

1961

# 1961-1963 Southern Illinois University Bulletin (Graduate School)

Southern Illinois University Carbondale

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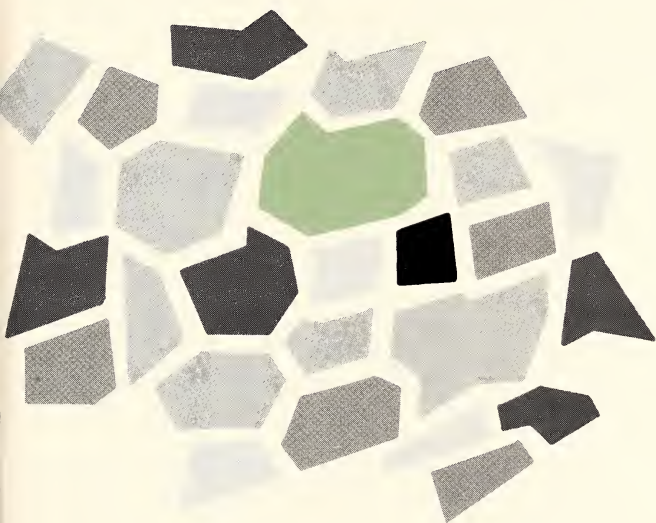
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# **Southern Illinois University**

*Bulletin*



*Graduate School*

**1961-63**

# Objectives of Southern Illinois University

## TO EXALT BEAUTY

IN GOD,  
IN NATURE,  
AND IN ART;  
TEACHING HOW TO LOVE THE BEST  
BUT TO KEEP THE HUMAN TOUCH;

## TO ADVANCE LEARNING

IN ALL LINES OF TRUTH  
WHEREVER THEY MAY LEAD  
SHOWING HOW TO THINK  
RATHER THAN WHAT TO THINK,  
ASSISTING THE POWERS  
OF THE MIND  
IN THEIR SELF-DEVELOPMENT;

## TO FORWARD IDEAS AND IDEALS

IN OUR DEMOCRACY,  
INSPIRING RESPECT FOR OTHERS  
AS FOR OURSELVES,  
EVER PROMOTING FREEDOM  
WITH RESPONSIBILITY;

## TO BECOME A CENTER OF ORDER AND LIGHT

THAT KNOWLEDGE MAY LEAD  
TO UNDERSTANDING  
AND UNDERSTANDING  
TO WISDOM.

# The Graduate School

## *Announcements for 1961-1963*



SOUTHERN ILLINOIS UNIVERSITY BULLETIN  
Volume 3                      Number 9                      October, 1961  
Second-class postage paid at Carbondale, Illinois.  
Published by Southern Illinois University, monthly  
except in September, when published semimonthly.



The following issues of the *Southern Illinois University Bulletin* may be obtained without charge from General Publications, Southern Illinois University, Carbondale, Illinois.

General Information  
Summer Session (Carbondale)  
Schedule of Classes (Carbondale)  
Schedule of Classes (Edwardsville)  
General Announcements (Edwardsville)  
Graduate School  
College of Education  
College of Liberal Arts and Sciences  
School of Agriculture  
School of Applied Science  
School of Business  
School of Communications  
School of Fine Arts  
School of Home Economics  
University Institutes  
Division of Technical and Adult Education

All intending students should have the General Information Bulletin (issued once a year), plus the special bulletins of the various educational units in which they are most interested.

Composed and printed by Printing Service  
Southern Illinois University  
Carbondale, Illinois

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## *This Bulletin . . .*

covers in detail questions concerning the Graduate School. It does not cover all questions concerning Southern Illinois University. For complete information about the University the prospective student should refer to the General Information bulletin.

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# *University Calendar, 1961-1962*

## SUMMER SESSION

Session Begins	Monday, June 19
Independence Day Holiday	Tuesday, July 4
Final Examinations	Wednesday–Thursday, August 9–10
Commencement	Friday, August 11

## FALL QUARTER

New Student Week (Carbondale)	Sunday–Tuesday, September 17–19
New Student Week (Edwardsville)	Saturday–Sunday, September 16–17
Quarter Begins	Wednesday, September 20
Thanksgiving Recess	Wednesday, 12 noon–Monday, 8 A.M. November 22–27
Final Examinations	Monday–Saturday, December 11–16

## WINTER QUARTER

Quarter Begins	Tuesday, January 2
Final Examinations (Carbondale)	Monday–Saturday, March 12–17
Final Examinations (Edwardsville)	Wednesday–Monday, March 14–19

## SPRING QUARTER

Quarter Begins	Monday, March 26
Memorial Day Holiday	Wednesday, May 30
Final Examinations	Wednesday–Tuesday, June 6–12
Commencement (Carbondale)	Wednesday, June 13
Commencement (Edwardsville)	Thursday, June 14

Summer classes begin on Tuesday, June 20. During a quarter, Carbondale day classes begin on the second day of the quarter. Carbondale evening classes (5:45 P.M. or later) begin on the first day. Classes on the Edwardsville campuses begin on September 21, January 4, and March 28.



