3)
A lecture and problem course treating the theory of atomic structure. Topics include atomic and molecular spectra, multiplet structure, interatomic and intermolecular forces, and quantum mechanical treatment of the vector model. Prereq: PHY 714.

PHY 632 STATISTICAL MECHANICS. (3)
A lecture and problem course dealing with the thermal properties of matter from the standpoint of statistical mechanics. Topics include thermodynamic properties, perfect gases, and Fermi-Dirac statistics. Prereq: PHY 522, 604.

PHY 639, 640 THEORETICAL ASTROPHYSICS. (3 ea.)
A study of those branches of physics which have thus far proved most useful in astronomical applications and a thorough treatment of several major astronomical problems which have been elucidated by these methods. Prereq: PHY 504, 611.

PHY 650 THEORY OF RELATIVITY. (3)
A lecture and problem course dealing with the special and general theories of relativity. Topics include relativistic kinematics, the Lorentz transformation, the principle of equivalence, Riemannian spaces, field equations and experimental tests of the special and general theories. Prereq: PHY 604.

PHY 652 THEORY OF ELEMENTARY PARTICLES. (3)
A lecture and problem course dealing with the application of modern theoretical concepts to elementary particle systems. Prereq: PHY 714.

PHY 682 ELECTRIC PHENOMENA IN GASES. (3)
Considers basic phenomena of the motion and interaction of electrons in gases including ion formation, mobility, diffusion, recombination, ion lifetimes, atomic and molecular excitations and energetics. Prereq: PHY 417, 554, or 510; MA 214.

PHY 706 METHODS OF MATHEMATICAL PHYSICS. (3)
Solution of physical problems systematized according to the equations they satisfy. Variational methods, boundary conditions, eigenfunctions. Green's function, integral representations, approximation procedures, with applications from electromagnetic theory, quantum mechanics, acoustics. Prereq: Consent of instructor.

PHY 714 QUANTUM MECHANICS I. (3)
A lecture course covering a brief review of the origin of quantum theories, mathematical techniques of quantum mechanics, the general aspects of wave mechanics and matrix mechanics, the uncertainty principle.

PHY 715 QUANTUM MECHANICS II. (3)
A continuation of PHY 714 with extensions into special methods of solving problems in the theory, problems in more than one dimension, and the Pauli and Dirac theories of the electron. Prereq: PHY 714 or equivalent.

PHY 716 ADVANCED QUANTUM MECHANICS. (3)
A continuation of PHY 715. Topics covered will include the relativistic wave equations, second quantization, quantum electrodynamics. Prereq: PHY 715.

PHY 755 TOPICS IN CHEMICAL PHYSICS (SUBTITLE REQUIRED). (3)
An introduction to current research areas in chemical physics.

Topics may include theory of atomic spectra, atomic and molecular processes, molecular theory, electrons and phonons in crystals, and optical properties of metals. Lectures, two or three hours. May be repeated to a total of 12 credits. Prereq: Consent of instructor. (Same as CHE 755.)

PHY 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

PHY 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

PHY 770 COLLOQUIUM. (1)
A weekly meeting of the staff and advanced students for the discussion of recent developments in physics and of work in progress in the Department. Credit is given to those who satisfactorily present papers. May be repeated to a maximum of eight credits.

PHY 781 INDEPENDENT WORK IN PHYSICS. (3)
May be repeated three times for a total of 12 credits.

PHY 790 RESEARCH IN PHYSICS. (3)
May be repeated once for a total of six credits.

PHY 791 RESEARCH IN PHYSICS. (5)
May be repeated once for a total of 10 credits.

PHYSIOLOGY AND BIOPHYSICS

PGY 206 ELEMENTARY PHYSIOLOGY. (3)
Emphasis is placed upon the physiology of muscle, circulation, respiration, digestion, absorption, energy metabolism, and excretion. Lecture, three 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.

PGY 502 PRINCIPLES OF PHYSIOLOGY. (4)
A comprehensive discussion of physiology using advanced texts and library reading; includes function as related to major body systems. Prereq: One year each, physics, general chemistry and biology.

PGY 503 EXPERIMENTAL METHODS. (2)
A laboratory course in physiology utilizing advanced techniques that emphasize the development of laboratory skills, experimental design, data reduction, interpretation and presentation. Prereq: PGY 502 (or its equivalent): May be taken concurrently. (Same as ZOO 503.)

PGY 504 INDEPENDENT WORK IN PHYSIOLOGY. (2-4)
A study of some advanced problems in physiology under the direct supervision of the instructor. Discussion period, one hour; laboratory, four hours. May be repeated to a maximum of eight credits. Prereq: Consent of instructor.

PGY 507 INTRODUCTION TO ENDOCRINOLOGY. (3)
Introductory study of the development, structure, and fundamental functions of endocrine glands. Prereq: General chemistry; consent of instructor.

PGY 511 MEDICAL PHYSIOLOGY. (7)
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 mammilian surgical techniques with emphasis on experimental design and biometrics. Prereq: Admission to College of Medicine or permission.

PGY 512 CELLULAR PHYSIOLOGY. (3)
An intensive study of general physiological principles with emphasis on the chemistry and physics of the cell. Prereq: Physics and general chemistry. (Same as CB1 512.)

PGY 520 THEORETICAL BIOPHYSICS. (3)
A multidisciplinary approach to the study of biological systems as viewed from the fundamental laws of the physical sciences. Magnitudes: space, time, forces, particles, allometric relationships. The Fundamental Biological Unit: Information, ordering processes, evolution, biological necessity and religious freedom. The Organism: Cell as a machine, man as a machine, physics of death. The Ecosystem: Systems and analysis, energy flow, species level, ecological crisis. Prereq: MA 113, PGY 502 or 512 or BOT 501 or permission of instructor.

PGY 522 MATHEMATICAL BIOPHYSICS. (3)
Mathematical approaches to biophysical problems in biology. Emphasis on the abstract representation of physiological systems and processes. Prereq: MA 114 or equivalent.

PGY 602 PHYSIOLOGICAL INSTRUMENTATION I. (3)
Electronic circuits in physiological measuring systems. One lecture, two laboratory hours per week. Prereq: MA 113; knowledge of integration and differentiation of simple functions or permission of instructor.

PGY 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.

PGY 606 ADVANCED NEUROPHYSIOLOGY. (3)
Electrical analysis of nerve fibres and synapse; nerve impulse theories, reflexes, metabolism and central nervous function are considered from the cybernetic viewpoint. Lecture, two hours; laboratory, two hours. Prereq: PGY 512, 513; consent of instructor.

PGY 627 PROSEMINAR IN PHYSIOLOGICAL PSYCHOLOGY. (2)
An intensive examination of theories, methods of investigation, and current developments in the field of physiological psychology. Prereq: Graduate student or permission of instructor. (Same as PSY 627.)

PGY 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 502 or 511 or consent of instructor.

PGY 660 SYSTEMS PHYSIOLOGY. (3)
The analysis of physiological systems. This includes application of mathematical and engineering techniques. Development and discussion of modeling physiological systems. Prereq: PGY 522 or consent of instructor.

PGY 767 SEMINAR IN PHYSIOLOGICAL PSYCHOLOGY. (3)
A study of selected topics in physiological psychology with emphasis on recent research and theory. May be repeated to a maximum of nine credit hours. This course may be elected to fulfill requirements in the psychology and physiology graduate programs. Prereq: Consent of instructor. (Same as PSY 767.)

PGY 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

PGY 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

PGY 771 PROSEMINAR IN CELL PHYSIOLOGY AND BIOPHYSICS. (2)
A comprehensive discussion of topics in cellular physiology and biophysics using advanced texts and readings in the original literature. Includes such topics as biological membranes, transport mechanisms, effects of hormones on membrances. Prereq: Graduate student in physiology and biophysics or consent of Director of Graduate Study.

PGY 772 PROSEMINAR IN MAMMALIAN PHYSIOLOGY. (2)
A comprehensive discussion of topics in mammalian physiology using advanced texts and readings in the original literature. Includes such topics as reproduction electrophysiology, cardio-vascular dynamics, temperature regulation and behavioral physiology. Prereq: Graduate students in physiology and biophysics or consent of director of Graduate Studies.

PGY 774 GRADUATE SEMINAR IN PHYSIOLOGY. (1)

PGY 791 RESEARCH IN PHYSIOLOGY. (1-15)
Prereq: Permission of instructor.

PGY 810 PRINCIPLES OF HUMAN PHYSIOLOGY. (5)
A basic course in human physiology including the function and regulation of the major body systems. Prereq: One year, inorganic chemistry; one semester, college anatomy or one year, college biology. (Same as CNU 502.)

PGY 812 PRINCIPLES OF HUMAN PHYSIOLOGY LECTURES. (4)
A basic course in human physiology including the function and regulation of the major body systems. Prereq: One year, inorganic

chemistry; one semester, college anatomy or one year, college biology.

PLANNING

PLA 510 INTRODUCTION TO PLANNING. (3)
History and analysis of traditional professional practice, as well as newly-emerging roles for the planner: Development of the concept of comprehensive planning. Historical antecedents of urban and regional planning: the Colonial Period and the 19th Century. Development of the modern planning movement in the U.S.; 1893-1929. Comparisons with planning in Western Europe. Local planning: organization and activities. State planning: organization and activities. The Federal role in planning. Planning for transportation, urban renewal, and new towns. Advocacy and social policies planning. Implementation and policy.

PLA 601 PLANNING PROBLEMS WORKSHOP. (3-6)
The course will be open to graduate students from other professional departments and schools in order to encourage a multi-disciplinary problem-solving approach: Selection of a relatively simple development problem at the local, regional, or state level. Analysis and statement of the problem framework. Development, testing and evaluation of alternative plans and policies. Preparation of reports. Prereq: Courses equivalent to CS 200 or STA 370.

PLA 602 ADVANCED PLANNING PROBLEMS WORKSHOP. (3-6)
Similar to PLA 601: Selection of a relatively complex development at the local, regional, or state level. Analysis and statement of the problem framework. Development, testing, and evaluation of alternative plans and policies. Preparation of report. Prereq: PLA 601.

PLA 610 SEMINAR IN URBAN STRUCTURE AND PROCESS. (3)
Analysis of basic economics, sociological, and political concepts of form and development of urban areas: Urban form and change: theories of land use patterns. Urban families and social behavior: class and ethnicity. The urban economy: market structure and firm behavior. The American city in the Development of National policy: urban planning and policy-making.

PLA 611 THEORIES OF THE PLANNING PROCESS. (3)
Study of decision-making theories as they apply to the problems of coordination and comprehensive planning: Procedural and substantive theories of planning. The nature of the public interest. Rationality, decision models, and problems of evaluation. Theories of personality. Theories of culture and social interaction. Toward a theory of comprehensive planning. Relationship of science and professional practice.

PLA 613 URBAN AND REGIONAL LAND POLICIES. (3)
Study of the interplay of technological, legal and market factors producing land use patterns: Land use, and land use information. Land market theory. Technology and land use change. Public intervention: land use policies in state and local levels. The neighborhood, planned unit development, and new towns. Open space. The Federal role in influencing land use policies.

PLA 621 METHODS AND TECHNIQUES OF PLANNING ANALYSIS. (3)
A broad survey of methods of planning analysis and forecasting, sources and problems of data collection. Mathematical techniques of estimating quantitative and spatial characteristics of the urban economics base and intersector economics transactions, transportation flaws. Housing needs and demand, public and social service requirements, and commercial service demand. Stimulation of urban land use changes. Prereq: SOC 501, CS 220, and a course in statistics.

PLA 799 SPECIAL STUDIES IN PLANNING. (1-6)
Analysis of special topics and problems. May be repeated.

PLANT PATHOLOGY

PPA 410 FOREST PATHOLOGY. (3)
Symptomatology, epidemiology, host-pathogen relation and control of selected diseases of forest trees. Two lecture hours; two lab hours. Prereq: BIO 106 and 107, BIO 200 and 201 or BOT 303. Same as FOR 410.

PPA 541 PLANT PATHOLOGY. (3)
Significance, nature, causes, and methods of control of plant diseases. Lecture and discussion, two hours; laboratory, two hours. Prereq: One semester of botany or equivalent. (Same as BOT 541.)

PPA 543 DISEASES OF PLANTS. (3)
Symptoms, causes, and control of some of the more common representative plant diseases. Students may select disease problems in their major field of interest. Recitation, one hour; laboratory, four hours. Prereq: PPA 541 or BOT 541; consent of instructor.

PPA 545 EPIDEMIOLOGY AND CONTROL OF PLANT DISEASES. (3)
Principles and practices in epidemiology and control of plant diseases by biological and chemical means. Prereq: PPA 541 or BOT 541.

PPA 558 NEMATODE DISEASES OF PLANTS. (3)
Importance, effects, recognition and control of nematodes that cause diseases of plants of major economic value. Lecture, two hours: laboratory, two hours. Prereq: BIO 101 or BIO 106 or consent of instructor. Offered spring of odd-numbered years.

PPA 652 PLANT PATHOGENIC FUNGI. (3)
An advanced study of plant pathogenic fungi with emphasis on diagnosis and identification of fungus plant diseases and innoculation and infection of plants. Two class hours per week; laboratory, three hours. Prereq: PPA 541 or BOT 541 or consent of instructor.

PPA 656 VIRUS DISEASES OF PLANTS. (4)
Characteristics and properties of viruses that cause plant diseases; host-virus relationships; identification and control of some important virus diseases; consideration of research methods. Lecture and discussion, two hours; laboratory, four hours. Prereq: PPA 541 or BOT 541, or consent of instructor.

PPA 660 PHYSIOLOGY OF PLANT DISEASES. (3)
Lectures, discussions, and independent reading on biochemical and physiological aspects of plant disease and of disease resistance and immunity in plants. Prereq: PPA 541 or BOT 541 and BCH 511 or BOT 701.

PPA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

PPA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (IN BIOLOGICAL SCIENCES). (0)
May be repeated indefinitely. (1-12 credits equivalence.)

PPA 770 PLANT PATHOLOGY SEMINAR. (1)
Reports and discussion of problems and investigations of problems in plant pathology. May be repeated three times for a maximum of four credits.

PPA 784 SPECIAL PROBLEMS IN PLANT PATHOLOGY. (1-3)
May be repeated to a maximum of nine credits. Prereq: PPA 541 or BOT 541 or equivalent; consent of instructor.

PPA 794 RESEARCH IN PLANT PATHOLOGY. (1-4)
May be repeated for a maximum of 12 credits. Prereq: PPA 541 or BOT 541, or consent of instructor.

POLITICAL SCIENCE

Note: It is assumed that all prerequisites include, in addition to any specific course listed, the phrase "or equivalent," or "permission of the instructor."

PS 151 AMERICAN GOVERNMENT. (3)
A survey of national government in the United States, with emphasis on the Constitution, the structure of government, and politics.

PS 152 FUNCTIONS OF AMERICAN GOVERNMENT. (3)
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.

PS 200 INTRODUCTION TO POLITICAL ANALYSIS. (3)
Introduction to the basic knowledge of research methodology in political science; a review of methods of data collection; historical, quantitative and comparative techniques of analysis.

PS 201 INTRODUCTION TO POLITICAL BEHAVIOR. (3)
The study of behavior in a political context; its significance and antecedents; analysis of behavioral concepts used in political science, such as political roles, groups, power, systems, and decision making; relation of political behavior to democratic theory.

PS 249 INTRODUCTION TO COMPARATIVE POLITICS. (3)
This is a course designed to introduce students to the range of diversity currently encountered in political experience in familiar and unfamiliar settings. We shall explore varieties of political thought, alternative forms of political organization, and various modes of political change. A major course goal is to broaden the student's awareness of and deepen his exposure to the alternative ways politics is thought about and practices in the contemporary world. Prereq: Sophomore standing.

PS 250 COMPARATIVE POLITICS AND POLITICAL DEVELOPMENT. (3)
An introduction to the theories and concepts employed in comparative political studies. The course is designed to prepare undergraduate students for the more advanced courses in comparative politics and government.

PS 265 WORLD POLITICS. (3)
A study of the most significant problems of world politics, including the fundamental factors governing international relations, the techniques and instruments of power politics, and the conflicting interests in organizing world peace.

PS 280 STATE GOVERNMENT. (3)
A study of the forms and functions of government in operation in the states of the United States.

PS 290 IDEOLOGY, POLITICAL DOCTRINES AND CONTEMPORARY SOCIETY. (3)
A study of contemporary political ideas, social and political change, and their reciprocal relationship primarily in the advanced industrial societies. Ideology as a tool of both political action and analysis will be examined. Substantive discussion of political doctrines will deal with traditional and contemporary forms of liberalism, conservatism, socialism, anarchism and fascism, as well as current revolutionary movements and ideologies. Prereq: An introductory course in political science.

PS 310 INTERNSHIP IN GOVERNMENT. (3-6)
This course is designed for students who are participating in a state, local or federal internship program with which the Political Science Department is associated. The student must have approval of the Department to take the course and must provide the Department with a report or paper in his internship.

PS 390 SEMINAR IN POLITICAL SCIENCE. (3)
A topical seminar primarily for majors in political science and in related fields. May be repeated to a maximum of six credits. Prereq: A standing of 3.0 in the student's major department or consent of instructor.

PS 395 INDEPENDENT WORK. (3)
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.

PS 501 LATIN AMERICAN RELATIONS. (3)
The relations between the United States and the Latin American countries, with emphasis on the Monroe Doctrine and Pan-Americanism.

PS 505 MICRO-THEORY IN POLITICAL SCIENCE. (3)
Intermediate analysis in political theory at the micro level. Using the individual as the unit of analysis, this course will look intensively at theories of individual choice behavior in political settings (political psychology) and social choice behavior (political economy). Prereq: PS 201.

PS 520 GOVERNMENTS AND POLITICS OF SOUTH ASIA. (3)
A study of the political processes of India, Pakistan, and Ceylon.

PS 521 GOVERNMENT AND POLITICS OF SOUTHEAST ASIA. (3)
Study of the political processes, problems and behavior of the several states of the Southeast Asia with emphasis on their chief determinants. The different patterns of political development will be examined.

PS 530 THE CONDUCT OF AMERICAN FOREIGN RELATIONS. (3)
The formulation, conduct, and control of American foreign policy, basic principles, comparison with other countries. Prereq: PS 151.

PS 531 NATIONAL SECURITY POLICY. (3)
The organization and formulation of military policy; the theory and practice of deterrence; and the problems of disarmament and arms control. Prereq: PS 265.

PS 540 RURAL LOCAL GOVERNMENT. (3)
A study of the organization and functioning of units of local government, with primary emphasis on government in Kentucky counties.

PS 541 THE FOREIGN POLICY OF THE SOVIET UNION. (3)
A factual survey of the Soviet record in foreign affairs and an introduction to the guiding concepts and principal techniques of Soviet foreign policy; the role of Communist ideology. Prereq: PS 556 or consent of instructor.

PS 550 COMPARATIVE POLITICAL PARTIES. (3)
A comparative cross-national study of the organization and function of political parties within their historical, socio-economic, cultural and political contexts.

PS 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.

PS 552 MUNICIPAL GOVERNMENT. (3)
An introductory course in the study of the structure and functions of modern city governments with some attention to other forms of local government.

PS 553 URBAN GOVERNMENT AND POLITICS. (3)
An analysis of the formulation of public policy in small towns, middle-sized cities, and metropolitan areas. A theoretical model appropriate to all three settings will be formulated. The principal methods of studying community decision making will be evaluated.

PS 554 SURVEY OF SUB-SAHARAN POLITICS. (3)
A survey of Sub-Saharan government and politics intended to give the student broad knowledge about the setting of African politics, precolonial African political systems, the political legacies of major European colonial powers, and problems of political development.

PS 555 COMPARATIVE GOVERNMENT—PARLIAMENTARY DEMOCRACIES I. (3)
A study of the governments of Britain and selected Commonwealth countries.

PS 556 GOVERNMENT AND POLITICS OF THE SOVIET UNION. (3)
Analysis of political development in the Soviet Union with emphasis on party-government relations, Communist ideology, and major approaches to the study of Soviet politics.

PS 557 GOVERNMENT AND POLITICS IN SUB-SAHARAN 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.

PS 559 CONSTITUTIONAL POLITICS. (3)
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.

PS 561 CIVIL LIBERTIES. (3)
A study of the philosophy and development of civil liberties in the U.S. Major concentration on the interpretation of constitutional guarantees by the Supreme Court.

PS 563 THE AMERICAN JUDICIAL PROCESS. (3)
A study from the standpoint of the social sciences, of the judicial process at the state and national levels, dealing with the organization of courts, the making of judicial decisions, and the exercising of judicial power.

PS 565 COMPARATIVE GOVERNMENT—PARLIAMENTARY DEMOCRACIES II. (3)
A study of the political systems of selected continental European countries with special attention to France and Germany.

PS 566 INTERNATIONAL ORGANIZATION. (3)
A study of the evolution of international organizations in the 20th Century. Examination of the increasing size, complexity, and diversity of contemporary global and regional international organizations. The role of international organizations in future world order.

PS 568 THE GOVERNMENTS AND POLITICS OF EASTERN ASIA. (3)
A comparative analysis of the modern political experiences of China and Japan, exploring their responses to the West, the development of differing political elites in each country, and contemporary problems of the Chinese Communist and Japanese politics.

PS 569 LATIN AMERICAN GOVERNMENT AND POLITICS. (3)
A study of contemporary Latin American political institutions and of the dynamics of the Latin American political process.

PS 570 AMERICAN POLITICAL PARTIES. (3)
An analysis of pressure groups; organization, methods, and functions of political parties in the United States.

PS 571 EARLY POLITICAL THEORY. (3)
The history of political theory from classical Greece to the 17th

Century with emphasis on the relationships between political and cultural change and the development of Western political thought.

PS 572 MODERN POLITICAL THEORY. (3)
Political theory from the 17th Century to the present with emphasis on the development of contemporary ideologies, the impact of industrialism and modern science, and the relationships between modern democracy and dictatorship.

PS 573 PUBLIC OPINION. (3)
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.

PS 574 KENTUCKY GOVERNMENT AND CONSTITUTION. (3)
An intensive study of government and administration in Kentucky. The course is intended primarily for teachers of civics in the secondary schools, and for teachers of government in colleges.

PS 575 AMERICAN POLITICAL THOUGHT. (3)
Analysis of the development of American political thought especially as it relates to the role of government in the society.

PS 576 LEGISLATIVE PROCESS. (3)
A study of Congress and the state legislatures, covering the legislative power structure, the selection of legislators and the roles they play, decision making, and the relations of the legislative and executive branches.

PS 577 INTRODUCTION TO PUBLIC ADMINISTRATION. (3)
A study of theories of administration and organization, problems of line management and control, the principal staff and auxiliary functions and agencies, and the problem of administrative responsibilities under democratic government.

PS 578 PUBLIC PERSONNEL ADMINISTRATION. (3)
A study of the history of the merit system in public administration, recruitment, position classification, pay policies, employee relations and morale, tenure, promotion, transfer, and training in the public service; the role of the personnel officer.

PS 579 ADMINISTRATIVE AGENCIES AND PUBLIC POLICY. (3)
The course will present the development of budgetary techniques in the United States, the uses to which budgets are put and the roles of the budgetary process in budgetary politics in the functioning of government.

PS 580 THE BUDGETARY PROCESS. (3)
The course will present the development of budgetary techniques in the United States, the uses to which budgets are put and the roles of the budgetary process in budgetary politics in the functioning of government.

PS 610 COMPARATIVE POLITICS: THEORY AND METHOD. (3)
A study of the evolution and development of comparative government and politics within the discipline with particular emphasis upon the formulation, application, and limitations of the theories, taxonomies and conceptual frameworks employed in comparative research.

PS 630 PROSEMINAR IN NON-INSTITUTIONAL POLITICAL BEHAVIOR. (3)
Focuses on literature which has implications for most areas of political science research. Some major works in such fields as macro-politics, micro-politics, political socialization, biopolitics, political communications, and political games and coalitions will receive attention. It should be noted that these fields are neither mutually exclusive nor exhaustive of relevant concerns. Accordingly, there may be appropriate additions and deletions from time to time. Readings in a substantive field, such as voting behavior, are also examined as examples of the application of the above listed areas. Prereq: Consent of instructor.

PS 654 PROSEMINAR IN JUDICIAL PROCESS. (3)
A thorough survey of the recent literature in the judicial process, focusing particularly on judicial recruitment, the relationship of the judiciary to other power centers, and the decision-making process of judges.

PS 671 INTRODUCTION TO METHODS AND METHODOLOGY IN POLITICAL SCIENCE I. (3)
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.

PS 672 INTRODUCTION TO TECHNIQUES OF POLITICAL RESEARCH. (3)
Basic techniques of data collection, coding, and processing applicable to political research are introduced. Various statistical techniques of data analysis are discussed and applied to political data. Prereq: PS 671, familiarity with appropriate statistical methods and consent of instructor.

PS 674 PROSEMINAR IN THEORIES OF INTERNATIONAL POLITICS. (3)
A survey of the major theoretical approaches to the study of international systems and processes.

PS 680 PROSEMINAR IN POLITICAL INSTITUTIONS AND PROCESS. (3)
A thorough survey of recent literature on political institutions and the political process, including political parties and the legislative and executive process, at the national and sub-national levels.

PS 690 CONTEMPORARY POLITICAL THOUGHT: THEORETICAL FOUNDATIONS OF POLITICAL CONCEPTS AND ISSUES IN THE 20th CENTURY. (3)
An examination of the history and nature of political theory, its relationship to and role in contemporary political science. Attention will be given to fundamental concepts and problems such as ideology, development, and pluralism. Relationships of thought and action, knowledge and power, especially in advanced industrial societies, will be studied.

PS 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.

PS 752 PROBLEMS IN STATE AND LOCAL GOVERNMENT. (3)
An intensive study of the basic problems of state and local government. Special emphasis will be given to such current problems as are of fundamental importance. May be repeated once.

PS 757 SEMINAR IN COMPARATIVE DEMOCRATIC POLITICAL SYSTEMS. (3)
An analysis of democratic political systems with emphasis upon the comparative approach as a method of political analysis. Prereq: PS 555 or consent of instructor.

PS 758 SEMINAR IN SOVIET POLITICS, GOVERNMENT AND FOREIGN POLICY. (3)
Emphasis on methodology of various approaches to the study of the USSR, as well as substantive research. Subjects will alternate yearly between Soviet politics and Soviet foreign policy. Prereq: PS 556 and PS 541 or permission of instructor.

PS 759 SEMINAR IN AFRICAN POLITICAL SYSTEMS. (3)
The seminar will focus on dimensions of change in African political systems. Dimensions to be analyzed include ideology, economic development, socialization, authority, political recruitment and political party and interest group behavior.

PS 761 THE CONSTITUTION AND CIVIL RIGHTS. (3)
The American conception of civil rights as expounded by the Constitutional Fathers and as interpreted by the courts. The social, economic, and political aspects and implications of these rights.

PS 762 SEMINAR IN JUDICIAL POLICY MAKING. (3)
Formulation, development and implementation of Constitutional policy by the United States Supreme Court and other agencies. Primary focus on areas of contemporary importance (excluding Civil Rights). Cases and supporting materials. May be repeated once. Prereq: Permission of instructor.

PS 763 SEMINAR IN ADMINISTRATIVE POLITICS. (3)
The process by which administrative agencies establish and enforce policy are analyzed in terms of both legal and political considerations and behavioral theory. Prereq: Consent of instructor.

PS 764 RESEARCH IN JUDICIAL BEHAVIOR. (3)
Participant research on selected substantive inquiries about judicial behavior; in-depth examination of related theory, methods, and research strategies. Prereq: Permission of instructor.

PS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

PS 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

PS 770 SEMINAR IN CONTEMPORARY POLITICAL THEORY. (3)
An intensive study of contemporary political ideologies. May be repeated once to a maximum of six credits.

PS 772 ADVANCED PROBLEMS IN RESEARCH METHODS. (3)
A seminar in selected topics; the application of mathematical models and advanced statistical techniques to political science data. May be repeated once for a maximum of six credits.

PS 773 ASIAN POLITICAL THEORY. (3)
An examination of the major political thought patterns of ancient and contemporary Asia, with emphasis on India and China. Prereq: Consent of instructor.

PS 775 SEMINAR IN PUBLIC POLICY. (3)
A political analysis of the domestic policy process including the formation, implementation, and impact of policy.

PS 776 SEMINAR IN POLITICAL DEVELOPMENT. (3)
Study of the processes of political change; concepts; approaches; and methodology; problems of political development; research problems in studying political development. The geographical focus of this course will vary from time to time. May be repeated once for a maximum of six credits. Prereq: Permission of instructor.

PS 777 RESEARCH PROBLEMS IN INTERNATIONAL RELATIONS. (3)
This seminar focuses on research strategies that can be utilized in dealing with problems in international relations. May be repeated once with consent of instructor. Prereq: PS 674 or consent of instructor.

PS 778 SEMINAR IN COMPARATIVE FOREIGN POLICIES. (3)
Emphasis upon internal and external factors impinging upon decision making in the area of foreign policy. May be repeated once with consent of instructor.

PS 779 VOTING BEHAVIOR. (3)
A study of recent research in the field of voting behavior, including analysis of survey research techniques. Prereq: An undergraduate course in parties or public opinion or consent of instructor.

PS 780 LEGISLATIVE BEHAVIOR. (3)
A study of recent research in the legislative process emphasizing both the substantive and methodological aspects. Prereq: An upper division course in the legislative process or consent of instructor.

PS 784 SEMINAR IN POLITICAL SOCIALIZATION. (3)
A course in contemporary research in the acquisition of political orientations. The focus is on children. The objects, agents, and consequences of political socialization are analyzed, as well as the processes by which it may proceed. Some attention is given to research design appropriate to the area. Prereq: Graduate student status.

PS 785 PSYCHOLOGICAL BASES OF POLITICAL BEHAVIOR. (3)
The role of psychological constructs and theory in political explanation; measurement and inference problems; critical analysis of research concerned with such topics as the effect of psychological mechanisms on loyalty, quiescence, participation, political change and revolution. Prereq: PS 671 and PS 672 or consent of instructor.

PS 790 SPECIAL PROBLEMS IN PUBLIC ADMINISTRATION. (3)
A research course in selected problems of public administration. The problems will be chosen in accordance with the needs and desires of students registered for the course.

PS 791 THE ORGANIZATION AS A POLITICAL SYSTEM. (3)
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.

PS 795 SPECIAL PROBLEMS IN POLITICAL SCIENCE. (3)
May be repeated once to a maximum of six credits.

PROSTHODONTICS

PR 820 REMOVABLE PARTIAL PROSTHODONTICS. (2)
Stresses associated biologic and technical procedures of treatment in removable prosthodontics. Includes diagnosis, treatment planning, intermaxillary registration, occlusion for complete and removable partial dentures, and survey and design for removable partial dentures, work authorizations writing and the professional relations between dentist and dental laboratory technician.

PR 821 COMPLETE DENTURE PROSTHODONTICS. (4)
The biologic and mechanical factors involved in treatment with complete dentures are presented. Complete dentures are constructed for a mannequin.

PR 830 REMOVABLE PROSTHODONTICS II. (3)
The third-year course in removable prosthodontics continues emphasis on diagnosis, treatment planning, design principles, mouth preparation, and work authorization procedures. The course introduces internal attachment type removable partial dentures. The clinical and laboratory procedures involved in construction of immediate dentures, relining of dentures, repairs, and use of tissue conditioning material are presented. The student correlates the mechanical, biologic, and basic science information in his over-all clinical care of patients who are in need of oral prosthetic restorations. Prereq: PR 820.

PR 840 CLINICAL REMOVABLE PROSTHODONTICS. (3)
This is a clinical course in which the students receive continued instruction in both complete and removable partial denture prosthodontics during the treatment of patients. Prereq: PR 830.

PSYCHIATRY

PSC 821 PSYCHOPATHOLOGY OF BEHAVIOR. (3)
This is the basic course in clinical psychiatry for medical students. It covers information necessary for successful and profitable work in the third-year psychiatric clerkship as well as in the various clinical electives and fellowships offered by the Department. PSY 821 and other required courses form a unit of study and clinical work designed to facilitate the use of psychiatric concepts in the practice of medicine and surgery and to encourage interested students toward advanced study in the field. Major sections of the course cover psychiatric signs and symptoms, psychiatric syndromes in children and adults, casual factors in mental disturbances, theories of psychiatric treatment. Briefer units deal with such topics as research methods, preventive psychiatry, forensic psychiatry, and the application of psychiatric knowledge in medical and surgical practice. The course employs discussions and demonstrations to supplement lecture material wherever possible. Students also gain clinical experience by interviewing and evaluating selected psychiatric patients under supervision. Prereq: Open only to medical students or with consent of the instructor.

PSC 831 PSYCIATRIC CLERKSHIP. (7)
This is a five-week period of psychiatric experience at which time the students are responsible under supervision for the diagnostic appraisal of the patient through interview of the patient, appropriate relatives, and other indicated methods. In this clerkship, the students (a) see that psychiatric patients may be hospitalized, successfully treated and leave the hospital to return to their community. Thus, a student has the chance for developing an understanding of a psycho-therapeutic milieu, somatic and pharmacological methods of treatment, the limitations of these various methods, and a comprehension of when such treatments are indicated; (b) (by selective assignment) see a range and variety of psychiatric patients and observe the impact of hospitalization for psychiatric reasons on a patient and his family; (c) see the problems and resistances by patient, and family, that may arise in the activation of a therapeutic psychiatric regime; and (d) observe the response of his patient and the adjustment needs and experiences of the patient in the transition from hospital to his family, the community, his social group, and referring physician. In addition to the inpatient experience, students are required to evaluate psychiatric conditions in the Outpatient Department, to carry one or more patients in psychotherapy in the Outpatient Department, attend and help conduct consultations throughout the hospital and in the emergency room, and assist with crisis intervention in the Outpatient Clinic. Prereq: Admission to third year, College of Medicine.

PSYCHOLOGY

PSY 102 APPLIED PSYCHOLOGY. (3)
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.

PSY 104 BASIC PSYCHOLOGY I. (3)
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; laboratory, two hours. This course is prerequisite to a significant number of courses in this and related areas of study.

PSY 106 BASIC PSYCHOLOGY II. (3)
A continuation of PSY 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; laboratory two hours. Prereq: PSY 104. This course is prerequisite to a significant number of courses in this and related areas of study.

PSY 200 PSYCHOLOGY OF THE CHILD. (3)
An introduction to the scientific study of infancy, childhood, and adolescence. Prereq: PSY 104 and 106, or 210. (Same as HF 254.)

PSY 201 INDIVIDUAL DIFFERENCES. (3)
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.

PSY 210 GENERAL PSYCHOLOGY. (3)
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. This course is prerequisite to a significant number of courses in this and related areas of study.

PSY 330 EXPERIMENTAL PSYCHOLOGY. (4)
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. Three lecture, two laboratory hours. Prereq: PSY 104 and 106 or PSY 210.

PSY 336 APPLICATIONS OF STATISTICS IN PSYCHOLOGY. (3)
An introduction to statistical procedures used in making decisions based on psychological data. Not available for credit to students who have had a previous statistics course. Prereq: PSY 104 and 106, or 210.

PSY 350 INTRODUCTION TO HUMANISTIC PSYCHOLOGY. (3)
A study of the various psychological views of human experience and behavior with particular attention given to the psychology of: intentionality, human values, authenticity, autonomy, creativity, spontaneity, and transcendental experiences. Prereq: PSY 104 and 106 or PSY 210.

PSY 395 INDEPENDENT WORK IN PSYCHOLOGY. (3)
Designed for advanced students who undertake minor research problems to be conducted in regular consultation with the instructor. Prereq: Major in the Department with a standing of 3.0 in psychology courses. May be repeated to a maximum of 12 credits.

PSY 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.)

PSY 501 PERSONALITY. (3)
An examination of several prominent personality theories in terms of the contexts in which they were originated, their influence upon contemporary psychological thought, and their present applications. Prereq: PSY 104 and 106, or PSY 210; permission of instructor required for graduate students.

PSY 505 HUMAN SENSES AND PERCEPTION. (4)
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.

PSY 507 PSYCHOLOGY OF LEARNING. (4)
Fundamental principles and findings from laboratory investigations of classical, instrumental, and verbal learning. Prereq: PSY 104 and 106, or 210 and 336, or equivalent.

PSY 509 ANIMAL BEHAVIOR. (4)
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.

PSY 511 EXPERIMENTAL CHILD STUDY. (3)
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.

PSY 512 PHYSIOLOGICAL PSYCHOLOGY. (3)
An intensive study of physiological bases of behavior. Principal concerns are the chemical and neural substrates of processes such as sensation, perception, learning, memory, and behavior disorders. Prereq: PSY 336 or equivalent, and PSY 330.

PSY 518 MENTAL HYGIENE. (3)
A general orientation to the subject of mental hygiene, its historical development, its scope and relation to various sciences. The individual and cultural determinants of behavior will be discussed. Prereq: PSY 104 and 106, or 210, or EDP 202. Not open to students who have had CH 520. (Same as EDP 518.)

PSY 521 ABNORMAL PSYCHOLOGY. (3)
A study of the major mental disorders, especially the psychoneuroses and the psychoses, and the biological, psychological, and sociological factors which contribute to their causation. Prereq: PSY 104 and 106, 210.

PSY 522 COUNSELING PSYCHOLOGY. (3)
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.

PSY 530 BIOLOGY OF MOTIVATION. (2)
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.

PSY 531 GENETIC PSYCHOLOGY. (3)
Influences 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.

PSY 535 PSYCHOLOGICAL TESTING. (3)
A general orientation to the field of psychological testing. Introduction to the principles and methods of psychological testing, and a survey of the various kinds of psychological tests. Prereq: PSY 104 and 106, or 210, and 201.

PSY 540 INTRODUCTION TO INDUSTRIAL PSYCHOLOGY. (3)
Review of the functions and findings of psychology applicable to business and industry. Topics covered are: employment procedures, personnel testing, attitude analysis, motivation, and morale. Prereq: PSY 104 and 106, or 210.

PSY 541 PSYCHOLOGY OF INDUSTRIAL PERSONNEL PROCEDURE. (3)
A practical course for those preparing for personnel administration and for psychology in industry and business. A study is made of the theory and methods of position classification, job analysis, job evaluation, merit rating, supervisor selection and training, and collective bargaining. Prereq: PSY 104 and 106, or 210.

PSY 543 INTERPERSONAL DYNAMICS. (3)
A systematic analysis of interpersonal behavior in a group setting. Particular emphasis on experiential methods of applying theoretical and research findings to interpersonal group development and process. Prereq: Introductory psychology and permission of instructor.

PSY 544 SOCIAL PSYCHOLOGY. (3)
Theoretical and empirical analysis of individual behavior in the social setting with particular emphasis on social learning, motivation, and the measurement, formation, and changing of social attitudes. Prereq: PSY 104 and 106, or 210; SOC 101. (Same as SOC 544.)

PSY 545 SMALL GROUP BEHAVIOR. (3)
Detailed theoretical and empirical analysis of small groups. The course systematically covers properties of groups and how these properties have been manipulated experimentally. Prereq: PSY 104 and 106, or 210, and one introductory course in sociology.

PSY 546 APPLIED SOCIAL PSYCHOLOGY. (3)
Stresses the application of social psychological knowledge both theoretical and empirical, to relevant contemporary social issues. Coverage will include application to such diverse topics as: the environment, education, mental illness, drugs, riots, poverty, and international relations. Prereq: PSY 544.

PSY 570 HUMAN LEARNING AND PROBLEM SOLVING. (3)
A broad coverage of basic and applied research in human learning, problem solving, creativity, and language. Classroom and field experience utilized. Prereq: PSY 104 and 106, or 210.

PSY 575 PSYCHOLINGUISTICS. (3)
Study of the acquisition, production and perception of language, with attention to the phonological syntactical and semantic components. Relevance of various linguistics theories and adequacy of experimental methods will be critically examined. Prereq: PSY 210 and a course in linguistics; or permission of instructor.

PSY 579 STUTTERING. (3)
The nature, causes and treatment of stuttering, with emphasis on therapeutic procedures. Prereq: EDS 577. (Same as EDS 579.)

PSY 601 THEORIES OF LEARNING. (3)
A systematic presentation and critical analysis of the major theories of learning. Prereq: PSY 505, 507 or equivalent and 600.

PSY 602 THEORIES OF PERSONALITY. (3)
An examination of current theories of personality. The relation of these theories to psychological research will be examined. Prereq: PSY 505, 507 or equivalent, and 600.

PSY 603 PSYCHOPATHOLOGY. (3)
An examination of the descriptive, theoretical, and research material relevant to the major classes of disturbed behavior. Special attention is devoted to the stylistic features of neurotic and psychotic communication and behavior. Prereq: Enrollment in the graduate program in psychology.

PSY 610 PSYCHOMETRICS. (3)
Analysis and interpretation of human measurements. The course deals with the computation and interpretation of simple, partial, and multiple correlations, regression equations, and reliability of measures. Prereq: A course in statistics.

PSY 611 PSYCHOLOGICAL RESEARCH. (3)
A study of the application of experimental methods in the major areas of psychology, including sensation and perception, learning, motivation, emotion, and personality. The design of research studies will be emphasized. Prereq: PSY 610.

PSY 616 RESEARCH DESIGN IN CLINICAL PSYCHOLOGY. (3)
Concentrates on current methodologies utilized in clinical research and on the application of sophisticated techniques to traditional research problems. Students are expected to master critical skills for the evaluation of research designs and are encouraged to explore creative approaches to research in important clinical areas. Prereq: Admission to graduate program.

PSY 617 EXPERIMENTAL APPROACHES TO PERSONALITY. (3)
A critical evaluation of experimental studies in selected areas in personality. Each student is required to design and conduct an empirical investigation of a specific problem. Two hours lecture, three hours laboratory per week. Prereq: Completion of one year of graduate program in psychology or permission of instructor.

PSY 618 EXPERIMENTAL APPROACHES TO PSYCHOPATHOLOGY. (3)
A critical evaluation of experimental studies in selected areas of psychopathology. Each student is required to design and conduct an empirical investigation of a specific problem. Two class hours, three laboratory hours. Prereq: Completion of one year of graduate program in psychology, or permission of instructor.

PSY 620 PROSEMINAR IN SYSTEMATIC PSYCHOLOGY. (2)
An examination of some works of important theorists in psychology of the last 40 years. Prereq: PSY 507 or equivalent.

PSY 621 PROSEMINAR IN LEARNING. (2)
An intensive treatment of concepts, methodology, and current developments in the field of learning. Prereq: PSY 507 or equivalent.

PSY 622 PROSEMINAR IN PERSONALITY. (2)
An intensive treatment of theories, methods of investigation and current developments in the area of personality. Prereq: PSY 501 or its equivalent.

PSY 623 PROSEMINAR IN SENSATION AND PERCEPTION. (2)
An intensive examination of the facts, methods and concepts involved in the study of sensory and perceptual processes. Prereq: Consent of instructor.

PSY 624 PROSEMINAR IN SOCIAL PSYCHOLOGY. (2)
An intensive examination of the methods and data of social psychology with emphasis on social attitudes. Prereq: PSY 544 or its equivalent.

PSY 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.

PSY 627 PROSEMINAR IN PHYSIOLOGICAL PSYCHOLOGY. (2)
An intensive examination of theories, methods of investigation, and current developments in the field of physiological psychology. Prereq: Graduate student or permission of instructor. (Same as PGY 627.)

PSY 628 PROSEMINAR IN HUMAN LEARNING AND THINKING. (2)
An intensive examination of basic and applied research and theory in human verbal learning, concept learning, problem solving, and language. Prereq: PSY 570 or permission of instructor.

PSY 629 INTRODUCTION TO CLINICAL PSYCHOLOGY. (1)
Offered conjointly by the clinical faculty; covers the broad perspectives of clinical psychology, methods, history, ethics, and professional issues. Prereq: Enrollment in the graduate program in psychology.