# *University Calendar, 1962-1963*

## SUMMER SESSION

Session Begins	Monday, June 18
Independence Day Holiday	Wednesday, July 4
Final Examinations	Wednesday–Thursday, August 8–9
Commencement	Friday, August 10

## FALL QUARTER

New Student Week	Friday–Sunday, September 21–23
Quarter Begins	Monday, September 24
Thanksgiving Recess	Wednesday, 12 noon–Monday, 8 A.M. November 21–26
Final Examinations	Wednesday–Tuesday, December 12–18

## WINTER QUARTER

Quarter Begins	Wednesday, January 2
Final Examinations	Wednesday–Tuesday, March 13–19

## SPRING QUARTER

Quarter Begins	Wednesday, March 27
Memorial Day Holiday	Thursday, May 30
Final Examinations	Thursday–Wednesday, June 6–12
Commencement	Thursday, June 13

Summer classes will begin on Tuesday, June 19. During the fall, winter, and spring quarters, day classes will begin on the second day of the quarter. Evening classes (5:45 p.m. or later) will begin on the first day of the quarter.





# The University

SOUTHERN ILLINOIS UNIVERSITY was established in 1869 as Southern Illinois Normal University. The shortened name became official in 1947 by action of the state legislature.

For some years after its establishment, Southern operated as a two-year normal school. In 1907 it became a four-year, degree-granting institution, though continuing its two-year course until 1936. In 1943 the state legislature changed the institution, which had been in theory exclusively a teacher-training school, into a university, thereby taking official recognition of the great demand in the area for diversified training.

The Graduate School, approved in 1943, at first granted only the Master of Science in Education degree. In 1948 it was authorized to grant also the Master of Arts and Master of Science degrees. In 1952 the Master of Fine Arts degree was added to this list, and in 1955 the Doctor of Philosophy degree was added. The Master of Music and the Master of Music Education degrees were authorized in 1956.

In 1949 the Belleville Residence Center was established and the Alton and East St. Louis residence centers in 1957. In 1958 the Southwestern Illinois Residence Office was created to co-ordinate and direct the University's educational activities in the Madison-St. Clair counties area. In 1959 the Southwestern Illinois Campuses were recognized as a unit co-ordinate with the Carbondale campuses.

## LOCATION

The general administrative offices for the University's campuses at Carbondale, Southern Acres, and Little Grassy Lake are located at Carbondale. The central administrative offices directing the University's educational programs at Alton and East St. Louis are located at Edwardsville.

The facilities at Carbondale now include more than twenty-five



hundred acres of land, thirty-six permanent buildings, and numerous temporary buildings. These buildings house classrooms, auditoriums, laboratories, libraries, offices, living quarters, cafeterias, and farm equipment and animals. The Little Grassy Lake and Southern Acres campuses are each about ten miles from Carbondale.

The facilities of the former Shurtleff College have been leased by the University for the operation of the Alton campus. The East St. Louis campus is located at the former East St. Louis High School building.

## SESSIONS

The academic year is divided into three quarters. Each quarter is approximately twelve weeks in length.

The fall quarter opens near the middle of September and closes just prior to the Christmas vacation period. The winter quarter begins early in January and ends about the middle of March. The spring quarter begins the latter part of March and ends about the second week in June. Definite dates for each quarter may be found in the University Calendar.

In addition to the three quarters, there is an eight-week summer session which begins immediately following the close of the spring quarter. The summer session consists of a comprehensive program of courses offered by the departments of the University. In addition to the courses which run the full eight weeks, there are workshops and short courses covering shorter periods of time.

## REGULATIONS

The University and its various instructional units reserve the right to change the rules regulating admission, instruction, and graduation; to change courses and fees; and to change any other regulation affecting the student body. Such regulations shall go into force whenever the proper authorities so determine, and shall apply both to prospective students and to those who have enrolled in the University.