PSY 630 CLINICAL METHODOLOGY I. (2)
An intensive survey and evaluation of tests of intelligence and objective methods of assessment of normal and abnormal personality. Special emphasis is given to major theoretical issues and relevant quantitative methods. Prereq: PSY 336, 501, 521, 535, or equivalent, and enrollment in graduate program in psychology.

PSY 631 PRACTICUM IN CLINICAL METHODOLOGY I. (2)
Clinical interviewing and practice in writing reports on behavioral observations, content of verbalization, and case history data. Practice in administration, scoring and interpretation of intelligence tests and objective personality tests. 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 prerequisite or concur.

PSY 632 CLINICAL METHODOLOGY II. (2)
Theoretical issues, quantitative methods and research findings on the projective methods of assessment of normal and abnormal personality. Prereq: PSY 630, and enrollment in graduate program in psychology.

PSY 633 PRACTICUM IN CLINICAL METHODOLOGY II. (2)
Practice in the administration and scoring of projective techniques and batteries of clinical tests. Four hours of laboratory per week. Prereq: PSY 630 and 631, and enrollment in graduate program in psychology. PSY 632 to be taken as prerequisite or concur.

PSY 634 PRACTICUM IN CLINICAL PSYCHOLOGY III. (3)
Administration, scoring, and interpretation of projective techniques and personality inventories, individually administered. Nine hours laboratory per week. Prereq: PSY 632 and 633, and enrollment in graduate program in clinical psychology.

PSY 635 PRACTICUM IN CLINICAL PSYCHOLOGY IV. (3)
Administration, scoring, and interpretation of batteries of clinical tests, with emphasis on organization of all relevant behavioral and test data, and professional report writing. Students will be assigned to local clinical installations. Nine hours laboratory per week. Prereq: PSY 634, and enrollment in graduate program in clinical psychology.

PSY 636 SYSTEMS OF PSYCHOTHERAPY. (3)
An intensive examination of the major theoretical and research approaches to therapeutic behavior change. Prereq: PSY 632 and 633, and enrollment in graduate program in clinical psychology.

PSY 637 PRACTICUM IN PSYCHOTHERAPY AND BEHAVIOR CHANGE. (1-3)
Supervised experience in the techniques of psychotherapy with adults, children and groups, and in community mental health approaches. Laboratory, two to six hours. Each clinical student must have a cumulative minimum of three different supervisors. May be repeated to a maximum of six credits. Prereq: PSY 636 and enrollment in graduate program in clinical psychology.

PSY 638 CLINICAL CHILD PSYCHOLOGY. (3)
Theory and research relevant to behavior problems of children; supervised experience in the diagnosis and therapy of children. Two hours lecture, two hours laboratory per week. Prereq: PSY 636 and 637 and enrollment in graduate program in clinical psychology.

PSY 640 PRACTICE IN TESTING: INTELLIGENCE TESTS. (4)
This course provides theoretical material and advanced laboratory practice in the measurement of intelligence by individual techniques. Lecture, three hours; laboratory, two hours. Prereq: PSY 535 or EDP 653 or equivalent and consent of instructor. (Same as EDP 640.)

PSY 641 PSYCHOLOGICAL MEASURING INSTRUMENTS. (3)
A study in some depth of the principal objective tests of personality and vocational interests and values, and a survey of group tests of aptitudes and achievement. Practice in administering and interpreting tests and writing reports. Prereq: One course in statistics, one course in testing (such as EDP 522 or PSY 535) or consent of instructor. (Same as EDP 641.)

PSY 647 DISORDERS OF LANGUAGE. (3)
Emphasis on adult aphasia and developmental language disabilities, theories, research findings, assessment procedures, and therapy approaches. (Same as EDS 647.)

PSY 650 DIAGNOSIS AND COUNSELING IN COUNSELING PSYCHOLOGY. (3)
An advanced course in diagnosis and application of theories, techniques and tools in counseling psychology. Prereq: A graduate major in psychology or educational psychology and counseling and consent of instructor. (Same as EDP 650.)

PSY 663 PRACTICUM IN INDUSTRIAL PSYCHOLOGY. (3)
Nine hours of supervised work each week. May be repeated to a maximum of 12 credits.

PSY 700 SEMINAR IN BEHAVIOR MODIFICATION. (3)
Considers the general behavioristic orientation, history, theoretical foundations, research investigations and case study material related to clinical approaches to behavior modification. Prereq: Enrollment in the graduate program in clinical psychology and consent of instructor.

PSY 701 SEMINAR IN CLINICAL CHILD PSYCHOLOGY. (3)
Theory and research relevant to behavior problems of children. Prereq: Enrollment in graduate program and consent of instructor.

PSY 702 SEMINAR IN COMMUNITY MENTAL HEALTH. (3)
Considers psychological intervention and the application of psychological principles to community problems in terms of problem definition, program development, program funding, assessment and evaluation. Emphasis is on the application of research findings to community problems in ways which permit adequate evaluation of program's effectiveness. Prereq: Enrollment in the graduate program and consent of instructor.

PSY 703 SEMINAR IN GROUP THERAPY. (3)
An examination of the major theoretical and research approaches to individual behavior change within a group. Prereq: Enrollment in the graduate program in clinical psychology and consent of the instructor.

PSY 704 SEMINAR IN HYPNOSIS. (3)
A survey of the facts, theories, and therapeutic applications of hypnosis. Prereq: Enrollment in the graduate program in clinical psychology and consent of the instructor.

PSY 705 RESEARCH IN PSYCHOTHERAPY AND BEHAVIOR CHANGE. (3)
A critical examination of experimental studies in selected areas of psychotherapy and behavior change. Prereq: Enrollment in the graduate program in clinical psychology and consent of the instructor.

PSY 710 SEMINAR IN CLINICAL PSYCHOLOGY. (3)
A selected topics course designed to cover content areas which are not being met by the current faculty; may be taught by persons with special qualifications from the community or by existing faculty exploring new areas. The topics, which may be offered as the need arises, may include on a semester basis, mental retardation, intensive psychoanalytic theory, psychopharmacology, etc. Prereq: Enrollment in graduate program and consent of instructor.

PSY 761 INTERPERSONAL PROCESSES IN CRITICAL SITUATIONS. (3)
A review of the processes underlying the matter in which people react to situations involving potentially serious consequences for themselves and others. The evidence to be reviewed will come from studies of: reactions in disaster situations; laboratory studies of stress; patterned responses to victims of physical and social pathology. Prereq: PSY 544 and introductory statistics. Same as BSC 761.

PSY 767 SEMINAR IN PHYSIOLOGICAL PSYCHOLOGY. (3)
A study of selected topics in physiological psychology with emphasis on recent research and theory. May be repeated to a maximum of nine credit hours. (Same as PGY 767.) Prereq: Consent of instructor. This course may be elected to fulfill requirements in the psychology and physiology graduate programs.

PSY 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1 to 6 credits equivalence.)

PSY 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1 to 12 credits equivalence.)

PSY 770 SEMINAR IN PSYCHOLOGY I. (0)
One two-hour discussion each week of some current systematic concepts and of research underway by graduate students and members of the staff. May be repeated indefinitely.

PSY 771 SEMINAR IN PSYCHOLOGY II. (0)
One two-hour discussion each week of some current systematic concepts and of research underway by a graduate student or staff member. For Ph.D. candidates. May be repeated indefinitely.

PSY 772 SEMINAR IN LEARNING. (3)
The study of selected topics in the learning area with emphasis on the recent experimental and theoretical literature. May be repeated to a maximum of six credits. Prereq: PSY 507 and consent of instructor.

PSY 774 SEMINAR IN VERBAL BEHAVIOR. (3)
The study of selected topics in the area of verbal behavior with emphasis on recent research and theory. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

PSY 775 ADVANCED SEMINAR IN PERCEPTION. (3)
A study of the major theoretical approaches to perception and an examination of critical experiments and well established phenomena in the field of perception from the vantage point of these theories. Prereq: PSY 623 or equivalent.

PSY 776 SEMINAR IN ANIMAL MOTIVATION. (3)
A variety of topics in motivation and unlearned behavioral determinants in 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.

PSY 777 SEMINAR IN MATHEMATICAL PSYCHOLOGY. (3)
Topics in psychology which are receiving detailed mathematical analysis. Examples are mathematical learning theory, decision and judgment processes, advanced application of probability and statistics in psychological theory. Prereq: PSY 610.

PSY 778 SEMINAR IN 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.

PSY 779 SEMINAR IN SOCIAL PSYCHOLOGY. (3)
Each semester some topic in the field of social psychology, such as attitudes and beliefs, structure and function of social groups, social determinants of behavior, leadership, and morale will be studied intensively. May be repeated to a maximum of six credits. Prereq: PSY 544; SOC 101. (Same as SOC 779.)

PSY 780 PROBLEMS IN PSYCHOLOGY. (2)
Shorter research problems are registered under this number. A minimum of six hours a week is required in consultation with the instructor. May be repeated to a maximum of 12 credits.

PSY 781 RESEARCH PARTICIPATION. (1)
Emphasis on the team approach to research. Designed primarily for first year graduate students, but may be repeated to a maximum of four credits. Laboratory, two to four hours per week. Prereq: Enrollment in the graduate program in psychology.

PSY 790 RESEARCH IN PSYCHOLOGY. (3)
Research or thesis work may be registered under this number. A minimum of nine hours a week is required on research conducted in consultation with the instructor. May be repeated to a maximum of 12 hours.

RADIATION MEDICINE

RM 472 INTERACTION OF RADIATION WITH MATTER. (3)
Sources of radiation; penetration of charged particles, electromagnetic radiation, and neutrons through matter; excitation and ionization processes; radiation detection and spectroscopy; dosimetry of ionizing radiations. Prereq: PHY 260. Same as PHY 472.

RM 540 GENERAL RADIATION BIOLOGY. (4)
A basic course devoted to a study of radiation techniques and research and their application in the various fields of biology. Lectures devoted to basic background and health hazard aspects followed by more comprehensive treatment of biological aspects. Laboratory devoted to use of radioisotopes and techniques of their measurement using various radiation detectors and counters. Lectures, two hours per week; laboratory, four hours. Prereq: Two

years of biological sciences, one year of chemistry, and consent of instructor. (Same as ZOO 540.)

RM 545 RADIATION HAZARDS AND PROTECTION. (2)
An analysis of common radiation hazards encountered in medicine and research, regulations for safe usage of radiation, and procedure for safe use of radiation. One class hour per week, two laboratory hours. Prereq: College physics; one year biology.

RM 546 GENERAL MEDICAL RADIOLOGICAL PHYSICS. (2)
Following a mathematics and physics review, the nature, origin, uses and dosimetric aspects of radiation will be discussed. Application in the fields of diagnostic radiology, therapeutic radiology and nuclear medicine will be emphasized. Prereq: PHY 260 or consent of instructor. (Same as PHY 546.)

RM 547 MEDICAL RADIATION IMAGING—I, PHYSICAL ASPECTS OF DIAGNOSTIC RADIOLOGY. (2)
Medical radiation and the generation of information; x-ray circuits and operation of the x-ray apparatus; the radiological image and the retrieval of information; x-ray image intensification; image intensifiers; fluoroscopy; cinefluorography; special procedures and patient dosimetry. Prereq: PHY 260, or RM 546 or consent of instructor. (Same as PHY 547.)

RM 548 THE PHYSICS OF RADIATION THERAPY. (2)
The terminology and advanced methods of treating various diseases using beam devices such as x-rays, Co-60, and linear accelerators as well as brachytherapy (interstitial and intracavitary implantation of radioactive sources). Emphasis will be placed upon treatment planning including dose calculation and methods of optimizing tumor to healthy tissue dosage by both hand and computer methods. Prereq: PHY 260 or RM 546 or consent of instructor. (Same as PHY 548.)

RM 640 BIOLOGICAL EFFECTS OF RADIATION. (3)
A consideration of the action of ionizing radiation and ultraviolet light at progressively higher levels of organization. Recent experiments and current theoretical concepts will be emphasized. Prereq: ZOO 540, 541, or two years of chemistry, physics and biological sciences and consent of instructor. (Same as ZOO 640.)

RM/HRS 710 SEMINAR IN BIORADIATION SCIENCES. (1)
Topics of current interest relating to radiation and its biomedical significance will be discusses. Prereq: Graduate standing in radiation-related science.

RM 740 MAMMALIAN RADIATION BIOLOGY. (2)
The physical and biological sequelae of radiation effects will be discussed emphasizing human and mammalian responses and radiation health. Emphasis will be for health and medical workers. (Same as BIO 740.) Prereq: Must have consent of instructor; ZOO/RM 540 or RM 546 or equivalent background.

RM 831 RADIATION MEDICINE CLERKSHIP. (2)
This course is designed for recognition of various forms of malignancy; use of radiation in treatment of malignant disease; use of radioactive isotopes in diagnosis and treatment in medicine. Prereq: Admission to the third year, College of Medicine.

RESTORATIVE DENTISTRY

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.

RSD 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, intermediate restorative material, 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.

RSD 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 their relationship to the patient's biological needs are included. Inlay preparations and restorations are done on mannequins and extracted teeth and patients. Knowledge gained in dental morphology, occlusion, and dental physical sciences is applied in this course; limited experience with patients.

RSD 820 FIXED ANTERIOR AND POSTERIOR PROSTHODONTICS. (5)
Continuation of the first-year course, RSD 810. The course builds upon the technical skills and understandings gained in the first-year course.

RSD 830 RESTORATIVE DENTISTRY (CLINICAL I). (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.

RSD 840 RESTORATIVE DENTISTRY (CLINICAL II). (7)
Advanced principles in restorative dentistry are emphasized in this course. The students performs 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. Faculty are readily available for consultation about topics which students feel need clarification.

SLAVIC AND ORIENTAL LANGUAGES AND LITERATURES

RUSSIAN

SO 011 RUSSIAN FOR SCIENTISTS. (0)
Designed for graduate students who wish to acquire a reading knowledge of scientific Russian in order to fulfill the foreign language requirement for an advanced degree. Three class hours per week.

SO 101 ELEMENTARY RUSSIAN. (3)
The students are introduced to the language through oral practice. Subsequently, writing and the elements of grammar are gradually introduced. The emphasis is on the spoken language of everyday use, reading of graded Russian, texts, vocabulary building and accurate prounounciation. Extensive work with tape recordings.

SO 102 ELEMENTARY RUSSIAN. (3)
A continuation of SO 161. Prereq: SO 161 or the equivalent.

SO 150 READING RUSSIAN FOR TECHNICAL PURPOSES. (3)
An introduction to Russian grammar and syntax with the objective of equipping the student to read Russian for technical and other practical purposes. No prerequisite. Cannot be used for the satisfaction of any language requirement.

SO 151 READING RUSSIAN FOR TECHNICAL PURPOSES. (3)
A continuation of SO 150. In addition to some general grammar study the readings and exercises selected will complement the disciplines of as many different students as possible. Cannot be used for the satisfaction of any language requirement. Prereq: SO 150.

SO 201 INTERMEDIATE RUSSIAN. (3)
Systematic study of grammar. Introduction through simplified texts to the life and culture of Tsarist and Soviet Russia. Dictation, composition, conversation, and extensive work with tape recordings. Prereq: SO 162 or the equivalent. (Required.)

SO 202 INTERMEDIATE RUSSIAN. (3)
A continuation of SO 261. Prereq: SO 261 Or equivalent. (Required.)

SO 261 SURVEY OF RUSSIAN LITERATURE FROM ITS BEGINNING THROUGH THE 19TH CENTURY (in English). (3)
Development of Russian literature from its beginning through the end of the 19th Century. The literary development from the Ninth Century to the end of the 18th Century will be traced. Emphasis will be on the great masters of the 19th Century: Pushkin, Lermontov, Gogol, Goncharov, Turgenev, Tolstoy, Dostoevsky and Chekkov. No knowledge of Russian is required.

SO 264 RUSSIAN LITERATURE OF THE 20TH CENTURY (in English). (3)
Major literary trends since 1880 in Russian drama and fiction, with special emphasis on Chekhov and 20th Century writers: Gorky, Alexei, Tolstoy, Sholokov, Lenov, Simonov, and others. (Required.)

SO 280 RUSSIAN CIVILIZATION. (3)
A broad survey of Russian civilization as it has developed in the arts, law, and in its socio-religious values. Taught in English.

SO 301, 302 RUSSIAN CONVERSATION AND COMPOSITION (conducted in Russian). (3 ea.)
Prepared discussion on assigned topics with definite vocabulary preparation, oral and written reports and class discussions, based on reading selections from standard Russian authors. Prereq: SO 261, 262 or consent of instructor. (Required.)

SO 380 SURVEY OF 19TH CENTURY RUSSIAN LITERATURE. (3)
A survey of Russian prose, drama, and poetry of the 19th Century until 1855. Emphasis is on the development of romanticism, the subsequent rise of realism, and the growth of the Russian novel from Pushkin to Turgenev. All readings, lectures, and discussions are in English. Students taking the course for Russian major credit are expected to do outside work in Russian.

SO 381 SURVEY OF 19TH CENTURY RUSSIAN LITERATURE. (3)
A survey of Russian prose, drama, and poetry of the 19th Century from 1855 to the early 1900's. Emphasis is on major fiction of Dostoevsky, Tolstoy, and Chekhov and on the later works of *Dacadence*. All readings, lectures, and discussions are in English. Students taking the course for Russian major credit are expected to do outside work in Russian.

SO 395 INDEPENDENT WORK IN RUSSIAN. (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.)

SO 401 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 place on advanced grammar and syntax. Prereq: SO 367, 368. (Recommended.)

SO 402 ADVANCED READINGS IN RUSSIAN LITERATURE. (3)
A continuation of SO 461. Prereq: SO 461 or equivalent. (Recommended.)

SO 450 DOSTOEVSKY. (3)
The study of Dostoevsky, his art and his life. All readings, lectures and discussions are in English. Students taking the course for Russian major credit are expected to do outside work in Russian.

SO 460 TOLSTOY. (3)
The study of Tolstoy, his art and life. All readings, lectures, and discussions are in English. Students taking the course for Russian major credit are expected to do outside work in Russian.

SO 463 RUSSIAN DRAMA (in Russian). (3)
A survey of the growth and development of the Russian drama, with special emphasis on the outstanding dramatists of the 18th, 19th, and the beginning of the 20th Centuries. Prereq: SO 367 or permission of instructor. (Recommended.)

SO 464 SURVEY OF RUSSIAN LITERATURE TO 1800 (in Russian). (3)
An introduction to the literature of Russia from eaRIEs times to Pushkin. The emphasis will be on 18th Century authors. Prereq: SO 367, 368, or consent of instructor. (Required.)

480 HISTORY OF RUSSIAN POETRY. (3)
The study of modern Russian poetry from its beginnings in the 18th Century to the contemporary Soviet Period. Prereq: A third-year knowledge of Russian or its equivalent.

JAPANESE

SO 181 ELEMENTARY JAPANESE. (3)
An introduction to the spoken language through conversational practice, with grammatical principles being explained as an aid to conversation. Written Japanese is introduced gradually.

SO 182 ELEMENTARY JAPANESE. (3)
A continuation of SO 181.

SO 281 INTERMEDIATE JAPANESE. (3)
Reading of texts written in modern colloquial Japanese and continued practice in conversation. Prereq: SO 182.

SO 282 INTERMEDIATE JAPANESE. (3)
A continuation of SO 281. Prereq: SO 281.

SO 284 COMPREHENSIVE READINGS IN JAPANESE. (3)
A course designed to give students a reading knowledge of the standard colloquial form of Japanese used in newspapers and magazines. Prereq: SO 282.

SO 285 COMPREHENSIVE READINGS IN JAPANESE. (3)
A continuation of SO 284. This course will increase the student's reading vocabulary and introduce slightly more advanced grammatical forms.

SO 305 ORIENTAL CIVILIZATION I: FROM THE EARLIEST TIMES TO THE 15th CENTURY. (3)
Survey of major features of the civilizations of China and Japan, emphasizing the important cultural achievements of each area. Prereq: Sophomore standing or consent of instructor.

SO 306 ORIENTAL CIVILIZATION II: FROM THE 15TH CENTURY TO THE MODERN ERA. (3)
Survey of the major features of the civilizations of China and Japan, emphasizing the important cultural achievements of each area. Prereq: Sophomore standing or consent of instructor.

HEBREW

SO 324, 325 HEBREW CIVILIZATION. (3 ea.)
Special reference to relation to Western Civilization. Emphasis on literature, thought, and religion rather than on political history. The student may concentrate his reading in any of these fields. Given in English, no knowledge of Hebrew necessary.

SO 401 HEBREW GRAMMAR AND SYNTAX I. (3)
Intensive coverage of Hebrew grammar and syntax designed to prepare upper level and graduate students to read Hebrew for their particular needs and programs. Prereq: A minimum of two years' exposure to another foreign language, either modern, classical, or non-Western.

SO 402 HEBREW GRAMMAR AND SYNTAX II. (3)
Continuation of SO 401. Prereq: SO 401.

SO 576, 577 STUDIES IN SEMITIC PHILOLOGY. (3 ea.)
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

SO 440 ARABIC GRAMMAR AND SYNTAX I. (3)
Intensive coverage of Arabic grammar and syntax designed to prepare upper-level and graduate students to read Arabic for their particular needs and programs. Prereq: A minimum of two years of exposure to another foreign language, either modern, classical or non-Western.

SO 441 ARABIC GRAMMAR AND SYNTAX II. (3)
A continuation of SO 440. Prereq: SO 440.

SO 442 ARABIC READING I. (3)
Readings in selected Arabic authors. Prereq: SO 441.

SO 443 ARABIC READING II. (3)
Readings in selected Arabic authors. Prereq: SO 442.

OTHER DEPARTMENTAL OFFERINGS

SO 260 CLASSICS OF NEAR EASTERN LITERATURE. (3)
A survey of the literary heritage of the Near East, in particular those works which are of universal interest and those which have left their mark on our Western heritage.

SO 328 ISLAMIC CIVILIZATION: THE RISE OF ISLAM TO 1798. (3)
The rise of Islam and its classical development.

SO 330 ISLAMIC CIVILIZATION II. (3)
The Islamic community and its response to westernization.

SO 444 THE WRITINGS OF THE MUSLIM MYSTICS. (3)
The origin and development of Muslim mysticism. From asceticism to institutionalism. Prereq: Reading knowledge of French or German or Spanish.

SO 455 SPANISH ISLAM. (3)
A survey of the major Arabic authors of Islamic Spain, in translation. Prereq: Reading knowledge of French or German or Spanish.

SO 456 ARABIC AND PERSIAN MASTERPIECES. (3)
A study of the main authors and genres of Medieval Arabic and Persian literature, in translation. Prereq: Reading knowledge of a modern Western language or of Arabic or Persian.

SO 457 MODERN ISLAMIC LITERATURE. (3)
Readings in Islamic Literature, mainly Arabic and Persian, reflecting the Muslim revival since 1800.

SOCIAL WORK

SW 001 FIELD LABORATORY. (0)
Laboratory experiences in the field. Studies and observations in agencies, institutions, and community-at-large to explain and demonstrate the theoretical content of the base courses in first semester social work curriculum. Prereq: Concur. with SW 601, 620, 630, 690.

SW 124 INTRODUCTION TO SOCIAL SERVICES. (3)
Examination of social service agencies in the community and the

programs they offer. A beginning look at the basics of social welfare and the profession of social work and its components. Required for social work majors and open to all others. Recommended as the first social work course that majors should take. Two class hours; two laboratory hours per week.

SW 126 SOCIAL WORK VALUES IN CONTEMPORARY SOCIETY. (3)
Consideration of the social work profession, exploring its philosophy, including the value commitment identified by examining major social problems and issues. Class includes two hours discussion and two hours laboratory with options of social service or other group experiences. Majors only. Prereq: SW 124, or taken concurrently, or consent of dean.

SW 200 SHARED COMMUNITY RESPONSIBILITY FOR SOCIAL WELFARE. (2-3)
An examination of what social welfare is, local social welfare services available, the gaps in these services, the way in which the needs of certain groups in the community affect us all, and our responsibility as concerned citizens. Primarily for non-majors and interested citizens.

SW 222 DEVELOPMENT OF SOCIAL WELFARE. (3)
Study of the development of social welfare and its contemporary components in the United States. The profession of social work is examined as it relates to the field of social welfare. Required of majors in social work. Prereq: SW 126.

SW 223 BASIC SKILLS FOR THE SOCIAL PROFESSIONS. (3)
Knowledge of basic social work skills as they may be helpful to other related professions. Such skills as professional communication, interviewing, problem identification, purposeful utilization of community resources, purposeful observation, and record keeping will be considered. Not open to students who receive credit for SW 225.

SW 225 SKILLS IN SOCIAL WORK. (3)
A presentation of skills basic to professional practice of social work such as problem identification, report writing, purposeful observation collaboration, relationship and professional communications. Prereq: Majors only, SW 126 or consent of the dean.

SW 322 THE SOCIAL WORK PROFESSION AND SOCIAL WELFARE. (4)
Designed for transfer students of junior rank. Study of social welfare development, social work philosophy and value commitment with an examination of social service agencies and programs. Three hours of class, two hours of laboratory; options of agency visitation, group experiences, social service. Not open to those having SW 124, 126 or 222.

SW 327 SENIOR SEMINAR. (3)
For senior majors in the Department. Prereq: Social work major and SW 444.

SW 330 INTRODUCTION TO CORRECTIONS. (4)
Examines adult and juvenile corrections as part of the criminal justice process. System's aims, programs, structure and performance are evaluated with special focus on the juvenile court, community treatment, diversion and incarceration. Lecture, three hours; laboratory, one hour.

SW 395 INDEPENDENT WORK. (1-4)
Organized study research and/or tutorial work focused on special issues or problems. Prereq: Major, standing of 3.0 over-all GPA, and/or consent of the dean.

SW 444 FIELD INSTRUCTION. (8)
Diversified field instruction, under faculty direction, in a wide variety of settings. Students will have experiences that utilize social work practice skills with individuals and groups toward the goals of prevention, restoration, and enhancement of social functioning. Prereq: Major, SW 520 taken concurrently, or consent of the dean. Laboratory, 24 hours per week.

SW 445 FIELD INSTRUCTION. (8)
Intensive field instruction, under faculty direction, in specialized settings to further develop social work skills. Prereq: Major, SW 444 or consent of the dean. Laboratory, 24 hours per week.

SW 477 FIELD INSTRUCTION FOR NON-MAJORS. (3-6)
Supervised field instruction in a wide variety of problem settings. Lecture, 1-2 hours per week; laboratory, 9-18 hours per week. Prereq: Consent of the dean.

SW 500 PUBLIC WELFARE ADMINISTRATION. (3)
Philosophy, background, and methods of tax-supported social work. Interrelationship of federal, state and local services; standards and supervision as influenced by federal welfare legislation.

SW 505 CHILD WELFARE SERVICES. (2-3)
A study of community and national programs for child care and protection, including aid to dependent children and other social security services.

SW 510 MENTAL HEALTH KNOWLEDGE FOR THE SOCIAL PROFESSIONS. (2-3)
An analysis of personality development, behavior patterns, and social structural factors with special reference to mental health, its service delivery system, and implications for practice in the social professions.

SW 512 MEDICAL KNOWLEDGE FOR THE SOCIAL PROFESSIONS. (3)
A description and analysis of physical illnesses and disabilities met in practice by social professionals with consideration of their implications for the delivery of health and welfare services. Prereq: BIO 110, PSY 210, or equivalent, or consent of the instructor.

SW 516 SOCIAL WORK RESEARCH AND STATISTICS. (3)
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.

SW 520 INTERVENTIVE METHODS IN SOCIAL WORK. (3)
First semester of a two-semester course to study the integrated social work method and problem-solving skills. Consideration will be given specifically to theories underlying social work practice. Selected readings, practice records and actual problems brought by the student from the field will be discussed and analyzed. Prereq: Junior standing, SW 225 or equivalent or consent of the dean.

SW 521 INTERVENTIVE METHODS IN SOCIAL WORK. (3)
The second semester of a two-semester course to study the integrated social work method and problem-solving skills. Application of practice theory and examination of particular strategies used in working with a variety of client systems and consideration of problems and social issues of particular importance to the social work profession. Prereq: SW 520.

SW 541 ADMINISTRATION AND SUPERVISION IN THE SOCIAL PROFESSIONS. (3)
An examination of the processes of social agency administration, supervision of staff and volunteers, statistical and process recording, personnel and committee management, and program evaluation.

SW 551 PUBLIC ASSISTANCE PROGRAMS. (3)
The current function of public assistance on the federal, state, and local level with emphasis on the public assistance provisions of the Social Security Act, general relief, and work relief policies.

SW 561 THE ROLE OF SOCIAL WORK IN CRIMINAL JUSTICE. (3)
This course examines the role of social work in crime prevention through an analysis of the criminal and juvenile justice systems, their goals, processes, programs and supporting rationale. Prereq: SW 330 or consent of the dean.

SW 571 SOCIAL WORK AND THE LAW. (3)
The course examines the lawyer's method and the legal system; the organization and ethics of the practicing bar; the impact of legal decision making and lawyers on juvenile and criminal justice and consumer debtor-creditor relationships; and working relationships between social workers and lawyers. Prereq: Open to students in the College of Social Professions or consent of dean.

SW 580 TOPICAL SEMINAR IN SOCIAL WORK. (2-4)
Study of issues of current and special significance for social work practice. Issues selected in accordance with the needs and interest of students enrolled. May be repeated to a maximum of eight credits. Prereq: Open to the student of social professions or consent of dean.

SW 601 SOCIAL WORK PRACTICE. (4)
This course lays the basic foundations for the educational practicum and all advanced practice courses. It deals with the variety of strategies for intervention in problem solving and helping processes in social work practice. Prereq: Concurrently enrolled in SW 620, 630, 690 or consent of the dean.

SW 602 SOCIAL WORK PRACTICE WITH ADULTS. (2)
Study and analyses of problems in social functioning during the adult years with emphasis upon prevention, amelioration and restoration. Prereq: SW 601 or consent of the dean.

SW 603 SOCIAL WORK PRACTICE WITH CHILDREN AND YOUTH. (2)
Study and analysis of developmental crises and problems of children and youth. Emphasis upon social work strategies of intervention for prevention, amelioration or resolution. Prereq: SW 601 or consent of the dean.

SW 604 SOCIAL WORK PRACTICE WITH THE AGING. (2)
This course will develop the framework of knowledge and skills necessary for effective social work practice in a variety of primary

and host settings which deal with problems and issues confronting the aging citizen in contemporary society. Prereq: SW 601 or consent of dean. SW 620, 630, 690 recommended.

SW 605 SOCIAL WORK PRACTICE IN HEALTH SERVICES. (2)
Examination and analysis of the role of social work in health care delivery systems. Prereq: SW 601 or consent of the dean. SW 620, 630, 690 recommended.

SW 606 SOCIAL WORK IN CORRECTIONS.
The criminal justice system, especially corrections, is studied and evaluated from a social work perspective emphasizing system aims, theories of criminality and social reaction, the consequences and costs to offenders and to society of current policies to control and prevent crime. Traditional and innovative community and institutional programs for adult and juvenile offenders will be examined with implications for practice. Prereq: SW 601 or consent of the Dean.

SW 607 SOCIAL WORK PRACTICE WITH FAMILIES. (2)
The presentation and critical examination of theory as it relates to the study of contemporary marriage and family life and professional social work practice skills intended to strengthen family life. Seminar, two hours per week. Prereq: SW 601 or consent of the dean. SW 620, 630, 690 recommended.

SW 608 SOCIAL WORK PRACTICE FOR SOCIAL REFORM. (2)
The need for analysis and planning as the basis for action by social workers in their professional roles as agents of social change. Prereq: SW 630 or consent of the dean.

SW 620 HUMAN GROWTH AND THE SOCIAL ENVIRONMENT. (4)
This course lays the necessary foundation for advanced courses in the biological, social, cultural, environmental and psychological factors that influence human behavior. Prereq: Concurrent enrollment in SW 601, 630, 690.

SW 621 PERSPECTIVES ON DEVIANCE FOR SOCIAL WORKERS. (2)
An intensive analysis and study of deviant personality and behavior patterns as they are applicable to the practice of social work. The theoretical basis will be reviewed. Prereq: SW 620 or consent of the dean.

SW 622 GROUP THEORY FOR SOCIAL WORKERS. (2)
Intensive study of theoretical perspectives of group process and leadership and the application of these to the practice of social work. Prereq: SW 620 or consent of the dean. SW 601, 630, 690 recommended.

SW 623 ETHNICITY IN SOCIAL WORK PRACTICE AND EDUCATION. (2)
The course is designed to provide the knowledge needed in understanding the dynamics of the urban dilemma. Race and race related matters facing the social work practitioner and educator. Prereq: SW 620 or consent of the dean.

SW 624 PERSPECTIVES ON HUMAN SEXUALITY FOR THE SOCIAL PROFESSIONS. (2)
An examination and study of historical and current perspectives of sexuality as it relates to behavior patterns, cultural attitudes, social policy and practice. Prereq: SW 620, or consent of the Dean.

SW 625 COMPARATIVE SOCIAL WELFARE POLICIES AND PROGRAMS. (2-3)
A comparative study of income maintenance and health care delivery systems in selected foreign countries and the United States. Emphasis will be given to the problems in coverage, financing and administration. Prereq: Open to graduate students in the College of Social Professions or consent of dean.

SW 630 SOCIAL WELFARE POLICIES AND SERVICES. (4)
This course lays the basic foundation for sequential courses in this content area. Emphasis is on the study and understanding of the decision-making process involved in the development, formulation, implementation and impact of social welfare policies and services. Prereq: Concurrent enrollment in SW 601, 620 and 690 or consent of the dean.

SW 632 SOCIAL WORK AND THE HISTORY OF SOCIAL REFORM. (2)
The study of the history of social reform and social work with emphasis on the development of contemporary social institutions. Theories and historical analysis will be demonstrated on pressing current problems. Prereq: SW 630 or consent of the dean.

SW 633 SOCIAL WELFARE AND THE POLITICAL PROCESSES. (2)
An examination of social welfare programs and services in the context of local, state, and federal political processes and structure. Focus will be on both an examination of the historical issues as well as on current policies, programs and proposals as outputs of the political and governmental processes. Prereq: SW 630 or consent of dean.

SW 640 EDUCATIONAL PRACTICUM I. (10)
Social work practice experience under faculty direction in a Learning Teaching Center comprised of a complex of social agencies and institutions. Application of the problem-solving method to intervention with individuals, families, groups and communities towards social change. Knowledge and concepts from classroom learnings will be applied and tested in the practice situation. Thirty-two laboratory hours per week. Prereq: SW 601, 620, 630, and 690.

SW 650 PROBLEM-SOLVING SEMINAR I. (2)
Selected major social problems and their causes are analyzed intensively. Emphasis is placed on social work interventions which are evaluated for their effectiveness in reduction and/or elimination of causes and harmful effects on people. Two class hours per week; laboratory hours as needed. Prereq: SW 601, 620, 630, 690 and concurrently enrolled in SW 640 or consent of the dean.

SW 680 SPECIAL PROBLEMS IN SOCIAL WORK PRACTICE. (2-4)
Current issues that have special significance for social work practice. Selected problems in accordance with needs and interests of the students registered for the course. Prereq: Consent of dean.

SW 690 RESEARCH IN SOCIAL WORK. (2)
Analysis and study of research and scientific process through critical evaluation of examples of social work and social research; identification of areas in which social work research is needed. Prereq: Concurrent enrollment in SW 601, 620, 630 or consent of the dean.

SW 701 ADVANCED PRACTICE THEORY. (2)
Study and analysis of the application of the problem-solving processes to leadership roles and responsibilities in social work practice. Two class hours, four laboratory hours per week. Prereq: SW 640, concurrent with SW 740.

SW 706 ISSUES, PROCESSES AND PROGRAMS IN CORRECTIONS. (2)
This course is a continuation of SW 606 and is intended to provide the student concentrating in corrections with an understanding of selected issues and processes relating to program development and implementations. Prereq: SW 606 or consent of the dean.

SW 708 SEMINAR IN CORRECTIONAL CHANGE TECHNOLOGY. (2)
This seminar examines service delivery to offenders in the context of the philosophy and technology of corrections with major emphasis upon administration, staff development, program analysis and evaluation. Prereq: SW 706 or equivalent or consent of the dean.

SW 711 ADVANCED LEADERSHIP ROLES IN SOCIAL WORK. (3)
Advanced study and analysis of leadership roles in social work practice with emphasis upon administration and supervision. Some attention is given to consultation, staff development and teaching, and review of theories of adult learning. Prereq: SW 701 or consent of the dean.

SW 712 PRINCIPLES AND METHODS OF FIELD INSTRUCTION IN SOCIAL WORK I. (2)
Designed for the agency social work personnel who will be assisting in the educational direction of social work students in agencies within the Learning Teaching Centers. Theories of adult learning, and curriculum design as relates to the education of social workers in the field, will be stressed. Prereq: Master's Degree in Social Work and/or consent of the dean.

SW 713 PRINCIPLES AND METHODS OF FIELD INSTRUCTION IN SOCIAL WORK II. (2)
Continued study of curriculum design for field learning in social work. Learning opportunities to support integrated practice theory. Attention to evaluation of learning experiences and their outcome. Prereq: SW 712 or consent of the dean.

SW 720 ORGANIZATIONAL AND ADMINISTRATIVE THEORY FOR SOCIAL WORKERS. (2-4)
Emphasis on organizational and administrative theories which aid social workers in understanding factors impinging on the optimum delivery of social services and implementing planned change. Prereq: Second-year standing and consent of dean.

SW 721 ORGANIZATION AND MANAGEMENT METHODS FOR THE SOCIAL PROFESSIONS. (2-3)
This course will consider the appropriate skills and methods for effectively organizing and managing agencies, institutions, and organizations which are elements of the various social service delivery systems. Included is the study of the management process as it applies to social service settings, an examination of specific management skills, and consideration of the impact of social service pro-

grams and delivery methods on program constituents and consumers. Prereq: SW 720 taken concurrently on consent of the dean.

SW 730 PUBLIC SOCIAL POLICY AND THE DELIVERY OF SOCIAL SERVICES. (2)
Critical study and analysis of social welfare policy needs, policy development and policy impact as related to citizen functioning and socialization. Prereq: SW 630 or consent of the dean.

SW 731 SOCIAL WORK AND COMMUNITY PLANNING. (2)
Study and analysis of the social work process through the critical evaluation of social welfare needs in urban renewal, housing, health services, citizen participation in planning and other areas related to the humanization of community life. Prereq: SW 630 and second-year standing or consent of the dean.

SW 732 SOCIAL PLANNING AND DEVELOPMENT. (2)
A survey of the theories, concepts and components of social planning and development. The social welfare component of social planning will be studied in detail. Prereq: SW 630 and 731, or the approval of the dean.

SW 740 EDUCATIONAL PRACTICUM II. (8)
Further field experience in a Learning Teaching Center under educational direction. Continued application of classroom learnings in advanced methods of intervention. Emphasis will be upon leadership roles as in supervision, consultation, teaching and administration. Experiences in decision making and social policy formulation planned. Laboratory hours, 26 per week. Prereq: SW 601, 620, 630, 640, 690.

SW 745 ADVANCED SPECIALIZED EDUCATIONAL PRACTICUM. (2-4)
Advanced field placement for a second-year graduate students in a specialized area of social work practice in which students will carry major responsibility for independent practice or leadership. Laboratory, 8-16 hours per week. Prereq: SW 640, 740 or equivalent with consent of the dean.

SW 750 SEMINAR ON EVALUATIVE RESEARCH FOR THE SOCIAL PROFESSIONS. (2)
Study of methods and techniques of evaluative research, analysis and evaluation of social service delivery systems. Prereq: SW 650 or equivalent with consent of the dean.

SW 770 SEMINAR ON SOCIAL ISSUES AND SOCIAL WORK PRACTICE. (2)
Seminar for second-year students on social issues which are currently vital to legislation, public concern and social action for the purpose of effecting changes in institutions and service delivery systems. Two class hours per week; laboratory hours as needed. Prereq: SW 750 or equivalent or by consent of the dean.

SW 780 INDEPENDENT WORK. (2-6)
Organized study, research and/or tutorial focused on special issues or problems. May be repeated to a maximum of six credits. Prereq: Major, graduate standing of 3.0 over-all GPA, and/or consent of the dean.

SW 790 METHODS IN SOCIAL WORK RESEARCH. (2-6)
An intensified study of the research process with emphasis on design, sampling process, data collection, and analysis. For students seeking beginning skill in social work research. Prereq: SW 690 and second-year standing, or consent of the dean.

SOCIOLOGY

SOC 101 INTRODUCTORY SOCIOLOGY. (3)
Introduction to the concepts and methods of sociology. Investigation of socialization, group processes, social institutions and social change. This course is prerequisite to a significant number of courses in this and related areas of study.

SOC 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.

SOC 152 MODERN SOCIAL PROBLEMS. (3)
An introductory course involving an examination of selected social problems of the present day. Topics discussed are family, poverty, crime, race, housing, population, industrial development, etc. Not open to seniors in College of Arts and Sciences. Prereq: SOC 101 or consent of instructor.

SOC 153 SOCIETIES AROUND THE WORLD. (3)
Comparative study of the Eskimo, Navajo, and Baganda as preliterate, primitive societies in difficult environments. Prereq: SOC 101. (Same as ANT 153.)

SOC 201 SOCIAL INTERACTION. (3)
Explores the fundamental sociological and social psychological processes underlying human interaction. Focuses on the dynamics of symbolic exchange, the social context and processes shaping it, and examines its effects in the formation and maintenance of social and personality systems. Prereq: SOC 101.

SOC 220 THE COMMUNITY. (3)
Social organization and process in modern communities; social techniques of community improvement. Prereq: SOC 101 or consent of instructor.

SOC 350 TOPICS IN SOCIOLOGY. (3)
Discussion, readings, and papers focusing on topics in sociology. Directed by a staff member having specific competence in the topics under study. Current research developments in particular sociological subfields will be stressed. Prereq: SOC 101 consent of instructor. May be repeated to a maximum of nine credits.

SOC 365 HISTORY OF SOCIOLOGY. (3)
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.

SOC 395 INDEPENDENT WORK. (1-3)
Study of some special topic by duly authorized students. May be repeated for a total of four credits. Prereq: Major and a standing of 3.0 in the Department: SOC 101.

SOC 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.)

SOC 409 THE FAMILY. (3)
A study of the institutions of marriage and the family and an analysis of the various factors and forces at work in our time which are affecting the individual marital relationships. Prereq: SOC 101 or consent of instructor.

SOC 413 COMMUNITY ANALYSIS.* (3)
A study of communal structure and processes with special emphasis on strategies of field investigation of particular communities. Prereq: SOC 101 or equivalent or consent of instructor. (Same as HE 575.)

SOC 418 SOCIAL CHANGE. (3)
A sociological analysis of the sources, processes and consequences of social change. Prereq: SOC 101.

SOC 436 SOCIOLOGY OF DEVIANT BEHAVIOR. (3)
A systematic examination of the various types of social disorganization with particular emphasis upon the sociological explanation of underlying factors. Prereq: SOC 101 or consent of instructor.

SOC 437 CRIMINOLOGY. (3)
A study of general conditions as to crime and delinquency, of measures of punishment and reform of offenders, of criminal procedure and its possible reform and of measures for the prevention of crime. Prereq: SOC 101 or consent of instructor.

SOC 441 GROUP ORGANIZATION AND LEADERSHIP.* (3)
A study of the structure and dynamics of organized groups; leadership, membership participation, and the processes of problem solving and group development. Prereq: SOC 101 or consent of instructor.

SOC 493 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 socio-economic implications of welfare legislation. Prereq: SOC 101 or consent of instructor. (Same as ECO 523.)

SOC 501 POPULATION ANALYSIS. (3)
Distribution and composition, fertility and mortality, migration, ecological relationships and growth of population. Prereq: SOC 101 or consent of instructor.

SOC 502 METHODS OF DEMOGRAPHIC ANALYSIS. (3)
Application of statistical techniques employed in the analysis of census and vital statistics data, including methods of population standardization, life table construction, and preparation of population estimates. Prereq or concur: SOC 501 and one of the following introductory statistical courses: ECO 291, or AEC 530; SOC 101.

SOC 503 SOCIAL CLASSES. (3)
A systematic treatment of the factors underlying social differentiation and stratification, with particular attention to class and caste; social mobility in American society. Prereq: SOC 101 or consent of instructor.

SOC 510 SOCIALIZATION IN THE FAMILY.
A study of the way children grow to early adolescence with major emphasis on the interaction of family members and the contribution the family makes to socialization. Prereq: SOC 101 and 409 or permission of instructor.

SOC 515 DIFFUSION OF TECHNOLOGY IN MODERN SOCIETY.* (3)
A study of the personality, social structure and change agent factors in the spread of new techniques among groups and individuals in modern society. Prereq: Either GEN 102 or SOC 101, 153.

SOC 517 RURAL SOCIOLOGY.* (3)
Systematic study of the structure and function of family, informal and locality groups, social strata, religious, educational, political and occupational groups in rural society. Prereq: Either GEN 102 or SOC 101.

SOC 519 SOCIOLOGY OF URBAN LIFE. (3)
This course is a study of the sociology of city life. The major emphasis is upon the ecological and social characteristics of urban life in contrast to rural community life. Prereq: SOC 101 or consent of instructor.

SOC 521 INDUSTRIAL SOCIOLOGY. (3)
A sociological analysis of the division of labor, the characteristics of occupational groupings; principal socio-economic movements, and group relationships in modern industry. Prereq: SOC 101 or consent of instructor.

SOC 522 SOCIOLOGY OF COMPLEX ORGANIZATIONS. (3)
An intensive study of intra and inter-organizational structures and processes. Special emphasis is given to emergence, maintenance, and change of bureaucratic and non-bureaucratic organizations and the impact of organizations on individuals. Prereq: six hours of sociology, or consent of instructor; SOC 101.

SOC 525 RELIGION AND CULTURE. (3)
An analysis of the structure, function, and process of religion, using the development of the Hebrew and Christian religions to show social origins of the two faiths and the effect of cultural change on their growth. Prereq: SOC 101 or consent of instructor.

SOC 526 CULTURE AND PERSONALITY. (3)
The cultural basis of personality. Personal character considered as the result of culturally fostered patterns. The ideal personality in several selected societies. Prereq: SOC 101. (Same as ANT 526.)

SOC 527 SOCIETY AND HEALTH. (3)
The study of human behavior in illness and of medicine as a complex form of social organization in perspective of historical, cross-cultural and contemporary analysis. This course is designed primarily for students preparing for careers in an allied health science or profession. Prereq: SOC 101. (Same as BSC 527.)

SOC 529 POLITICAL SOCIOLOGY. (3)
A study of the sociological aspects of political systems, movements and ideologies. Special attention is given to comparative analysis of parties, pressure groups, voting patterns, elites, bureaucracy, political socialization, mass politics, and the role of intellectuals. Prereq: six hours of sociology or consent of instructor; SOC 101.

SOC 531 SOCIOLOGICAL ANALYSIS OF AMERICAN SOCIETY. (3)
A study of the contemporary United States with emphasis upon the changing relations among various aspects of American society and culture. Prereq: SOC 101 or consent of instructor.

SOC 532 RACE AND ETHNIC RELATIONS. (3)
Analysis of relationships between racial and ethnic groups and the behavioral products thereof. Sources and consequences of prejudice and discrimination. Situation and prospects of minorities. Strategies of change and tension reduction. Prereq: SOC 101. (Same as EDF 532.)

SOC 533 SOCIAL ANTHROPOLOGY. (3)
History and theory of social anthropology with special emphasis on the comparative approach to analysis of structure, function, and change in social and cultural systems. Prereq: SOC 101; consent of instructor. (Same as ANT 533.)

SOC 534 THE SOUTHERN APPALACHIANS: A SOCIOLOGICAL INTERPRETATION.* (3)
A sociological interpretation of the Southern Appalachians, emphasizing the great diversity—social, cultural, economic—in the various parts of this area by study of the major institutions, value orientations, and social and cultural changes affecting both the whole area and its sections. Prereq: SOC 101. (Same as ANT 534)

SOC 538 JUVENILE DELINQUENCY. (3)
Study of the extent, ecological distribution, and cause of delinquency in contemporary American society, including a critical examination of trends and methods of treatment. Prereq: SOC 101 or consent of instructor.

SOC 540 COLLECTIVE BEHAVIOR AND SOCIAL MOVEMENTS. (3)
An analysis of mass movements and collective behavior, including fads, fashions, crowd phenomena, panic situations, riots. Generalizations concerning the structure, tactics, ideology, and leadership of social movements will be considered. Prereq: SOC 101 and 201.

SOC 542 HUMAN RELATIONS IN ADMINISTRATION. (3)
Analysis of the role of social structure, leadership, authority, power, and psychological stress in the administration of large-scale organizations in the United States. Prereq: SOC 101 or consent of instructor.

SOC 544 SOCIAL PSYCHOLOGY. (3)
Theoretical and empirical analysis of individual behavior in the social setting with particular emphasis on social learning, motivation, and the measurement, formation, and changing of social attitudes. Prereq: PSY 104 and 106 or 210; SOC 101. (Same as PSY 544.)

SOC 546 SOCIAL FACTORS IN MENTAL HEALTH. (3)
The significance of social and cultural factors in the recognition, course, and managment of mental health problems; social organization of the mental hospital and cultural alternatives to hospitalization. Prereq: Permission of instructor; SOC 101. Offered every other year. (Same as BSC 546.)

SOC 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.

SOC 549 SOCIOLOGICAL ASPECTS OF MASS COMMUNICATION. (3)
The relationship between the organization of modern society and its communication media. Special emphasis is given the way in which cultural processes and social change have an impact upon the mass media, and upon the way in which the mass media influence cultural processes and social change. The social-psychological bases of communication are studied within a context of theory and research. Prereq: SOC 101. (Same as EDC 549.)

SOC 551 PRINCIPLES OF SOCIOLOGY. (3)
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.

SOC 561 COMPARATIVE SOCIOLOGY. (3)
Two or more societies are analyzed and compared sociologically. The specific societies considered may vary from time to time; for example, Soviet and American society; the middle Eastern countries; Latin American societies, etc. Prereq: SOC 101 or consent of instructor.

SOC 565 SPECIAL PROBLEMS IN SOCIOLOGY.* (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. Prereq: SOC 101.

SOC 571 CONTEMPORARY SOCIOLOGY. (3)
A survey of the current state and organization of sociology as indicated by consideration of the main fields of sociology and developments in each. Most of the staff participate as special lecturers in their specialty. Prereq: Major or minor in sociology and nine hours in speciality; SOC 101.

SOC 581 TECHNIQUES OF SOCIAL INVESTIGATION. (3)
A study of the practical applications of sociology in organizing, conducting, and interpreting social surveys and other forms of sociological research. Prereq: SOC 101 and an introductory course in statistics.

SOC 615 ANALYSIS OF COMMUNITY RESEARCH.* (3)
A critical appraisal of community research including comparisons of rural, urban and regional holistic cases, analyses of locality institutional patterns, and studies of specific phenomena such as power, stratification, mobility adjustments in rural, urban, and regional settings.

SOC 618 THEORIES OF SOCIAL CHANGE. (3)
The study of theories of change in social units with emphasis on

models of social structure and social change and on methodological problems of studying change with historical, evolutionary, conflict, functional, and other approaches. Prereq: Consent of instructor.

SOC 625 SOCIOLOGY OF RELIGION. (3)
Critical study of reciprocal relation of religion and culture, the function of religion in society, social sources of religious concepts, religious differentiation and institutionalization, the problem of church and state. Prereq: SOC 525 or consent of instructor.

SOC 632 SEMINAR IN RACE AND ETHNIC RELATIONS. (3)
Advanced theory and research in the sociology of race and ethnic relations, prejudice and discrimination, minority groups. Current movements and change, strategies of change in dominant-minority relations. Opportunity to develop individual interests and applications of work in this field. Prereq: SOC 532 or equivalent, or consent of instructor.

SOC 636 THEORY AND RESEARCH IN DEVIANT BEHAVIOR. (3)
Use of conceptual tools in the analysis of significant sociological problems, such as relationships between individual and society, conformity, stratification, and conflict through readings and projects. Required for graduate study of deviant behavior. Prereq: Graduate standing; SOC 536 or equivalent.

SOC 651 SYSTEMATIC SOCIOLOGY. (3)
An intensive study of certain selected sociological theorists such as Weber. Durkheim, Simmel, Pareto, and others. Prereq: SOC 101.

SOC 653 FAMILY THEORY AND DYNAMICS. (3)
A survey and critical evaluation of family theory in the areas of mate selection, marital satisfaction, spousal relations and the process of parenthood and child rearing in addition to evaluations of current research in these areas. Prereq: An advanced undergraduate course in the family or consent of instructor. (Same as HF 653.)

SOC 661 EDUCATIONAL SOCIOLOGY. (3)
A course in the sociological foundations of education. Prereq: SOC 101. (Same as EDF 661.)

SOC 670 SEMINAR ON ROLE THEORY. (3)
An exploration of differences and similarities in the utilization of the concept of role in sociology, anthropology and psychology. Emphasis is placed on the potentiality of role as a unifying concept in the behavioral sciences. Prereq: Consent of instructor; SOC 101. (Same as BSC 670 and ANT 670.)

SOC 671 SEMINAR IN CONTEMPORARY SOCIOLOGY. (0)
Each member of the Department of Sociology presents a summary of his past and present research and his current interests. The purpose is to acquaint the student with wide range of interests, projects and personnel in his graduate department. One hour per week. Prereq: SOC 101.

SOC 681 RESEARCH DESIGN AND ANALYSIS. (3)
Problem definition and delimitation, design appropriate to problem and data, and selection of appropriate analysis techniques; critical examination of representative research studies and students' designs. Prereq: Elementary statistics and SOC 581 or equivalent; SOC 101.

SOC 685 INTEGRATION OF THEORY AND RESEARCH. (3)
Systematic analysis of problems related to the verification of sociological theory through empirical research. Prereq: SOC 681; SOC 101.

SOC 690 COMMUNITY ACTION ANALYSIS. (3)
The structure and dynamics of complex, collective actions are analyzed in terms of their social and cultural characteristics and their temporal patterns. Prereq: SOC 101.

SOC 695 SOCIAL ECOLOGY. (3)
The study of the adaptation of human populations to their environment. An elaboration of the principles governing community organization with special emphasis given to urban and metropolitan communities. (Same as GEO 695.)

SOC 702 SEMINAR IN SOCIAL DEMOGRAPHY. (3)
A seminar designed to explore the relations between sociology and demography. Emphasis is given to the influence of social factors on demographic behavior and to the utilization of population data and demographic techniques in the investigation of sociological problems. Prereq: SOC 501 or equivalent; SOC 101.

SOC 720 SEMINAR IN COMMUNITY THEORIES. (3)
An intensive examination of selected theories and writings relevant to an understanding of territorial communities. Includes a study of the writings of Durkheim, Park, Redfield, Warner, and others. Prereq: SOC 101.

SOC 727 SEMINAR ON SOCIO-CULTURAL CHANGE. (3)
A seminar for advanced students. Emphasizes economic, religious, political, technological, psychological, etc., factors in change, and social and cultural patterns and processes of change. Prereq: ANT 527 or SOC 518, or permission of instructor; SOC 101. (Same as ANT 727.)

SOC 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.)

SOC 738 SEMINAR: DRUG USE AS DEVIANT BEHAVIOR. (3)
A seminar for advanced students. Data on drug abuse and its control used to exemplify and test sociological theories of deviant behavior. Covers characteristics of users, treatment approaches, relations to control measures, changes over time and drug policies. Prereq: SOC 636. (Same as BSC 738.)

SOC 766 CONCEPTS IN MEDICAL SOCIOLOGY. (3)
A systematic review of sociological concepts and methods which have been applied to the study of health and medicine; the contributions of medical sociology to general sociological theory; the roles of sociology in education for the health professions 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 behavioral sciences with a concentration or minor in medical behavioral science; SOC 101. (Same as BSC 766.)

SOC 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

SOC 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (3)
May be repeated indefinitely. (1-12 credits equivalence.)

SOC 770 SEMINAR IN SOCIOLOGICAL THEORY. (3)
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.

SOC 772 TOPICAL SEMINAR IN SOCIOLOGY. (3)
Advanced study of topics of current importance in sociology, such as structural strain and social change, game theory, decision processes, communication and power structures. May be repeated once to a maximum of six credits. Prereq: At least nine hours in the social sciences, preferably in sociology; SOC 101.

SOC 773 TOPICAL SEMINAR.* (3)
Analysis of topics of scientific interest in rural sociology, selected from such fields as the following: criticism of research; sociological factors in land use; migration; rural social ecology of the South; highland societies. May be repeated once for a maximum of six credits. Prereq: SOC 101.

SOC 775 SEMINAR IN THE FAMILY. (3)
A seminar for students with a professional interest in the family. Selected topics are intensively examined. Prereq: SOC 101.

SOC 776 SEMINAR IN DEPENDENCY BEHAVIOR. (3)
The course is designed to explore theories of dependency behavior by examining the concept of dependency as it can be applied to the study of various phenomena including alcohol use and abuse; dependence on other psychoactive substances; institutional dependency; corporation behavior; and poverty and welfare. Prereq: Consent of instructor.

SOC 777 SEMINAR IN MENTAL ILLNESS CONCEPTS, RESEARCH AND POLICY. (3)
Systematic study of contemporary concepts of mental health and mental illness, and their historical development; major forms of societal response to mental illness. Prereq: Graduate or advanced undergraduate work in a social science, consent of instructor.

SOC 779 SEMINAR IN SOCIAL PSYCHOLOGY. (3)
Each semester some topic in the field of social psychology, such as attitudes and beliefs, structure and function of social groups, social determinants of behavior, leadership, and morale will be studied intensively. May be repeated to a maximum of six credits. Prereq: SOC 101, PSY 544. (Same as PSY 779.)

SOC 780 SPECIAL PROBLEMS IN SOCIOLOGY. (1-6)
May be repeated to a maximum of 10 credits. Prereq: SOC 101.

SOC 790 RESEARCH IN RURAL SOCIOLOGY.* (1-3)
Individual graduate research with correlated study of rural social research types and methods. May be repeated for a maximum of six credits. Prereq: SOC 101.

SOC 792 RESEARCH IN SOCIOLOGY. (1-6)
Individual research and reading in particular fields of sociology, under staff supervision. Open to advanced 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.

*These courses are also offered in the Department of Sociology, College of Agriculture.

SPANISH AND ITALIAN LANGUAGES AND LITERATURES

SPANISH

SPI 011 SPANISH READING FOR GRADUATE STUDENTS. (0)
Designed for those graduate students who wish to acquire a rapid reading knowledge of Spanish. Emphasis on rapid vocabulary building, the Spanish idiom, and the verb system. Three class hours per week.

SPI 101 ELEMENTARY SPANISH (spoken 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 laboratory section limited to no more than 10 students; emphasis on pronunciation, Spanish intonation, and special syntactical problems in drill responses.

SPI 102 ELEMENTARY SPANISH (spoken approach). (4)
A continuation of SPI 101. Prereq: SPI 101 or one year of high school Spanish.

SPI 103 ELEMENTARY SPANISH REVIEW. (3)
A remedial review course designed for the students who have not accomplished the objectives of Elementary Spanish. Prereq: Two years of high school Spanish, but place lower than 201.

SPI 141 ELEMENTARY SPANISH (reading approach). (3)
The study of the basic principles of the language through grammar, with emphasis on rapid development of reading and comprehension skills.

SPI 142 ELEMENTARY SPANISH. (3)
A continuation of SPI 141. Selected readings. Prereq: SPI 141 or one year of high school Spanish.

SPI 143 ELEMENTARY AURAL—ORAL PRACTICE IN SPANISH. (1)
A course to improve pronunciation and comprehension of spoken Spanish. Aural-oral drills, dictation and recordings. Two hours a week.

SPI 201 INTERMEDIATE SPANISH (spoken approach). (3)
Review and reinforcement of grammatical and phonological patterns. Oral practice or structural drills and conversational vocabulary. Prereq: SPI 102 or consent of Department and placement test.

SPI 202 INTERMEDIATE SPANISH. (3)
Continuation of SPI 201. Prereq: SPI 201 or three years of high school Spanish.

SPI 210 SPANISH COMPOSITION. (3)
This course is designed for Spanish majors and those students who wish to perfect their knowledge of Spanish grammar. Concentration on more sophisticated structures of Spanish syntax, and further vocabulary expansion.

SPI 211 SPANISH CONVERSATION. (3)
Sections limited to no more than 15 students each. Oral-aural practice in the spoken language. Special emphasis placed on the acquisition of idioms and fundamental conversational vocabulary.

SPI 212 CIVILIZATION OF SPAIN. (3)
This course is designed to give students a basic understanding of Spain's contribution to Western Civilization. Emphasis on Spanish thought, art, and Spain's role in the development of Western Europe and the New World. Conducted in Spanish. Prereq: SPI 202 or equivalent.

SPI 213 CIVILIZATION OF SPANISH AMERICA. (3)
This course is designed to introduce the student to the basic cultural patterns of Spanish America. Emphasis on thought, art and the other major contributions of Spanish American to Western Civilization. Conducted in Spanish. Prereq: SPI 202 or equivalent.

SPI 214 MEXICAN CIVILIZATION. (3)
A lecture course on the cultural development of Mexico designed to furnish a working basis for required trips to important centers of Mexican civilization. To be offered only during the summer session in Mexico.

SPI 221 BEGINNING SPANISH I. (3)
Beginning Spanish for undergraduates taking Spanish as a second foreign language. Emphasis on rapid development of reading skills. Students completing the SPI 221-222 sequence will be prepared to take courses in Spanish literature. Prereq: Three semesters of another foreign language or equivalent.

SPI 222 BEGINNING SPANISH II. (3)
A continuation of SPI 221. Emphasis on rapid development of rapid reading skills. Students completing the SPI 221-222 sequence will be prepared to take courses in Spanish literature. Prereq: SPI 221.

SPI 241 INTERMEDIATE SPANISH (reading approach). (3)
Readings of selected Spanish and Spanish American works and rapid review of principles of grammar. Emphasis on reading comprehension. Prereq: SPI 142 or consent of Department and placement test.

SPI 242 INTERMEDIATE SPANISH (reading approach). (3)
A continuation of SPI 241. Several options will be offered, including culture, literature and contemporary problems. Topics for each section to be announced in the Schedule of Classes. Prereq: SPI 241 or consent of Department and placement test.

SPI 261 A SURVEY OF SPANISH LITERATURE FROM THE MIDDLE AGES TO THE PRESENT (in translation). (3)
A study of the major writers of Spain, using anthology selections and some complete works.

SPI 310 STYLISTIC STUDIES IN SPANISH. (3)
The study of optional variations in the sounds, forms and vocabulary of Spanish with emphasis on the written word. Textual passages and other materials are used in the analysis of language as characteristic of different users, varied situations of use and diverse literary types. Prereq: SPI 210, 211 or equivalent.

SPI 311 ADVANCED SPANISH CONVERSATION. (1)
Intensive practice in oral Spanish, emphasizing refinement of intonation, and idiomatic expression. Designed to increase and maintain oral fluency in Spanish. May be repeated for a total of three credits. Not open to native speakers of Spanish. One class hour, two laboratory hours per week. Prereq: SPI 211 or equivalent.

SPI 312 SPANISH FOR TECHNICAL PURPOSES. (3)
A course designed to acquaint the student with the peculiarities of Spanish for business and other technical purposes. Prereq: SPI 210 or equivalent.

SPI 315 MASTERPIECES OF SPANISH LITERATURE I. (3)
An introduction to the literature of Spain with selected readings of complete works from the major Spanish authors of the Middle Ages to the end of the 17th Century. Lecture and discussion. A history of Spanish literature is used in conjunction with selected and representative readings. Conducted in Spanish. Prereq: SPI 202 or equivalent.

SPI 316 MASTERPIECES OF SPANISH LITERATURE II. (3)
An introduction to the literature of Spain with selected readings of complete works from the major Spanish authors of the 18th Century to the contemporary period. Lecture and discussion. A history of Spanish literature is used in conjunction with selected and representative readings. Conducted in Spanish. Prereq: SPI 202 or equivalent.

SPI 318 SURVEY OF SPANISH AMERICAN LITERATURE I. (3)
An introduction to the principal literary figures and movements of Spanish America. Readings of complete works from the major Spanish American authors from the Colonial Period to Modernism. A history of Spanish American literature is used in conjunction with selected and representative readings. Conducted in Spanish. Prereq: SPI 202 or equivalent.

SPI 319 SURVEY OF SPANISH AMERICAN LITERATURE II. (3)
A basic introduction to the 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.

SPI 320 THE THEATRE IN SPAIN AND SPANISH AMERICA. (3)
A study of the theatre in Spain and Spanish America, stressing developments in the dramatic arts as seen in the works of major dramatists of the Golden Age, Modern Period, and 20th Century Spanish America. Prereq: One course of SPI 315, 316, 318, 319 or equivalent.

SPI 321 HISPANIC POETRY. (3)
Introduction to Spanish metrics and versification, and the forms and

techniques of Hispanic poetry with analysis, explication, and interpretation of poetic texts by major poets from Spain and Spanish America. Prereq: One course of SPI 315, 316, 318, 319 or equivalent.

SPI 397 INDEPENDENT WORK IN SPANISH. (3)
May be repeated once. Prereq: Major and standing of 3.0 in the Department.

SPI 400 SENIOR SEMINAR (3)
Detailed investigation of a given topic, author, or theme with emphasis on both content and methods of research. Topics, which are selected jointly by students and faculty in advance, are announced the preceding semester. Prereq: Twelve hours of course work in Spanish on the 300 level or above.

SPI 405 THE WORKS OF CERVANTES. (3)
Study and analysis of Miguel de Cervantes' *Don Quijote*, the Novelas Ejemplares, and selected dramatic works. Prereq: One course of SPI 315, 316,318, 319 or equivalent.

SPI 406 SPANISH LITERATURE OF THE 20TH CENTURY. (3)
A study of the works of the Generation of 1898 and representative works of recent writers.

SPI 407 LITERATURE OF SOCIAL PROTEST IN SPANISH AMERICA. (3)
Analysis and study of the thematic use of socio-political elements in works by Spanish American poets and prose writers. Attention is focused on the novel of the Mexican Revolution, the Indigenista novel, Criollista writers and other major groups. Prereq: SPI 318 or 319.

SPI 420 TWENTIETH CENTURY SPANISH AMERICAN LITERATURE IN TRANSLATION. (3)
A study of major literary currents in 20th Century Spanish America. Readings of selected prose and poetic works of Mistral, Vallejo, Neruda, Paz, Borges Fuentes, Vargas Llosa and others. No knowledge of Spanish required. Not open to Spanish majors.

SPI 421 MASTERPIECES OF THE SPANISH BAROQUE THEATER IN TRANSLATION. (3)
Study of selected masterworks of Lope de Vega, Tirso de Molina, and Calderon de la Barca in English translation. Introduction to the Spanish National Theater of the 17th Century. Not open to Spanish majors.

SPI 422 CERVANTES IN TRANSLATION. (3)
Readings from Cervantes' novels, short-stories, comedies, and farces, with special emphasis on *Don Quixote*, and including selections from the chivalresque, pastoral, and picaresque works that Cervantes imitates or parodies. Not open to Spanish majors.

SPI 423 LITERARY CURRENTS OF 20th CENTURY SPANISH LITERATURE IN TRANSLATION. (3)
A study of major literary currents of 20th Century Spanish literature, all genres, and analysis of the works through class discussion. Readings of selected works of Unamuno, Valle-Inclan, Baroja, Benavente, Machado, Garcia Lorca, Cela, Sender, Buero Vallejo and others. Not open to Spanish majors.

SPI 501 SPANISH PHONETICS, PRONUNCIATION AND PHONEMICS. (3)
Introduction to Spanish decriptive linguistics with intensive study of variant speech sounds and established norms in the major cultural areas of the Hispanic world with discussions of the theory and isolation of phonemes. Prereq: SPI 202.

SPI 502 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.

SPI 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.

SPI 504, 505 ADVANCED SPANISH GRAMMAR AND COMPOSITION. (3 ea.)
A study of the finer points of Spanish grammar. Prereq: SPI 210.

SPI 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.

SPI 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.

SPI 515 MASTERPIECES OF MODERN SPANISH POETRY. (3)
Study of the most significant movements from the 18th Century to the present. Prereq: SPI 315, 316.

SPI 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.

SPI 517 MASTERPIECES OF THE 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.

SPI 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.

SPI 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.

SPI 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.

SPI 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.

SPI 534 STRUCTURE OF THE SPANISH LANGUAGE. (3)
A linguistic approach to Spanish grammar with attention to its transformational aspects and comparative structure.

SPI 541 SPANISH AMERICAN SHORT STORY. (3)
A study of the Spanish American short story from Echeverria to the present with particular emphasis on Dario, Quiroga, Lillo and Borges. Prereq: SPI 319 or equivalent.

SPI 551 TUTORIAL SEMINAR FOR MAJORS IN SPANISH. (1)
Research in special topics of Spanish and Spanish American literature for majors during the senior year. May be repeated once for a total of two credits.

SPI 552 THE TEACHING OF MODERN FOREIGN LANGUAGES. (3)
A course for teachers and prospective teachers.

SPI 601 OLD SPANISH: PHONOLOGY AND PALEOGRAPHY. (3)
An intensive study of the phonology of Spanish with emphasis on the various linguistic backgrounds that developed it. Examination and study of medieval texts with exercises in paleographical transcription of medieval manuscripts.

SPI 602 OLD SPANISH: MORPHOLOGY AND SYNTAX. (3)
An intensive study of the morphology and syntax of Spanish, with emphasis on the Latin and Vulgar Latin grammatical systems which were the background of Spanish. Further examination of medieval texts with exercises in paleographical transcription of medieval manuscripts. Prereq: SPI 601.

SPI 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.

SPI 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.

SPI 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.

SPI 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.

SPI 611 MEDIEVAL SPANISH LITERATURE I. (3)
A survey of Medieval Spánish literature from the beginning to the end of the 13th Century. (SPI 604 is intended to cover the 14th and 15th Centuries.)

SPI 612 MEDIEVAL SPANISH LITERATURE II. (3)
A survey of medieval Spanish literature of the 14th and 15th Centuries.

SPI 614 THE SPANISH AND SPANISH AMERICAN BALLAD. (3)
A study of the rise and development of the Spanish and Spanish American ballad from its origins to the present. Special emphasis on both the folkloristic and literary phases of the ballard, with comparison with the English ballad, since Spain and Great Britain produced the greatest score of ballads.

SPI 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.

SPI 616 CERVANTES. (3)
The works of Cervantes, with emphasis on Don Quixote, but including other works and major works of Cervantine criticism.

SPI 617 SPANISH MEDIEVAL AND RENAISSANCE DRAMA. (3)
Readings, lectures and discussions on the origin of the Spanish vernacular drama and its growth through the 16th Century.

SPI 621 THE THEATRE OF CALDERON DE LA BARCA. (3)
The dramatic works and techniques of Calderon de la Barca.

SPI 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.

SPI 624 THE SPANISH NOVEL FROM CERVANTES TO ROMANTICISM. (3)
The post-Cervantine novel, including works by Lope, Tirso, Quevedo, Gracian, Isla and lesser novelists and novella-writers of 17th and 18th centuries.

SPI 625 MYSTIC AND ASCETIC WRITERS OF THE 16TH AND 17TH CENTURIES. (3)
A survey of ascetic and mystic writers including among others: Juan de Avila, Luis de Leon, Luis de Granada, Santa Teresa, San Juan de la Cruz.

SPI 626 LOPE DE VEGA. (3)
The major dramatic and non-dramatic works of Lope de Vega.

SPI 627 THE THEATRE OF TIRSO DE MOLINA. (3)
The dramatic works of Tirso de Molina.

SPI 628 SPANISH DRAMA FROM THE NEOCLASSIC PERIOD TO THE GENERATION OF 1898. (3)
Representative works and dramatic trends of the 18th and 19th Centuries.

SPI 629 SPANISH POETRY OF THE 16TH AND 17TH CENTURIES. (3)
An examination of several schools and forms of poetry, both lyric and narrative, in this period.

SPI 630 PROSE FICTION FROM THE ROMATIC PERIOD TO THE GENERATION OF 1898. (3)
The major schools of fiction from the Romatic Period through the Generation of 1898.

SPI 632 SPANISH DRAMA FROM THE GENERATION OF 1898 TO THE PRESENT. (3)
Representative works of the major dramatists and dramatic trends from Benavente and his contemporaries through Garcia Lorca, Casona and Buero Vallejo.

SPI 633 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.

SPI 634 PROSE FICTION FROM THE GENERATION OF 1898 TO THE PRESENT. (3)
Studies in most important novels and short stories of the later part of the modern period, produced from 1930 to the present.

SPI 635 THE SPANISH ESSAY FROM THE 18TH CENTURY TO THE PRESENT. (3)
An examination of the intellectual preoccupation of Modern Spain as expressed in the essay from the 18th Century to the present.

SPI 641 SPANISH AMERICAN NOVEL: MEXICO, CENTRAL AMERICAN, 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.

SPI 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.

SPI 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 Juana Ines de la Cruz and the Romantics.

SPI 644 SPANISH AMERICAN POETRY: MODERNISM TO THE PRESENT. (3)
Representative works of the principal poets of the Modernist Period to the present.

SPI 648 LITERARY CURRENTS IN CONTEMPORARY SPANISH AMERICAN FICTION. (3)
An examination of the outstanding works of Spanish American authors during the past 10 ten years, with emphasis on literary innovations and new currents in the novel, short story, poetry and drama.

SPI 651 BIBLIOGRAPHY AND METHODS OF RESEARCH. (3)
Investigation of Spanish bibliography and modern methods of research designed to provide guidance to the graduate student leading to an understanding of research methods and publication. Taught by various members of the staff, with each member dealing with his own specialty.

SPI 768 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

SPI 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

SPI 770 SEMINAR IN SPANISH LITERATURE. (3)
A seminar designed to provide intensive study of a literary, scholarly, or intellectual problem of Spanish letters not covered as such in any of the above listed offerings. Prereq: Twenty-one semester hours of college Spanish. May be repeated for a total of six credits.

SPI 771 SEMINAR IN HISTORICAL LINGUISTICS. (3)
Intensive study of specific problems in the medieval Spanish language. Prereq: SPI 601-602 or equivalent.

SPI 772 SEMINAR IN MEDIEVAL SPANISH LITERATURE. (3)
Special and intensive study of a single problem in medieval Spanish literature. Prereq: SPI 601-602 or equivalent. May be repeated for a total of six credits.

SPI 773 SEMINAR IN GOLDEN AGE NON-DRAMATIC LITERATURE. (3)
Special and intensive study of the work or works of a single Golden Age writer or of a movement in the non-dramatic literature of the Golden Age. May be repeated for a total of six credits.

SPI 774 SEMINAR IN GOLDEN AGE THEATRE. (3)
Special and intensive study of a specific area of the Golden Age theatre. May be repeated for a total of six credits.

SPI 775 SEMINAR IN MODERN SPANISH LITERATURE. (3)
Seminar in the recent Premio Nadal novels and other post-Civil War novelists. May be repeated for a total of six credits.

SPI 776 SEMINAR IN SPANISH AMERICAN LITERATURE. (3)
Special and intensive study of particular areas of Spanish American literature. May be repeated for a total of six credits.

SPI 782 SPECIAL STUDIES IN SPANISH. (3)
Selected studies and investigations in the Spanish language and literature, permitting the student to work in areas of special interest and providing opportunity for orginal endeavor. May be repeated once.

ITALIAN

SPI 009 ITALIAN FOR READING KNOWLEDGE. (0)
This course is designed to meet the needs of upper division and graduate students who are preparing for the graduate reading examination or who need a reading knowledge of Italian in their minor (for example, in English or in French or Spanish).

SPI 191 ELEMENTARY ITALIAN. (3)
A study of the grammar and composition of Italian.

SPI 192 ELEMENTARY ITALIAN. (3)
A continuation of SPI 191. Prereq: SPI 191.

SPI 263 MASTERPIECES OF ITALIAN LITERATURE IN TRANSLATION. (3)
A study of representative Italian writers and their works in an European context, using anthologies and complete texts where necessary.

SPI 291 INTERMEDIATE ITALIAN. (3)
Review of grammatical principles and readings of selected Italian works. Prereq: SPI 192.

SPI 292 INTERMEDIATE ITALIAN. (3)
A continuation of SPI 291. Prereq: SPI 291.

SPI 295 ITALIAN CONVERSATION AND COMPOSITION. (3)
Italian conversation and composition. Prereq: SPI 292 or equivalent.

SPI 296 ITALIAN CIVILIZATION. (3)
A study of Italian civilization, with emphasis on historical and cultural developments. Prereq: SPI 292 or equivalent.

SPI 395 INDEPENDENT STUDIES. (1 or 2)
Independent studies designed for the outstanding Italian major and, by permission, for students with related majors and adequate preparation in Italian. May be repeated 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.

SPI 543 SURVEY OF ITALIAN LITERATURE I. (3)
A survey of Italian Literature from its beginnings to the 17th Century. Prereq: SPI 292 or 009.

SPI 544 SURVEY OF ITALIAN LITERATURE II. (3)
A survey of Italian literature from the 17th Century to the present. Prereq: SPI 292 or 009.

SPI 561 OLD ITALIAN. (3)
An intensive study of the Old Italian language and its derivation, with mention of the development of the more important dialects along with the modern language. Examinations and study of medieval texts. Prereq: Adequate reading knowledge of modern Italian.

SPI 563 DANTE I. (3)
Dante, the Vita Nuova and the Divina Commedia, Inferno. Prereq: SPI 543 or 544 or consent of instructor.

SPI 564 DANTE II. (3)
Dante. The Divina Commedia: Purgatorio and Paradiso. Prereq: SPI 563.

SPI 565 PETRARCH AND BOCCACCIO. (3)
Study of the Italian works of Petrarch and Boccaccio. Prereq: SPI 543 or 544, or consent of instructor.

SPI 566 LITERATURE OF THE ITALIAN RENAISSANCE. (3)
A study of the major literary trends and figures of the Italian Renaissance, from the literary and humanistic successors of Petrarch and Boccaccio to the writers of the Cinquecento. Prereq: SPI 543 or 544 or consent of instructor.

SPI 571 MODERN ITALIAN NOVEL. (3)
A study of the origins and development of the modern Italian novel, with emphasis on major 19th Century trends as represented by the works of Foscolo, Manzoni, Verga, Fogazzaro, and D'Annunzio, and on Pirandello and selected contemporary novelists. Prereq: SPI 292 or consent of instructor.

SPI 572 MODERN ITALIAN DRAMA. (3)
A study of the origins and development of modern Italian drama, from Goldoni and Alfieri in the 18th Century, through Verga and D'Annunzio to Piradello, Betti, Sem Benelli and other contemporary dramatists. Prereq: SPI 292 or consent of instructor.

SPI 573 MODERN ITALIAN POETRY. (3)
A study of the development of modern Italian Poetry, with emphasis on major figures and trends, and close reading of texts. Prereq: SPI 292 or consent of instructor.

SPI 591 DANTE IN TRANSLATION. (3)
A study of the works of Dante from the literary viewpoint. Emphasis given to his sources, his enormous impact upon subsequent Italian and European literatures. The Divine Comedy is the focal point of the course, but the poet's lesser works are studied. Not open to graduate students in Italian.

SPI 592 ITALIAN RENAISSANCE MASTERPIECES IN TRANSLATION. (3)
A study of the great authors of the Italian Renaissance and their works in English translation: Petrarch, Boccaccio, Poggio, Piccolomini, Bruni, Pontano, and others. Not open to graduate students in Italian.

SPI 593 MODERN ITALIAN LITERATURE IN TRANSLATION. (3)
A study of the major trends and figures of 19th and 20th Century Italian literature.

RUMANIAN

SPI 461 RUMANIAN I. (3)
An intensive and practical study of the Rumanian language, with emphasis on ability to read modern literary and expository texts. Prereq: Knowledge of a Romance or Slavic language, or consent of instructor.

SPI 462 RUMANIAN II. (3)
A intensive and practical study of the Rumanian language, with emphasis on ability to read modern literary and expository texts. Prereq: Knowledge of a Romance or Slavic language, or consent of instructor.

SPEECH

SP 181 BASIC PUBLIC SPEAKING. (3)
A course designed to give the student platform experience in the fundamentals of effective speaking.

SP 183 PARLIAMENTARY USAGE. (2)
The theory and practice of parliamentary procedure as it applies both to governmental and non-governmental organizations. Ample time is allocated for practice in organizing groups and conducting meetings.

SP 184 INTERCOLLEGIATE DEBATING. (1)
Preparation for and participation in intercollegiate debating. May be repeated once for a total of two credits.

SP 280 DISCUSSION. (3)
A study of communication processes in small group situations including participation in the various forms of discussion.

SP 283 ARGUMENTATION AND DEBATE. (3)
A course in the theory of argument, with practice in the several forms of debate.

SP 284 INTERCOLLEGIATE DEBATING. (1)
Preparation for and participation in intercollegiate debating. May be repeated three times for a total of four credits.

SP 285 APPLIED PHONETICS. (3)
Study of the phonetic structure of English language with requirement of master of international Phonetic Alphabet. Emphasis will be placed on phonetic transcription, and application will be made for students interested in general speech, speech correction, radio, television, and theatre. (Same as EDS 285.)

SP 287 PERSUASIVE SPEAKING. (3)
A study of the processes involved in attitude change, with emphasis on the preparation and delivery of persuasive messages.

SP 288 ORAL INTERPRETATION. (3)
An analysis of prose and poetry for oral interpretation. Helpful to those who plan to teach literature.

SP 325 BUSINESS AND INDUSTRIAL COMMUNICATION. (3)
A study of the communication process as it applies to large organizations, specifically business and industries. Emphasis is placed on the speech channel presentations, conferences, and one-to-one communication. Work is evenly divided between communication theory and practical exercises. Lecture, three hours; laboratory, one hour.

SP 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.

SP 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.

SP 500 SPEECH ANALYSIS AND PERCEPTION. (3)
Physics of sound; acoustic and structural properties of speech and their relationship to speech perception; analysis of speech intensity, fundamental frequency, wave composition, and time (rate, duration, and transitional change). (Same as EDS 500.)

SP 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.

SP 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.

SP 583 STUDIES IN ARGUMENTATION. (3)
A study of the theories of argumentation and debate as derived from rhetorical, philosophical and psychological sources; critical examination of representative examples of oral argument.

SP 584 TEACHING OF SPEECH. (3)
An analysis of the field of speech education as related to the teacher of speech.

SP 585 AMERICAN PUBLIC ADDRESS TO 1865. (3)
An historical and critical study of public discussion in the United States, from the Colonial Period to 1865, through the analysis of major speakers, speeches, and debates. Prereq: Permission of instructor.

SP 586 AMERICAN PUBLIC ADDRESS SINCE 1865. (3)
An historical and critical study of public address in the United States from 1865 to the present. Prereq: Permission of instructor.

SP 588 ORAL INTERPRETATION DRAMA. (3)
The cutting and adapting of the three-act play for oral presentation.

SP 589 DIRECTION OF FORENSIC ACTIVITIES. (3)
The organization, administration, and management of the forensic program with special emphasis on a study of current attitudes and approaches. Three lecture hours and two observation hours per week. Prereq: Six hours of speech or consent of instructor.

SP 687 STUDIES IN ANCIENT AND MEDIEVAL RHETORIC. (3)
A comparative and critical study of the major treatises on the art of speaking, from the time of Aristotle to the Renaissance, with attention to the rhetorical practice, criticism, and pedagogy of the succeeding periods. Prereq: Permission of instructor.

SP 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.

SP 780 DIRECTED STUDIES. (3)
Independent work devoted to study and research on specific subjects and problems according to the interests and needs of individual students. May be repeated twice for a maximum of nine credits.

SP 782 SPECIAL TOPICS IN SPEECH. (3)
Study and research on specific topics and problems according to the interests and needs of individual students. Normally offered as an independent work course.

STATISTICS

STA 291 STATISTICAL METHOD. (3)
Introduction to principles of statistics. Statistical description of sample data including frequency distributions, measures of central tendency, and measures of dispersion. Theoretical distributions, statistical estimation, and hypothesis testing. Introduction to simple linear regression and correlation. Prereq: MA 113 or MA 122 or equivalent.

STA 292 DESCRIPTIVE STATISTICS. (1)
Graphical and tabular description of data; measures of central tendency and variation, scattergrams, correlation and best-fitting lines; index numbers. Prereq: MA 113 or 122 or consent of instructor.

STA 293 PROBABILITY. (1)
Experiments and sample spaces; elementary and conditional probability; counting principles; random variables; distribution and expectation; normal and binomial distributions. Prereq: MA 113 or 122 or consent of instructor.

STA 294 SAMPLING AND INFERENCE. (1)
Sampling; sampling behavior of X and 2; confidence intervals and tests of hypotheses about the mean and variance of a normal population: the X^2 and t-distributions. Prereq: STA 292 and 293.

STA 300 STATISTICS: A FORCE IN HUMAN JUDGEMENT. (3)
This course is concerned with the interaction of the Science and Art of Statistics with our everyday lives. Topics include the nature of statistics, uses and misuses of statistics, the scope and limitations of statistics, criteria by which published statistics may be judged, interpretation of probability and the art of decision making. Prereq: Junior standing or consent of instructor.

STA 370 INTRODUCTION TO STATISTICS. (4)
Basic principles and applications of statistics; elementary probability; populations, theoretical distributions and descriptive statistics; sampling derived distributions and estimation; hypothesis testing; introduction to inference from categorical and metric data. Three class hours per week; two laboratory hours per week.

STA 381 INTRODUCTION TO ENGINEERING STATISTICS. (3)
Probability; population aand sample distributions; sampling; hypothesis testing; regression on one variable; quality control. Lecture, three hours. Coreq: MA 214.

STA 421 BASIC STATISTICAL THEORY I. (3)
Discrete and continuous probability distribution; simple random sampling; point and interval estimation; hypothesis testing. Coreq: MA 214.

STA 422 BASIC STATISTICAL THEORY II. (3)
Theory of least squares; regression; analysis of variance and covariance; experimental design models; factorial experiments; variance component models. Prereq: STA 421.

STA 423 INTRODUCTORY PROBABILITY. (3)
Set theory; fundamental concepts of probability, including conditional and marginal probability; random variables and probability distributions (discrete and continuous); expected values and moments; moment-generating and characteristic functions; random experiments; distributions of random variables and functions of random variables; limit theorems. Prereq: MA 214. (Same as MA 423.)

STA 482 DISCRETE MEHTODS AND MODELS IN APPLIED MATHEMATICS. (3)
Probability on finite sample spaces, combinatorial mathematics, finite Markov chains, linear programming, theory of games. Prereq: MA 214 or equivalent. (Same as CS 482, MA482.)

STA 511 STATISTICAL ANALYSIS. (3)
Procedures for collecting and summarizing population data; index members; measures of central tendency and dispersion; random sampling; empirical frequency distribution; point and interval estimators; control charts; hypothesis testing, goodness-of-fit; contingency tables; equality of means and variances; simple analysis of variance; multiple comparison; simple regression and correlation. Coreq: STA 421 or STA 531.