Each student must assume responsibility for his progress by keeping an up-to-date record of the courses he has taken and by checking periodically with his adviser and the Registrar's Office. Responsibility for errors in program or in interpretation of regulations of the University rests entirely upon the student. Advice is always available on request.

A copy of the regulations governing student life may be obtained from the Office of Student Affairs on the campus which the student attends.

# The Graduate School

SINCE THE summer of 1944, graduate courses have been offered leading to the Master of Science in Education degree. In 1948 the University was authorized to offer work leading to the Master of Arts and Master of Science degrees. In 1952 the Master of Fine Arts degree was established. A Sixth-Year Program of graduate work was authorized by the Board of Trustees in 1953. In it work beyond the master's degree can be taken in certain fields toward a Specialist's Certificate. In 1955 the Board of Trustees authorized the Doctor of Philosophy degree. In 1956 the Master of Music and Master of Music Education degrees were authorized.

Through 1960 a total of 2,147 master's degrees had been conferred. Of these, 358 were the Master of Arts, 216 the Master of Science, 1,150 the Master of Science in Education, 20 the Master of Fine Arts, 15 the Master of Music, and 15 the Master of Music Education. Nine Specialist's Certificates and nine doctoral degrees had also been granted.

## THE ROLE OF THE GRADUATE SCHOOL

A graduate school that is worthy of the name has a mission to perform that is of the highest order. It is a bearer of the lamp of truth and enlightenment in a world full of hatred, suspicion, and threats of self destruction. It is a defender of freedom of thought and expression, an encourager of creative investigation, a promoter of larger and better equipped scientific laboratories and research libraries, a critical analyst of established institutions and ideas. It inspires in superior students a motivation for advanced study, stimulates both private and public support of organized research, and creates on all levels an atmosphere conducive to a free exchange of ideas and information.

The Graduate School of Southern Illinois University is cognizant of these ideals and objectives and intends to do everything within its power to achieve them.

## FELLOWSHIPS AND ASSISTANTSHIPS

*Graduate fellowships* are available in all graduate departments, upon application to the Graduate School, and are awarded upon the basis of scholarship. Recipients are permitted to carry normal graduate schedules. The stipend for the academic year ranges from \$540 to \$1,350, plus remission of tuition but not other fees. Applications should be made before March 1 preceding the academic year for which the fellowship is desired. Inquiries may be addressed to the dean of the Graduate School.

*Graduate assistantships* are available in a number of departments and research agencies. These positions pay a stipend which ranges from \$1,350 to \$2,160 for the academic year, with the exact amount depending upon the assignment and experience, plus remission of tuition but not other fees. Service of twenty hours per week, or a corresponding load in teaching or research, is required. Inquiries should be addressed to the chairman of the appropriate department before March 1 preceding the year for which the assignment is sought.

A limited number of graduate assistantships are awarded to persons in student personnel work who are also resident fellows. Recipients are limited to twelve hours of course work per quarter. They receive room, board, remission of tuition but not other fees, and a stipend of approximately \$80 per month.

*Research assistantships* are available in a number of research agencies and projects. They pay from \$120 to \$180 per month, with the exact amount determined by the assignment, plus remission of tuition but not other fees. Service equivalent to twenty hours per week is required. Inquiries should be addressed to the appropriate departmental chairman or research director before March 1 preceding the year for which the assignment is sought.

## HOUSING

The University neither approves nor authorizes housing for the Alton and East St. Louis students. For the convenience of faculty members and students, the Office of Student Affairs maintains a list of rooms, apartments, and houses for rent or for sale. All arrangements for housing and all business transactions in the matter of housing are the sole responsibility of the student and the owner of the housing facility.

Single graduate students will find it necessary to locate private housing facilities in Carbondale or surrounding towns in most cases. At the present time the University does have one hall in the Dowdell Hall area reserved for male graduate students, and plans are being developed to make more University housing available to graduate students, both male and female, in the future. The Housing Office in the Office of Student Affairs processes applications for the Dowdell Hall facilities and also maintains current information on rooms, apartments, houses for rent or sale, and trailer parks.

Married graduate students should address the Housing Office, Office of Student Affairs, for information about university facilities. These facilities consist of temporary apartments located in converted military barracks, 128 one- and two-bedroom and efficiency apartments in the Southern Hills area, and a university trailer court having forty-nine spaces. Because the demand for university facilities for married students exceeds the supply, the student should request information as early as possible.

Most married students must find housing in Carbondale or surrounding towns. As satisfactory arrangements cannot be made by mail, a personal visit to Carbondale is usually required. Prices vary widely, ranging from \$20 per month for trailer spaces to \$100 or more per month for houses.