STA 524 DISCRETE PROBABILITY. (3)
Sample space, combinatorial methods, combination of events, laws of large number, 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.)

STA 531 THEORY OF STATISTICAL INFERENCE I. (4)
Sample space, concept of probability, conditional probability, random variables, density and distribution functions, mathematical expectation; moment generating functions; functions of random variables; limit laws, usual distributions, certain derived distributions, introduction to estimation and hypothesis testing. Prereq: MA 432 or MA 471 or consent of insturctor. (Same as MA 531')

STA 601 THEORY OF STATISTICAL INFERENCE II. (3)
Elements of dicision theory; properties of estimators; point and interval estimation; hypotheses-testing; sequential testing; inference from categorical data; linear regression as conditional expectation; multivariate normal distribution. Prereq: STA 531.

STA 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. Coreq: STA 531 and MA 462.

STA 603 DESIGN AND ANALYSIS OF EXPERIMENTS. (3)
One-way layout; multiple comparison. Two-way layout with fixed, random and mixed models and interaction. General complete factorial disign, including nested factors. Prereq: STA 602.

STA 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 602.

STA 616 DESIGN AND ANALYSIS OF SAMPLE SURVEYS. (3)
Sampling from finite populations; estimation of sample size; stratification; ratio and regression estimators; systematic sampling; cluster sampling; multistage sampling (selection of sampling units with probability proportional to size); double sampling; response errors. Prereq: STA 421 or coreq: STA 531.

STA 624 ADVANCED PROBABILITY I. (3)
Markov chains, birth and death processes, renewal theory, central limit theorem, stochastic processes. Prereq: MA/STA 524 or 531. (Same as MA 624.)

STA 630 BAYESIAN INFERENCE. (3)
Subjective probability, liklihood principle, sufficiency, natural conjugate priors, principle of stable estimation, choice of a utility function, parametric estimation and hypothesis testing applications. Prereq: STA 601.

STA 641 DESIGN AND ANALYSIS FOR VARIANCE COMPONENT MODELS. (3)
Expected values, variances and covariances; balanced and non-balanced designs; comparison of esstimators; reduction of product variability; compositing; sequential disigns; Bayesian estimation; confidence limits; negative estimates; finite populations. Prereq: STA 602.

STA 642 RESPONSE SURFACE TECHNIQUES. (3)
Analysis in vicinity of stationary point; canonical analysis; steepest ascent for locating optima; first order disigns for fitting response surfaces; orthogonal designs; second order designs; rotatability; central composite designs; conditions for orthogonal blocking; designs to minimize bias and mean squared error; designs for sets of constrained variables. Prereq: STA 603.

STA 643 ADVANCED EXPERIMENTAL DESIGN. (3)
Advanced topics in analyses of incomplete block desings; confounding and change-over designs; data collected at several places and times; principles of design construction. Prereq: STA 603.

STA 644 ADVANCED TOPICS IN DATA ANALYSIS. (3)
Analysis of data from designed experiments but with missing plots. Biased estimation procedures for multiple regression. Optimization techniques. Nonlinear regression. Analysis of categorical data having a linear or nonlinear model. Prereq: STA 602, knowledge of Fortran programming language.

STA 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.

STA 661 MULTIVARIATE ANALYSIS I. (3)
Characterization and properties of the multivariate normal distribution, random sample from this distribution; multivariate analysis of variance, related distribution theory; factor analysis. Prereq: STA 601, STA 602.

STA 665 ANALYSIS OF CATEGORICAL DATA. (3)
Miltinominal and product-multinomial models; large-sample theory of estimation and testing, Pearson chi-square and modified chi-square statistics, Pearson-Fisher Theorem, Wald Statistics and generalized least squares technique; applications to problems of symmetry, association and hypotheses of no interaction in multi-dimensional contingency tables. Prereq: STA 601, or 602.

STA 670 BASIC STATISTICAL ANALYSIS. (4)
Primarily in biological, behavioral and social sciences. Introduction to methods of analyzing data from experiments and surveys; the role of statistics in research, statistical concepts and models; probability and distribution functions; estimation; hypothesis testing; regression and correlation; analysis of single and multiple classification models; analysis of categorical data. Three class hours, two laboratory hours per week. Prereq: Previous statistical experience or consent of instructor.

STA 674 STATISTICAL ANALYSIS AND EXPERIMENTAL DESIGN. (3)
Multiple comparison; individual degrees of freedom; multiple regression; covariance; methods of constructing designs for experimental investigations; concepts of blocking, randomization and replication; expermental unit technique; complete and incomplete block design; response surface methodology. prereq: STA 670.

STA 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.

STA 677 APPLIED MULTIVARIATE METHODS. (3)
Survey of multivariate statistical techniques. The multivariate normal distribution; the general linear models; general procedures for parameter estimation and hypothesis testing in the multivariate case; Hotelling's T^2, multivariate analysis of variance and covariance; structural models for the covariance matrix; utilization of existing computer programs. Prereq: STA 671 and 672, and a knowledge of linear algebra equivalent to MA 262.

STA 678 STATISTICAL GENETICS. (3)
Statistical approaches to the analysis of quantitative inheritance; definition and estimation of genetic parameters relating to selection; inbreeding theory; random-mating and inbred populations; testing and planning in genetic experiments. Prereq: STA 672 and BIO 620 or consent of instructor. (Same as AGR 678 and BIO 678.)

STA 681 STATISTICAL TECHNIQUES FOR ENGINEERS AND PHYSICAL SCIENTISTS. (3)
Primarily in the engineering and physical sciences. Random variables; distribution functions; hypothesis testing; simple and multiple regression; transformations; estimation of functional relationships from experimental data; full, fractional and central composite designs. Two lecture hours per week; two laboratory hours per week. Prereq: MA 214.

STA 690 SEMINAR IN STATISTICS. (1)
Seminar—may be taken a maximum of two times.

STA 691 SPECIAL TOPICS IN THE PLANNING AND ANALYSIS OF EXPERIMENTS. (3)
Place of statistics in experimentation; topics in experimental design; response surfaces; departures from usual assumptions in analysis of variance; other selected topics. Prereq: STA 603 or consent of instructor. May be repeated to maximum of nine credits.

STA 695 SPECIAL TOPICS IN STATISTICAL THEORY. (3)
To be selected by staff. May be repeated to maximum of nine credits. Prereq: STA 601.

STA 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; suffciency and completeness in unbiased estimation; umbiased and minimax prediction; estimation by confidence sets; Stein's two-stage procedure. Prereq: STA 601. Coreq: MA 572 or equivalent.

STA 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.

STA 703 ADVANCED PROBABILITY II. (3)
Review of probability spaces; general stochastic processes; spectral anaylsis of stationary random processes; infinitely divisible distributions; theory of queues. Prereq: MA/STA 624; Coreq: MA 572. (Same as MA 703.)

STA 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.

STA 722 TOPICS IN NONPARAMETRIC INFERENCE. (3)
Order statistics, estimation of density function, rank orders; rank order tests; sequential nonparametric procedure, asymptotic normality and efficiency. Prereq: STA 721.

STA 762 MULTIVARIATE ANALYSIS II. (3)
A more rigorous study of distribution theory than in STA 661; random and mixed effects models; multivariate non-normal analysis. Assorted other topics. Prereq: STA 661.

STA 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated. (1 to 6 credits equivalence.)

STA 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1 to 12 credits equivalence.)

SURGERY

SUR 831 SURGICAL CLERKSHIP. (13)
This 10-week clerkship provides didactic teaching and practical experience in the principles of basic surgery and selected surgical specialties. Prereq: Admission to third year, College of Medicine.

TELECOMMUNICATIONS

TEL 101 TELECOMMUNICATIONS TODAY. (3)
An introductory survey of telecommunications emphasizing human behavior connected with communications systems characterized by

high order economies of scale in distribution patterns. Includes present telecommunication industries, their histories, constraints, operations, content, revenue and cost patterns, evolving technologies. Open to seniors with consent of instructor. Two hours lecture and one discussion hour per week.

TEL 305 TELECOMMUNICATIONS PROGRAM ANALYSIS. (3)
Course designed to assist student in developing criteria for analyzing structure and content of program material and for analyzing the relationships of audience programs, and American telecommunication systems. Two lecture hours and two laboratory hours per week. Prereq: TEL 101.

TEL 312 SIGNS, IMAGES, AND SYMBOLS. (3)
An exploration of the creative use of image making and symbol making in the encoding of broadcasting and film messages. Aspects of comprehension, observation, perception, and representation are to be studied. Lecture, two hours; viewing two hours per week; laboratory, two hours.

TEL 395 INDEPENDENT STUDY. (1-3)
Designed for advanced students with research or special study problems. Regular consultation with the instructor. May be repeated not to exceed six credits. Enrollment normally limited to juniors and seniors with a 3.0 standing in telecommunications. These requirements may be waived by the Department in exceptional circumstances.

TEL 432 FILM PRODUCTION. (2)
Integration of visual images with emphasis on idea presentation, form, and structure for motion pictures. Lecture, one hour; laboratory, four hours per week. Prereq: TEL 312.

TEL 500 TELECOMMUNICATIONS AUDIENCE ANALYSIS. (3)
An introduction to behavioral research relating to telecommunications basic survey and experimental methodology including reliability of simple measurements. Prereq: TEL 305 and 312, or consent of instructor.

TEL 501 TELECOMMUNICATIONS REGULATIONS. (3)
A study of the governmental regulations of telecommunications by the FCC, and other federal, state and local agencies; licensing, libel and slander, copyrights, illegal practices, self regulation.

TEL 504 TELESYSTEMS. (3)
To introduce students to the principles of modern telesystems management as applied to telecommunications properties. Prereq: Consent of Department.

TEL 505 TELECOMMUNICATIONS PROGRAM POLICIES. (2)
The determination of program policies, program scheduling, and program planning for a community. Prereq: TEL 500.

TEL 507 THE PUBLIC AFFAIRS PROGRAM. (2)
The role of broadcasting in politics, public affairs, education, and the arts. A consideration of the factors which determine the form, function, and method used by documentaries, interviews, newcasts, and their program forms. Lecture. two hours per week; laboratory, two hours per week. Prereq: TEL 500.

TEL 510 BROADCAST ADVERTISING. (3)
The data and techniques of radio and television advertising, including problems of coverage and circulation, spot campaigns, testing, time buying, the agency, measuring broadcast effectiveness, merchandising radio and television advertising and time selling.

TEL 511 TELECOMMUNICATIONS INSTRUCTIONAL SYSTEMS. (3)
The course is designed to assist telecommunications professionals and students to design, operate and evaluate telecommunications tools and materials in support of organized instruction. Three hours lecture and two hours laboratory per week. Prereq: Consent of Department.

TEL 512 TELETECTONICS. (3)
Each student will design, create, and test a telecommunications statement utilizing one or more media for the recording and presentation of messages. Students will be required to test the effectiveness of the message. May be repeated to a maximum of six credits. Four hour laboratories. Prereq: TEL 305, 312, 500, or consent of Department.

TEL 530 PROSEMINAR IN RADIO AND TELEVISION. (2)
Discussion and reports on current broadcasting highlights and problems. Required of all seniors.

TEL 599 TELECOMMUNICATIONS TOPICAL SEMINAR. (2)
In-depth seminar approach to a single topical issue in telecommunications. Different topical issues each offering. Course will be offered on demand. May be repeated to a maximum of six credits. Prereq: Consent of Department.

TEXTILES, CLOTHING AND MERCHANDISING.

TC 102 BASIC DESIGN FOR HOME ECONOMICS. (3)
Application of basic principles of design to home economics through the use of the art elements. A laboratory provides opportunity of working with and applying the elements and principles to the student's major area of study. One hour lecture and two hours laboratory. (Same as HID 102.)

TC 120 INTRODUCTION TO TEXTILES. (3)
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, two hours; laboratory, two hours.

TC 227 PRINCIPLES OF CLOTHING CONSTRUCTION AND SELECTION. (3)
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; laboratory, four hours. Prereq: HID 102.

TC 325 DRAPING. (3)
The media of draping used in the interpretation of dress design terminating in finished garments. Dress forms must be ordered through Textiles, Clothing, and Merchandising Department during pre-registration. Lecture, one hour; laboratory, four hours. Prereq: TC 227 or consent of instructor.

TC 327 FAMILY APPAREL. (2)
Budgeting and related problems of clothing consumption experienced during the various stages of the family life cycle.

TC 328 FLAT PATTERN DESIGN. (3)
The media of flat pattern used in the interpretation of dress design terminating in finished garments. Lecture, one hour; laboratory, four hours. Prereq: TC 227 or consent of instructor.

TC 420 TAILORING. (3)
Analysis of tailoring techniques in the shop and in the home. Tailored garments are planned and constructed. Lecture, one hour; laboratory, four hours. Prereq: TC 227 or consent of instructor.

TC 422 ECONOMICS OF CLOTHING. (3)
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; laboratory, two hours. Prereq: Consent of instructor.

TC 520 TEXTILES II. (3)
Consideration of recent textile developments with emphasis on man-made fibers, new construction techniques and finishes. Opportunity for individual investigation. Lecture, one hour; laboratory, four hours. Prereq: TC 120, CHE 104 or CHE 112.

TC 523 SOCIO-PSYCHOLOGICAL AND ECONOMIC ASPECTS OF APPAREL. (3)
A study of the social, cultural, psychological and economic factors which influence apparel and apparel use with particular emphasis on present day apparel in America. Prereq: SOC 101 or ANT 121 and ECO 260.

TC 524 HISTORY OF COSTUME. (3)
Development of costume from ancient to modern times with consideration of historic, social, and economic setting. Lecture, two hours; laboratory, two hours. Prereq: HID 102 or consent of instructor.

TC 529 THE CHILD AND HIS CLOTHING. (3)
A detailed study of the selection, cost and care of the preschool child's clothing in relation to his needs. Lectures and occasional field trips. Prereq: HF 255.

TC 532 RETAIL JOB ANALYSIS. (5)
Supervised experience in merchandising procedures through a cooperative program with a retail establishment. (One half semester of eight-hour a day weeks.) Prereq: TC 523, 422, BA 330.

TC 534 DECORATIVE TEXTILES. (2)
Survey of techniques used in creating design in fabrics with individual problems and in-depth studies. Lecture, one hour; laboratory, two hours. Prereq: TC 120.

TC 535 TEXTILES AND DESIGN STUDY TOUR. (1-3)
A domestic or foreign study tour to include investigation of interests related to textiles and design. Professional visits are planned according to the particular itineraries. Prereq: Six hours of textiles and design or consent of instructor. May be repeated for a total of six credits.

TC 592 SPECIAL PROBLEMS IN CLOTHING COSTUME DESIGN. (1-3)
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.

TC 597 SPECIAL PROBLEMS IN TEXTILES. (1-3)
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.

TC 772 SEMINAR IN TEXTILES AND CLOTHING. (2)
Current investigation of textiles and apparel. Lecture, two hours. May be repeated once.

TC 782 SPECIAL PROBLEMS IN CLOTHING AND COSTUME DESIGN. (1-3)
Independent advanced work on a specific problem. May be repeated for a total of six credits.

TC 787 SPECIAL PROBLEMS IN TEXTILES. (1-3)
Independent advanced work on a specific problem. May be repeated for a total of six credits. (Same as HID 787.)

THEATRE ARTS

TA 120 PRINCIPLES OF THEATRE. (3)
The cultivation of judgment, perception and creative response to theatre through the exploration of ideas—historical and current—about audience, text, space and actor.

TA 121 INTRODUCTION TO THEATRE ARTS. (3)
A team-taught course that explores the areas of acting, directing, design, history, criticism, technical production, costuming, and theatre practice and procedure.

TA 140 STAGE SPEAKING I. (2)
An introduction to the basic techniques of stage speaking. Two class hours per week; two laboratory hours per week. Prereq: Prospective theatre arts majors, others by consent of instructor.

TA 141 STAGE SPEAKING II. (2)
A continuation of the study and practice of vocal techniques with emphasis on individual problems and training in stage dialects. Lecture, two hours; laboratory, two hours. Prereq: TA 140 or consent of instructor.

TA 150 PRODUCTION PRACTICUM. (1)
The study and practice of production techniques through rehearsal and performance. May be repeated three times for a total of four credits. Pass/fail only. Prereq: Permission of instructor.

TA 151 PERFORMANCE PRACTICUM. (1)
The study and practice of acting and directing through rehearsal and performance. May be repeated three times for a total of four credits. Pass/fail only. Prereq: Permission of instructor.

TA 190 SUMMER THEATRE WORKSHOP. (3)
Open to apprentice students in the Summer Theatre. Classes in the theory and application of acting, directing and production principles supplemented by assignments in the University's Summer Theatre. Admission by permission of staff. Students may receive credit for not more than two of the three courses. TA 190, 292 and 293. Lecture, three hours; laboratory, to be scheduled. Prereq: Acceptance as an apprentice student in the Summer Theatre.

TA 195 INTRODUCTION TO TECHNICAL THEATRE. (3)
An introduction to all phases of technical theatre, including setting, lighting, properties, costumes, make-up, sound. Theory and techniques of play production and management. Lecture, three hours; laboratory, five hours.

TA 201 ACTING I. (3)
An introduction to the basic language and responsibilities of the actor: historical and contemporary theories of acting, script analysis, elementary stage movement, approaches to characterization and examination of the actor-audience relationship.

TA 202 ACTING II. (3)
A continuation of 201 with increased emphasis on individual growth and creative developments. Lecture, two hours; laboratory, two hours. Prereq: TA 201 or consent of instructor.

TA 290 STAGECRAFT. (3)
Study of theory, principles and techniques of stage construction. Assignments in laboratory and backstage during rehearsals and performances. Lecture, two hours; laboratory, five hours. Prereq: TA 195 or consent of instructor.

TA 294 SCENOGRAPHICS I. (2)
Principles of drawing for the stage: sketching, lettering, ground plans, line drawings. The language of stage design and the use of design instruments. Lecture, two hours; laboratory, three hours. Prereq: TA 195 or consent of instructor.

TA 295 STAGE LIGHTING. (2)
Theory and practice of lighting for the theatre: electricity, instruments, control, design. Lecture, two hours; laboratory, three hours. Prereq: TA 195 or consent of instructor.

TA 296 MAKEUP FOR THE THEATRE. (2)
Theory and practice in the principles, materials and application of makeup. Lecture, two hours; laboratory, two hours. Prereq: TA 195 or consent of instructor.

TA 385 PRINCIPLES OF DIRECTING. (3)
Discussion and practice of the director's basic techniques, methods and responsibilities. Lecture, two hours; laboratory, two hours. Prereq: Major or consent of instructor.

TA 387 SEMINAR IN THEATRE. (3)
Advanced reading and discussion in theatre theory and criticism. May be repeated once for a total of six hours. Prereq: Major or consent of instructor.

TA 390 COSTUME DESIGN I. (3)
A lecture-laboratory course to teach basic history, theory and practical construction of costume for the stage. Three class hours; five laboratory hours per week.

TA 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; five laboratory hours per week. Prereq: TA 390.

TA 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.

TA 588 CONTEMPORARY THEATRE. (3)
Philosophies and aesthetics of recent theatre and their effect on current practice.

TA 589 HISTORY OF THEATRE IN THE U. S. (3)
Theatre as a social force and art form in the United States from the Pre-Colonial Period to 1950.

TA 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.

TA 591 HISTORY OF THE THEATRE II. (3)
A continuation of TA 590, a study of the theatre from the Jacobean period to the present.

TA 592 SCENE DESIGN I. (3)
Study of theory, principles and techniques of scene and lighting design for the contemporary theatre. Comprehensive analysis of a play and the development of a design through the media of floor plans, lighting plot, and perspective line drawings. Three class hours per week plus laboratory assignments. Prereq: TA 292 or 293 or consent of instructor.

TA 593 SCENE DESIGN II. (3)
Intensified and expanded application of TA 592. Advanced theory and practice in scene and lighting design for the theatre. Three class hours per week plus laboratory assignments. Prereq: Consent of instructor.

TA 594 ACTING III. (3)
Study of acting styles from antiquity to the present, with emphasis on important acting periods. Lecture and weekly demonstrations for the development of skill. Two hours of lecture and two hours of laboratory weekly. Prereq: TA 202 or consent of the instructor.

TA 595 ACTING IV. (3)
Study and acting of scenes from classical and modern dramatic literature. Intensive application of techniques studied in TA 201, 202, 594. Two hours lecture; two hours laboratory. Prereq: TA 594 or consent of instructor.

TA 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. Prereq: Consent of instructor.

TA 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.

TA 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.

TA 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.

TA 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.

TA 691 STUDIES IN TECHNICAL THEATRE: LIGHTING. (3)
Investigation and critical evaluation of lighting practice and artistry in the contemporary theatre. Prereq: Consent of instructor.

TA 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; two laboratory hours per week. May be repeated once for a total of six credits. Prereq: Consent of instructor.

TA 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.

TA 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; laboratory, two hours per week. May be repeated once for a total of six credits.

UNIVERSITY WIDE

UK 300 UNIVERSITY COURSE. (1-3)
A special interdisciplinary topical course sponsored by faculty from two or more colleges, to be approved by the Undergraduate Council. A particular course may be taught only twice under this number. Open to upper division students. Subject to limits or prerequisites set by instructor. Prereq: As set by instructor.

UNIVERSITY YEAR FOR ACTION

UYA 396 WORK-STUDY PROJECT. (1-12)
Residence credit for participants in University Year For Action Programs. Consent of the major department and college required for admission. May be repeated for a total of no more than 30 credits.

UYA 700 SERVICE—LEARNING INTERNSHIP PROJECT. (1-12)
Residence credit for participants in the University of Kentucky University Year for Action program. Consent of the major department and college required for admission. May be taken or repeated for no more than one-third of the total credits in the relevant degree program. Prereq: Approval by the director of Graduate Study in the appropriate area.

VETERINARY SCIENCE

VS 350 INTRODUCTORY ANATOMY, PHYSIOLOGY, AND ANIMAL HYGIENE. (3)
A study of anatomy and physiology as related to courses in livestock production, judging, nutrition, meats and diseases, and introduction to the basic mechanism of animal disease and the relationship of animal hygiene.

VS 351 PRINCIPLES OF ANIMAL HYGIENE AND DISEASE CONTROL. (3)
A 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.

VS 395 SPECIAL PROBLEMS IN VETERINARY SCIENCE. (3)
Prereq: VS 350, 351, and approval of instructor. May be repeated once for a total of six credits.

VS 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

VS 770 VETERINARY SCIENCE SEMINAR. (1)
Required of graduate students in veterinary science. May be repeated to a maximum of six credits. Prereq: Permission of staff.

VS 781 CORRELATIVE PATHOLOGY. (1-3)
Supervised experience in the use of clinical, gross and histopathological technics in the differential and definitive diagnosis of diseases. May be repeated for a total of nine credits. Prereq: Pathology in D.V.M. curriculum or equivalent and permission of staff.

VS 782 NUTRITIONAL PATHOLOGY. (3)
The pathogenesis and physiopathology of deficiency states in domestic and laboratory animals. Prereq: Pathology in D.V.M. curriculum or equivalent and approval of staff.

VS 783 INFECTIOUS DISEASES OF DOMESTIC ANIMALS. (3)
Etiology, pathogenesis, epizootiology, prophylaxis and therapy of selected infectious diseases of domestic animals. Prereq: Microbiology and pathology in D.V.M. curriculum or equivalent and approval of staff.

VS 784 ADVANCED VETERINARY IMMUNOLOGY. (2)
Theory and practice of the development and standardization of vaccines, and the evaluation of their potency, safety and efficacy in the prophylaxis of infectious diseases of domestic animals. Prereq: Microbiology in D.V.M. curriculum or equivalent and approval of staff.

VS 785 ADVANCED VETERINARY PARASITOLOGY. (3)
Experimental methodology and host-parasite relationships of the protozoan and helminth parasites of domestic animals. Prereq: Parasitology in D.V.M. curriculum of equivalent and approval of staff.

VS 786 ADVANCED VETERINARY PATHOLOGY. (3)
Specialized instruction in techniques and interpretations of pathology and pathologic anatomy. Emphasis will be upon evaluation of lesions for understanding the pathogenesis of disease processes in the living animal. Prereq: Pathology in D.V.M. curriculum or equivalent and approval of staff.

VS 787 ADVANCED VETERINARY PATHOLOGY. (3)
Specialized instruction in techniques and interpretations of pathology and pathologic anatomy. Emphasis will be upon evaluation of lesions for understanding the pathogenesis of disease processes in the living animal. Prereq: Pathology in D.V.M. curriculum or equivalent and approval of staff.

VS 791 RESEARCH IN VETERINARY MICROBIOLOGY. (1-9)
Independent research in veterinary microbiology. May be repeated for a total of 24 credits. Prereq: Permission of staff.

VS 792 RESEARCH IN GENERAL VETERINARY PATHOLOGY. (1-9)
Independent research in veterinary pathology. May be repeated for a total of 24 credits. Prereq: Permission staff.

VS 793 RESEARCH IN VETERINARY PARASITOLOGY. (1-9)
Independent research in veterinary parasitology. May be repeated for a total of 24 credits. Prereq: Permission of staff.

VS 794 RESEARCH IN NUTRITIONAL PATHOLOGY. (1-9)
Independent research in nutritional pathology. May be repeated for a total of 24 credits. Prereq: Permission of staff.

ZOOLOGY

(See also courses in Biology.)

ZOO 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.

ZOO 220 COMPARATIVE ANATOMY. (4)
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.

ZOO 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, 10 hours (600 minutes) per week. Prereq: Employment as high school teacher. (Same as BOT 400.)

ZOO 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 (400 minutes) per week. Prereq: Employment as high school teacher and consent of instructor. (Same as BOT 402.)

ZOO 502 PRINCIPLES OF PHYSIOLOGY LECTURES. (4)
A comprehensive discussion of physiology using advanced texts and library reading; includes function as related to major body systems. Prereq: One year physics, general chemistry and biology. (Same as PGY 502.)

ZOO 503 EXPERIMENTAL METHODS. (2)
A laboratory course in physiology utilizing advanced techniques that emphasize the development of laboratory skills, experimental design, data reduction, interpretation and presentation. Prereq: PGY 502 (or its equivalent): May be taken concurrently. (Same as PGY 503.)

ZOO 504 HEREDITY. (4)
Lectures and recitations on principles of heredity, variation and eugenics. Prereq: ZOO 104, or BIO 200-202.

ZOO 506 EMBRYOLOGY. (5)
A general course in ontogeny. Studies in maturation, fertilization, cleavage, organogenesis and anomalies of development with laboratory work based on the chick and pig. Three lectures and two two-hour laboratories per week. Prereq: BIO 200-202, CHE 112.

ZOO 508 EVOLUTION. (3)
An advanced lecture course on some of the fundamental principles of organic evolution. Prereq: ZOO 104, or BIO 200-202.

ZOO 509 ZOOLOGY SEMINAR. (1)
Reports on: technical papers in scientific journals, book reviews. recent developments in zoology, scientific meetings. Required of all majors in zoology. May be repeated to a maximum of four credits.

ZOO 510 INDEPENDENT WORK. (3)
Special problems for individual students who are capable of pursuing independent investigations. May be repeated to a maximum of 12 credits. Prereq: Major and a standing of 3.0 in the Department.

ZOO 512 PHYSIOLOGY OF DEVELOPMENT. (3)
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 506.

ZOO 513 GENERAL HISTOLOGY. (4)
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.

ZOO 521 LIMNOLOGY. (4)
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.

ZOO 528 GENERAL ENTOMOLOGY. (4)
Introduction to the class insecta. Morphology, physiology, development, systematics, and ecology of insects; procedures and techniques of insect identification; preparation of insect collections for research purposes. Lecture, two hours. Prereq: ZOO 104, or BIO 200-202; three additional credits in ZOO 570 or 502.

ZOO 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 laboratory periods per week. Prereq: ZOO 104, or BIO 200-202.

ZOO 532 MEDICAL ENTOMOLOGY. (4)
Study of arthropod vectors of disease. Structure, collection, identification, and control measures and life history studies. Given alternate years. Prereq: BIO 200-202 or ZOO 104 545 or consent of instructor. (Same as ENT 532.)

ZOO 540 GENERAL RADIATION BIOLOGY. (4)
A basic course devoted to a study of radiation techniques and research and their application in the various fields of biology. Lectures devoted to basic background and health hazard aspects followed by more comprehensive treatment of biological aspects. Laboratory devoted to use of radioisotopes and techniques of their measurement using various radiation detectors and counters. Lectures, two hours per week; laboratory, four hours. Prereq: Two years of biological sciences, one year of chemistry, and consent of instructor. (Same as RM 540.)

ZOO 542 INSECT TAXONOMY. (4)
Methods and principles of systematic entomology and zoology; characteristics of taxonomic categories; and international rules of zoological nomenclature. Collection, preparation and identification of insect specimens. Given alternate years. Lecture, two hours; laboratory, four hours. Prereq: ENT 100, ZOO 104, or BIO 200-202. (Same as ENT 542.)

ZOO 544 PROTOZOOLOGY. (4)
A comprehensive study of the phylum protozoa emphasizing current concepts of classification, phylogeny and evolution, ultrastructure, reproduction, nutrition, growth and motile behavior. The laboratory involves collection, identification, cultivation and physiology of protozoa with extensive observation and analysis of cellular function. Lecture, two hours; laboratory, four hours. Prereq: ZOO 104, or BIO 200-202, CHE 230-232, MA 113, 211, PHY 231, 232, and at least eight hours in zoology.

ZOO 545 PARASITOLOGY. (4)
Protozoan, helminth and arthropod parasites of man and domestic animals, emphasis on etiology, epidemiology, methods of diagnosis, control measures, and life histories. Techniques for host examination and preparation of material for study. Prereq: ZOO 104 or BIO 200-202. (Same as ENT 545.)

ZOO 546 HELMINTHOLOGY. (4)
The etiology, epidemiology, pathology, diagnosis, prophylaxis and control of trematode, cestode and nematode parasites of vertebrates, with special emphasis on those of veterinary and medical importance. Given alternate years. Prereq: ZOO 534 or consent of instructor.

ZOO 547 ICHTHYOLOGY. (4)
Taxonomy of the fishes with life-histories and biology of types. Fish structure and physiology, habits, ecology. Fish-culture and economic ichthyology; care of fishes, aquaria, etc. Elements of freshwater fishery administration. Given alternate years. Prereq: ZOO 104, or BIO 200-202.

ZOO 548 HERPETOLOGY. (4)
Designed to acquaint the student with the amphibians and reptiles of eastern North America, their classification, adaptations and natural history. Lecture, two hours; laboratory, four hours per week. Given alternate years. Prereq: ZOO 104, or BIO 200-202.

ZOO 549 ORNITHOLOGY. (4)
A study of the life-histories, habits, identification, structure, adaptations, and physiology of birds. Special emphasis upon migrations, songs, nests and economic importance of our native birds. Lecture; field excursions; laboratory studies. Given alternate years. Prereq: ZOO 104, or BIO 200-202.

ZOO 550 COMPARATIVE PHYSIOLOGY. (5)
Physiological mechanisms by which animals cope with different environmental stresses. Osmoregulation, respiration, temperature regulation and tolerance, sensory reception, circulation, etc. Prereq: One year college chemistry, ZOO 570, one year college physics or consent of instructor.

ZOO 551 MAMMALOGY. (4)
Designed to acquaint the student with the mammals of eastern North America, their classification, adaptations and natural history. Lecture, two hours; laboratory, four hours per week. Given alternate years. Prereq: ZOO 104, or BIO 200-202.

ZOO 560 EMBRYOLOGY AND MORPHOLOGY OF VETEBRATES. (3)
An integrated study of the comparative embryology, histology and gross anatomy of vertebrates, stressing the adaptive significance of evolutionary change, the functional significance of morphological organization and basic ontogenetic concepts. Prereq: One year of general biology or consent of instructor.

ZOO 561 LABORATORY STUDIES OF THE EMBRYOLOGY AND MORPHOLOGY OF VERTEBRATES. (2)
Companion laboratory to ZOO 560. Four laboratory hours per week. Prereq: One year of general biology, concurrent enrollment in ZOO 560 or consent of instructor.

ZOO 562 EMBRYOLOGY AND MORPHOLOGY OF VERTEBRATES. (3)
An integrated study of the comparative embryology, histology and gross anatomy of vertebrates, stressing the adaptive significance of evolutionary change, the functional significance of morphological organization and basic ontogenetic concepts. Prereq: One year of general biology, ZOO 560 or consent of instructor.

ZOO 563 LABORATORY STUDIES OF THE EMBRYOLOGY AND MORPHOLOGY OF VERTEBRATES. (2)
Companion laboratory to ZOO 562. Four laboratory hours per week. Prereq: One year of general biology, ZOO 560, concurrent enrollment in ZOO 562 or consent of instructor.

ZOO 570 INVERTEBRATE ZOOLOGY. (4)
An intensive survey of the invertebrate phyla, including morphology, classification, phylogeny, general trends in the evolution of organ systems, and adaptations to varied modes of existence. Two lectures and two laboratory periods per week. Prereq: ZOO 104, or BIO 200-202.

ZOO 602 INSECT MORPHOLOGY. (4)
A study of internal and external insect structure, including function, and variation of form. Lecture, two hours; laboratory, four hours. Prereq: ENT 100 and consent of instructor. (Same as ENT 602.)

ZOO 604 ADVANCED ANIMAL ECOLOGY. (3)
Selected topics from recent studies on the energy flow concept of ecology, population ecology and community ecology. Prereq: ZOO 502 or BOT 513, one year physics, organic chemistry, one year mathematics; calculus and statistics recommended.

ZOO 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.)

ZOO 611 SPECIATION. (3)
Mechanisms of evolution. A discussion of modern theories and problems concerning the formation of animal species.

ZOO 612 PRINCIPLES OF ANIMAL SYSTEMATICS. (3)
Theory and practice of animal classification, with study of applications of the International Code of Zoological Nomenclature. Prereq: At least two advanced survey courses in zoology and/or entomology, for example, ZOO 530, 570, 544, 611 or ZOO/ENT 620. (Same as ENT 612.)

ZOO 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.

ZOO 617 ADVANCED MICROTECHNIQUE. (3)
Special methods in histological technique for students of zoology, pathology or anatomy.

ZOO 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; laboratory, four hours. Prereq: ZOO 104, or BIO 200-202; ENT 100 and consent of instructor. (Same as ENT 620.)

ZOO 630 INSECT PHYSIOLOGY. (4)
Principles of insect physiology, function of organs, circulation, reproduction, respiration, and digestion. Lecture, two hours; laboratory, four hours. Prereq: Consent of instructor. (Same as ENT 630.)

ZOO 640 BIOLOGICAL EFFECTS OF RADIATION. (3)
A consideration of the action of ionizing radiation and ultraviolet light at progressively higher levels of organization. Recent experiments and current theoretical concepts will be emphasized. Prereq: ZOO 540, or two years chemistry, physics and biological sciences and consent of instructor. (Same as RM 640.)

ZOO 642 VERTEBRATE NATURAL HISTORY. (4)
Behavior of vertebrate animals in their natural habitats as related to shelter, food, reproduction, and other aspects of survival. Adaptations contributing to behavioral patterns will be considered. Two lectures and two laboratory periods per week. Given in alternate years. Prereq: ZOO 530, 502.

ZOO 660 SPECIAL TOPICS IN ENDOCRINOLOGY. (2)
A lecture-seminar course designed to explore in depth certain areas not covered in the introductory course. Usually invertebrate endocrinology, plant hormones, and physiology of reproduction will be covered. Prereq: ZOO 560 or equivalent.

ZOO 709 GRADUATE SEMINAR IN ZOOLOGY. (1)
Discussions of current research in zoology. Prereq: Graduate standing in biological sciences.

ZOO 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (0)
May be repeated once. (1-6 credits equivalence.)

ZOO 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0)
May be repeated indefinitely. (1-12 credits equivalence.)

ZOO 790 RESEARCH ZOOLOGY. (1-6)
Independent research work under direction, with conferences on objectives, principles, materials, methods, analysis of data and conclusion. Progress reports required at intervals. May be repeated indefinitely, at discretion of department. Type of research to be enclosed in parentheses, e.g., (genetics), (ecology), (embryology). Prereq: Undergraduate degree in biological sciences.

Faculty

COLLEGE OF AGRICULTURE

Charles E. Barnhart, dean

AGRICULTURAL ECONOMICS

Robert W. Rudd, chairman

Kurt Ramon Anschel, associate professor, Ph.D., Michigan State, 1965
Robert Lee Beck, associate professor, Ph.D., Michigan State, 1963
Wendell Chester Binkley, associate professor, M.S., Kentucky, 1940
Barry Wright Bobst, associate professor, Ph.D., Washington State, 1966
Arthur Frank Bordeaux, Jr., assistant professor, Ph.D., Michigan State, 1968
Garnett Lowell Bradford, associate professor, Ph.D., North Carolina State, 1968
Russell Herbert Brannon, professor, Ph.D., Wisconsin, 1967
Wilmer Browning, associate professor, Ph.D., Kentucky, 1969
James Earnest Criswell, assistant professor, Ph.D., Minnesota, 1966
John Clark Gamble, assistant professor, Ph.D., Illinois, 1972
Ernest D. Gooch, Jr., assistant professor, Ph.D., Illinois, 1962
Harry Hale Hall, assistant professor, Ph.D., Iowa State, 1968
Woodrow Wilson Hourigan, associate professor, Ph.D., Kentucky, 1969
Larry D. Jones, assistant professor, Ph.D., Purdue, 1973
Fred Edward Justice, Jr., professor, Ph.D., Illinois, 1955
Clyde F. Kiker, assistant professor, Ph.D., Florida, 1973
Harold Gibson Love, associate professor, Ph.D., Missouri, 1969
Loys LeRoy Mather, assistant professor, Ph.D., Wisconsin, 1968
Willard Hamilton Minton, assistant professor, M.S., Kentucky, 1951
John C. Redman, professor, Ph.D., Kentucky, 1951
Robert William Rudd, professor, Ph.D., California, 1952
Dallas Milton Shuffett, professor, Ph.D., Kentucky, 1956
Eldon D. Smith, professor, Ph.D., Wisconsin, 1954

AGRICULTURAL EDUCATION

Harold R. Binkley, professor, Ed.D., Kentucky, 1955
Herbert H. Bruce, Jr., associate professor, Ed.D., Kentucky, 1965
Charles W. Byers, assistant professor, Ph.D., Ohio State, 1972
W. Glenn Collins, associate materials specialist, M.S., Kentucky, 1966
Maynard J. Iverson, assistant professor, Ph.D., Ohio State, 1971
Rodney W. Tulloch, assistant professor, Ph.D., Penn State, 1972

AGRICULTURAL ENGINEERING

Blaine Frank Parker, chairman

Billy J. Barfield, associate professor, Ph.D., Texas A & M, 1968
Jesse Byron Brooks, associate professor, M.S., Auburn, 1950
Joe Millard Bunn, associate professor, Ph.D., Iowa State, 1960
Charles Thomas Haan, associate professor, Ph.D., Iowa State, 1967
Harvey Eldon Hamilton, associate professor, Ph.D., Kentucky, 1971
Wiley Hix Henson, Jr., associate professor, Ph.D., North Carolina State, 1962
Blaine Frank Parker, professor, Ph.D., Michigan State, 1954
Ira Joseph Ross, professor, Ph.D., Purdue, 1960
Edward Manson Smith, associate professor, M.S., Kansas State, 1950
John Neal Walker, professor, Ph.D., Purdue, 1961
Gerald Martin White, associate professor, Ph.D., Purdue, 1960

AGRONOMY

Andrew Jackson Hiatt, chairman

Melvern K. Anderson, assistant professor, Ph.D., N. Dakota State, 1969
Roger Allen Anderson, associate professor, Ph.D., Wisconsin, 1963
Harry Hudson Bailey, professor, Ph.D., Michigan State, 1956
Richard Irven Barnhisel, associate professor, Ph.D., Virginia Polytechnic Institute, 1964
Morris Jay Bitzer, assistant professor, Ph.D., Purdue, 1968
Robert L. Blevins, associate professor, Ph.D., Ohio State, 1967
Robert Cecil Buckner, professor, Ph.D., Minnesota, 1955
Harold Rhodes Burton, assistant professor, Ph.D., Louisville, 1964
Lowell Palmer Bush, associate professor, Ph.D., Iowa State, 1964
Glenn Burton Collins, associate professor, Ph.D., North Carolina State, 1966
Paul Leroy Cornelius, assistant professor, Ph.D., Illinois, 1972
Daniel Layton Davis, associate professor, Ph.D., North Carolina State, 1967
Dennis B. Egli, assistant professor, Ph.D., Illinois, 1969
John Ellis, assistant professor, Ph.D., Kentucky, 1970
Verne Clifford Finker, professor, Ph.D., Iowa State, 1950
Robert Bell Griffith, professor, Ph.D., California, 1953
Claus Hans Grunwald, associate professor, Ph.D., Missouri, 1965
James Herbek, assistant professor, Ph.D., Illinois, 1970
James Watt Herron, professor, Ph.D., Cornell, 1951
Andrew Jackson Hiatt, professor, Ph.D., North Carolina State, 1960
Michael John Kasperbauer, associate professor, Ph.D., Iowa State, 1961

Paul Davis Legg, associate professor, Ph.D., North Carolina State, 1964
James Everett Leggett, professor, Ph.D., Maryland, 1965
Richie Howard Lowe, associate professor, Ph.D., Oregon State, 1963
Herbert Fane Massey, Jr., professor, Ph.D., Wisconsin, 1952
Lloyd W. Murdock, Jr., assistant professor, Ph.D., Virginia Polytechnic Institute, 1967
Doyle Eugene Peaslee, professor, Ph.D., Iowa State, 1960
Ronald Edward Phillips, professor, Ph.D., Iowa State, 1959
Charles Gustav Poneleit, associate professor, Ph.D., Purdue, 1967
John Leonard Ragland, professor, Ph.D., North Carolina State, 1959
Charles Edward Rieck, assistant professor, Ph.D., Nebraska, 1969
Shuh-Ji Sheen, associate professor, Ph.D., Minnesota, 1958
Roy Edward Sigafus, professor, Ph.D., Cornell, 1951
John Leonidas Sims, associate professor, Ph.D., Iowa State, 1960
Jones H. Smiley, professor, Ph.D., Wisconsin, 1963
Granville Woolman Stokes, professor, Ph.D., Wisconsin, 1953
Norman Linn Taylor, professor, Ph.D., Cornell, 1953
Timothy Henry Taylor, professor, Ph.D., Penn State, 1955
Dennis M. Tekrony, associate professor, Ph.D., Oregon State, 1969
William Chelcy Templeton, Jr., professor, Ph.D., Purdue, 1960
Grant Worthington Thomas, professor, Ph.D., North Carolina State, 1958
Hayden Watkins, assistant professor, Ph.D., Purdue, 1968
Gilbert Theodore Webster, professor, Ph.D., Iowa State, 1949
Kenneth Lincoln Wells, associate professor, Ph.D., Iowa State, 1963

ANIMAL SCIENCES
Virgil W. Hays, chairman

Curtis Absher, associate professor, Ph.D., Tennessee, 1969
William R. Angell, instructor, M.S., Wisconsin, 1971
John P. Baker, associate professor, Ph.D., Illinois, 1960
Charles Elmer Barnhart, professor, Ph.D., Iowa State, 1954
John J. Begin, associate professor, Ph.D., Penn State, 1960
James A. Boling, associate professor, Ph.D., Wisconsin, 1967
Neil Wright Bradley, professor, Ph.D., Illinois, 1958
Russell L. BreDahl, assistant professor, Ph.D., Iowa State, 1970
Charles Frank Buck, professor, Ph.D., Cornell, 1953
Frank Button, research specialist, M.S., Kentucky, 1967
G. L. Monty Chappell, associate professor, Ph.D., Virginia Polytechnic Institute, 1966
Gary Cromwell, associate professor, Ph.D., Purdue, 1967
Benjamin T. Dean, associate professor, Ph.D., Missouri, 1961
Winston Deweese, research specialist, M.S., Kentucky, 1968
Ray Horn Dutt, professor, Ph.D., Wisconsin, 1948
Ronnie Edwards, assistant professor, Ph.D., Oklahoma, 1970
Donald G. Ely. associate professor, Ph.D., Kentucky, 1966
Joe Dennis Fox, associate professor, Ph.D., Louisiana State, 1968
Nelson Gay, professor, Ph.D., Illinois, 1962
Robert Goodwill, assistant professor, Ph.D., Minnesota, 1969
James C. Hartley, assistant professor, Ph.D., Iowa State, 1971
Virgil W. Hays, professor, Ph.D., Iowa State, 1958
Roger Hemken, professor, Ph.D., Cornell, 1957
Gordon S. Hess, assistant professor, Ph.D., Iowa State, 1971
Don R. Jacobson, professor, Ph.D., Maryland, 1956
Thomas H. Johnson, research specialist, M.S., Ohio State, 1968
James D. Kemp, professor, Ph.D., Illinois, 1952
D. Dal Kratzer, associate professor, Ph.D., Iowa State, 1966
James Krug, instructor
Bruce E. Langlois, associate professor, Ph.D., Purdue, 1962
Dennis O. Liptrap, assistant professor, Ph.D., Michigan State, 1969
C. Oran Little, professor, Ph.D., Iowa State, 1960
Dale Lovell, research specialist, M.S., Kentucky, 1968
George E. Mitchell, Jr., professor, Ph.D., Illinois, 1956
William G. Moody, professor, Ph.D., Missouri, 1963
John H. Nicolai, Jr., professor, Ph.D., Maryland, 1965
Durward Olds, professor, Ph.D., Illinois, 1956
Ralph Overfield, research specialist, M.S., Wisconsin, 1942
John C. Robertson, professor, Ph.D., Kentucky, 1960
Kob Ryen, assistant professor, M.S., Winters College, Oslo, Norway, 1934
Gerald T. Schelling, assistant professor, Ph.D., Illinois, 1968
Frederick Thrift, associate professor, Ph.D., Oklahoma, 1967
Ray E. Tucker, assistant professor, Ph.D., Kentucky, 1966
John W. Tuttle, associate professor, Ph.D., Michigan State, 1968
William York Varney, professor, Ph.D., Michigan State, 1960
Ronald M. Wendlandt, assistant professor, Ph.D., Illinois, 1971
John White, research specialist, M.S., Kentucky, 1953
M. D. Whiteker, professor, Ph.D., Kentucky, 1961
Patch G. Woolfolk, professor, Ph.D., Cornell, 1950

COOPERATIVE EXTENSION

John Ragland, associate dean for Extension

ENTOMOLOGY
B. C. Pass, chairman

Douglas Lee Dahlman, associate professor, Ph.D., Iowa State, 1965
H. Wyman Dorough, professor, Ph.D., Wisconsin, 1963
Paul Harold Freytag, associate professor, Ph.D., Ohio State, 1963
Wesley W. Gregory, Jr., associate professor, Ph.D., Clemson, 1969
Fred William Knapp, professor, Ph.D., Kansas State, 1961
Gerald L. Nordin, assistant professor, Ph.D., Illinois, 1971
Bobby Clifton Pass, professor, Ph.D., Clemson, 1962
Harley G. Raney, assistant professor, Ph.D., Oklahoma State, 1970
Juan Guadelupe Rodriguez, professor, Ph.D., Ohio State, 1949
Rudolph A. Scheibner, associate professor, Ph.D., Michigan State, 1963
Richard Thurston, professor, Ph.D., Rutgers, 1952

FORESTRY
Thomas Hansbrough, chairman

Robert F. Collins, instructor, M.S., Yale, 1929
Donald H. Graves, instructor, M.S., Florida, 1965
Thomas Hansbrough, professor, Ph.D., Louisiana State, 1961
Ralph A. Lewis, assistant professor, Ph.D., North Carolina State, 1973
D. Boyd Richards, professor, Ph.D., Syracuse, 1950
Robert L. Rumsey, assistant professor, Ph.D., Louisiana, 1973
Charles L. Shilling, assistant professor, Ph.D., Texas A & M, 1971
Ruen C. Tang, assistant professor, Ph.D., North Carolina, 1968
Edwin H. White, assistant professor, Ph.D., Auburn, 1968
Allan J. Worms, assistant professor, Ph.D., Texas A & M, 1972

HORTICULTURE
Ronald E. Phillips, acting chairman

Jack W. Buxton, assistant professor, Ph.D., Kentucky, 1973
Carl Edward Chaplin, associate professor, M.S., Illinois, 1948
Richard W. Henley, associate professor, Ph.D., Ohio State, 1967
Thomas R. Kemp, assistant professor, Ph.D., Kentucky, 1970
Dean Edgar Knavel, associate professor, Ph.D., Michigan State, 1959
Aly M. Lasheen, associate professor, Ph.D., Texas A & M, 1954
Raymond G. Lockard, professor, Ph.D., University of London, England, 1954

Dudley Carl Martin, associate professor, Ph.D., Michigan State, 1954
Daniel Milbocker, assistant professor, Ph.D., Penn State, 1969
Hubert C. Mohr, professor, Ph.D., Texas A & M, 1955
Ronald E. Phillips, professor, Ph.D., Iowa State, 1959
Clarence R. Roberts, professor, Ph.D., Texas A & M, 1964
Horst Schach, assistant professor, Master of Landscape Architecture, California, 1966
G. William Schneider, professor, Ph.D., Rutgers, 1950
Leonard P. Stoltz, associate professor, Ph.D., Purdue, 1965
Benny Tjia, assistant professor, Ph.D., Ohio State, 1971

PLANT PATHOLOGY
Stephen Diachun, chairman

Richard A. Chapman, professor, Ph.D., Illinois, 1948
Stephen Diachun, professor, Ph.D., Illinois, 1938
Said A. Ghabrial, assistant professor, Ph.D., Louisiana, 1965
John R. Hartman, assistant professor, Ph.D., Wisconsin, 1971
James W. Hendrix, professor, Ph.D., North Carolina State, 1963
Edward M. Johnson, emeritus professor, Ph.D., Minnesota, 1930
Joseph A. Kuc, professor, Ph.D., Purdue, 1955
C. C. Litton, research specialist, M.S., Kentucky, 1952
Thomas P. Pirone, professor, Ph.D., Wisconsin, 1960
Louis Shain, assistant professor, Ph.D., North Carolina State, 1967
John G. Shaw, associate professor, Ph.D., Wisconsin, 1960
Malcolm R. Siegel, professor, Ph.D., Maryland, 1962
William D. Valleau, emeritus professor, Ph.D., Minnesota, 1917
Harry E. Wheeler, professor, Ph.D., Louisiana, 1949
Albert S. Williams, professor, Ph.D., North Carolina State, 1954

SOCIOLOGY
William F. Kenkel, chairman

Alan L. Bashor, research specialist, Ph.D., Iowa State, 1972
Howard Wayland Beers, professor, Ph.D., Cornell, 1935
James Stephen Brown, professor, Ph.D., Harvard, 1950
Rabel J. Burdge, associate professor, Ph.D., Pennsylvania State, 1965
A. Lee Coleman, professor, Ph.D., Cornell, 1950
Charles Milton Coughenour, professor, Ph.D., Missouri, 1953
Thomas R. Ford, professor, Ph.D., Vanderbilt, 1951
William F. Kenkel, professor, Ph.D., Ohio State, 1952
Paul D. Warner, assistant professor, Ph.D., Illinois, 1973
E. Grant Youmans, professor, Ph.D., Michigan State, 1953

VETERINARY SCIENCE
John T. Bryans, chairman

John T. Byrans, professor, Ph.D., Cornell, 1954
M. W. Crowe, associate professor, D.V.M., Auburn, 1957
J. H. Drudge, professor, D.V.M., Michigan State, 1943; Sc.D., Johns Hopkins, 1950
D. E. LaBore, associate professor, D.V.M., Colorada State, 1942
E. T. Lyons, associate professor, Ph.D., Colorada State, 1963
W. H. McCollum, professor, Ph.D., Wisconsin, 1954
D. O. Morgan, associate professor, D.V.M., Georgia, 1959; Ph.D., Illinois, 1967
Om P. Sharma, assistant professor, Ph.D., Illinois, 1970
T. W. Swerczek, associate professor, D.V.M., Kansas State, 1964; Ph.D., Connecticut, 1969
J. D. Wilson, research specialist, M.S., Kentucky, 1950
W. E. Wise, associate professor, D.V.M. Auburn, 1955

COLLEGE OF ALLIED HEALTH PROFESSIONS
Joseph Hamburg, dean

ALLIED HEALTH EDUCATION AND RESEARCH
Nicholas J. Pisacano, acting chairman

William Collins, associate professor, D. D. S., Detroit, 1959
Samuel Conti, professor, Ph.D., Cornell, 1959
Bonnie Lynch Morris, assistant professor, M.S., Tennessee, 1969
Nicholas J. Pisacano, professor, M.D., Hahnemann, 1951
Anne Rhodenbaugh, assistant professor, Ed.M., Harvard, 1970
Michael Romano, associate professor, D.D.S., Temple, 1947
Eric Spohn, assistant professor, D.D.S., Michigan, 1969
Earl Vastbinder, associate professor, M.D., Columbus, 1961
John Wadsworth, assistant professor, M.A., Iowa City, 1970

CLINICAL NUTRITION
Paul A. Thornton, chairman

Willena S. Beagle, assistant professor, Ph.D., Kentucky, 1973
Paul A Thornton, professor, Ph.D., Michigan State, 1956

CLINICAL PASTORAL COUNSELING
Ralph S. Carpenter, chairman

Ralph S. Carpenter, associate professor, S.T.M., Union Theological Seminary, 1967
Robert A. Preston, associate clinical professor, Ph.D., Pittsburg, 1961
John D. Serkland, assistant professor, M.A., Chicago, 1970

COMMUNITY HEALTH
Joe Fred Sills, chairman

A. Kent Ballard, clinical instructor, M.A., Texas A & M, 1972
Julia J. Blondell, instructor, M.P.H., North Carolina, 1958
Thomas Connelly, Jr., assistant professor, M.H.A., Duke, 1967
Gary Crum, clinical instructor, Ph.D., Kentucky, 1972
Neal Dockal, clinical instructor, M.P.H., California, 1966
A. L. Fish, assistant professor, M.S., Wisconsin, 1950
Linda Hays, clinical instructor, M.P.H., Harvard, 1957
Helen Hunt, assistant in teaching, M.P.H., North Carolina, 1959
Martin Marx, associate professor, Ph.D., North Carolina, 1968
Joanne Parker, clinical instructor, M.A., Kentucky, 1968
Joe Fred Sills, professor, Ph.D., North Carolina, 1964
John Stoner, assistant professor, M.P.H., North Carolina, 1970

DENTAL HYGIENE
Pauline Schmidt, chairman

Laurence R. Bean, associate professor, D.D.S., Ohio State, 1961
Robert Biggerstaff, associate professor, Ph.D., Pennsylvania, 1969
Donald C. Chase, assistant professor, D.D.S., Creighton, 1969
John H. Clements, clinical instructor, D.M.D., Kentucky, 1967
Thomas Connelly, assistant professor, M.H.A., Duke, 1967
Karen Cramer, assistant professor, B.S., Kentucky, 1969
Cheryl Crouch, instructor, B.S., Kentucky, 1971
Sylvia Curtis, instructor, B.S., Kentucky, 1969
Johnny Elkins, clinical instructor, D.D.S., Kentucky, 1971
Clem Hill, associate professor, D.M.D., Louisville, 1949
Joseph I. Hodge, clinical instructor, D.M.D., Louisville, 1953
Richard A. Houze, clinical instructor, D.M.D., Louisville, 1955
Patricia Jackson, associate professor, R.D.H., Temple, 1963; M.S., Michigan, 1970

E. Barrie Kenney, Professor, D.D.S., Toronto, 1946
Susan McFarland, assistant professor, Ph.D., Mississippi, 1972
Estill Massey, clinical instructor, D.D.S., Louisville, 1951
John Mink, professor, M.S.D., Indiana, 1961
John R. Oakley, clinical instructor, D.D.S., Louisville, 1956
Nicholas J. Pisacano, M.D., professor, Hahnemann, 1951
William Sabes, professor, D.D.S., Minnesota, 1959
Pauline Schmidt, associate professor, R.D.H., Detroit, 1955; B.A., Wayne State, 1966
Robert H. Spedding, professor, D.D.S., Indiana, 1960; M.S.D., Indiana, 1963
Eric E. Spohn, assistant professor, D.D.S., Michigan, 1969
Marcus Steele, clinical instructor, D.M.D., Louisville, 1956
Leah F. Stewart, clinical instructor, B.S., Baylor, 1967
Kenneth Wise, clinical instructor, D.M.D., Louisville, 1956
John Wittrock, associate professor, D.D.S., Missouri, 1960; M.A. San Francisco State, 1963

HEALTH RADIATION SCIENCES
Joseph A. Sayeg, chairman

R. Beihn**, assistant professor, M.S., Tennessee, Knoxville, 1969
John C. Calkins*, associate professor, Ph.D., Texas, 1963
Yosh Maruyama*, professor, M.D., California at San Francisco, 1955
Joseph A. Sayeg*, associate professor, Ph.D., California, Berkeley, 1954
Guy Simmons**, assistant professor, Ph.D., Cincinnati, 1972
Leonard C. Wilson, assistant professor, B.S., Eastern Kentucky, 1958
Don E. Wrede*, associate professor, Ph.D., Cincinnati, 1963

*Joint appointments with the Department of Radiation Medicine, College of Medicine
**Adjunct appointments with the Veterans Administration Hospital

PHYSICAL THERAPY
Richard V. McDougall, chairman

Carol Atwood, assistant clinical professor, Physical Therapist
Florence Bailey, clinical instructor, Physical Therapist
Mary Bergeron, clinical instructor, Physical Therapist
Leo Betzelburger, clinical instructor, Physical Therapist
Shannon Bouman, clinical instructor, Physical Therapist
Nancy Brinly, clinical instructor, Physical Therapist
Janet H. Brooks, clinical instructor, Physical Therapist
Nancy Brown, clinical instructor, Physical Therapist
Mable Burns, clinical instructor, Physical Therapist
Phil Canton, clinical instructor, Physical Therapist
Frances Cromwell, assistant clinical professor, Physical Therapist
Russell Cromwell, clinical instructor, Physical Therapist
Bill Daugherty, clinical instructor, Physical Therapist
Joseph Drake, assistant clinical professor, Physical Therapist
Barbara Ehler, clinical instructor, Physical Therapist
Hugh Galford, clinical instructor, Physical Therapist
Margery E. Greenfield, clinical instructor, Physical Therapist
Joseph Hayden, clinical instructor, Physical Therapist
Robert Hayhurst, assistant clinical professor, Physical Therapist
Wylie Joe High, clinical instructor, Physical Therapist
Peggy Long, clinical instructor, Physical Therapist
Stuart Lowenthal, assistant clinical professor, Physical Therapist
Richard V. McDougall, associate professor, M.E., Kentucky, 1965
Susan Madasci, clinical instructor, Physical Therapist
Glover Martin, clinical instructor, Physical Therapist
Mary Evans Martin, clinical instructor, Physical Therapist
Richard Magato, clinical instructor, Physical Therapist
Roger Meece, assistant clinical professor, Rehabilitation Counselor
Linda Morgan, clinical instructor, Physical Therapist
Nancy Newton, clinical instructor, Physical Therapist
Junior Odum, assistant clinical professor, Certified Prostetist
Nancy J. Patton, associate professor, Ph.D., Wisconsin, 1969
Patsy Peck, instructor, B.S., Kentucky, 1969
Carolyn Pierce, clinical instructor, Physical Therapist
Betty Rhodes, clinical instructor, Physical Therapist
Wayne Rice, clinical instructor, Physical Therapist
Stan Schlacter, assistant clinical professor, Physical Therapist
Samuel Scruggs, assistant clinical professor, Physical Therapist
Bill Snowden, clinical instructor, Physical Therapist
James W. Spence, clinical instructor, Physical Therapist
John Wadsworth, assistant professor, M.A., Iowa, 1970
Lloyd Weidler, clinical instructor, Physical Therapist
Duane Williams, instructor, M.S., Iowa, 1972
Elizabeth Yoakum, assistant clinical professor, Physical Therapist

MEDICAL TECHNOLOGY
Mary Frances James, chairman

Robert H. Blackburn, M.T. (ASCP), instructor (part-time)
Mary Morton Bohannon, M.T. (ASCP), instructor (part-time), B.S., Kentucky, 1971
Jane G. Bryant, M.T. (ASCP), assistant professor (part-time), B.S., Alabama, 1957
Patricia Ann Collins, M.T. (ASCP), assistant professor, M.S., Minnesota, 1969
Ronnie G. Griffith, M.T. (ASCP), instructor, B.S., Kentucky, 1970
Reedes Hurt, M.T. (ASCP), assistant professor (part-time), B.S., Kentucky, 1957
Mary Frances James, M.T. (ASCP), professor, M.S., Alabama, 1961
Mildred Jobe, M.T. (ASCP), instructor (part-time), B.S., Georgia, 1942
Beverly H. Komara, M.T. (ASCP), instructor (part-time), B.S., Kentucky, 1967
Brenda Marie Lloyd, M.T. (ASCP), instructor (part-time), B.S., Kentucky, 1963
Sara McDearman, M.T. (ASCP), associate clinical professor, Ph.D., Memphis, Tennessee, 1955
Martha Mann, M.T. (ASCP), instructor (part-time), B.S., Louisville, 1967
Bonnie Lynch Morris*, M.T. (ASCP), assistant professor, M.S., Tennessee, 1969
Betty Mulberry, M.T. (ASCP), instructor (part-time), B.S., Kentucky, 1957
Margaret Pendley, instructor (part-time), B.S., Kentucky, 1969
Denver Robertson, M.T. (ASCP), assistant professor (part-time), B.S., Kentucky, 1948
Jennie D. Seaton, M.T. (ASCP), assistant clinical professor, M.S., Minnesota, 1969
Ellen T. Shackelford, M.T. (ASCP), instructor (part-time), B.A., Maryville College, 1936
Priscilla Anne Sims, M.T. (ASCP), instructor (part-time), B.S., Georgetown, 1964
E. Anne Stiene, M.T. (ASCP), associate professor, M.S., Minnesota, 1969
Thomas M. Stoeckinger, assistant clinical professor, Ph.D., Kentucky, 1968

*Joint Appointment with Allied Health Education and Research

The faculty of the Department of Pathology of the Medical Center participates cooperatively in the clinical teaching program.

COLLEGE OF ARCHITECTURE

Anthony Eardley, dean

Michael Alcorn, assistant professor, M.Arch., Illinois, 1972
Paul Amatuzzo, assistant professor, B.Arch., Cooper Union, 1969
Hugh Bennett, (voluntary) visting critic, B.Arch., Georgia Institute of Technology, 1964
John Bickel, (voluntary) visting critic, B.Arch., Michigan, 1948
Clyde R. Carpenter, associate professor, B.Arch., Pennsylvania, 1962
Maria G. Dallerba, visting professor, Dottore in Architectura and Town Planning, University of Florence, Italy, 1964
Stephen C. Deger, associate professor, M.S., Arch. Engr., Illinois, 1966
Nona Ellis Dripps, assistant professor, B.Arch., Pennsylvania, 1968
Anthony Eardley, professor, Architectural Association Diploma (Hons), London, England, 1958
Stephen Edwins, assistant professor, M.Arch., Yale 1970
Jonathan Friedman, assistant professor, M.F.A. in Arch., Princeton, 1969
Vito Girone, visiting professor, Diploma in Architecture and City Planning, Cranbrook, 1940
Charles P. Graves, professor, M.Arch., Pennsylvania, 1957
Herbert Greene, professor, B.Arch., Oklahoma, 1952
Russell Groves, visiting critic, B.Arch., Kentucky, 1970; Juris Doctor, Kentucky, 1972
George Gunther, professor, M.F.A., Indiana, 1951
Michael D. Kennedy, associate professor, B.S., Engr. Physics, Tennessee, 1963
Pedro L. Koe-Krompecher, emeritus professor, Diploma in Architecture, Technical University of Budapest, Hungary, 1926; Dr. Political Science, Erzebet University, Pécs, 1942
Richard S. Levine, associate professor, M.Arch., Rensselaer Polytechnic Institute, 1963
James P. Noffsinger, professor, D.Arch., Catholic University, 1955
James Pettinari, assistant professor, M.Arch., Pennsylvania, 1970
Paul M. Pinney, Jr., associate professor, M.Arch., Columbia, 1967
James A. Prestridge, associate professor, M.S., Arch., Columbia, 1949; M.C.P., Pennsylvania, 1964
Anthony Roccanova, assistant professor, M.Arch., Cornell, 1972
Kenneth A. Schiano, assistant professor, B.Arch., Cooper Union, 1970
David Spaeth, associate professor, M.S.Arch., Illinois Institute of Technology, 1966
John P. Strickland, associate professor, M.F.A., Cranbrook, 1959
James Tune, (voluntary) visiting critic, B.Arch., Georgia Institute of Technology, 1963
William Wallace Wilson IV, assistant professor, B.A., Texas, 1970 (on leave 1974-5)

COLLEGE OF ARTS AND SCIENCES

Art Gallaher, dean

AEROSPACE STUDIES
(Air Force ROTC)
Colonel Arthur F. Nicholson, chairman

Captain Willard Hammons, assistant professor, M.B.A., Oklahoma, 1973
Colonel Donald R. March, assistant professor, M.S., George Washington, 1966
Colonel Arthur F. Nicholson, professor of Aerospace Studies, M.B.A., Harvard, 1958
Captain Glenn C. Peck, assistant professor, M.P.S., Western Kentucky, 1973
Captain Attila T. Simon, assistant professor, M.B.A., Golden Gate, 1971
Captain Warren R. Spencer, assistant professor, M.S., Georgia Institute of Technology, 1968
Captain Robert M. Staib, instructor, B.A., Kentucky, 1966

ANTHROPOLOGY
Lathel F. Duffield, chairman

William Y. Adams, professor, Ph.D., Arizona, 1958
Albert S. Bacdayan, assistant professor, Ph.D., Cornell, 1967
John Edward Barrows, assistant professor, Ed.D., Kentucky, 1959
Robert H. Biggerstaff, assistant professor, Ph.D., Pennsylvania, 1969
Michael B. Collins, instructor, Ph.D., Arizona, 1973
Anthony C. Colson. assistant professor, Ph.D., Stanford, 1969
Philip Drucker, professor, Ph.D., California 1936
Lathel F. Duffield, associate professor, Ph.D., Wisconsin, 1970
Frank J. Essene, professor, Ph.D., California, 1947
Michael Everett, assistant professor, Ph.D., Arizona, 1970
Art Gallaher, Jr., professor, Ph.D., Arizona, 1956
Donald Lee Hochstrasser, professor, Ph.D., Oregon, 1962
Margaret Lantis, professor, Ph.D., California, 1939
Richard Levy, assistant professor, Ph.D., British Columbia, 1973
Marion Pearsall, professor, Ph.D., California, 1950
Dennis P. Van Gerven, assistant professor, Ph.D., Arizona, 1973

ART
Herbert N. Drennon, acting chairman

Ronald Benson, associate professor, Ph.D., Oregon, 1971
Billy Joe Bryant, assistant professor, M.F.A., George Washington, 1966
Charles G. Egan, M.F.A., Washington, 1966
Gerald Ferstman, associate professor, M.F.A., Washington, 1965
Elizabeth Finkenstaedt, associate professor, Ph.D., Harvard, 1963
Deborah Frederick, associate professor, M.F.A., Rochester Institute of Tech., 1967
Daniel Gibbons, assistant professor, M.A., Villa Schiffania, 1969
Anne G. Green, associate professor, M.A., Columbia, 1945
Marilyn Hamann, assistant professor, M.A., California at Berkely, 1970
Leonard Hunter, assistant professor, M.F.A., California, 1972
Arthur Jones, instructor, M.A., Case-Western Reserve, 1970
Lowell D. Jones, associate professor, M.F.A., Cranbrook, 1966
David Middlebrook, assistant professor, M.F.A., Iowa, 1970
James S. Pierce, professor, Ph.D., Harvard, 1962
Robert Tharsing, assistant professor, M.A., California, 1967
John R. Tuska, associate professor, M.F.A., Alfred, 1960
Derrick Woodham, associate professor, AR.C.A., Royal College of Art, 1965

BIOLOGICAL SCIENCES
Samuel F. Conti, director

M. I. H. Aleem, professor, Ph.D., Cornell, 1958
Roger W. Barbour, professor, Ph.D., Cornell, 1949
Thomas C. Barr, Jr., professor, Ph.D., Vanderbilt, 1958
Jerry M. Baskin, associate professor, Ph.D., Vanderbilt, 1967
Wesley J. Birge, associate professor, Ph.D., Oregon State, 1955
John C. Calkins, associate professor, Ph.D., Texas, 1963
John Melvin Carpenter, professor, Ph.D., Texas, 1946

Samuel F. Conti, professor, Ph.D., Cornell, 1959
Eugene C. Crawford, Jr., associate professor, Ph.D., Duke, 1965
Wayne H. Davis, professor, Ph.D., Illinois, 1957
James M. Edney, associate professor, M.S., Iowa, 1934
James H. Eley, assistant professor, Ph.D., Texas, 1967
Thomas C. Gray, assistant professor, Ph.D., Vanderbilt, 1965
Mohammad A. Hafeez, assistant professor, Ph.D., California, 1970
Raziel S. Hakim, assistant professor, Ph.D., Harvard, 1971
Denny O. Harris, associate professor, Ph.D., Indiana, 1967
Carl E. Henrickson, associate professor, Ph.D., Ohio State, 1950
Anthony D. Hitchins, assistant professor, Ph.D., Michigan State, 1972
James C. Humphries, professor, Ph.D., Yale, 1944
John J. Just, assistant professor, Ph.D., Iowa, 1968
Robert A. Kuehne, associate professor, Ph.D., Michigan, 1958
Thomas J. Leonard, associate professor, Ph.D., Indiana, 1967
Willem Meijer, associate professor, Ph.D., Amsterdam, Holland, 1951
David J. Prior, assistant professor, Ph.D., Virginia, 1972
Herbert P. Riley, distinguished professor, Ph.D., Princeton, 1931
Gerald A. Rosenthal, assistant professor, Ph.D., Duke, 1966
Isaac Ruchman, professor, Ph.D., Cincinnati, 1944
P. S. Sabharwal, associate professor, Ph.D., New Delhi, India, 1963
Ralph F. Wiseman, professor, Ph.D., Wisconsin, 1956

CHEMISTRY
William Donald Ehmann, chairman

Henry H. Bauer, professor, Ph.D., University of Sydney, Australia, 1956
Rodney Elmer Black, associate professor, Ph.D., Wisconsin, 1942
Stephan L. Brenner, assistant professor, Ph.D., Indiana, 1972
Carolyn S. Brock, assistant professor, Ph.D., Northwestern, 1972
Paul L. Corio, associate professor, Ph.D., Columbia, 1957
William Donald Ehmann, professor, Ph.D., Carnegie Institute of Technology, 1957
Robert Daulton Guthrie, associate professor, Ph.D., Rochester, 1963
Ellwood Meacham Hammaker, professor, Ph.D., Rutgers, 1940
Kenneth J. Hofstetter, assistant professor, Ph.D., Purdue, 1967
Robert Wayne Kiser, professor, Ph.D., Purdue, 1958
Kurt Niedenzu, professor, Dr. rer.nat., Heidelberg, Germany, 1956
John Miles Patterson, professor, Ph.D., Northwestern, 1953
William K. Plucknett, associate professor, Ph.D., Iowa State, 1942
Donald Edgar Sands, professor, Ph.D., Cornell, 1955
Paul Gregory Sears, professor, Ph.D., Kentucky, 1953
Stanford L. Smith, associate professor, Ph.D., Iowa State, 1961
Walter Thomas Smith, Jr., professor, Ph.D., Indiana, 1946
William Frederick Wagner, professor, Ph.D., Illinois, 1947
John R. Wasson, assistant professor, Ph.D., Illinois Institute of Technology, 1969
Joseph W. Wilson, associate professor, Ph.D., Indiana, 1961

CLASSICAL LANGUAGES AND LITERATURES
Louis J. Swift, chairman

Wilbert L. Carr, emeritus professor, LL.D., Drake, 1937
Hubert M. Martin, Jr., associate professor, Ph.D., Johns Hopkins, 1958
Anne E. Patterson, assistant professor, Ph.D., Wisconsin, 1973
Jane E. Phillips, assistant professor, Ph.D., North Carolina, 1969
Louis J. Swift, associate professor, Ph.D., Johns Hopkins, 1963
Lawrence S. Thompson, professor, Ph.D., North Carolina, 1938

SCHOOL OF COMMUNICATION
Lewis Donohew, acting director

Robert D. Murphy, professor, Ph.D., Syracuse, 1951
Kathleen Patterson, (visiting) instructor, Ph.D. candidate, Suny Buffalo, 1974

COMPARATIVE LITERATURE
Virgina A La Charité, chairman

Classics: Professor Hubert M. Martin,
English: Professor Robert O. Evans
French: Professor Rupert T. Pickens
German: Professor Inge Solbrig
Honors: Professor John L. Greenway
Slavic and Oriental Languages and Literatures: Professor Gerald Janecek
Spanish and Italian: Professor Brian Dendle

COMPUTER SCIENCE
Thaddeus B. Curtz, chairman

Ronald Alter, associate professor, Ph.D., Pennsylvania, 1965
Anthony Q. Baxter, assistant professor, Ph.D., Virginia, 1972
Thaddeus B. Curtz, professor, Ph.D., Yale, 1960
Johnson M. Hart, assistant professor, Ph.D., Pennsylvania, 1972
Michael C. McCord, associate professor, Ph.D., Yale, 1963*
A. Chris Newbery, professor, Ph.D., London, England, 1962
Kate M. Nooning, instructor, B.S., Pennsylvania State, 1968
Garth L. Olde, associate professor, Ph.D., Western Ontario, Canada, 1960
Henry C. Thacher, Jr., professor, Ph.D., Yale, 1949
Chung C. Wang, assistant professor, Ph.D., SUNY at Buffalo, 1974

*Adjunct appointment

ENGLISH
Joseph A. Bryant, Jr., chairman

Michael E. Adelstein, associate professor, Ph.D., Michigan, 1958
Wendell E. Berry, professor, M.A., Kentucky, 1957
Ben W. Black, assistant professor, Ph.D., Michigan, 1953
Thomas O. Blues, associate professor, Ph.D., Iowa, 1966
Joan H. Blythe, assistant professor, Ph.D., North Carolina, 1970
Joseph A. Bryant, Jr., professor, Ph.D., Yale, 1948
David F. Burg, assistant professor, Ph.D., Pennsylvania, 1969
Francis M. Burke, assistant professor, Ph.D., Florida, 1972
David W. Butler, assistant professor, Ph.D., Wisconsin, 1972
William R. Campbell, assistant professor, Ph.D., Oregon, 1967
Gordon P. Cheesewright, assistant professor, Ph.D., U.C.L.A., 1972
Arthur L. Cooke, professor, Ph.D., Michigan 1944
Alfred L. Crabb, Jr., associate professor, M.S., Peabody, 1941
John L. Cutler, associate professor, Ph.D., Ohio State, 1949
Guy M. Davenport, Jr., professor, Ph.D., Harvard, 1961
Josephine Donovan, assistant professor, Ph.D., Wisconsin, 1971
David S. Durant, assistant professor, Ph.D., North Carolina, 1968
Lee A. Elioseff, associate professor, Ph.D., New York, 1959
Harry S. Epstein, assistant professor, Ph.D., Chicago, 1971
Robert O. Evans, professor, Ph.D., Florida, 1954
Tay N. Fizdale, assistant professor, Ph.D., U.C.L.A., 1972
Walter C. Foreman, assistant professor, Ph.D., Washington, 1972
Joseph H. Gardner, associate professor, Ph.D., California, 1969

William A. Gordon, associate professor, Ph.D., Tulane, 1963
John L. Greenway, assistant professor, Ph.D., Wisconsin, 1969
Patricia A. Halliday, assistant professor, Ph.D., Minnesota, 1973
H. Joan Hartwig, associate professor, Ph.D., Washington, 1967
Maurice A. Hatch, associate professor, Ph.D., Cornell, 1948
T. Walter Herbert, Jr., assistant professor, Ph.D., Princeton, 1969
Robert E. Hemenway, associate professor, Ph.D., Kent State, 1966
William H. Jansen, professor, Ph.D., Indiana, 1948
Kevin S. Kiernan, assistant professor, Ph.D., Case-Western Reserve, 1970
William Magretta, assistant professor, M.A., Michigan, 1970
Stephen Manning, professor, Ph.D., Johns Hopkins, 1956
Jerome T. Meckier, associate professor, Ph.D., Harvard, 1968
C. Alan Moorer, assistant professor, Ph.D., Virginia, 1970
Joseph F. Musser, Jr., assistant professor, Ph.D., Virginia, 1970
Jean G. Pival, assistant professor, M.A., Kentucky, 1962
George A. Potratz, assistant professor, Ph.D., Cornell, 1972
Donald A. Ringe, professor, Ph.D., Harvard, 1954
Kenneth J. Semon, assistant professor, Ph.D., Washington, 1970
Richard P. Sugg, assistant professor, Ph.D., Florida, 1969
Larry J. Swingle, assistant professor, Ph.D., Wisconsin, 1967
William Smith Ward, professor, Ph.D., Duke, 1943
Arthur Wrobel, assistant professor, Ph.D., North Carolina, 1968

FRENCH LANGUAGE AND LITERATURE
Raymond C. La Charité, chairman

Jean D. Charron, professor, Ph.D., North Carolina, 1956
Phillip A. Duncan, professor, Ph.D., Indiana, 1958
Mary Lynne Flowers, assistant professor, Ph.D., Ohio State, 1973
Raymond C. La Charité, associate professor, Ph.D., Pennsylvania, 1966
Virginia A. La Charité, associate professor, Ph.D., Pennsylvania, 1966
Walter G. Langlois, professor, Ph.D., Yale, 1956
Theodore H. Mueller, professor, Ph.D., Northwestern, 1953
Rupert T. Pickens, associate professor, Ph.D., North Carolina, 1966
John A. Rea, assistant professor, A.B., Miami, 1948

GEOGRAPHY
P.P. Karan, chairman

Jeffrey E. Bassett, assistant professor, Ph.D., Kentucky, 1973
Wilford A. Bladen, assistant professor, Ph.D., Kentucky, 1972
Thomas P. Field, professor, Ph.D., North Carolina, 1948
Ronald D. Garst, assistant professor, Ph.D., Michigan State, 1972
Richard C. Jones, assistant professor, Ph.D., Ohio State, 1973
P.P. Karan, professor, Ph.D., Indiana, 1956
E. Cotton Mather, adjunct professor (Special Title Series), Ph.D., Wisconsin, 1951
V. Nath, adjunct professor (Special Title Series), Ph.D., Maryland, 1949
Phillip D. Phillips, assistant professor, Ph.D., Minnesota, 1972
Karl B. Raitz, assistant professor, Ph.D., Minnesota, 1970
Geoffrey Wall, assistant professor, Ph.D., Hull University, 1971
William A. Withington, associate professor, Ph.D., Northwestern, 1955

GEOLOGY
William H. Dennen, chairman

Richard Irven Barnhisel, associate professor, Ph.D., Virginia Polytechnic, 1964 (Co-appointed with Agronomy)
William Howard Blackburn, associate professor, Ph.D., M.I.T., 1967
William Randall Brown, professor, Ph.D., Cornell, 1942
Lois Jeannette Campbell, assistant professor, Ph.D., Ohio State, 1955
William H. Dennen, professor, Ph.D., M.I.T., 1949
Irving Sanborn Fisher, associate professor, Ph.D., Harvard, 1952
G. Randy Keller, assistant professor, Ph.D., Texas Tech, 1973
Erwin John Lyons, associate professor, Ph.D., Wisconsin, 1947
William C. MacQuown, professor, Ph.D., Cornell, 1943
Bruce Robert Moore, associate professor, Ph.D., Melbourne, Australia, 1967
Vincent E. Nelson, professor, Ph.D., Chicago, 1942
Thomas Glasdir Roberts, associate professor, Ph.D., Columbia, 1949
John Thrailkill, associate professor, Ph.D., Princeton, 1965
Frederick D. Wright, professor, M.S., Columbia, 1942 (Co-appointed with Civil Engineering)

GERMANIC LANGUAGES AND LITERATURES
A. Wayne Wonderley, chairman

Norman H. Binger, professor, Ph.D., Ohio State, 1942
Bernd Kratz, associate professor, Ph.D., Marburg, Germany, 1963
Virginia A. La Charité, associate professor, Ph.D., Pennsylvania, 1966
Ingeborg F. Riester, lecturer, M.A., Kentucky, 1952
Ingeborg H. Solbrig, assistant professor, Ph.D., Stanford, 1969
Paul Stapf, professor, Ph.D., Berlin, Germany, 1937
John Wesley Thomas, professor, Ph.D., Penn State, 1942
Paul K. Whitaker, professor emeritus, Ph.D., Ohio State, 1942
A. Wayne Wonderley, professor, Ph.D., Wisconsin, 1941

HISTORY
James F. Hopkins, chairman

William C. Baldwin, assistant professor, Ph.D., Michigan, 1973
Lance Banning, assistant professor, Ph.D., Washington University, 1971
Raymond F. Betts, professor, Ph.D., Columbia, 1958; D.d'U., Grenoble, France, 1955
Jerry M. Calton, assistant professor, Ph.D., Washington, 1970
William J. Chambliss, associate professor, Ph.D., Michigan, 1963
Steven A. Channing, associate professor, Ph.D., North Carolina, 1968
Carl B. Cone, professor, Ph.D., Iowa, 1940
Earlene J. Craver, assistant professor, Ph.D., Southern California, 1972
E. Randolph Daniel, associate professor, Ph.D., Virginia, 1966
Bruce S. Eastwood, associate professor, Ph.D., Wisconsin, 1963
Will D. Gilliam, Jr., associate professor, Ph.D., Indiana, 1941
Holman Hamilton, professor, Ph.D., Kentucky, 1954
Mary W. M. Hargreaves, associate professor, Ph.D., Radcliffe, 1951
George C. Herring, Jr., associate professor, Ph.D., Virginia, 1965
James Franklin Hopkins, professor, Ph.D., Duke, 1949
Robert M. Ireland, associate professor, Ph.D., Nebraska, 1967
Richard Lowitt, professor, Ph.D., Columbia, 1950
John R. Mayfield, assistant professor, Ph.D., Johns Hopkins, 1971
Humbert S. Nelli, associate professor, Ph.D., Chicago, 1965
Donald G. Nugent, associate professor, Ph.D., Iowa, 1965
Robert W. Olson, assistant professor, Ph.D., Indiana, 1972
Robert W. Randall, associate professor, Ph.D., Harvard, 1965
Charles Pierce Roland, professor, Ph.D., Louisiana State, 1951
John Scarborough, associate professor, Ph.D., Illinois, 1967
Gerard E. Silberstein, professor, Ph.D., Harvard, 1962
Charles G. Talbert, associate professor, Ph.D., Kentucky, 1952
Joseph Thompson, associate professor, Ph.D., Stanford, 1966

Robert Douglas Warth, professor, Ph.D., Chicago, 1949
William F. Willingham, assistant professor, Ph.D., Northwestern, 1972

JOURNALISM
Bruce H. Westley, chairman

Robert Lewis Donohew, professor, Ph.D., Iowa, 1965
J. Ardery McCauley, associate professor, M.A., Kentucky, 1948
William M. Moore, associate professor, Ph.D., Wisconsin, 1946
Dwight L. Teeter, Jr., associate professor, Ph.D., Wisconsin, 1966
Leonard M. Tipton, assistant professor, Ph.D., Wisconsin, 1969
Frank O. Wellnitz, (visiting) instructor, M.A., Ball State, 1972
Bruce H. Westley, professor, M.S., Columbia, 1941
S. Scott Whitlow, instructor, Ph.D. candidate, Southern Illinois, 1974
Raymond W. Wild, associate professor, Ph.M., Wisconsin, 1939

LINGUISTICS
Thomas M. Olshewsky, chairman

Joseph Jones, professor of Spanish, advisor
Richard Levy, assistant professor of Anthropology, advisor
Michael McCord, associate professor of Mathematics, advisor
Thomas Olshewsky, associate professor of Philosophy, advisor
Jean Pival, assistant professor of English, advisor
John Rea, assistant professor of French, advisor

MATHEMATICS
Raymond H. Cox, chairman

David R. Adams, assistant professor, Ph.D., Minnesota, 1969
James C. Beidleman, associate professor, Ph.D., Pennsylvania State, 1964
Robert E. Bixby, assistant professor, Ph.D., Cornell, 1972
James E. Brennan, assistant professor, Ph.D., Brown, 1969
J. D. Buckholtz, professor, Ph.D., Texas, 1960
Richard W. Carey, assistant professor, Ph.D., SUNY, Stony Brook, 1970
Thomas A. Chapman, professor, Ph.D., Louisiana State, 1970
Donald Coleman, associate professor, Ph.D., Purdue, 1961
R. H. Cox, associate professor, Ph.D., North Carolina, 1963
Joel L. Cunningham, assistant professor, Ph.D., Oregon, 1969
Paul M. Eakin, Jr., associate professor, Ph.D., Louisiana State, 1968
Carl E. Eberhart, associate professor, Ph.D., Louisiana State, 1966
Edgar E. Enochs, professor, Ph.D., Notre Dame, 1959
Graeme Fairweather, associate professor, Ph.D., St. Andrews, Scotland, 1966
Steven Ferry, assistant professor, Ph.D., Michigan, 1973
Michael Freeman, associate professor, Ph.D., California, Berkeley, 1965
J. B. Fugate, associate professor, Ph.D., Iowa, 1964
Ronald Gariepy, assistant professor, Ph.D., Wayne State, 1969
L. Wayne Goodwyn, associate professor, Ph.D., Maryland, 1968
Robert M. Goor, assistant professor, Ph.D., Michigan, 1972
Richard Gostanian, assistant professor, Ph.D., Courant Institute, France, 1971
Lawrence A. Harris, assistant professor, Ph.D., Cornell, 1969
T. L. Hayden, associate professor, Ph.D., Texas, 1961
Daniel B. Henry, assistant professor, Ph.D., Brown, 1969
Henry C. Howard, professor, Ph.D., Carnegie-Mellon, 1958
David Johnson, assistant professor, Ph.D., Virginia, 1970
Joseph Peter Johnson, assistant professor, Ph.D., Rice, 1971
Frank R. Keogh, professor, Ph.D., Cambridge, England, 1963
John E. Kerlin, Jr., assistant professor, Ph.D., California, Irvine, 1970
Daniel B. Kotlow, assistant professor, Ph.D., Massachusetts Institute of Technology, 1969
Kenneth K. Kubota, assistant professor, Ph.D., Faculte des Sciences de Paris, France, 1969
Alan Lambert, assistant professor, Ph.D., Michigan, 1970
Stephen L. Langston, associate professor, Ph.D., Wisconsin, 1968
Donald C. Leigh, professor, Ph.D., Cambridge, England, 1954
John L. Lewis, assistant professor, Ph.D., Illinois, 1970
John E. Mack, associate professor, Ph.D., Purdue, 1959
Frank J. Massey III, assistant professor, Ph.D., California, Berkeley, 1971
Michael C. McCord, associate professor, Ph.D., Yale, 1963
Raymond W. Rishel, associate professor, Ph.D., Wisconsin, 1959
Wimberly C. Royster, professor, Ph.D., Kentucky, 1952
S. M. Shah, professor, Ph.D., London, England, 1942
David L. Shannon, assistant professor, Ph.D., Purdue, 1971
James E. Simpson, associate professor, Ph.D., Yale, 1961
Ted J. Suffridge, associate professor, Ph.D., Kansas, 1965
Cliff Swauger, Jr., lecturer, M.S., Kentucky, 1962
Barnet Weinstock, associate professor, Ph.D., Massachusetts Institute of Technology, 1966
Clasine van Winter, professor, Ph.D., Groningen, The Netherlands, 1957
James H. Wells, professor, Ph.D., Texas, 1958
Roger Wets, professor, Ph.D., California, Berkeley, 1964

MILITARY SCIENCE
(Army ROTC)
Charles L. Brindel, program director

Durwood Bagby, instructor, B.S., United States Military Academy, 1963
Charles L. Brindel, professor, M.A., Missouri, 1972
Howard R. Holaday, instructor, B.S., Missouri, 1961
William J. Marr, instructor, B.A., California, 1964
William G. Pfeifle, instructor, M.S., Kentucky, 1972
Arthur Peter III, instructor, B.A., Kentucky, 1959

SCHOOL OF MUSIC
Wesley Morgan, director

Joseph W. Baber, assistant professor, M.M., Rochester, 1965
Arnold Blackburn, professor, M.M., Michigan, 1943
James L. Bonn, associate professor, M.M., Manhattan Conservatory, 1960
Joan H. Ceo, instructor (part-time), B.M., Catholic University of America, 1959
Joseph S. Ceo, associate professor, M.M., Illinois, 1956
William Harry Clarke, assistant professor, M.A., George Peabody, 1963
Rex A. Conner, associate professor, M.M.E., Missouri, 1953
Vincent A. DiMartino, instructor, B.M., Rochester, 1970
R. Bernard Fitzgerald, professor, M.M., Jordan Conservatory, 1935
Arthur Graham, associate professor, Ed.D., Columbia, 1960
Donald W. Haddad, assistant professor, M.F.A., Ohio University, 1958
Hubert P. Henderson, professor, Ph.D., North Carolina, 1962
Sara Holroyd, associate professor, M.A., Columbia, 1951
Thomas S. Howell, assistant professor, D.M.A., Illinois, 1971
Irving Ilmer, associate professor, DePaul U., School of Music, 1939
Donald W. Ivey, associate professor, D.M.A., Illinois, 1962
Phyllis Jenness, associate professor, M.A., Kentucky, 1958

Gordon J. Kinney, professor, Ph.D., Florida State, 1962
Aimo Justus Kiviniemi, professor, M.A., Ohio State, 1952
Rey M. Longyear, professor, Ph.D., Cornell, 1957
James F. McCarthy, assistant professor, Ph.D., Michigan State U., 1972
John R. Melton, assistant professor, M.M., Indiana, 1968
Phillip Miller, associate professor, M.M.E., Boston University, 1958
Ford McRae Montgomery, associate professor, M.M. Michigan, 1949
Wesley K. Morgan, professor, Ph.D., Southern California, 1956
Barbara A. Morrison, instructor (part-time), B.M.E., Northwestern, 1958
Bruce N. Morrison, associate professor, M.M., Northwestern, 1960
Regina Mushabac, assistant professor, M.M., Indiana, 1973
Gordon A. Nash, associate professor, M.A., Kentucky, 1950
Nathaniel Maxwell Patch, professor, M.M., Rochester, 1941
William F. Prizer, assistant professor, Ph.D., North Carolina, 1973
James A. Rago, instructor (part-time), M.S., Juilliard, 1967
Carolyn M. Rankin, assistant professor, M.M., Louisiana State, 1950
Frank Traficante, associate professor, Ph.D., Pittsburgh, 1965
Virginia R. Walker, instructor (part-time), A.B., Kentucky, 1943
Kenneth W. Wright, professor, Ph.D., Rochester, 1941

PHILOSOPHY
Dallas M. High, chairman

Michael D. Bayles, associate professor, Ph.D., Indiana, 1967
J. Daniel Breazeale, assistant professor, Ph.D., Yale, 1971
Ronald Bruzina, associate professor, Ph.D., Notre Dame, 1966; Doctorat de 3e cycle, Paris-Nanterre, France, 1970
Jesse de Boer, professor, Ph.D., Harvard, 1942
James H. Fetzer, assistant professor, Ph.D., Indiana, 1970
Kenneth I. Henley, assistant professor, Ph.D., Virginia, 1972
Dallas M. High, professor, Ph.D., Duke, 1964
James W. Manns, assistant professor, Ph.D., Boston, 1971
Thomas M. Olshewsky, associate professor, Ph.D., Emory, 1965
Alan R. Perreiah, associate professor, Ph.D., Indiana, 1967
Henry A. S. Schankula, assistant professor, Ph.D., Cand., Toronto, 1973

PHYSICS AND ASTRONOMY
Fletcher Gabbard, chairman

Eugene Bradford Bradley, associate professor, Ph.D., Vanderbilt, 1964
Jerry Duke Brandenberger, associate professor, Ph.D., Texas, 1962
John Ernest Christopher, assistant professor, Ph.D., Virginia, 1967
Lewis Wellington Cochran, professor, Ph.D., Kentucky, 1952
Marcel Coz, associate professor, D.Sc., Sorbonne, France, 1960
Wendell Carden DeMarcus, professor, Ph.D., Yale, 1951
Paul Marvin Everett, assistant professor, Ph.D., Case-Western Reserve, 1968
Fletcher Gabbard, professor, Ph.D., Rice, 1959
Ben Roger Gossick, professor, Ph.D., Purdue, 1954
Richard Hanau, professor, Ph.D., Michigan, 1947
George Samuel Hurst, professor, Ph.D., Tennessee, 1959
George Kanatas, (visiting) instructor, Ph.D., Kansas, 1971
Bernard Donald Kern, professor, Ph.D., Indiana, 1949
Robert Edward Knight, associate professor, Ph.D., Texas, 1964
Wasley Swen Krogdahl, professor, Ph.D., Chicago, 1942
Guy Walter Lehman, professor, Ph.D., Purdue, 1954
Peter Kurt Leichner, assistant professor, Ph.D., Kansas, 1969
Alan Douglas MacKellar, associate professor, Ph.D., Texas A & M, 1965
Floyd Delbert McDaniel, res. associate professor, Ph.D., Georgia, 1971
Marcus Thomas McEllistrem, professor, Ph.D., Wisconsin, 1956
Rudolph Schrils, associate professor, Ph.D., Colorado, 1963
Franklin Douglas Snyder, (visting) assistant professor, Ph.D., Iowa, 1971
Ralph Brockett Snyder, (visting) assistant professor, Ph.D., Harvard, 1969
Earl Larsen Steele, professor, Ph.D., Cornell, 1952
Robert Allan Stokes, assistant professor, Ph.D., Princeton, 1968
Joseph Paul Straley, assistant professor, Ph.D., Cornell, 1970
Jesse Leo Weil, associate professor, Ph.D., Columbia, 1959
James Harold Williams, Jr., (visiting) instructor, Ph.D., Iowa, 1972
Clasine van Winter, professor, Ph.D., Groningen, Germany, 1957
Francis Lorraine Yost, professor, Ph.D., Wisconsin, 1936

POLITICAL SCIENCE
Bradley C. Canon, chairman

Michael A. Baer, associate professor, Ph.D., Oregon, 1968
Bradley C. Canon, associate professor, Ph.D., Wisconsin, 1967
Frank Casale, assistant professor, Ph.D., Michigan, 1971
Kenneth Coleman, assistant professor, Ph.D., North Carolina, 1970
B. Vincent Davis, professor, Ph.D., Princeton, 1961
Herbert N. Drennon, associate professor, Ph.D., Duke, 1951
Maurice A. East, associate professor, Ph.D., Princeton, 1969
George H. Gadbois, associate professor, Ph.D., Duke, 1965
Lawrence V. Grant, assistant professor, Ph.D., Illinois, 1970
Dean Jaros, associate professor, Ph.D., Vanderbilt, 1966
Malcolm E. Jewell, professor, Ph.D., Penn State, 1958
William E. Lyons, associate professor, Ph.D., Penn State, 1965
Andrew A. Milnor, associate professor, Ph.D., Duke, 1962
John Patterson, assistant professor, Ph.D., SUNY, Buffalo, 1971
Herbert G. Reid, associate professor, Ph.D., North Carolina, 1968
Sheldon W. Simon, associate professor, Ph.D., Minnesota, 1964
S. Sidney Ulmer, professor, Ph.D., Duke, 1956
Kenneth E. Vanlandingham, associate professor, Ph.D., Illinois, 1950
John Wanat, assistant professor, Ph.D., Illinois, 1971
Ernest Yanarella, assistant professor, Ph.D., North Carolina, 1971

PSYCHOLOGY
Ronald C. Dillehay, Jr., chairman

Billie M. Ables*, associate professor, Ph.D., Purdue, 1954
Robert A. Baker, Jr., professor, Ph.D., Purdue, 1952
James R. Barclay*, professor, Ph.D., Michigan, 1959
Richard L. Bednar, associate professor, Ph.D., Minnesota, 1968
Juris I. Berzins, professor, Ph.D., Connecticut, 1966
Jeffrey Brandsma*, Ph.D., Penn. State, 1971
James S. Calvin, professor, Ph.D., Yale, 1939
Patrick Cavanagh, assistant professor, Ph.D., Rochester, 1973
Ronald C. Dillehay, professor, Ph.D., California, 1962
William G. Drew*, assocoate professor, Ph.D., Tennessee, 1969
Charles Fowler Elton, professor*, Ph.D., Ohio State, 1951
Edward Engel, associate professor, Ph.D., Princeton, 1955
John V. Haley*, professor, Ph.D., Loyola, 1963
Jesse G. Harris, Jr., professor, Ph.D., Duke, 1955
Kenneth A. Jacobus, assistant professor, Ph.D., Ohio State, 1967
Russell A. Jones*,associate professor, Ph.D., Duke, 1969
Donald F. McCoy Jr., associate professor, Ph.D., Missouri, 1966
Joseph Melnick, assistant professor, Ph.D., Cincinnati, 1971
Jack Monroe*, professor, Ph.D., Purdue, 1950
Edward Lee Newbury, associate professor, Ph.D., Princeton, 1961
Michael T. Nietzel, assistant professor, Ph.D., Illinois, 1973
Arthur Nonneman, assistant professor, Ph.D., Flordia, 1970
Margaret O'Connor, assistant professor, Ph.D., Texas, 1973

Harriet A. Rose*, associate professor, Ph.D., Kentucky, 1964
John Sensenig, associate professor, Ph.D., Duke, 1969
Ruth Sosis, assistant professor, Ph.D., Chicago, 1972
James E. Spivey, associate professor, Ph.D., Texas, 1964
Richard Paul Stratton, assistant professor, Ph.D., Michigan State, 1969
Richard A. Winett, assistant professor, Ph.D., SUNY, Stonybrook, 1971
Leonard Worell, professor, Ph.D., Ohio State, 1954
*Joint or adjunct appointment.

SLAVIC AND ORIENTAL LANGUAGES AND LITERATURES
Roger B. Anderson, chairman

Roger B. Anderson, professor, Ph.D., Michigan, 1966
Paul G. Forand, associate professor, Ph.D., Princeton, 1962
George Grebenschiker, assistant professor, Ph.D., Michigan, 1972
Gerald Janecek, assistant professor, Ph.D., Michigan, 1972
Leon Zolondek, professor, Ph.D., Chicago, 1957

SOCIOLOGY
William F. Kenkel, chairman

Walter Abbott, assistant professor, Ph.D., Washington, 1969
Allan Bashor, assistant professor, Ph.D., Iowa State, 1973
Howard W. Beers, professor, Ph.D., Cornell, 1935
James S. Brown, professor, Ph.D., Harvard, 1953
Rabel J. Burdge, associate professor, Ph.D., Penn State, 1965
Richard R. Clayton, associate professor, Ph.D., Tennessee, 1970
A. Lee Coleman, professor, Ph.D., Cornell, 1950
C. Milton Coughenour, professor, Ph.D., Missouri, 1953
Thomas Robert Ford, professor, Ph.D., Vanderbilt, 1951
Eugene B. Gallagher, professor, Ph.D., Harvard, 1958
Thomas F. Garrity, assistant professor, Ph.D., Duke, 1971
James Walter Gladden, professor, Ph.D., Pittsburgh, 1945
Jon Hendricks, assistant professor, Ph.D., Penn State, 1971
William F. Kenkel, professor, Ph.D., Ohio State, 1952
Clyde B. McCoy, assistant professor, Ph.D., Cincinnati, 1970
Philip M. Moody, associate professor, Ph.D., Utah, 1967
John A. O'Donnell, professor, Ph.D., Kentucky, 1960
Jon M. Shepard, associate professor, Ph.D., Michigan State, 1967
Gerald T. Slatin, associate professor, Ph.D., Indiana, 1967
John B. Stephenson, associate professor, Ph.D., North Carolina, 1966
Robert Straus, professor, Ph.D., Yale, 1947
Willis A. Sutton, Jr., professor, Ph.D., North Carolina, 1952
Charlene Thacker, assistant professor, Ph.D., Fordham, 1972
Thomas S. Urban, assistant professor, Ph.D., Southern Illinois, 1972
Harwin L. Voss, professor, Ph.D., Wisconsin, 1961
George L. Wilber, professor, Ph.D., Nebraska, 1952

SPANISH AND ITALIAN LANGUAGES AND LITERATURES
Daniel R. Reedy, acting chairman

Brian J. Dendle, associate professor, Ph.D., Princeton, 1966
Michael Impey, assistant professor, Ph.D., Michigan State, 1970
Joseph R. Jones, professor, Ph.D., Wisconsin, 1962
Margaret E. W. Jones, associate professor, Ph.D., Wisconsin, 1963
John E. Keller, professor, Ph.D., North Carolina, 1946
John Lihani, professor, Ph.D., Texas, 1954
William C. McCrary, professor, Ph.D., Wisconsin, 1958
Daniel R. Reedy, professor, Ph.D., Illinois, 1962
Gerardo Sâenz, associate professor, Ph.D., Texas, 1959
Edward Stanton, assistant professor, Ph.D., UCLA, 1972

SPEECH
Robert N. Bostrom, chairman

John R. Baseheart, assistant professor, Ph.D., Michigan State, 1969
Gifford Blyton, professor, Ph.D., Ohio State, 1941
Robert N. Bostrom, professor, Ph.D., Iowa, 1961
Roger D. Haney, assistant professor, Ph.D., Michigan State, 1970
J. W. Patterson, associate professor, Ph.D., Oklahoma, 1960
W. Barnett Pearce, associate professor, Ph.D., Ohio University, 1969
Kristin Valentine, assistant professor, Ph.D., Utah, 1973

STATISTICS
Richard L. Anderson, chairman

David M. Allen, associate professor, Ph.D., North Carolina State, 1968
Richard L. Anderson, professor, Ph.D., Iowa State, 1941
Vasant P. Bhapkar, professor, Ph.D., North Carolina, 1959
Saul Blumenthal, professor, Ph.D., Cornell, 1962.
William J. Bramble, assistant professor, Ph.D., Chicago, 1970
Paul L. Cornelius, assistant professor, Ph.D., Illinois, 1972
David H. Culver, assistant professor, Ph.D., Michigan, 1971
Zakkula Govindarajulu, professor, Ph.D., Minnesota, 1961
Dennis G. Haack, assistant professor, Ph.D., Iowa, 1971
Harry H. Hall, assistant professor, Ph.D., Iowa State, 1969
Thomas R. Hoffman, (visiting) assisting professor, Ph.D., Florida, 1972
D. Dal Kratzer, associate professor, Ph.D., Iowa State, 1965
Lynn R. LaMotte, assistant professor, Ph.D., Texas A & M, 1969
Harlley E. McKean, professor, Ph.D., Purdue, 1958
Peter Purdue, assistant professor, Ph.D., Purdue, 1972
Furman H. Smith, assistant professor, Ph.D., Florida State, 1972
William O. Thompson, assistant professor, Ph.D., Virginia Polytechnic Institute, 1968

TELECOMMUNICATIONS
Tervo Fujii, program chairman

Karen Sue Cailteux, assistant professor, Ph.D., Ohio State, 1972
James E. Fletcher, assistant professor, Ph.D., Utah, 1971
Teruo Fujii, assistant professor, Ph.D., Utah, 1970
J. M. Ripley, professor, Ph.D., Ohio State, 1961
G. Norman VanTubergen, (visiting) assistant professor, Ph.D., Iowa, 1968

THEATRE ARTS
J. Robert Wills, chairman

Wallace Neal Briggs, associate professor, M.A., Kentucky, 1945
Roger B. Burch, assistant professor, Ph.D., Illinois, 1970
Charles F. Dickens, assistant professor, M.F.A., Western Reserve, 1957
Douglas E. Powell, instructor, M.A., Illinois, 1971
Raymond A. Smith, associate professor, M.F.A., Western Reserve, 1955
Mary A. Stephenson, associate professor, M.A., Florida, 1963
J. Robert Wills, associate professor, Ph.D., Case-Western Reserve, 1971

COLLEGE OF BUSINESS AND ECONOMICS
Charles F. Haywood, dean

ACCOUNTING
William W. Ecton, chairman

Wendell Everett Beals, professor, M.B.A., Northwestern, 1931

Homer H. Burkett, assistant professor, D.B.A., Florida State, 1972
Paul M. Davis, associate professor, Ph.D., Illinois, 1969
William W. Ecton, professor, Ph.D., Missouri, 1966
James A. Knoblett, professor, D.B.A., Washington, 1963
Donald L. Madden, associate professor, Ph.D., Texas, 1967
Levis D. McCullers, associate professor, Ph.D., Florida, 1969
Albert W. Patrick, professor, Ph.D., Michigan, 1955
Edward Schnee, assistant professor, Ph.D. Michigan State, 1973
Relmond P. Van Daniker, associate professor, D.B.A., Maryland, 1970

BUSINESS ADMINISTRATION
John Douglas, chairman

Philip K. Berger, associate professor, Ph.D., Texas Christian, 1969
John Dittrich, assistant professor, Ph.D., Washington, 1973
James Donnelly, associate professor, D.B.A., Maryland, 1968
John Douglas, professor, Ph.D., Cornell, 1960
Herman A. Ellis, associate professor, D.B.A., Indiana, 1954
Michael J. Etzel, associate professor, D.B.A., Colorado, 1970
James L. Gibson, associate professor, Ph.D., Kentucky, 1962
Andrew Grimes, associate professor, Ph.D., Minnesota, 1964
Clyde L. Irwin, assistant professor, D.B.A., Illinois, 1966
John M. Ivancevich, associate professor, D.B.A., Maryland, 1968
Keith H. Johnson, assistant professor, Ph.D., Illinois, 1970
E. Leon Knight, Jr., assistant professor, Ph.D. Cand., Texas
Linda A. Krefting, instructor, Ph.D. Cand., Minnesota
Herbert Lyon, associate professor, Ph.D., Illinois, 1968
Joseph L. Massie, professor, Ph.D., Chicago, 1955
Richard Oliver, assistant professor, Ph.D., Wisconsin, 1973
Ronda F. Paul, assistant professor, Ph.D., Purdue, 1973
William L. Sartoris, assistant professor, Ph.D., Purdue, 1970
Donald S. Shannon, assistant professor, Ph.D., North Carolina, 1972
Martin B. Solomon, associate professor, Ph.D., Kentucky, 1967
Lynn Spruill, assistant professor, Ph.D., Michigan, 1972
William F. Starr, associate professor, M.B.A., Harvard, 1950
Ralph Steuer, assistant professor, Ph.D., North Carolina, 1973
Lawrence X. Tarpey, professor, Ph.D., Cornell, 1964
Carl B. Tower, instructor, Ph.D. Cand., Indiana
David Victor, (Extension) assistant professor, A.B., Kentucky, 1940
Bruce J. Walker, assistant professor, D.B.A., Colorado, 1971
Marc J. Wallace, assistant professor, Ph.D., Minnesota, 1972

ECONOMICS
Robert H. Stroup, chairman

M. Mukhtar Ali, associate professor, Ph.D., Wisconsin, 1969
Robert C. Baesmann, assistant professor, Ph.D., California, 1973
Henry S. Burness, assistant professor, Ph.D., Kansas, 1970
Carl Cabe, professor, Ph.D., Illinois, 1952
H. K. Charlesworth, (Extension) professor, Ph.D., Wisconsin, 1950
Virgil L. Christian, professor, Ph.D., Kentucky, 1956
Carlos C. Erwin, associate professor, Ph.D., Illinois, 1952
Richard E. Gift, associate professor, Ph.D., Duke, 1965
Stuart I. Greenbaum, associate professor, Ph.D., Johns Hopkins, 1964
Merlin N. Hackbart, associate professor, Ph.D., Kansas State, 1968
H. W. Hargreaves, professor, Ph.D., Duke, 1941
Curtis E. Harvey, associate professor, Ph.D., Southern California, 1963
Charles F. Haywood, professor, Ph.D., California, 1955
Charles W. Hultman, professor, Ph.D., Iowa, 1960
Joseph Krislov, professor, Ph.D., Wisconsin, 1954
Lawrence K. Lynch, assistant professor (adjunct), Ph.D., Kentucky, 1966
John L. Madden, associate professor, Ph.D., Kansas State, 1968
James R. Marsden, assistant professor, Ph.D., Purdue, 1970
L. Randolph McGee, associate professor, Ph.D., Tulane, 1963
Brian Motley, associate professor, Ph.D., California, 1968
Walter H. Pearce, lecturer, M.A., Michigan, 1947
Charles G. Renfro, instructor, Ph.D. Cand.
David Richardson, associate professor, Ph.D., Purdue, 1966
David R. Ross, associate professor, Ph.D., Harvard, 1956
Stuart A. Schweitzer, assistant professor, Ph.D., Minnesota, 1970
Hirofumi Shibata, professor, Ph.D., Columbia, 1965
Donald M. Soule, professor, Ph.D., Wisconsin, 1953
William J. Stober, associate professor, Ph.D., Duke, 1965
Robert H. Stroup, professor, Ph.D., Iowa, 1953
Claude M. Vaughan, (visiting) assistant professor, Ph.D., Kentucky, 1968

COLLEGE OF DENTISTRY
Harry M. Bohannan, dean

COMMUNITY DENTISTRY
Gene P. Lewis, chairman

James Corum (part-time) instructor, D.M.D., Louisville, 1965; M.P.H., North Carolina, 1973
Larry R. Domer, instructor, M.B.A., Wisconsin, 1967
A. Lincoln Fisch, assistant professor, M.S., Wisconsin, 1950
Albert L. Heise, associate professor, D.M.D., Louisville, 1949; M.P.H., Michigan, 1969
Gene P. Lewis, assistant professor, D.D.S., Baylor, 1961; M.P.H., Michigan, 1969
Darryl J. Mitry, assistant professor, Ph.D., U.S.C., 1971
M. Raynor Mullins, assistant professor, D.M.D., Kentucky, 1968; M.P.H., North Carolina, 1970
Jonathan Nash, teaching assistant, D.D.S., New York, 1971
Ellen M. Petrey, research associate, R.D.H., B.S., Kentucky, 1969
Timothy A. Smith, associate professor, Ph.D., North Carolina, 1963

ENDODONTICS
Thomas P. Mullaney, chairman

Herman A. Blair, (part-time) associate professor, M.S.D., Indiana, 1968
Roland C. Duell, associate professor, D.D.S., Ohio State, 1963; M.S., Iowa, 1967
Michael F. Hutton, assistant professor, D.D.S., New York at Buffalo, 1969; M.S.D., Indiana, 1973
Thomas P. Mullaney, professor, D.D.S., Loyola, 1961; M.S.D., Indiana, 1965
John D. Petrich, instructor, D.D.S., Loyola, 1959; Cert. Endo., Boston, 1963
David W. Vaughn, (part-time) associate professor, D.M.D., Louisville, 1962

ORAL BIOLOGY
Gerald I. Roth, chairman

Raymond B. Bridges, assistant professor, Ph.D., Vanderbilt, 1969
John R. Cramer*, (part-time) associate professor, D.D.S., Southern California, 1965; M.S., Iowa, 1968
William K. Elwood*, associate professor, D.D.S., Ohio State, 1957; Ph.D., Wayne State, 1965
Thomas T. Lillich, assistant professor, Ph.D., North Carolina, 1970
Suzanne McFarland, assistant professor, Ph.D., Mississippi, 1970

Gerald I. Roth, associate professor, D.D.S., Columbia, 1957; Ph.D., Pennsylvania, 1969
Patrick J. Sammon, assistant professor, Ph.D., Louisville, 1968
Billie Rae Shivers, assistant professor, Ph.D., Mississippi, 1970
William J. Waddell*, professor, M.D., North Carolina, 1955
Richard L. Wynn, associate professor, Ph.D., Maryland, 1970
*Joint Appointment.

ORAL DIAGNOSIS AND ORAL MEDICINE
James W. Little, chairman

Billy Ballard, (part-time) instructor, D.M.D., Kentucky, 1973
Richard C. Bartlett, associate professor, D.M.D., Louisville, 1952
Laurence R. Bean, Jr., associate professor, D.D.S., Ohio State, 1961
Larry Elliott, (part-time) instructor, D.M.D., Kentucky, 1971
K. A. Thomas Gothberg, assistant professor, D.D.S., Stockholm, 1967
W. Spalding Green, Jr., associate professor (part-time), D.M.D., Louisville, 1962
Donald R. King, associate professor, D.D.S., Washington University, 1953
James W. Little, professor, D.M.D., 1958; M.S., Oregon, 1963
Harry E. Moore, assistant professor, D.M.D., Louisville, 1952
Alvin L. Morris, professor, D.D.S., Michigan, 1951; Ph.D., Rochester, 1957
Lal Rankin, instructor (part-time), D.M.D., Kentucky, 1966
Steve Reid, (part-time) instructor, D.M.D., Kentucky, 1973
Ronald Rosenthal, assistant professor, D.D.S., Georgetown, 1963

ORAL PATHOLOGY
William R. Sabes, chairman

Joseph S. Giansanti, associate professor, D.M.D., Tufts, 1958; M.S.D., Emory, 1969
William R. Sabes, professor, D.D.S., 1959; M.S.D., Minnesota, 1961
John N. Trodahl, (part-time) associate professor, D.D.S., Minnesota, 1960; M.S.D., Minnesota, 1966

ORAL SURGERY
Markell W. Kohn, chairman

Donald C. Chase, assistant professor, D.D.S., Creighton, 1969; Cert. O.S., Vanderbilt, 1972
Emmett R. Costich, professor, D.D.S., Pennsylvania, 1945; Cert., O.S., Rochester, 1947; Ph.D., Rochester, 1954
John R. Cramer*, (part-time) associate professor, D.D.S., U.S.C., 1965; M.S., State University of Iowa, 1968
Joe W. Daugherty, (part-time) associate professor, D.M.D., Louisville, 1951; Cert., O.S., City-County Hospital, Houston, 1953
Robert L. Goes, (part-time) instructor, D.M.D., Kentucky, 1966; Cert., O.S., Indiana, 1969
Markell Wm. Kohn, associate professor, D.D.S., California, 1963; Cert., O.S., Parkland Memorial Hospital, Dallas, Texas, 1969
Robert D. Marciani, (part-time) assistant professor, D.M.D., New Jersey, 1966; Cert. O.S., Veterans Hospital, Allen Park, Michigan, 1971
J. Bernard Poindexter, Jr., (part-time) assistant professor, D.D.S., Pennsylvania, 1955; M.Sc., Ohio State, 1962
*Joint appointment

ORTHODONTICS
Nann A. Wickwire, chairwoman

Paul Biddle, (part-time) instructor, D.M.D., Kentucky, 1968; Cert., Ortho., Kentucky, 1973
Robert H. Biggerstaff, associate professor, D.D.S., Howard, 1955; Ph.D., Pennsylvania, 1969; Cert. Ortho., Kentucky 1973
Edward H. Hamilton, Jr., (part-time) associate professor, D.D.S., Tennessee, 1954; Cert. Ortho., Illinois, 1956
Michael E. Harris, (part-time) instructor, D.D.S., Emory, 1969; Cert., Ortho., Kentucky, 1973
Robert N. Jennings, (part-time) instructor, M.S., St. Louis, 1961
Charles W. Kenney, (part-time) assistant professor, D.D.S., Baylor, 1959; Cert. Ortho., Indiana, 1966
Judson M. Knight, (part-time) instructor, D.M.D., Kentucky, 1967; Cert., Ortho., Kentucky, 1972
Louis A. Norton, professor, D.M.D., Harvard, 1962; Post Doctoral Fellow, Harvard, 1964
Terry R. Schneider, (part-time) assistant professor, D.M.D., Louisville, 1963; Dpl. Ortho., Kansas City, 1967
Howard K. Starnbach, (part-time) associate professor, M.S., Eastman Dental Center, 1964
Lyman E. Wagers, (part-time) assistant professor, D.M.D., Louisville, 1943; Cert. Ortho., Ohio State, 1952
Nann A. Wickwire, associate professor, M.S.D., Baylor, 1964

PEDODONTICS
John R. Mink, chairman

Robert S. Adkins, (part-time) instructor, D.M.D., Kentucky, 1966
Wayne Collier, (part-time) assistant professor, D.M.D., Louisville, 1952
David Flanagan, (part-time) instructor, D.M.D., Kentucky, 1968
Milton E. Gellin, professor, D.D.S., Western Reserve, 1946
Clem J. Hill, associate professor, D.M.D., Louisville, 1949
Michael Lerner, instructor, M.S.D., Indiana, 1969
Susan McEvoy, assistant professor, M.S., Ohio State, 1971
John R. Mink, professor, D.D.S., 1956; M.S.D., Indiana, 1961
Herbert W. Sorenson*, associate professor, D.D.S., Toronto, Canada, 1954; F.R.C.D. (c), Toronto, Canada, 1965
Robert H. Spedding, professor, M.S.D., Indiana, 1963
*Joint appointment

PERIODONTICS
E. Barrie Kenney, chairman

Archie W. Beckner, (part-time) assistant professor, D.D.S., Ohio State, 1960
Harry M. Bohannan, professor, D.M.D., Louisville, 1953; M.S.D., Pennsylvania, 1961
Donald K. Carman, associate professor, D.M.D., Louisville, 1955
Peter B. Carroll, assistant professor, D.D.S., Ohio State, 1961; M.S., Ohio State, 1970
E. Barrie Kenney, professor, B.D.Sc., Melbourne, Australia, 1961
Raymond A. Kopczyk, associate professor, M.Sc., Ohio State, 1966
Jon H. Kraal, assistant professor, D.D.S., Netherlands, 1966; M.S., Michigan, 1972
John A. Lenox, (part-time) assistant professor, D.M.D., Kentucky, 1967
James D. Lytle, (part-time) assistant professor, M.Sc., Ohio State, 1961
Oakie G. Newsome, (part-time) assistant professor, D.M.D., Kentucky, 1966

Andrew T. Polites, (part-time) assistant professor, D.M.D., Louisville, 1955
Stanley R. Saxe, professor, M.S.D., Washington, 1960
Dan R. Trinler, (part-time) associate professor, D.M.D., Louisville, 1962
Louis L. Young, assistant professor, D.D.S., Ohio State, 1965; M.S., Minnesota, 1972

PROSTHODONTICS
Charles W. Ellinger, chairman

Charles W. Ellinger, professor, D.D.S., Ohio State, 1959; M.Sc., Ohio State, 1965
Quentin Z. Frazier, (part-time) associate professor, M.S. in Ed., Kentucky, 1940; D.M.D., Louisville, 1954
John G. Gattozzi, assistant professor, D.D.S., Ohio State, 1959
Karl W. Lange, (part-time) associate professor, D.M.D., Louisville, 1960
Louis C. Leslie, Jr., (part-time) instructor, D.M.D., Louisville, 1965
Marvin R. Lutes, (part-time) associate professor, D.M.D., Louisville, 1949
Harry M. Plummer, Jr., (part-time) instructor, D.M.D., Lexington, 1971
John A. Thompson, (part-time) instructor, D.M.D., Lexington, 1971
Robert C. Wesley, associate professor, D.M.D., Louisville, 1954
James D. Woodward, assistant professor, D.M.D., Louisville, 1965

RESTORATIVE DENTISTRY
Harold R. Laswell, chairman

Smith R. Armstrong III, (part-time) assistant professor, D.M.D., Kentucky 1968
Ervin C. Belcher, assistant professor, D.M.D., Kentucky, 1969
Neal D. Bellanti, assistant professor, D.D.S., Missouri, 1966; M.A., Missouri, 1971
Thomas G. Berry, associate professor, D.D.S., Missouri, 1961; M.A., Missouri, 1970
Hector Bethart, assistant professor, D.M.D., Tufts, 1946
Thomas W. Brehm, associate professor, D.D.S., Ohio State, 1949
James G. Burch, associate professor, D.D.S., 1962; M.S., Ohio State, 1966
Hugh N. Burkett, assistant professor, D.M.D., Kentucky, 1970
Thomas M. Cooper, associate professor, D.D.S., Tennessee, 1956
Allen T. Corbin, assistant professor, D.M.D., Louisville, 1960
Warren Fischer, (part-time) associate professor, D.M.D., Louisville, 1952
Harold R. Laswell, professor, D.D.S., Indiana, 1961; M.S.D., Indiana, 1966
Terrill A. Mast, assistant professor, Ph.D., Minnesota, 1973
Laban T. McClure, (part-time) associate professor, D.D.S., Ohio State, 1944
Gerald Re, (part-time) instructor, D.M.D., Kentucky, 1972
Clair D. Reitz, associate professor, D.D.S., Pennsylvania, 1955
Hobson Sinclair, assistant professor, D.M.D., Louisville, 1950
Robert L. Southwood, (part-time) assistant professor, D.D.S., Marquette, 1968
Jack Taylor, assistant professor, D.D.S., Louisville, 1964
Dee L. Williams, assistant professor, D.D.S., Washington, St. Louis, 1968
John W. Wittrock, associate professor, D.D.S., Missouri, 1960; M.A., San Francisco, 1965

COLLEGE OF EDUCATION
George W. Denemark, dean

ADMINISTRATION AND SUPERVISION
Charles F. Faber, chairman

Fred Edmonds, professor, Ed.D., Kentucky, 1961
Charles F. Faber, professor, Ph.D., Chicago, 1961
James B. Kincheloe, professor, Ph.D., Peabody, 1954
James R. Ogletree, professor, Ed.D., Columbia, 1956

CURRICULUM AND INSTRUCTION
Harry V. Barnard, chairman

Daniel Arnold, assistant professor, Ed.D., Tennessee, 1968
Ronald Atwood, associate professor, Ed.D., Florida State, 1966
Harry V. Barnard, professor, Ed.D., Alabama, 1959
Olive Barrett, assistant professor, M.A., Kentucky, 1949
Ronald Benson, associate professor, Ph.D., Oregon, 1971
Ollie E. Bissmeyer, Jr., assistant professor, Ed.D., Indiana, 1964
Martha Browning, instructor, M.Ed., Southern Mississippi, 1967
Billy Joe Bryant, assistant professor, M.F.A., George Washington, 1966
Alma Carl, assistant professor, M.A., Kentucky, 1953
Janet Chitwood, instructor, M.A., Peabody, 1966
Frank Colton, assistant professor, Ed.D., Wayne State, 1970
Lowell Eberwein, assistant professor, Ed.D., Indiana, 1968
Jane Emanuel, assistant professor, Ed.D., Alabama, 1970
Daniel Gibbons, (visiting) assistant professor, M.A., Villa Schifanoia, 1969
Merrell Hansen, assistant professor, Ph.D., Texas, 1971
Herbert Heger, assistant professor, Ph.D., Ohio State, 1969
Catherine Lytle, assistant professor, M.A., Kentucky, 1949
Nancy McClure, assistant professor, M.A., Kentucky, 1954
Fannie Miller, assistant professor, M.A., Kentucky, 1937
James T. Moore, professor, Ph.D., Stanford, 1949
Theodore Mueller, professor, Ph.D., Northwestern, 1953
Phil Nacke, assistant professor, Ed.D., University of British Columbia, Canada, 1970
Dennis Parsons, assistant professor, Ed.D., Georgia, 1972
William Peters, associate professor, Ph.D., Virginia, 1968
E. Leon Porter, assistant professor, Ed.D., Kentucky, 1960
Earl F. Rankin, professor, Ph.D., Michigan, 1958
Opal Reynolds, assistant professor, M.A., Kentucky, 1952
Carol Rizk, instructor, M.A., Kentucky, 1971
Virginia Rogers, associate professor, Ph.D., Texas, 1968
James Simpson, associate professor, Ph.D., Yale, 1961
C. Leland Smith, associate professor, Ed.D., Kentucky, 1962
J. Truman Stevens, assistant professor, Ed.D., Virginia, 1972
Martha Sudduth, professor, Ed.D., Indiana, 1962
Betty A. Taylor, assistant professor, M.A., Kentucky, 1963
Sara M. Thomas, assistant professor, M.A., Kentucky, 1950
James Walker, assistant professor, Ph.D., Syracuse, 1972
Jane White, assistant professor, M.S.L.S., Kentucky, 1965
Ayleene Whitehead, assistant professor, M.A., Kentucky, 1961

EDUCATIONAL PSYCHOLOGY AND COUNSELING
Gordon P. Liddle, chairman

Charles D. Auvenshine, associate professor, Ph.D., Missouri, 1962
James R. Barclay, professor, Ph.D., Michigan; 1959
William J. Bramble, assistant professor, Ph.D., Chicago, 1971
Henry P. Cole, associate professor, Ed.D., SUNY, 1968

Joseph C. Finney, professor, Ph.D., Stanford, 1959
Robert Harman, assistant professor, Ed.D., Nebraska, 1969
Edward Kifer, assistant professor, Ph.D., Chicago, 1973
David L. Larimore, assistant professor, Ph.D., Ohio State, 1969
Gordon P. Liddle, professor, Ph.D., Chicago, 1959
Emanuel Mason assistant professor, Ed.D., Temple, 1972
Terrill Mast, assistant professor, Ph.D., Minnesota, 1972
Louise S. Musser, assistant professor, Ph.D., Virginia, 1971
Leonard Ravitz, associate professor, Ed.D., Maryland, 1957
Timothy Smith, professor, Ph.D., North Carolina, 1963
William E. Stilwell III, assistant professor, Ph.D., Stanford, 1969
Raymond A. Wilkie, associate professor, Ph.D., Yale, 1954; Ph.D., Kentucky, 1960
Judith Worell, associate professor, Ph.D., Ohio State, 1956

HEALTH, PHYSICAL EDUCATION AND RECREATION
G. Alan Stull, chairman

Elsie Burton, assistant professor, Ph.D., Ohio State, 1970
Barbara Call, assistant professor, M.S., Winona State College, 1970
Maurice A. Clay, professor, Ed.D., Kentucky, 1955
Gary D. Farley, instructor, M.S., Illinois, 1965
Jess L. Gardner, associate professor, Ed.D., Kentucky, 1964
Ruth Green, associate professor, Ph.D., Texas Woman's University, 1970
Joseph J. Gruber, professor, Ph.D., Purdue, 1959
Eugene Huff, assistant professor, M.A., Tennessee, 1964
Ada Mary Jobert, assistant professor, M.A., Kentucky, 1959
Bernard M. Johnson, assistant professor, M.A., Kentucky, 1949
Robert Johnson, instructor, M.A., Georgetown, 1969
Ernst Jokl, professor, M.D., Breslau, Poland, 1931
Earl Kauffman, professor, Ed.D., New York, 1949
Don R. Kirkendall, associate professor, Ph.D., Purdue, 1968
Paul Knipping, assistant professor, Ph.D., Wisconsin, 1970
James Nance, assistant professor, M.A., Middle Tennessee State, 1965
Alfred M. Reece, assistant professor, P.E.D., Indiana, 1969
Abdelmonem Rizk, associate professor, Ed.D., Kentucky, 1968
Alan Stull, professor, Ed.D., Penn State, 1961
Pentti Teraslinna, associate professor, Ph.D., Purdue, 1966
Dennis Vinton, assistant professor, Re.D., Indiana, 1969

HIGHER AND ADULT EDUCATION
Collins Burnett, chairman

Lawrence Allen*, professor, Ph.D., Chicago, 1961
Collins W. Burnett, professor, Ph.D., Ohio State, 1948
Morris B. Cierley, professor, Ed.D., Illinois, 1953
George W. Denemark, professor, Ed.D., Illinois, 1956
Charles F. Elton, professor, Ph.D., Ohio State, 1951
Leslie L. Martin, professor, Ph.D., Indiana, 1952
Edgar L. Sagan, assistant professor, Ph.D., Ohio State, 1969
*Joint Appointment

SOCIAL AND PHILOSOPHICAL STUDIES IN EDUCATION
Richard L. Warren, chairman

John T. Abrahamson, assistant professor, Ph.D., New Mexico, 1970
Clinton Collins, associate professor, Ph.D., Indiana, 1970
David E. Denton, associate professor, Ed.D., Tennessee, 1963
Willis Griffin, associate professor, Ed.D., Columbia, 1952
Ellis F. Hartford, professor, Ed.D., Harvard, 1942
Sue Howard, assistant professor, Ph.D., Michigan, 1970
Richard LaBrecque, assistant professor, Ed.D., Boston 1971
Richard L. Warren, associate professor, Ph.D., Stanford, 1966

SPECIAL EDUCATION
Melton C. Martinson, chairman

William Berdine, assistant professor, M.Ed., Penn State, 1968
Jo Ann Berryman, assistant professor, M.A., Kentucky, 1963
A. Edward Blackhurst, associate professor, Ph.D., Pittsburgh, 1966
Patricia Cegelka, assistant professor, Ed.D., Kansas, 1970
Donald Cross, assistant professor, Ed.D., Kansas, 1967
William Green, assistant professor, Ph.D., Case-Western Reserve, 1970
Joseph Helmick, assistant professor, Ph.D., Washington, 1968
David Janssen, assistant professor, Ph.D., Penn State, 1971
Albert S. Levy, associate professor, Ed.D., Portia, 1953
Melton C. Martinson, associate professor, Ph.D., Wisconsin, 1965
Michael Murphy, assistant professor, M.A., Iowa, 1966
Charles M. Nelson, associate professor, Ed.D., Kansas, 1969
Linda Price, instructor, M.A., Kentucky, 1967
Arthur Schwartz, assistant professor, Ph.D., Vanderbilt, 1972
Beverly Stanley, assistant professor, M.A., Kentucky, 1959
Robert Sterrett, assistant professor, Ed.D., Pittsburgh, 1972
James Tawney, assistant professor, Ph.D., Purdue, 1969
Judith Worell, associate professor, Ph.D., Ohio State, 1956
William Wright, assistant professor, Ed.D., Oregon, 1972

VOCATIONAL EDUCATION
Harold R. Binkley, chairman

Ray Bernardi, assistant professor, Ph.D., Oklahoma, 1969
Harold R. Binkley, professor, Ed.D., Kentucky, 1955
Herbert H. Bruce, Jr., associate professor, Ed.D., Kentucky, 1965
Charles Byers, associate professor, Ph.D., Ohio State, 1972
Bernard Fagan, associate professor, Ed.D., Kentucky, 1970
Arsenio Espinoza, assistant professor, Ph.D., Kentucky, 1971
Inez H. Hill, assistant professor, M.S., Kentucky, 1952
Margaret B. Humphreys, assistant professor, M.S., Kentucky, 1943
Merle A. Insko, instructor, M.A., Kentucky, 1966
Maynard Iverson, assistant professor, Ph.D., Ohio State, 1971
Evangeline S. Kelsay, assistant professor, M.A., Kentucky, 1948
Carl F. Lamar, professor, Ph.D., Kentucky, 1957
Leonard C. McDowell, professor, Ed.D., Kentucky, 1964
Jack McElroy, assistant professor, M.A., Western Michigan, 1966
David C. McMurtry, assistant professor, Ed.D., Indiana, 1966
Vernon A. Musselman, professor, Ed.D., Oklahoma, 1946
Clayton Omvig, assistant professor, Ph.D., Iowa State, 1968
Devert Owens, assistant professor, M.S., Kentucky, 1958
Curtis Phipps, associate professor, Ed.D., Kentucky, 1955
Kawanna Simpson, instructor, M.S., Kentucky, 1972
Marjorie Stewart, associate professor, Ph.D., Ohio State, 1968
Mosetta Soskis, assistant professor, Ed.D., Florida, 1971
Rodney Tulloch, assistant professor, Ph.D., Penn State, 1972
Juanita Wallace, assistant professor, Ed.D., Tennessee, 1973

COLLEGE OF ENGINEERING
James E. Funk, dean

CHEMICAL ENGINEERING
Robert Belanger Grieves, chairman

Robert W. J. Brett, assistant professor, Ph.D., Illinois Inst. of Technology, 1968
William Lawrence Conger, associate professor, Ph.D., Pennsylvania, 1965
George Franklin Crewe, associate professor, Ph.D., West Virginia, 1970
Robert Belanger Greives, professor, Ph.D., Northwestern, 1961

Charles E. Hamrin, Jr., associate professor, Ph.D., Northwestern, 1964
Richard Ira Kermode, associate professor, Ph.D., Northwestern, 1962
Edward Darrell Moorhead, associate professor, Ph.D., Ohio State, 1959
James Thomas Schrodt, associate professor, Ph.D., Louisville, 1966
A. H. Peter Skelland, professor, Ph.D., Birmingham, England, 1952

CIVIL ENGINEERING
Bobby Ott Hardin, chairman

Staley F. Adams, professor, Ph.D., Colorado, 1965
Sherrill Bost Biggers, Jr., assistant professor, Ph.D., Duke, 1971
David K. Blythe, professor, M.C.E., Cornell, 1950
John A. Deacon, associate professor, D.Eng., California, Berkeley, 1965
John Arthur Dearinger, associate professor, M.S., Kentucky, 1948
William Bright Drake, lecturer, M.S., Kentucky, 1949
Vincent Paul Drnevich, associate professor, Ph.D., Michigan, 1967
Edward G. Foree, assistant professor, Ph.D., Stanford, 1968
Hans Gesund, professor, D. Engr., Yale, 1958
Ted D. Haley, associate professor, B.S., Kentucky, 1949
Bobby Ott Hardin, professor, Ph.D., Florida, 1961
Yang Hsien Huang, associate professor, D.Sc., Virginia, 1966
John W. Hutchinson, professor, Ph.D., Illinois, 1961
David Teh-yu Kao, associate professor, Ph.D., Duke, 1967
George Land, Jr., associate professor, M.S., Kentucky, 1955
Robert A. Lauderdale, professor, Ph.D., M.I.T., 1958
Richard Shelby Mateer, professor, Ph.D., Pittsburgh, 1950
John R. Parker, associate professor, M.S., Princeton, 1937
Jerry G. Rose, assistant professor, Ph.D., Texas A&M, 1971
Shien T. Wang, assistant professor, Ph.D., Cornell, 1969
Don J. Wood, professor, Ph.D., Carnegie Institute of Technology, 1961
Frederick D. Wright, professor, M.S., Columbia, 1942

ELECTRICAL ENGINEERING
Earl L. Steele, chairman

Mian Mohammad Abbas, associate professor, Ph.D., Rhode Island, 1967
Lyle Newton Back, assistant professor, M.S., Kentucky, 1962
Robert Lyman Boggess, associate professor, Ph.D., Michigan, 1959
Eugene Bradford Bradley, associate professor, Ph.D., Vanderbilt, 1964
Frank M. Brown, associate professor, Ph.D., Ohio State, 1967
Jerry C. Collins, assistant professor, Ph.D., Duke, 1970
Robert Lien Cosgriff, professor, Ph.D., Ohio State, 1953
Raymond Jewel Distler, associate professor, Ph.D., Kentucky, 1964
Ben R. Gossick, professor, Ph.D., Purdue, 1954
John Sterling Jackson, Jr., associate professor, M.S., California Institute of Technology, 1954
Prasad Krishna Kadaba, professor, Ph.D., U.C.L.A., 1950
Martin C. Krimm, assistant professor, M.S., Kentucky, 1962
Ronald James Kuhler, assistant professor, Ph.D., Texas, 1970
Syed Abu Nasar, professor, Ph.D., California, 1963
Clayton Paul, assistant professor, Ph.D., Purdue, 1970
Earl L. Steele, professor, Ph.D., Cornell, 1952
Hsi-Han Yeh, associate professor, Ph.D., Ohio State, 1967

ENGINEERING MECHANICS
Donald C. Leigh, chairman

Staley Fields Adams, professor, Ph.D., Colorado, 1965
Millard F. Beatty, Jr., associate professor, Ph.D., Johns Hopkins, 1964
Louis M. Brock, assistant professor, Ph.D., Northwestern, 1971
Oscar W. Dillon, Jr., professor, D.Eng. Sci., Columbia, 1959
Nelson N. Hsu, assistant professor, Ph.D., Johns Hopkins, 1969
Stanley E. Jones, associate professor, Ph.D., Delaware, 1967
Donald C. Leigh, professor, Ph.D., Cambridge, England, 1954
Frank J. Rizzo, associate professor, Ph.D., Illinois, 1964
T. Richard Robe, associate professor, Ph.D., Stanford, 1966
David J. Shippy, associate professor, Ph.D., Iowa State, 1963
Theodore R. Tauchert, associate professor, D.Eng., Yale, 1964

MECHANICAL ENGINEERING
Roger Eichhorn, chairman

Richard C. Birkebak, professor, Ph.D., Minnesota, 1962
Roy Donald Burberry, assistant professor, M.S., Kentucky, 1958
Willis Merle Carter, professor, Ph.D., Michigan, 1953
Clifford John Cremers, professor, Ph.D., Minnesota, 1964
R. William DeVore, lecturer, M.A., Eastern Kentucky, 1970
Robert M. Drake, Jr., professor, Ph.D., California, Berkeley, 1950
Roger Eichhorn, professor, Ph.D., Minnesota, 1959
James McClelland Elliott, assistant professor, M.S., Kentucky, 1959
James E. Funk, professor, Ph.D., Pittsburgh, 1960
Oliver William Gard, associate professor, M.S., Georgia Institute of Technology, 1952
Uri Gat, assistant professor, Dr. Ing., Technische Hoschschule, 1968
Ottfried J. Hahn, associate professor, Ph.D., Princeton, 1964
Gavriel J. Iddan, assistant professor, D.Sc., Israel Institute of Technology, Israel, 1970
Charles F. Knapp, assistant professor, Ph.D., Notre Dame, 1968
James Francis Lafferty, associate professor, Ph.D. Michigan, 1967
John H. Lienhard, professor, Ph.D., California, Berkeley, 1961
Maurice Keith Marshall, associate professor, M.S., Kentucky, 1956
Harry Louis Mason, assistant professor, M.S., Kentucky, 1959
Kenneth L. Perry, instructor, M.S., Murray, 1973
Shiva N. Singh, associate professor, Ph.D., Indian Institute of Technology, Kharagpur, India, 1958
Orville Watson Stewart, professor, M.S., Kentucky, 1955
Deh Chang Tao, lecturer, Ph.D., Purdue, 1951
Warren Ware Walton, associate professor, M.S., Kentucky, 1953
Clement C. Wilson, lecturer, Ph.D., Purdue, 1964

METALLURGICAL ENGINEERING AND MATERIALS SCIENCE
Hans Conrad, chairman

Hans Conrad, professor, D.Engr., Yale, 1956
Robert J. DeAngelis, associate professor, Ph.D., Northwestern, 1964
Robert Carlisle Duncan, assistant professor, M.S., Kentucky, 1957
Peter Paul Gillis, associate professor, Ph.D., Brown, 1964
James Graham Morris, associate professor, Ph.D., Purdue, 1956
Philip J. Reucroft, associate professor, Ph.D., London, England, 1959
Gordon A. Sargent, associate professor, Ph.D., London, England, 1964
Roy Erwin Swift, professor, D.Engr., Yale, 1949

COLLEGE OF HOME ECONOMICS
Marjorie S. Stewart, dean

Marjorie S. Stewart, professor, Ph.D., Ohio State, 1968

HOUSING AND INTERIOR DESIGN
Richard Rankin, chairman

Cheryl Heide, extension specialist, M.S., Virginia Polytechnic Institute, 1971
Richard Rankin, professor, M.A., Stanford University, 1952
Terry Rothgeb, instructor, M.A., University of Missouri, 1972
Kathryn Sebree, extension specialist, M.S., Cornell, 1957
Theo Wolfe, assistant professor, M.S., Pratt Institute, 1958
Nancy Woodson, instructor, M.S., Missouri, 1972

HUMAN DEVELOPMENT AND FAMILY RELATIONS
David C. Payne, chairman

Lisa K. Barclay, assistant professor, Ph.D., Stanford, 1969
Mary D. Browder, extension specialist, M.S., Tennessee, 1950
Burt E. Coody, associate extension professor, Th.D., Iliff, Colorado, 1953
Lynne Doyne, instructor, M.S., Kentucky, 1972
David C. Payne, associate professor, Ed.D., Indiana, 1965
Linda K. Phelps, instructor, M.S., Alabama, 1972
Kathy R. Thornburg, assistant professor, Ph.D., Missouri, 1973
M. O'Neal Weeks, assistant professor, Ph.D., North Carolina, 1972

MANAGEMENT AND FAMILY ECONOMICS
Carolyn McKinney, chairman

Karen Behm, instructor, M.S., Kentucky, 1972
Marilyn Eigsti, assistant professor, Ph.D., Michigan State, 1973
Carolyn McKinney, assistant professor, Ph.D., Michigan State, 1971
Florence J. Parker, extension specialist, M.S., Kentucky, 1962
Jessie W. Ringo, assistant professor, M.A., Kentucky, 1954
Helen M. Stevens, extension specialist, M.S., Purdue, 1955

NUTRITION AND FOOD SCIENCE
Leonard V. Packett, chairman

Sue W. Burrier, extension specialist, M.S., Kentucky, 1953
Linda Huang Chen, associate professor, Ph.D., Louisville, 1964
Jose Concon, assistant professor, Ph.D., Purdue, 1965
Joseph R. Fordham, assistant professor, Ph.D., Purdue, 1966
Elizabeth Helton, extension specialist, M. S., Columbia, 1936
Abby L. Marlatt, professor, Ph.D., California, 1947
Fudeko T. Maruyama, associate professor, Ph.D., California, 1955
Leonard V. Packett, professor, Ph.D., Texas A & M, 1958
Joe B. Paulk, associate professor, M.S., Alabama, 1956
Mary A. Peaslee, (part-time) instructor, M.S., Kansas State, 1956
Marjorie Penfield, assistant professor, Ph.D., Tennessee, 1973
Gertrude M. Skerski, assistant professor, M.S., California, Los Angeles, 1951
Claudia E. Wells, assistant professor, M.S., Alabama, 1933
Myrna Wesley, (part-time) instructor, assistant to the Dean, M.S., Kentucky, 1974

TEXTILES, CLOTHING AND MERCHANDISING
Patricia Horridge, chairman

Charlotte M. Bennett, assistant professor, M.S., Louisiana State, 1965
Janette Chapman, area extension specialist, B.S., Kentucky, 1964
Betty D. Eastin, associate professor, M.S., Alabama, 1951
Jenet L. Graham, instructor, M.S., Florida State, 1971
Patricia Horridge, associate professor, Ph.D., Texas Woman's, 1969
Janet G. Jones, instructor, M.S., Florida State, 1971
Wanette McKee, state extension specialist, M.S., Arkansas, 1971
Jo Ann Schickel, extension specialist, M.S., Wisconsin, 1970

COLLEGE OF LAW
George W. Hardy, III, dean

Gerald Grand Ashdown, assistant professor, J.D., Iowa, 1972
Richard C. Ausness, associate professor, J.D., Florida, 1968
Joseph Randolph Batt, professor, LL.M., Yale, 1960
W. Garrett Flickinger, professor, J.D., Michigan, 1953
William Hifner Fortune, associate professor, J.D., Kentucky, 1964
Kenneth B. Germain, assistant professor, J.D., New York, 1969
Richard Davenport Gilliam, Jr., emeritus professor, LL.B., Virginia, 1924
Alvin Lee Goldman, professor, LL.B., New York, 1962
Wilbert Dunn Ham, professor, LL.M., Harvard, 1941
Robert Gene Lawson, professor, J.D., Kentucky, 1963
William Lewis Matthews, Jr., professor, S.J.D., Michigan, 1950
Eugene French Mooney, Jr., professor, LL.M., Yale, 1963
Paul Oberst, professor, LL.M., Michigan, 1942
James R. Richardson, professor, LL.M., Yale, 1955
Robert Allen Sedler, professor, LL.B., Pittsburgh, 1959
Stephen James Vasek, associate professor, LL.M., Harvard, 1969
Harold R. Weinberg, assistant professor, J.D., Case-Western Reserve, 1969
Frederick William Whiteside, Jr., professor, LL.B., Cornell, 1936
Paul Allen Willis, associate professor, J.D., Kentucky, 1969

COLLEGE OF LIBRARY SCIENCE
Lawrence A. Allen, dean

Lawrence A. Allen, professor, Ph.D., Chicago, 1961
Ellen Altman, assistant professor, Ph.D., Rutgers, 1970
Jane Fuller Binger, part-time faculty, M.S.L.S., Kentucky, 1965
Rebecca Bingham, extension faculty, M.L.S., Indiana, 1969
Ollie Bissmeyer, cooperating faculty, Ed.D., Indiana, 1964
Onva Boshears, assistant professor, M.S., Illinois, 1962
Robert E. Cazden, associate professor, Ph.D., Chicago, 1965
Lois Chan, assistant professor, Ph.D., Kentucky, 1970
Frank Colton, cooperating faculty, Ed.D., Wayne State, 1970
Evelyn Daniel, assistant professor, M.S.L.S., Maryland, 1969
John Demos, extension faculty, M.L.S., Berkeley, 1956
Sharon Edge, extension faculty, M.S.L.S., Kentucky 1968
Carol T. Gallagher, part-time faculty, M.S.L.S., Kentucky, 1966
William Garnar, extension faculty, M.L.S., Rutgers, 1966
Omer Hamlin, Jr., cooperating faculty, M.S.L.S., Kentucky, 1960
Michael Harris, associate professor, Ph.D., Indiana, 1970
Virginia Lee Kerr, part-time faculty, M.L.S., George Peabody, 1965
Mary Laswell, extension faculty, B.A., Western Kentucky, 1955
Patricia Layne, extension faculty, M.A.L.S., Spalding, 1973
Louise Lyons, extension faculty, Ed.D., Kentucky, 1973
Laura K. Martin, emeritus associate professor, M.A., Stanford, 1940
Anne Y. McConnell, instructor, faculty, M.S.L.S., Kentucky, 1967
Jane McGregor, extension faculty, B.S.L.S., North Carolina, 1947
Barbara Miller, extension faculty, M.A.Ed., Spalding, 1953
John Philip, extension faculty, M.S.L.S., Columbia, 1955
Russell Powell, part-time faculty, M.L.S., Pittsburgh, 1966
Mary Quin, extension faculty, M.S.L.S., Kentucky, 1965
Mildred Ragan, extension faculty, M.S.L.S., Kentucky, 1973
Joy Terhune, associate professor, Ed.S., Peabody, 1971
Christine Tetzlaff, extension faculty, M.S.L.S., Kentucky, 1971
Herman L. Totten, associate professor, Ph.D., Oklahoma, 1966
Thomas J. Waldhart, assistant professor, M.L.S., Wisconsin, 1964

John Whitfield, extension faculty, M.S.L.S., Kentucky, 1969
Paul Allen Willis, part-time faculty, M.S., Maryland, 1965

COLLEGE OF MEDICINE
William S. Jordan, dean

ANATOMY
Harold F. Parks, chairman

Robert S. Benton, professor, Ph.D., Duke, 1960
Robert L. Bradley, assistant professor, M.D., Northwestern, 1943
William B. Cotter, associate professor, Ph.D., Yale, 1956
William K. Elwood, associate professor, Ph.D., Wayne State, 1965
Ira Fowler, professor, Ph.D., Northwestern, 1952
Lois A. Gillilan, professor, Ph.D., Michigan, 1940; M.D., Pittsburgh, 1947
Roger O. Lambson, associate professor, Ph.D., Tulane, 1965
William D. Martin, instructor, M.S., Creighton, 1966
Daniel H. Matulionis, assistant professor, Ph.D., Tulane, 1970
Raymond E. Papka, instructor, Ph.D., Tulane, 1971
Harold F. Parks, professor, Ph.D., Cornell, 1950
Nancy J. Patton, assistant professor, Ph.D., Wisconsin, 1969
David Peck, associate professor, Ph.D., Johns Hopkins, 1961
Stephen D. Smith, associate professor, Ph.D., Tulane, 1965
Harold H. Traurig, associate professor, Ph.D., Minnesota, 1962
Miroslava N. Winer, professor, Ph.D., Duke, 1957

ANESTHESIOLOGY
Jan D. Hasbrouck, acting chairman

Peter P. Bosomworth, professor, M.D., Cincinnati, 1955
David L. Brown, M.D., (voluntary) associate clinical professor of Anesthesiology
Jaime R. Calazada, assistant professor, M.D., Santa Domingo, 1963
William J. Carey, associate professor, M.D., Western Reserve, 1955
Ben W. Crawford, M.D., (voluntary) associate clinical professor of Anesthesiology
E. Phillip Crawford, M.D., (voluntary) associate clinical professor of Anesthesiology
Frederick W. Ernst, assistant professor, M.D., Ohio State, 1966
Lewis Francis, M.D., (voluntary) associate clinical professor of Anesthesiology
Jan D. Hasbrouck, professor, M.D., Rochester, 1962
Jerry E. King, M.D., (voluntary) assistant clinical professor of Anesthesiology
Daniel C. MacDougall, M.D., (voluntary) assistant clinical professor of Anesthesiology
Charles Moller, M.D., (voluntary) associate clinical professor of Anesthesiology
Robert C. Morris, M.D., (voluntary) assistant clinical professor of Anesthesiology
John E. Plumlee, associate professor, M.D., Missouri, 1959
Lloyd F. Redick, professor, M.D., Ohio State, 1958
Saul Rubin, M.D., (voluntary) assistant clinical professor of Anesthesiology
William E. Waltrip, (voluntary) assistant clinical professor of Anesthesiology
Clara L. Winter, assistant professor, M.D.
William B. Wood, assistant professor, M.D., Jefferson, Philadelphia, 1965
Ballard Wright, M.D., (voluntary) assistant clinical professor of Anesthesiology

BEHAVIORAL SCIENCE
Robert Straus, chairman

Judith P. Archambo, assistant professor, Ph.D., Minnesota, 1966
James Douglas Beck, (voluntary) assistant professor, Ph.D., North Carolina, 1969
Sam Brown, Jr.*, assistant professor, Ed.D., Kentucky, 1971
Anthony C. Colson*, assistant professor, Ph.D., Stanford, 1969
Ronald C. Dillehay*, professor, Ph.D., California, Berkeley, 1962
Roland P. Ficken, assistant professor, M.A., Kentucky, 1971
Thomas R. Ford*, professor, Ph.D., Vanderbilt, 1951
Art Gallaher, Jr.*, professor, Ph.D., Arizona, 1956
Eugene B. Gallagher, professor, Ph.D., Harvard, 1958
Thomas F. Garrity, assistant professor, Ph.D., Duke, 1967
John V. Haley, professor, Ph.D., Loyola, 1964
Laia Hanau*, assistant professor, M.A., Rochester, 1960
Jon Hendricks*, assistant professor, Ph.D., Penn State, 1971
Gerald Hill*, assistant professor, M.A., Kentucky, 1961
Russell A. Jones, associate professor, Ph.D., Duke, 1969
Jerome S. Miller, (voluntary) associate professor, Ph.D., Ohio State, 1955
Philip M. Moody, associate professor, Ph.D., Utah, 1967
John A. O'Donnell*, professor, Ph.D., Kentucky, 1960
Garth L. Olde*, associate professor, Ph.D., West Ontario, Canada, 1960
Marion Pearsall, professor, Ph.D., California, Berkeley, 1950
John B. Stephenson*, associate professor, Ph.D., North Carolina, 1966
Robert Straus, professor, Ph.D., Yale, 1947
Dennis P. VanGerven*, assistant professor, Ph.D., Massachusetts, 1971
Jean Wiese, assistant professor, Ph.D., North Carolina, 1971
*Joint Appointment

BIOCHEMISTRY
George W. Schwert, chairman

Frederick J. Bollum, professor, Ph.D., Minnesota, 1956
Shung-Kai Chan, associate professor, Ph.D., Wisconsin, 1962
Mary Sue Coleman, instructor, Ph.D., North Carolina, 1969
Alfred S. L. Hu, professor, Ph.D., Oregon, 1957
John J. Hutton, Jr.*, associate professor, M.D., Harvard, 1964
Robert L. Lester, professor, Ph.D., California Institute of Technology, 1956
Robert E. Rhoads, assistant professor, Ph.D., George Washington, 1971
George W. Schwert, professor, Ph.D., Minnesota, 1943
George W. Robinson, assistant professor, Ph.D., Duke, 1968
Alfred D. Winer, associate professor, Ph.D., Duke, 1957
*Joint Appointment

CELL BIOLOGY
Earnest W. Chick, M.D., acting chairman

Bernard H. Brownstein, assistant professor, Ph.D., California, Riverside, 1968
Nirmal K. Das, associate professor, Ph.D., Wisconsin, 1957
Thomas L. Roszman, assistant professor, Ph.D., Michigan State, 1966
Dhirenda B. Shah, assistant professor, Ph.D., Wisconsin, 1962
Jesse E. Sisken, associate professor, Ph.D., Columbia, 1957
H. Earle Swim, professor, Ph.D., Western Reserve, 1962

COMMUNITY MEDICINE
Abram S. Benenson, chairman

Frederick D. Abramson, assistant professor, Ph.D., Michigan, 1971
Joseph D. Alter, M.D., (voluntary) associate clinical professor of Community Medicine
William V. Banks, M.D., (voluntary) assistant clinical professor of Community Medicine
David Bauman, assistant professor, Ph.D., West Virginia, 1968
W. B. Rogers Beasley, M.D., (voluntary) assistant clinical professor of Community Medicine
James D. Beck, assistant professor, Ph.D., North Carolina, 1969
Abram S. Benenson, professor, M.D., Cornell, 1937
Thomas L. Boehling, (voluntary)clinical instructor
Howard L. Bost, professor, Ph.D., Michigan, 1955
Buster F. Brown, M.D., (voluntary) assistant clinical professor of Community Medicine
Ernest W. Chick, professor, M.D., Duke, 1953
Happa B. Clifford, assistant professor, M.A., American Univ., 1954; D.S.P., de Lyon Université, France, 1970
David L. Cowen, associate professor, M.D., Colorado, 1959
Jorge Deju, M.D., M.P.H., (voluntary) assistant clinical professor of Community Medicine
Grace G. Eddison, associate professor, M.D., Columbia, 1960
William R. Elsea, M.D., (voluntary) associate clinical professor of Community Medicine
Carl W. Friedericks, assistant professor, M.D., Pennsylvania, 1945
Michael L. Furcolow, professor, M.D., Yale, 1938
Robert F. Gloor, associate professor, M.D., Loma Linda, 1954
William S. Gochenour, associate professor, V.M.D., Pennsylvania, 1937
Norman L. Goodman, associate professor, Ph.D., Oklahoma, 1965
Joseph Hamburg*, associate professor, M.D., Hahnemann, 1951
W. D. Mortimer Harris, M.D., M.P.H., (voluntary) assistant clinical professor of Community Medicine
C. Hernandez, M.D., M.P.H., (voluntary) assistant clinical professor of Community Medicine
Mark T. Hoekenga, M.D., (voluntary) clinical professor of Community Medicine
Donald L. Hochstrasser, professor, Ph.D., Oregon, 1961
William S. Jordan, Jr., professor, M.D., Harvard, 1942
William C. Keck, assistant professor, M.D., Western Reserve, 1965
Frank R. Lemon, professor, M.D., Loma Linda, 1950; M.P.H., Tulane, 1955
Dan A. Martin, M.D., M.P.H., (voluntary) clinical professor of Community Medicine
Martin B. Marx, associate professor, M.P.H., Harvard, 1959; Ph.D., North Carolina, 1968
William H. McBeath, M.D., M.P.H., (voluntary) associate clinical professor of Community Medicine
William R. McElwain, associate professor, M.D., Louisville, 1948; M.P.H., Johns Hopkins, 1965
John V. Payne, assistant professor, M.D., Kentucky, 1966; M.P.H., Johns Hopkins, 1970
Edward L. Perrine, (voluntary) clinical instructor of Community Medicine
George F. Pogan, (voluntary) clinical instructor of Community Medicine
Frank D. Scutchfield, associate professor, M.D., Kentucky, 1966
Joseph W. Skaggs, assistant professor, M.D., California, Berkeley, 1959
Carl H. Slater, M.D., (voluntary) assistant clinical professor of Community Medicine
Coy D. Smith, assistant professor, B.S., Southwestern, 1965
John E. Trevey, M.D., (voluntary) assistant clinical professor of Community Medicine
H. Mac Vandiviere, professor, M.D., North Carolina, 1960
Philip Weiler, (voluntary) associate clinical professor of Community Medicine
Alice J. Westover, (voluntary) clinical instructor of Community Medicine
Tom F. Whayne, professor, M.D., Washington, 1931; DR.P.H., Harvard, 1950
*Joint Appointment

DIAGNOSTIC RADIOLOGY
Harold D. Rosenbaum, chairman

Jerry E. Anderson, M.D., (voluntary) assistant clinical professor of Diagnostic Radiology
Ernest G. Barker, Jr., assistant professor, M.D., North Carolina, 1965
Robert S. Bain, M.D. (voluntary) assistant clinical professor of Diagnostic Radiology
Harry J. Batts, M.D., (voluntary) assistant clinical professor of Diagnostic Radiology
Joe D. Bernard, M.D., (voluntary) assistant clinical professor of Diagnostic Radiology
John F. Berry, Jr., M.D., (voluntary) assistant clinical professor of Diagnostic Radiology
W. Leroy Boswell, M.D., (voluntary) associate clinical professor of Diagnostic Radiology
Colby N. Cowherd, M.D., (voluntary) assistant clinical professor of Diagnostic Radiology
Darryl Dochterman, M.D., (voluntary) assistant clinical professor of Diagnostic Radiology
Guy T. Ellis, assistant professor, M.D., Kentucky, 1969
Zygmunt S. Gierlach, M.D., (voluntary) associate clinical professor of Diagnostic Radiology
William M. Hall, M.D., (voluntary) assistant clinical professor of Diagnostic Radiology
Donnan B. Harding, M.D., (voluntary) clinical professor of Diagnostic Radiology
Del Henderson, R.T., (associate-in-Radiology–Allied Health)
Gustavo E. Hernandez, assistant professor, M.D., Bogota, Columbia, 1962
Edward Hightower, M.D., (voluntary) assistant clinical professor of Diagnostic Radiology
Bobbie Holtzman, assistant professor, R.T., (Dept. of Radiologic Technology–Allied Health)
Prue Kelley, M.D., (voluntary) assistant clinical professor of Diagnostic Radiology
Arthur Lieber, associate professor, M.D., Louisville, 1954
Susan Lipscomb, instructor, R.T. (Dept. of Radiologic Technology–Allied Health)
James G. Lorman, associate professor, M.D., Indiana, 1944
Leonidas Mostowycz, associate professor, M.D., Innsbruck, Austria, 1951
Harold Pachtman, associate professor, M.D., Ghent, Belgium, 1956
Marguerite Purcell, assistant clinical professor, M.D., Pennsylvania, 1965
Ralph C. Quillin, M.D., (voluntary) assistant clinical professor of Diagnostic Radiology
Harold D. Rosenbaum, professor, M.D., Harvard, 1944
Joseph A. Sayeg*, associate professor, Ph.D., California, Berkeley, 1954
Fred A. Schultz, M.D., (voluntary) assistant clinical professor of Diagnostic Radiology

Albert Selke, Jr., associate professor, M.D., Pennsylvania, 1959
Robert D. Shepard, M.D., (voluntary) associate clinical professor of Diagnostic Radiology
Eugene Slusher, M.D., (voluntary) assistant clinical professor of Diagnostic Radiology
*Joint Appointment

FAMILY PRACTICE
James A. Burdette, chairman

Ted D. Ballard, M.D., (voluntary) assistant clinical professor of Family Practice
James A. Burdette, professor, M.D., Tennessee, 1952
Robert C. Burkhart, M.D., (voluntary) assistant clinical professor of Family Practice
William K. Burkhart, M.D., (voluntary) assistant clinical professor of Family Practice
Max A. Crocker, associate professor, M.D., Tennessee, 1963
Rachel R. Eubank, M.D., (voluntary) clinical instructor of Family Practice
Norman Fisher, M.D., (voluntary) assistant clinical professor of Family Practice
Frank R. Lemon*, professor, M.D., Loma Linda, 1950; M.P.H., Tulane, 1955
Dan A. Martin, M.D., (voluntary) clinical professor of Family Practice
Benjamin F. Roach, (part-time) clinical professor, M.D., Duke, 1943
Allen L. Sklar, associate professor, M.D., Maryland, 1950
*Joint Appointment

MEDICINE
James W. Hollingsworth, chairman

Fekreya Aly, assistant professor, M.S.S.W., Kent School of Social Work, 1966
Kenneth R. Andrews, M.D., (voluntary) assistant clinical professor of Medicine
Antonio Anzures, assistant professor, M.D., Santo Thomas, 1957
V. Aravindakshan, assistant professor, M.D., Stanley Medical College, 1965
John G. Banwell, associate professor, M.D., London, England, 1959
James W. Bard, M.D., (voluntary) associate clinical professor of Medicine
Carey C. Barrett, M.D., (voluntary) emeritus clinical professor of Medicine
Michael P. Barron, (part-time) clinical instructor, M.D., Vermont, 1967
J. Hunter Black, M.D., (voluntary) assistant clinical professor of Medicine
M. Cary Blaydes, M.D., (voluntary) associate clinical professor of Medicine
Ward E. Bullock, associate professor, M.D., Temple, 1959
Richard W. Carpenter, M.D., (voluntary) assistant clinical professor of Medicine
Doris Cary, assistant professor, M.S.N., Indiana, 1958
Frank Cascio, associate professor, M.D., Buffalo, 1954
J. Donald Coonrod, assistant professor, M.D., Johns Hopkins, 1963
Allen L. Cornish, M.D., (voluntary) clinical professor of Medicine
Jack R. Coyer, instructor, M.D., Kentucky, 1966
John D. Cronin, M.D., (voluntary) assistant clinical professor of Medicine
Fudeid Daoud, assistant professor, M.D., Heidelberg, Germany, 1953
Matthew C. Darnell, M.D., (voluntary) associate clinical professor of Medicine
Chester Davidson, M.D., (voluntary) assistant clinical professor of Medicine
M. Allen Dawson, M.D., (voluntary) clinical instructor of Medicine
Philip DeSimone, (part-time) instructor, M.D., Vermont, 1967
George S. Dozier, M.D., (voluntary) assistant clinical professor of Medicine
Grace Eddison, associate professor, M.D., Columbia, 1960
Stephen G. Edelstein, M.D., (voluntary) assistant clinical professor of Medicine
George R. Ellis, M.D., (voluntary) assistant clinical professor of Medicine
Henry C. Evans, Jr., M.D., (voluntary) assistant clinical professor of Medicine
Claude Farley, assistant professor, M.D., Kentucky, 1964
Carl H. Fortune, M.D., (voluntary) emeritus clinical professor of Medicine
George L. Foster, M.D., (voluntary) clinical instructor of Medicine
Richard M. French, M.D., (voluntary) associate clinical professor of Medicine
Robert E. French, assistant professor, M.D., Ohio State, 1963
Yen-Jen Fuh, assistant professor, B.M., Medical College of National Taiwan, 1963
John H. Galla, assistant professor, M.D., Cornell, 1956
James G. Gay, M.D., (voluntary) clinical instructor of Medicine
Leonard S. Gettes, associate professor, M.D., Penn State, 1958
Charles R. Gill, M.D., (voluntary) associate clinical professor of Medicine
Armond T. Gordon, M.D., (voluntary) clinical instructor of Medicine
Theodore N. Guiglia, associate professor, M.D., Louisville, 1956
Joseph Hamburg, associate professor, M.D., Hahnemann, 1951
Ronald D. Hamilton, assistant professor, M.D., Louisville, 1963
Richard F. Hench, M.D., (voluntary) assistant clinical professor of Medicine
Wallace E. Herrell, M.D., (voluntary) clinical professor of Medicine
Thomas G. Hobbs, M.D., (voluntary) associate clinical professor of Medicine
James W. Hollingsworth, professor, M.D., Duke, 1947
Stanley R. Huffman, assistant professor, M.D., George Washington, 1963
John J. Hutton, associate professor, M.D., Harvard, 1964
Harris Isbell, professor (part-time), M.D., Tulane, 1934
Jamie J. Jacobs, M.D., (voluntary) assistant clinical professor of Medicine
David H. Johnston, M.D., (voluntary) associate clinical professor of Medicine
William S. Jordan, Jr., professor, M.D., Harvard, 1942
Irving F. Kanner, professor, M.D., Western Reserve, 1937
Charles N. Kavanaugh, M.D., (voluntary) associate clinical professor of Medicine
Karl C. Kelty, M.D., (voluntary) associate clinical professor of Medicine
Theodore A. Kotchen, assistant professor, M.D., Western Reserve, 1964
Ullin Leavell, professor (part-time), M.D., Duke, 1945
Frank R. Lemon, professor, M.D., Loma Linda, 1950; M.P.H., Tulane, 1955
Robert G. Luke, associate professor, M.R.C.P., London, England, 1962
Paul Mandelstam, associate professor, M.D., Harvard, 1953
Ewa J. Marciniak, associate professor, M.D., Vroclave Medical School, Poland, 1956
Glenn Marsh, M.D., (voluntary) assistant clinical professor of Medicine

William T. Maxson II, M.D., (voluntary) clinical instructor of Medicine
Lloyd Mayer, associate professor (part-time), M.D., Louisville, 1944
Alberto Mazzoleni, associate professor, M.D., Milan, Italy, 1952
Russell G. McAllister, assistant professor, M.D., Virginia, 1967
William E. McDaniel, M.D., (voluntary) associate clinical professor of Medicine
Michael P. McQuillen*, professor, M.D., Georgetown, 1957
Ira P. Mersack, instructor, M.D., Kentucky, 1966
Franklin B. Moosnick, M.D., (voluntary) clinical professor of Medicine
Maryrhea Morelock, assistant professor, M.S.S.W., Kent School of Social Work, 1964
John E. Myers, Jr., M.D., (voluntary) associate clinical professor of Medicine
David Nicholson, associate professor, L.R.C.P., M.R.C.S., M.B., London, England, 1945
William H. Nickell, M.D., (voluntary) associate clinical professor of Medicine
Robert C. Noble, assistant professor, M.D., Duke, 1964
C. Thomas Nuzum, assistant professor, M.D., Harvard, 1964
Richard P. O'Neill, associate professor, M.D., University College, Dublin, Ireland, 1955
James A. Orr, M.D., (voluntary) associate clinical professor of Medicine
Robert W. Penman, professor, M.D., Edinburgh, Scotland, 1961
John Perrine, M.D., (voluntary) assistant clinical professor of Medicine
Nicholas J. Pisacano, associate professor, M.D., Hahnemann, 1951
Charles E. Rankin, M.D., (voluntary) associate clinical professor of Medicine
E. Douglas Rees, professor, M.D., Yale, 1954
Douglas Ruff, M.D., (voluntary) associate clinical professor of Medicine
Samuel R. Scheen, M.D., (voluntary) associate clinical professor of Medicine
Stephen C. Schindler, M.D., (voluntary) assistant clinical professor of Medicine
Samuel Scott, instructor, M.D., Bowman Gray, 1969
Thornton Scott, M.D., (voluntary) clinical professor of Medicine
John B. Selby, (part-time) associate professor, M.D., Tennessee, 1946
Ronald L. Sergent, M.D., (voluntary) assistant clinical professor of Medicine
Lee C. Shine, M.D., (voluntary) assistant clinical professor of Medicine
Robert R. Siegel, associate professor, M.D., Columbia, 1955
Robert B. Simons, M.D., (voluntary) associate clinical professor of Medicine
Earle E. Spencer, Jr., M.D., (voluntary) clinical instructor of Medicine
Borys Surawicz, professor, M.D., Stephen Batory University, Poland, 1939
Katherine L. Sydnor, associate professor, M.D., Cincinnati, 1949
Kenneth C. Tufts, Jr., M.D. (voluntary) associate clinical professor of Medicine
Paul Van Lith, M.D., (voluntary) associate clinical professor of Medicine
Kedar Verma, M.D., (voluntary) assistant clinical professor of Medicine
Joseph E. Warren, associate professor, M.D., Harvard, 1938
Wilk O. West, M.D., (voluntary) associate clinical professor of Medicine
William W. Winternitz, professor, M.D., Johns Hopkins, 1945
*Joint Appointment

NEUROLOGY
David B. Clark, chairman

Robert Baumann, assistant professor, M.D., Western Reserve, 1965
Leslie W. Blakey, M.D., (voluntary) associate clinical professor of Neurology
David B. Clark, professor, M.D., Chicago, 1946
Carl F. Essig, M.D., (voluntary) assistant clinical professor of Neurology
H. Douglas Jameson, associate professor, M.D., Wisconsin, 1958
Mary Leonidakis, assistant professor, M.S.S.W., Columbia, 1949
John C. Malek, M.D., (voluntary) assistant clinical professor of Neurology
William R. Markesberry, associate professor, M.D., Kentucky, 1964
Michael P. McQuillen, professor, M.D., Georgetown, 1957
Richard L. Roth, M.D., (voluntary) assistant clinical professor of Neurology
Johnathan D. Wirtschafter*, professor, M.D., Harvard, 1960
*Joint Appointment

OBSTETRICS AND GYNECOLOGY
John W. Greene, Jr., chairman

Arthur E. Butterfield, M.D., (voluntary) clinical instructor of Obstetrics and Gynecology
G. Nelson Copeland, M.D., (voluntary) clinical instructor of Obstetrics and Gynecology
Philip S. Crossen, M.D., (voluntary) associate clinical professor of Obstetrics and Gynecology
Preston V. Dilts, Jr., M.D., (voluntary) associate clinical professor of Obstetrics and Gynecology
John L. Duhring, associate professor, M.D., Pennsylvania, 1959
Donald E. Edger, M.D., (voluntary) assistant clinical professor of Obstetrics and Gynecology
William C. Ellis, M.D., (voluntary) clinical instructor of Obstetrics and Gynecology
Carl T. Evans, M.D., (voluntary) clinical instructor of Obstetrics and Gynecology
James R. Freedman, M.D. (voluntary) clinical instructor of Obstetrics and Gynecology
Laman A. Gray, M.D., (voluntary) clinical professor of Obstetrics and Gynecology
George G. Greene, M.D., (voluntary) associate clinical professor of Obstetrics and Gynecology
John W. Greene, Jr., professor, M.D., Pennsylvania, 1952
Lewis P. Hicks, assistant professor, M.D., North Carolina, 1966
J. Kenneth Hurlocker, M.D., (voluntary) assistant clinical professor of Obstetrics and Gynecology
Van R. Jenkins II, M.D., (voluntary) assistant clinical professor of Obstetrics and Gynecology
Phyllis Long, clinical instructor, C.N.M., Frontier Graduate School of Midwifery, Hyden, Kentucky, 1965
Priscilla A. Lynd*, assistant professor, M.D., Kentucky, 1968
Charles L. Preston, M.D., (voluntary) clinical instructor of Obstetrics and Gynecology
Robert Shier, instructor, M.D., Kentucky, 1968
Beverly A. Smith, M.D., (voluntary) clinical instructor of Obstetrics and Gynecology
Geraldine Spurlin, M.D., (voluntary) clinical instructor of Obstetrics and Gynecology
James B. Stith, M.D., (voluntary) clinical instructor of Obstetrics and Gynecology
David S. Swan, M.D., (voluntary) assistant clinical professor of Obstetrics and Gynecology

Charles N. Tarkington, M.D., (voluntary) assistant clinical professor of Obstetrics and Gynecology
John R. van Nagell, assistant professor, M.D., Pennsylvania, 1959
William H. Wagner, M.D., (voluntary) clinical instructor of Obstetrics and Gynecology
Emery A. Wilson, instructor, M.D., Kentucky, 1968
Wlwood Woolsey, M.D., (voluntary) associate clinical professor of Obstetrics and Gynecology
*Joint appointment

PATHOLOGY
Jacinto J. Vazquez, chairman

Malcolm L. Barnes, M.D., (voluntary) clinical professor of Pathology
John D. Blair, assistant professor, M.D., Havana, Cuba, 1956
Olga M. Blair, assistant professor, M.D., Havana, Cuba, 1959
Buster F. Brown, M.D., (voluntary) assistant clinical professor of Pathology
P. R. Caffrey, M.D., (voluntary) assistant clinical professor of Pathology
H. Davis Chipps, M.D., (voluntary) clinical professor of Pathology
Louis D. Dubilier, M.D., (voluntary) assistant clinical professor of Pathology
E. J. Fadell, M.D., (voluntary) associate clinical professor of Pathology
David Goldenberg, associate professor, M.D., Heidelberg, Germany, 1966
Richard Kielar*, associate professor, M.D., Cincinnati, 1962
Ullin W. Leavell, Jr., M.D., (voluntary) clinical professor of Pathology
John J. Loughrin, M.D., (voluntary) clinical professor of Pathology
C. Charlton Mabry*, professor, M.D., Emory, 1954
James T. McClellan, M.D., (voluntary) clinical professor of Pathology
Ronald A. Moss, M.D., (voluntary) associate clinical professor of Pathology
Joseph C. Parker, associate professor, M.D., Virginia, 1962
Harold E. Resinger, M.D., (voluntary) associate clinical professor of Pathology
Irene E. Roeckel, M.D., (voluntary) associate clinical professor of Pathology
Joe C. Savage, LL.M., (voluntary) clinical instructor of Pathology
Elon B. Tucker, M.A., (voluntary) assistant clinical professor of Pathology
Jacinto J. Vazquez, professor, M.D., Havana, Cuba, 1948
Martha D. Vazquez, assistant professor, M.D., Havana, Cuba, 1948
Len Wallace, M.D., (voluntary) assistant clinical professor of Pathology
Daniel L. Weiss, professor, M.D., Columbia, 1946
Kazuko Yoneyama, M.D., (voluntary) clinical instructor of Pathology
Tatsuo Yoneyama, associate professor, M.D., Hakkaido, Japan, 1954
*Joint Appointment

PEDIATRICS
Warren E. Wheeler, M.D., chairman

Robert A. Beargie, associate professor, M.D., Ohio State, 1957
Robert P. Belin*, assistant professor, M.D., Tufts, 1962
James R. Beshear, M.D., (voluntary) assistant clinical professor of Pediatrics
Murvel C. Blair, M.D., (voluntary) assistant clinical professor of Pediatrics
Joseph A. Burke, assistant professor, M.D., Georgetown, 1964; M.S., Harvard, 1972
David B. Clark*, professor, M.D., Chicago, 1946
Gregory A. Culley, M.D., (voluntary) clinical instructor of Pediatrics
Guy C. Cunningham, M.D., (voluntary) clinical professor of Pediatrics
Ingrid M. Daoud, assistant professor, M.D., Heidelberg, Germany, 1964
Nirmala S. Desai, instructor, M.S., University of Baroda, India, 1965
Doane Fischer, professor, M.D., Temple, 1947
Abe R. Fossen, assistant professor, M.A., Vanderbilt, 1964
Michael L. Furcolow*, professor, M.D., Yale, 1938
Kenneth L. Gerson, assistant professor (part-time), M.D., Ohio State, 1958
William W. Greene, assistant professor, Ph.D., Case-Western Reserve, 1970
Martha F. Greenwood, assistant professor, M.D., Kentucky, 1968
Charles E. Griffith, Jr., M.D., (voluntary) clinical instructor of Pediatrics
Ira L. Hemmings, M.D., (voluntary) clinical instructor of Pediatrics
C. Philip Holland, associate professor, M.D., Louisville, 1954
Nancy H. Holland, professor, M.D., Louisville, 1954
Dorothy R. Hollingsworth, associate professor, M.D., Virginia, 1950
Gordon Hollins, M.D., (voluntary) clinical instructor of Pediatrics
Vernon L. James, associate professor, M.D., North Carolina, 1956
Patrick L. Jasper, M.D., (voluntary) clinical instructor of Pediatrics
Erwin Jones, M.D., (voluntary) associate clinical professor of Pediatrics
Martin P. Kaplan, M.D., (voluntary) associate clinical professor of Pediatrics
Maurice Kaufmann, M.D., (voluntary) clinical professor of Pediatrics
John Lucas Kiesel, M.D., (voluntary) assistant clinical professor of Pediatrics
Paul G. Kyker, M.D., (voluntary) clinical instructor of Pediatrics
Priscilla A. Lynd, assistant professor, M.D., Kentucky, 1968
C. Charlton Mabry, professor, M.D., Emory, 1954
Noble T. MacFarlane, Jr., M.D., (voluntary) associate clinical professor of Pediatrics
Robert N. McLeod, Jr., M.D., (voluntary) assistant clinical professor of Pediatrics
Michael W. Murphy, assistant professor, Ph.D., Iowa, 1971
Jacqueline A. Noonan, professor, M.D., Vermont, 1954
Dennis B. Penn, M.D., (voluntary) assistant clinical professor of Pediatrics
Ruth L. Pitman, associate professor, M.S.W., Chicago, 1941
James W. Rackley, M.D., (voluntary) clinical instructor of Pediatrics
Joan E. Rider, M.D., (voluntary) associate clinical professor of Pediatrics
Garner E. Robinson, M.D., (voluntary) clinical instructor of Pediatrics
William F. Schnitzker, M.D., (voluntary) assistant clinical professor of Pediatrics
Carl H. Scott, M.D., (voluntary) assistant clinical professor of Pediatrics
Albert C. Selke, Jr.*, associate professor, M.D., Pennsylvania, 1959
Jo Anne Sexton, M.D., (voluntary) clinical instructor of Pediatrics
Herbert W. Sorenson*, associate professor, D.D.S., Toronto, Canada, 1954
Charles W. Taylor, M.D., (voluntary) assistant clinical professor of Pediatrics
William L. Underwood, M.D., (voluntary) clinical instructor of Pediatrics
Earl E. Vastbinder, associate professor, M.Sc., Ohio State, 1967
Linda R. Walters, assistant professor, M.D., Indiana, 1962

Robert B. Warfield, M.D., (voluntary) associate clinical professor of Pediatrics
William T. Watkins, M.D., (voluntary) clinical instructor of Pediatrics
Carl L. Wheeler, M.D., (voluntary) associate clinical professor of Pediatrics
Warren E. Wheeler, professor, M.D., Harvard, 1933
James G. Wilhite, M.D., (voluntary) clinical instructor of Pediatrics
H. David Wilson, assistant professor, M.D., St. Louis, 1966
Thomas M. Wilson, M.D., (voluntary) clinical instructor of Pediatrics
Thomas A. Woodward, M.D., (voluntary) clinical instructor of Pediatrics
Walter F. Yates, M.D., (voluntary) clinical instructor of Pediatrics
*Joint Appointment

PHARMACOLOGY
Tihamer Z. Csaky, chairman

Tihamer Z. Czaky, professor, M.D., Budapest, Hungary, 1939
Louis Diamond*, assistant professor, Ph.D., Maryland, 1967
Donald F. Diedrich, associate professor, Ph.D., Wisconsin, 1959
Jerome A. Dominic, assistant professor (part-time), Ph.D., Michigan State, 1970
James W. Flesher, associate professor, Ph.D., Loyola, 1958
Helmut A. Gordon, professor, M.D., Budapest, Hungary, 1932
K.C. Huang, M.D., (voluntary) professor of Pharmacology
Harris Isbell*, professor, M.D., Tulane, 1934
Donald R. Jasinski, M.D., (voluntary) assistant professor of Pharmacology
William R. Martin, M.D., (voluntary) professor of Pharmacology
Ralph E. Miller, assistant professor, M.D., Harvard, 1961; D.Sc., Harvard, 1970
E. Douglas Rees*, professor, M.D., Yale, 1954
Thomas G. Scharff, Ph.D., (voluntary) professor of Pharmacology
William J. Waddell, professor, M.D., North Carolina, 1955
Abraham Wikler*, professor, M.D., Long Island College of Medicine, 1935
*Joint Appointment

PHYSIOLOGY AND BIOPHYSICS
Fred W. Zechman, chairman

James W. Archdeacon, professor, Ph.D., Rochester, 1943
Barbara A. Birge, instructor (part-time), M.A., Kentucky, 1969
Louis L. Boyarsky, professor, Ph.D., Chicago, 1948
Eugene C. Crawford, Jr.*, associate professor, Ph.D., Duke, 1965
Joseph Engelberg, professor, Ph.D., Pennsylvania, 1958
Donald T. Frazier, associate professor, Ph.D., Kentucky, 1964
Ward O. Griffen, Jr.*, professor, M.D., Cornell, 1953; Ph.D., Minnesota, 1963
Henry R. Hirsch, associate professor, Ph.D., Massachusets Institute of Technology, 1960
H. Douglas Jameson*, assistant professor, M.D., Wisconsin, 1958
Ernest P. McCutcheon, associate professor, M.D., Duke, 1959
Story Musgrave, M.D., (voluntary) adjunct instructor of Physiology and Biophysics
Bertram Peretz, associate professor, Ph.D., Iowa, 1968
Judith D. Pratt, associate professor, Ph.D., Duke, 1958
Daniel R. Richardson, assistant professor, Ph.D., Indiana, 1969
Gerald Roth*, associate professor, D.D.S., Columbia, 1957; Ph.D., Pennsylvania, 1969
Jesse E. Sisken*, associate professor, Ph.D., Columbia, 1957
Paul A. Thornton*, associate professor, Ph.D., Michigan State, 1956
David R. Wekstein, associate professor, Ph.D., Rochester, 1962
Miraslava N. Winer*, associate professor, Ph.D., Duke, 1957
Fred W. Zechman, professor, Ph.D., Duke, 1956
James F. Zolman, associate professor, Ph.D., California, 1963
*Joint Appointment

PSYCHIATRY
Arnold M. Ludwig, chairman

Billie M. Ables, associate professor, Ph.D., Wisconsin, 1960
Murray F. Ables, M.D., (voluntary) assistant clinical professor of Psychiatry
Sabin Akaydin, M.D., (voluntary) assistant clinical professor of Psychiatry
Robert G. Aug, professor, M.D., Cincinnati, 1955
Niles Bernick, Ph.D., (voluntary) assistant clinical professor of Psychiatry
Stanley L. Block, professor (part-time), M.D., Alabama, 1957
Janet M. Boog, M.D., (voluntary) clinical instructor of Psychiatry
Frank R. Bowers, assistant professor, M.D., Ohio State, 1962
Jeffrey Brandsma, assistant professor, Ph.D., Pennsylvania, 1971
Earl W. Christenson, M.D., (voluntary) assstant clinical professor of Psychiatry
Enedino R. Corales, M.D., (voluntary) clinical instructor of Psychiatry
John Corcella, M.D., (voluntary) assistant clinical professor of Psychiatry
William G. Drew, assistant professor, Ph.D., Tennessee, 1969
Erling W. Eng, Ph.D., (voluntary) assistant clinical professor of Psychiatry
William J. Erwin, assistant professor, M.D., Louisiana, 1957
Dale H. Farabee, M.D., (voluntary) clinical professor of Psychiatry
Harold L. Frazier, assistant professor, M.D., Bowman Gray, 1966
Irving A. Gail, M.D., (voluntary) associate clinical professor of Psychiatry
Martin L. Gebrow, assistant professor (part-time), M.D., Kentucky, 1964
John D. Griffith, M.D., (voluntary) associate clinical professor of Psychiatry
German Gutierrez, M.D., (voluntary) clinical instructor of Psychiatry
Stanley Hammons, M.D., (voluntary) assistant clinical professor of Psychiatry
Jesse G. Harris, Ph.D., (voluntary) clinical professor of Psychiatry
Jimmie D. Hawthorne, M.D., (voluntary) assistant clinical professor of Psychiatry
Peter L. Heiman, M.D., (voluntary) clinical instructor of Psychiatry
Richard B. Heintz, M.D., (voluntary) assistant clinical professor of Psychiatry
George M. Henry, assistant professor, M.D., Emory, 1965
Helen M. Herring, instructor, M.S.W., Washington, 1958
Robert W. Hibbard, M.D., (voluntary) associate clinical professor of Psychiatry
Robert K. Johns, assistant professor, M.S.W., Iowa, 1966
Hans Otto Kaak, assistant professor, M.S., Michigan, 1964
David C. Kay, M.D., (voluntary) associate clinical professor of Psychiatry
M. Peter Kullberg, instructor, Ph.D., Maine, 1971
Stephen Levine, assistant professor, M.D., California, 1966
David H. Looff, M.D., (voluntary) associate clinical professor of Psychiatry
Arnold M. Ludwig, professor, M.D., Pennsylvania, 1947
John H. Mahaffy, M.D., (voluntary) assistant clinical professor of Psychiatry

Maxie C. Maultsby, Jr., assistant professor, M.D., Case-Western Reserve, 1957
Jack G. May, M.D., (voluntary)
Loren L. Miller, assistant professor, Ph.D., Kentucky, 1971
Kenneth B. Moore, Ph.D., (voluntary) assistant clinical professor of Psychiatry
James C. Norton, assistant professor, Ph.D., Arizona, 1970
John H. Parks, M.D., (voluntary) assistant clinical professor of Psychiatry
Arvil C. Reeb, Jr., instructor, M.S.W., Louisville, 1967
John H. Rompf, M.D., (voluntary) associate clinical professor of Psychiatry
Pedro M. Ruiz, M.D., (voluntary) clinical instructor of Psychiatry
Myron G. Sandifer, Jr., professor, M.D., Harvard, 1947
Nat H. Sandler, (part-time) assistant professor, M.D., Tennessee, 1963; M.P.H., North Carolina, 1971
Charles I. Schwartz, M.D., (voluntary) assistant clinical professor of Psychiatry
Mary N. Smith, assistant professor, M.D., New York, 1945
Hugh A. Storrow, professor, M.D., Southern California, 1950
Erwin W. Straus, M.D., (voluntary) clinical professor of Psychiatry
Frida G. Surawicz, associate professor, M.D., Munich, Germany, 1943
Lane J. Veltkamp, assistant professor, M.S.W., Michigan State, 1964
William V. Walsh, M.D., (voluntary) associate clinical professor of Psychiatry
Richard Welsh, assistant professor, M.S.W., Iowa, 1966
Carl Wiesel, M.D., (voluntary) associate clinical professor of Psychiatry
Abraham Wikler, professor, M.D., Long Island College of Medicine, 1935
Cornelia B. Wilbur, professor, M.D., Michigan, 1939

RADIATION MEDICINE
Yosh Maruyama, chairman

Robert Beihn, instructor, M.S., Tennessee, 1969
Patricia E. Burns, assistant professor, B.M., D.M.R.T., Edinburgh, Scotland, 1966
John C. Calkins, associate professor, Ph.D., Texas, 1963
Edward P. Engels, assistant professor, M.D., Minnesota, 1947
Yosh Maruyama, professor, M.D., California, 1955
Joseph A. Sayeg, associate professor, Ph.D., California, Berkeley, 1954
John B. Selby*, assistant professor, M.D., Tennessee, 1957
Guy Simmons, assistant professor, Ph.D., Cincinnati, 1972
Joella F. Utley, assistant professor, M.D., Washington, 1967
Leonard Wilson*, instructor, B.S., Eastern Kentucky, 1958
Don E. Wrede, associate professor, Ph.D., Cincinnati, 1963
*Joint Appointment

REHABILITATION MEDICINE
(faculty to be appointed)

SURGERY
Ward O. Griffen, chairman

John M. Allen, M.D., (voluntary) clinical instructor of Surgery
Ralph J. Angelucci, M.D., (voluntary) associate clinical professor of Surgery (Neurosurgery)
Raleigh R. Archer, M.D., (voluntary) clinical instructor of Surgery
Harry L. Bailey, M.D., (voluntary) clinical instructor of Surgery (Orthopedics)
Robert P. Belin, assistant professor, M.D., Tufts, 1962
Raymond Bellamy, assistant professor, M.D., California, 1965
Romeo S. Berardi, assistant professor, M.D., Rome, Italy, 1958
Georges Birenbaum, M.D., (voluntary) clinical instructor of Surgery (Opthalmology)
H. Martin Blacker, associate professor, M.D., Nebraska, 1959
Wilbur C. Blount, assistant professor, M.D., Ohio State, 1959
Felix Bongiorno, M.D., (voluntary) clinical instructor of Surgery (Orthopedics)
N. L. Bosworth, M.D., (voluntary) clinical professor of Surgery (Urology)
Robert L. Bradley, assistant professor, M.D., Northwestern, 1943
Walter R. Brewer, M.D., (voluntary) associate clinical professor of Surgery (Urology)
Thomas W. Brower, professor, M.D., Washington, 1947
Marion G. Brown, M.D., (voluntary) associate clinical professor of Surgery (Orthopedics)
T. R. Bryant, Jr., M.D., (voluntary) assistant clinical professor of Surgery
W. Michael Bryant, assistant professor, M.D., Johns Hopkins, 1963
Charles W. Caldwell, M.D., (voluntary) clinical instructor of Surgery
Harvey Chenault, M.D., (voluntary) associate clinical professor of Surgery (Neurosurgery)
Jorge N. Chin, assistant professor, M.D., Manila, 1968
Thomas F. Coats, M.D., (voluntary) clinical instructor of Surgery (Plastic Surgery)
John R. Cole, M.D., (voluntary) associate clinical professor of Surgery (Urology)
William J. Collis, M.D., (voluntary) clinical instructor of Surgery
Arnold B. Combs, M.D., (voluntary) associate clinical professor of Surgery
Sidney P. Cooper, M.D., (voluntary) assistant clinical professor of Surgery
Wilford L. Cooper, M.D., (voluntary) associate clinical professor of Surgery
Richard R. Crutcher, M.D., (voluntary) associate clinical professor of Surgery
Kearney B. Daniel, M.D., (voluntary) assistant clinical professor of Surgery
Michael E. Daugherty, assistant professor, M.D., Kentucky, 1966
Melvin L. Dean, M.D., (voluntary) associate clinical professor of Surgery
Suvas G. Desai, instructor, M.D., Baroda, India, 1965
Marcus L. Dillon, associate professor, M.D., Duke, 1947
Fernando Domingquez, M.D., (voluntary) clinical instructor of Surgery
Howard E. Dorton, M.D., (voluntary) clinical professor of Surgery
Calvin B. Ernst, associate professor, M.D., Michigan, 1959
O. T. Evans, M.D., (voluntary) assistant clinical professor of Surgery
Harold T. Faulconer, M.D., (voluntary) clinical instructor of Surgery
John B. Floyd, Jr., M.D., (voluntary) clinical instructor of Surgery
Richard D. Floyd, M.D., (voluntary) assistant clinical professor of Surgery
R. Thomas Fossett, M.D., (voluntary) clinical instructor of Surgery (Orthopedics)
Carl M. Friesen, M.D., (voluntary) assistant clinical professor of Surgery
John W. Garden, M.D., (voluntary) assistant clinical professor of Surgery (Ophthalmology)
Randolph M. Gilliam, M.D., (voluntary) associate clinical professor of Surgery (Urology)
Robert P. Goodman, M.D., (voluntary) clinical instructor of Surgery
Ward O. Griffen, professor, M.D., Cornell, 1953; Ph.D., Minnesota, 1963

Allen E. Grimes, Jr., M.D., (voluntary) clinical instructor of Surgery
George M. Gumbert, Jr., M.D., (voluntary) clinical instructor of Surgery
Patrick F. Hagihara, assistant professor, M.D., Albany, 1960
Walter D. Harris, M.D., (voluntary) clinical instructor of Surgery (Otolaryngology)
Arthur A. Hellebusch, associate clinical professor (part-time), M.D., Kentucky, 1964
A. Joe Hiller, M.D., (voluntary) assistant clinical professor of Surgery
Samuel O. Hodges, M.D., (voluntary) clinical instructor of Surgery (Orthopedics)
James B. Holloway, Jr., M.D., (voluntary) associate clinical professor of Surgery
David A. Hull, M.D., (voluntary) associate clinical professor of Surgery
James D. Hull III, (voluntary) clinical instructor of Surgery
Gordon L. Hyde, M.D., (voluntary) assistant clinical professor of Surgery
Christopher Jackson, M.D., (voluntary) clinical instructor of Surgery
Frank M. Jenkins, M.D., (voluntary) clinical instructor of Surgery (Otolaryngology)
Coleman C. Johnston, M.D., (voluntary) clinical professor of Surgery
Juda Z. Jona, assistant professor, M.D., Texas, 1966
Peter H. Jones, M.D., (voluntary) assistant clinical professor of Surgery (Neurosurgery)
Richard Kielar, associate professor, M.D., Cincinnati, 1962
Robert C. Lam, M.D., (voluntary) assistant clinical professor of Surgery
Graydon A. Long, M.D., (voluntary) clinical instructor of surgery
S. W. Lykins, M.D., (voluntary) clinical instructor of Surgery
Florentino A. Martin, Jr., M.D., (voluntary) clinical instructor of Surgery (Urology)
M. Francis Massie, M.D., (voluntary) clinical professor of Surgery
William K. Massie, M.D., (voluntary) assistant clinical professor of Surgery (Orthopedics)
Porter Mayo, M.D., (voluntary) associate clinical professor of Surgery
Richard B. McElvein, M.D., (voluntary) associate clinical professor of Surgery
Eward M. McGee, M.D., (voluntary) clinical instructor of Surgery
J. William McRoberts, associate professor, M.D., Cornell, 1959
William R. Meeker, associate professor, M.D., Alabama, 1957
T. R. Miller, M.D., (voluntary) clinical instructor of Surgery
Charles S. Mooney, M.D., (voluntary) clinical instructor of Surgery
Andrew M. Moore, M.D., (voluntary) clinical professor of Surgery
Louis M. Muldrow, Jr., M.D., (voluntary) clinical instructor of Surgery
Owen B. Murphy, M.D., (voluntary) assistant clinical professor of Surgery (Orthopedics)
Charles H. Nicholson, M.D., (voluntary) assistant clinical professor of Surgery
Edwin J. Nighbert, M.D., (voluntary) clinical instructor of Surgery
Eugene Q. Parr, M.D., (voluntary) clinical instructor of Surgery (Orthopedics)
Jagdish S. Patil, assistant professor, M.D., Bombay, India, 1960
Kenneth S. Phillips, M.D., (voluntary) assistant clinical professor of Surgery (Orthopedics)
Herman R. Playforth, M.D., (voluntary) assistant clinical professor of Surgery
James G. Pope, M.D., (voluntary) assistant clinical professor of Surgery (Ophthalmology)
William O. Preston, M.D., (voluntary) clinical instructor of Surgery (Ophthalmology)
Warren H. Proudfoot, M.D., (voluntary) assistant clinical professor of Surgery
Edward H. Ray, Jr., M.D., (voluntary) associate clinical professor of Surgery (Urology)
Edward H. Ray, Sr., Emeritus professor, M.D., Tulane, 1922
Harold L. Reams, M.D., (voluntary) clinical instructor of Surgery (Otolaryngology)
James E. Ross, M.D., (voluntary) clinical instructor of Surgery
D. M. Royalty, M.D., (voluntary) assistant clinical professor of Surgery (Ophthalmology)
James E. Russell, M.D., (voluntary) clinical instructor of Surgery (Orthopedics)
Charles R. Sachatello, associate professor, M.D., Yale, 1961
Joseph H. Saunders, M.D., (voluntary) assistant clinical professor of Surgery (Ophthalmology)
Douglas E. Scott, M.D., (voluntary) associate clinical professor of Surgery
Richard H. Segnitz, associate professor (part-time), M.D., Harvard, 1946
Patrick J. Serey, M.D., (voluntary) clinical instructor of Surgery
Frank K. Sewell, M.D., (voluntary) clinical instructor of Surgery
Raymond M. Slabaugh, Jr., M.D., (voluntary) associate clinical professor of Surgery
Donald E. Slagel, associate professor, Ph.D., Wisconsin, 1961
John S. Sprague, M.D., (voluntary) assistant clinical professor of Surgery
James Stambaugh, Jr., M.D., (voluntary) assistant clinical professor of Surgery
J. Dennis Steen, M.D., (voluntary) clinical instructor of Surgery (Ophthalmology)
Giles L. Stephens, M.D., (voluntary) assistant clinical professor of Surgery
David B. Stevens, M.D., (voluntary) assistant clinical professor of Surgery
Ben C. Stigall, M.D., (voluntary) clinical instructor of Surgery (Otolarynology)
John M. Stoeckinger, M.D., (voluntary) clinical instructor of Surgery
William T. Swartz, M.D., (voluntary) assistant clinical professor of Surgery
David P. Thomas, M.D., (voluntary) clinical instructor of Surgery (Orthopedics)
Kearns R. Thompson, Jr., M.D., (voluntary) assistant clinical professor of Surgery (Orthopedics)
Claude W. Trapp, M.D., (voluntary) associate clinical professor of Surgery (Ophthalmology)
Russell L. Travis, M.D., (voluntary) assistant clinical professor of Surgery (Neurosurgery)
Kazi-Mobin Uddin, assistant professor, M.D., King Edward, India, 1954
Joe R. Utley, associate professor, M.D., Washington, 1960
Gary R. Wallace, M.D., (voluntary) clinical instructor of Surgery (Ophthalmology)
Ray W. Ware, associate professor, M.D., Texas, 1955
Francis B. Wells, M.D., (voluntary) associate clinical professor of Surgery (Ophthalmology)
William G. Wheeler, M.D., (voluntary) clinical instructor of Surgery (Orthopedics)
William G. Winter, assistant professor, M.D., Harvard, 1963
Jonathan D. Wirtschafter, professor, M.D., Harvard, 1960
Bruce R. Wolff, M.D., (voluntary) clinical instructor of Surgery
Thomas D. Yocum, M.D., (voluntary) assistant clinical professor of Surgery (Orthopedics)
Alfred Byron Young, M.D., (voluntary) clinical instructor of Surgery (Neurosurgery)

George Zarocostos, M.D., (voluntary) clinical instructor of Surgery (Otolaryngology)

COLLEGE OF NURSING

Marion E. McKenna, dean

Ruth Assell, assistant professor, M.S.N., Colorado, 1966
Elizabeth Bear, associate professor, M.S.N., Wayne State, 1958
Irma Bolte, assistant professor, M.S., Catholic University, 1956
Sandra Britt, instructor, M.P.H., University of North Carolina, 1970
Susan Browne, instructor, M.S.N., Kentucky, 1973
Sandra Campbell, assistant professor, M.N., Emory, 1970
Carol Caples, instructor, M.S.N., Kentucky, 1973
Doris Cary, associate professor, M.P.H., Tulane, 1956; M.S., Indiana, 1958
Loretta Denman, professor, Ph.D., Ohio State, 1962
Emily Egbert, instructor, M.S.N., Kentucky, 1971
Geraldine Ellison, assistant professor, M.S.N., Vanderbilt, 1968
Juanita W. Fleming, professor, Ph.D., Catholic University, 1969
Claudine Gartner, associate professor, M.S.N.Ed., St. Louis University, 1954
Evelyn Geller, assistant professor, M.S.N., Catholic University, 1963; M.Ed., Columbia, 1972
Barbara Haus, instructor, M.S.N., Kentucky, 1972
Jean Hayter, professor, Ed.D., Columbia, 1961
Melva Jo Hendrix, associate professor, D.N.Sc., Boston University, 1971
Alice Herman, assistant professor, M.S.N., Kentucky, 1972
Beth Hicks, associate professor, M.S., Maryland, 1961
Louise Jimm, associate professor, M.S., Western Reserve, 1959
Gretchen LaGodna, lecturer, M.Ed., Florida, 1963
Virginia Lane, professor, M.A., Chicago, 1950
Catherine Luria, instructor, M.S., New York Medical College, 1968
Marion E. McKenna, professor, Ed.D., Florida, 1970
Claire Nalepka, instructor, M.S.N., Kentucky, 1973
Jennie Nickell, instructor, M.S.N., Kentucky, 1973
Mary Alice Pratt, assistant professor, M.Ed., Columbia, 1970
Isabelle Rasplica, assistant professor, M.S.N., Washington University, 1967
Betty Rhyne, assistant in teaching, B.S.N., Virginia, 1970
Betty Rudnick, professor, Ed.D., Columbia, 1962
Katherine Sallee, assistant professor, M.N., Emory, 1971
Jean Smith, instructor, M.S.N., Kentucky, 1973
Ruth Stoll, assistant professor, M.S.N., Wayne State, 1966
Louise Stone, academic counselor, M.A.E., Eastern Kentucky University, 1972
Robert Storat, director of student services, M.Ed., Vermont, 1973
Frances J. Thomas, associate professor, Ph.D., University of North Carolina, 1970
Betty Turpen, instructor, M.S.N., Kentucky, 1972

COLLEGE OF PHARMACY

Joseph V. Swintosky, dean

Ann Amerson, assistant professor, Pharm.D., Kentucky, 1971
Robert L. Barnett, assistant professor, B.S., Kentucky, 1959
Norman F. Billups, associate professor, Ph.D., Oregon State, 1963
John L. Butler, associate professor, M.S., Philadelphia, 1962
Ronald David Cobb, assistant professor, Pharm.D., Kentucky, 1973
Patrick P. DeLuca, associate professor, Ph.D., Temple, 1962
Louis Diamond, associate professor, Ph.D., Maryland, 1967
George A. Digenis, associate professor, Ph.D., Wisconsin, 1964
Lewis W. Dittert, professor, Ph.D., Wisconsin, 1961
Richard M. Doughty, assistant professor, M.S., Pittsburgh, 1953
Thomas S. Foster, assistant professor, Pharm.D., Kentucky, 1973
Ruby Joyce Garrett, assistant professor, Ph.D., Kentucky, 1971
Robert B. Griffith, professor, Ph.D., California, 1953
David E. Guttman, professor, Ph.D., Wisconsin, 1956
Howard Hopkins, professor, Ph.D., Nebraska, 1959
Laurence H. Hurley, assistant professor, Ph.D., Purdue, 1970
Anwar Hussain, associate professor, Ph.D., Wisconsin, 1965
Clifford E. Hynniman, associate professor, M.S., Maryland, 1967
Jerry B. Johnson, assistant professor, Pharm.D., Kentucky, 1969
Milton J. Kornet, associate professor, Ph.D., Illinois, 1962
Harry B. Kostenbauder, professor, Ph.D., Wisconsin, 1956
Charles T. Lesshafft, Jr., professor, Ph.D., Purdue, 1955
David Love, instructor, M.S., Virginia, 1972
William C. Lubawy, assistant professor, Ph.D., Ohio State, 1972
Mark M. Luckens, associate professor, Ph.D., Connecticut, 1963
James W. Munson, assistant professor, Ph.D., Wisconsin, 1971
Paul F. Parker, professor, M.S., Michigan, 1951
Donald Perrier, assistant professor, Ph.D., New York, 1973
John J. Piecoro, associate professor, M.S., Ohio State, 1966
Robert P. Rapp, assistant professor, Pharm.D., Kentucky, 1970
Samuel M. Shelton, assistant professor, Pharm.D., Kentucky, 1973
Gerald P. Sherman, assistant professor, Ph.D., Philadelpha, 1967
Earl P. Slone, dean emeritus and professor emeritus, M.S., Columbia, 1951
Harry A. Smith, professor, Ph.D., Purdue, 1959
Thomas R. Simpson, assistant professor, Ph.D., California, 1964
Joseph V. Swintosky, professor, Ph.D., Wisconsin, 1948

VOLUNTARY FACULTY

Emil W. Baker, clinical instructor, B.S., Kentucky, 1963
Carl E. Beck, clinical instructor, M.S., Maryland, 1952
Walter Michael Bauman, assistant clinical professor, B.S., Kentucky, 1961
Paul Baumgartner, assistant clinical professor, B.S., Pittsburgh, 1956
Alvin R. Bertram, assistant clinical professor, B.S., Kentucky, 1950
William H. Borders, clinical instructor, B.S., Kentucky, 1959
Thomas R. Clarkson, clinical instructor, B.S., Kentucky, 1950
Charles R. Collins, clinical instructor, Pharm.D., Tennessee, 1970
Mitchell O. Cooper, clinical instructor, B.S., Kentucky, 1956
William Curry, assistant clinical professor, B.S., Michigan, 1934
Ralph G. Deitemeyer, clinical instructor, B.S., Kentucky, 1965
Kenneth J. Easley, clinical instructor, B.S., Kentucky, 1949
John H. Fitch, Jr., clinical instructor, B.S., Kentucky, 1955
Zack D. Gill, clinical instructor, B.S., Wayne State, 1966
Jerry M. Cooge, clinical instructor, B.S., Kentucky, 1965
Dwaine K. Greene, clinical instructor, B.S., Kentucky, 1971
George Grider, associate clinical professor, B.S., Kentucky, 1940
Vernon B. Hager, clinical instructor, B.S., Kentucky 1934
Emmett K. Hammond, Jr., clinical instructor, Pharm.D., Michigan, 1967
David Holdaway, clinical instructor, B.S., Kentucky, 1957
Robert W. Hughes, clinical instructor, B.S., Kentucky, 1966
Thomas M. Isaacs, clinical instructor, B.S., Kentucky, 1972
Harold L. Jones, clinical instructor, B.S., Kentucky, 1956
Robert L. Kelley, clinical instructor, B.S., Kentucky, 1969
Arnold Kemper, clinical instructor, B.S., Kentucky, 1962
Donald E. Lippert, clinical instructor, B.S., Kentucky, 1957
Kay Byrum Lloyd, clinical instructor, B.S., Kentucky, 1970
Jimmie W. Lockhart, clinical instructor, B.S., Kentucky 1962
Richard Meena, clinical instructor, B.S., Kentucky, 1951
Julian Mitchell, clinical instructor, B.S., Kentucky, 1958

Michael Montgomery, clinical instructor, B.S., Kentucky, 1972
Chester Parker, clinical instructor, B.S., Kentucky, 1966
Myron C. Patrick, clinical instructor, B.S., Kentucky, 1965
Bernard T. Poe, clinical instructor, B.S., Kentucky, 1958
Larry F. Powell, clinical instructor, B.S., Ohio Northern, 1971
Harry J. Russell, clinical instructor, B.S., Kentucky, 1951
Robert E. L. Sandlin, clinical instructor, B.S., Kentucky, 1954
Don Schraffenberger, clinical instructor, B.S., Kentucky, 1958
David Solomon, clinical instructor, Pharm.D., Tennessee, 1970
Edwin G. Spalding, clinical instructor, B.S., Kentucky, 1953
Larry Spears, clinical instructor, B.S., Kentucky, 1959
Philip Stone, clinical instructor, B.S., Kentucky 1964
Warren Grady Stumbo, assistant clinical professor, M.D., Kentucky, 1971
B. Wayne Sullivan, clinical instructor, B.S., Kentucky, 1967
Ronald L. Sutton, clinical instructor, B.S., Kentucky, 1968
Nelson Terry, clinical instructor, B.S., Cincinnati, 1951
William H. Wagers, clinical instructor, B.S., Kentucky, 1969
Thomas Watson, clinical instructor, Pharm.D., Kentucky, 1931
Thomas Weisert, clinical instructor, B.S., Kentucky, 1954
William K. Wheeler, assistant clinical professor, B.S., Kentucky, 1950

COLLEGE OF SOCIAL PROFESSIONS

Ronda Connaway, dean

Joanne Bell**, assistant professor, M.S.W., Pennsylvania, 1954
Richard K. Brautigam, associate professor, Ph.D., Wisconsin, 1971
Lauretta Byars*, lecturer, M.S.W., Kentucky, 1974
Ronda Connaway, professor, Ph.D., Washington University, 1964
Elizabeth Crowell, assistant professor, Ph.D., Indiana, 1971
Berverly C. Favre, instructor, M.S.W., Louisiana State, 1966
Stephen Fox*, lecturer, M.S.W., Kentucky, 1973
Saiyid Zafar Hasan, professor, D.S.W., Columbia, 1958
Chester A. Holmquist, lecturer, M.A., Ohio State, 1947
Charles E. Hormann, assistant professor, M.S.W., Western Michigan, 1971
Paul Isaacs*, lecturer, J.D., Kentucky, 1969
Denzel C. Johnston*, lecturer, M.S.W., California, Berkeley, 1960
Saundra J. Johnston, assistant professor, M.S.W., California, Berkeley, 1960
Paul K. H. Kim, assistant professor, D.S.W., Tulane, 1973
Elizabeth A. Kirlin**, instructor, M.S., Florida State, 1948; M.S.W., Kentucky, 1972
Judith G. Lacerte*, lecturer, M.S.W., Case-Western Reserve, 1968
LeVerne McCummings[a], assistant professor, M.S.W., Pennsylvania, 1966
Edgar L. Mack, assistant professor, M.S.W., Ohio State, 1970
Gwen E. Mead, assistant professor, M.S., Columbia, 1968
Dorothy A. Miller, associate professor, M.S.S.W., Minnesota, 1947
Maryrhea Morelock, assistant professor, M.S.S.W., Louisville, 1964
Roger M. Nooe, Jr., assistant professor, D.S.W., Tulane, 1971
Mary Jane Nowak, assistant professor, Ph.D., Catholic University of America, 1973
George Plutchok, associate professor, D.S.W., Pennsylvania, 1963
Thomas R. Rhodenbaugh**, assistant professor, B.Sc., Loyola, Chicago, 1964
Robert Russell*, lecturer, M.S.S.W., Louisville, 1971
Sandra Schenkar***, lecturer, M.S.W., New York, 1969
Jack C. Sturges, assistant professor, Ph.D., Alabama, 1966
Ann Hall Taylor, assistant professor, M.S.S.W., Louisville, 1964
Lane J. Veltkamp*, assistant professor, M.S.W., Michigan State, 1964
Nancy L. Watkins*, lecturer, M.S.W., Alabama, 1969
Lauren R. Weinberg*, instructor, M.S.S.A., Case-Western Reserve, 1969
Richard J. Welsh*, assistant professor, M.S.W., Iowa, 1966
Harold E. Wetzel, professor emeritus, M.A., Ohio State, 1937
Constance P. Wilson, associate professor, M.S.S.S., Boston University, 1951
Roy D. Yarbrough, associate professor, Ph.D., Tulane, 1963

[a]On leave
*Part-time faculty
**Doctoral Candidate with thesis to complete
***Special Project

HONORS PROGRAM

Robert O. Evans, director

Josephine C. Donovan, assistant professor, Ph.D., Wisconsin, 1971
Robert O. Evans, professor, Ph.D., Florida, 1954
John L. Greenway, assistant professor, Ph.D., Wisconsin, 1969
Joseph M. Hayse, instructor, M.A., Wisconsin, 1970
Anne E. Patterson, assistant professor, Ph.D., Wisconsin, 1973
Anna K. Reed, assistant professor, Ph.D., Kentucky, 1973
Jane G. Vance, instructor, M.A., Brandeis, 1965
Florence M. VanMeter, instructor, M.A., Oregon, 1973

Administration

BOARD OF TRUSTEES

Mrs. Rexford S. Blazer, Ashland, Kentucky, December 31, 1974
Eugene Goss, Harlan, Kentucky, December 31, 1974
Garvice D. Kincaid, Lexington, Kentucky, June 30, 1974
Stanley Burlew, Owensboro, Kentucky, December 31, 1975
George W. Griffin, Jr., London, Kentucky, December 31, 1975
William Sturgill, Hazard, Kentucky, December 31, 1975
Zirl A. Palmer, Lexington, Kentucky, June 30, 1975
John Woodyard, Covington, Kentucky, June 30, 1976
Albert G. Clay, Mt. Sterling, Kentucky, December 31, 1976
James A. Sutherland, Bloomfield, Kentucky, December 31, 1976
Richard E. Cooper, Somerset, Kentucky, December 31, 1977
John R. Crockett, Louisville, Kentucky, June 30, 1977
Homer Wendell Ramsey, Whitley City, Kentucky, December 31, 1977

ALUMNI MEMBERS

Mrs. Robert Clark, Glasgow, Kentucky, December 31, 1974
William R. Black, Paducah, Kentucky, December 31, 1976
Frank Ramsey, Jr., Madisonville, Kentucky, December 31, 1977

FACULTY MEMBERS

Paul Oberst, College of Law, University of Kentucky, June 30, 1974
Paul G. Sears, College of Arts and Sciences, University of Kentucky, June 30, 1975

STUDENT MEMBER

David Mucci, President, Student Government, May 1975

OFFICERS OF THE BOARD

Albert G. Clay, Chairman
William Sturgill, Vice Chairman
Mrs. Rexford S. Blazer, Secretary
Paul Sears, Assistant Secretary

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Lewis W. Cochran, Vice President for Academic Affairs
Raymond R. Hornback, Vice President for University Relations
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Peter P. Bosomworth, Vice President for the Albert Chandler Medical Center
Howard L. Bost, Assistant Vice President for the Albert B. Chandler Medical Center
Lawrence E. Forgy, Jr., Vice President for Business Affairs and Treasurer of the University
Maurice Stanley Wall, Vice President for Community College System
Elbert W. Ockerman, Dean of Admission and Registrar
Keller J. Dunn, Associate Dean of Admissions
John Stephenson, Dean of Undergraduate Studies
Jack B. Hall, Dean of Students
Frank J. Cascio, Director, University Health Service
John E. Barrows, Director of Institutional Studies
Robert Blakeman, Director of Auxiliary Services
Frank Harris, Associate Dean of Students
Mary Jo Mertens, Director of the Student Center
James Ingle, Director, Student Financial Aid
Hariet A. Rose, Director, University Counseling and Testing Center
James P. Alcorn, Director of Placement Service
Paul A. Willis, Director of Libraries
Roger O. Lambson, Assistant Dean for Student Affairs, Assistant Director of Student Services, Medical Center
Jay Brumfield, Director of Alumni Affairs
Robert Toll, Executive Director of Development
Bruce F. Denbo, Director of the University Press of Kentucky
Martin B. Solomon, Director of Computing Center
Joe Burch, Director of Public Safety Division

THE COLLEGES

Charles E. Barnhart, Dean of the College of Agriculture and Director of Cooperative Extension
Art Gallaher, Jr., Dean of the College of Arts and Sciences
James E. Funk, Dean of the College of Engineering
Marjorie Stewart, Dean of the College of Home Economics
George W. Hardy III, 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
Jospeh V. Swintosky, Dean of the College of Pharmacy
(Vacant), Dean of the College of Medicine

Marion McKenna, Dean of the College of Nursing
Harry M. Bohannan, Dean of the College of Dentistry
Joseph Hamburg, Dean of the College of Allied Health Professions
Raymon Dudley Johnson, Dean, University Extension
Lawrence A. Allen, Dean of the College of Library Science
Anthony Eardley, Dean of the College of Architecture
Ronda S. Connaway, Dean of the College of Social Professions
Winberley C. Royster, Dean of Graduate School

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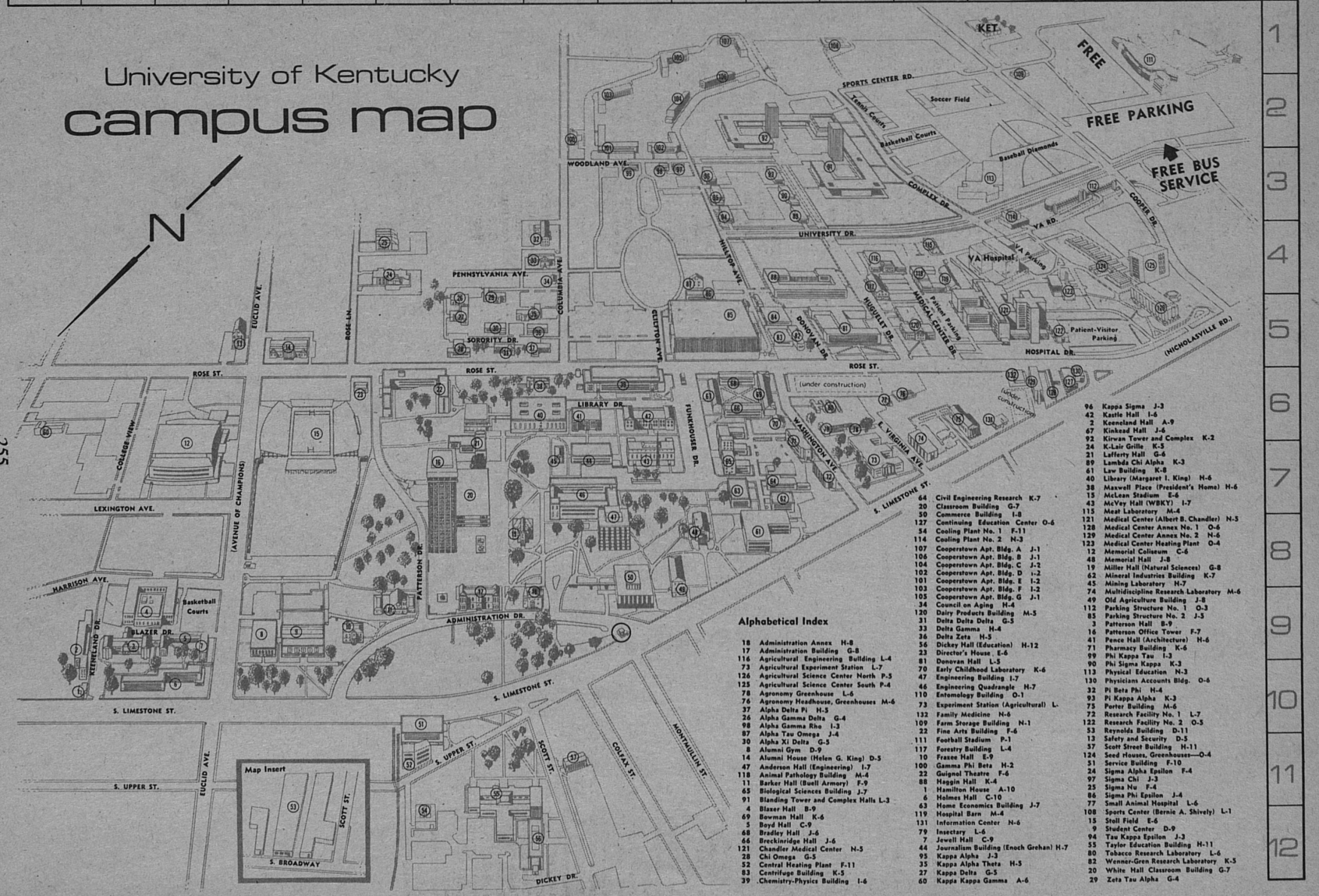

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