## ADMISSION

Qualified students may apply for admission to the Graduate School any time during the calendar year. Application forms may be obtained from the Admissions Office. Official admission to the Graduate School will not be granted until complete and original transcripts of all previous college work are on file in the Admissions Office. Transcripts must reach the Admissions Office at least one month prior to the time the applicant expects to enter Southern Illinois University for one seeking the master's degree and four months for one whose aim is the doctorate.

A student who wishes to enter the Graduate School immediately after graduation may submit during the final quarter or semester of undergraduate work a transcript showing the courses he is taking, together with a statement from his registrar that graduation will follow successful completion of his current enrollment.

An undergraduate student who is within one quarter's work (sixteen hours) of meeting requirements for the bachelor's degree may take courses for graduate credit by applying for admission to the Graduate School and



obtaining approval for the proposed major from the departmental chairman. Undergraduate students who take such courses for graduate credit must obtain the approval of the dean of the Graduate School at the time of registration.

A student who holds a bachelor's degree and who does not wish to become a candidate for a higher degree or for another bachelor's degree but who wishes to take work in the University should apply for admission as an unclassified graduate student.

### *ADMISSION TO THE FIRST YEAR OF GRADUATE STUDY*

Admission to the first year of graduate study is a two-part process. The first step is admission to the Graduate School; the second is approval for a particular department or major. (See Admission to Full Graduate Standing, below.)

Unconditional admission to the Graduate School for the first year of graduate study is granted to graduates of fully accredited colleges and universities whose undergraduate averages are equivalent to 3.2 or above on a 5-point grading scale. Grades for previous graduate work must be "B" or above.

Graduates of institutions of limited accreditation who have a 3.2 average or above may be granted conditional admission, depending upon the merits of the institution concerned.

### *ADMISSION TO ADVANCED GRADUATE STUDY*

Admission to advanced graduate study is a two-part process. The first step is admission to the Graduate School; the second is approval for a particular department or major. (See Admission to Full Graduate Standing, below.)

Admission to the Sixth-Year Specialist's Certificate Program is based on an applicant's previous academic record, his educational experience, and his proposed goal. A master's degree from a recognized institution is regarded as the basic academic requirement for one wishing to pursue the sixth-year program.

Unconditional admission to the Graduate School on the advanced graduate level will be granted to a student who holds an approved master's degree and whose average in graduate work is equivalent to 4.5 or above on a 5-point grading scale.

Conditional admission to the Graduate School on the advanced graduate level will be granted to a student who holds an approved master's degree and whose average in graduate work is between 4.25 and 4.5.

### *ADMISSION TO FULL GRADUATE STANDING*

After admission to the Graduate School has been completed the graduate dean initiates action for approval of the desired major. The departments are permitted two weeks (three weeks in the case of foreign students) in which to approve majors on the master's level, and ninety days on the doctoral level. When final action on a Ph.D. applicant cannot be taken by a department in ninety days, the Graduate School should be notified of tentative action and a date for final action specified. The dean of the Graduate School informs each student of the action taken by the departmental chairman and of any conditions which must be fulfilled before the major can be finally approved. Entrance examinations in the case of any student may be required prior to action by the proposed major department toward the applicant.

The student attains full graduate standing when he has fulfilled the stated conditions of his major department, has satisfied the English usage requirement of the Graduate School, and has completed any other general examination which may be required of graduate students.

### *ADMISSION OF FOREIGN STUDENTS*

A foreign student is subject to all admission regulations and procedures described above.

Each foreign student must submit, in addition to the regular admission papers, a questionnaire for foreign students showing all previous schooling. The foreign student must also submit an official statement showing sufficient proficiency in English to do successful college work. Such a student who becomes eligible for admission to the University and has been notified that he is eligible must deposit with the University a sum of either \$400 (Carbondale) or \$900 (Edwardsville). This is deposited to the student's account and will assure him of a reserve for necessary expenses after he arrives on the campus. The University does not assume responsibility for a student who arrives with inadequate resources.

### *ADVISEMENT*

Each student admitted to the Graduate School is assigned, by the dean of the Graduate School, one or more advisers representing the student's major and minor fields. The adviser assists the student in making out his program of studies, both quarter-by-quarter and long-range. A



conference with his adviser should be arranged by the student as early as possible in his career so that his over-all program may be planned. Later conferences should be scheduled whenever they become necessary. As soon as the student selects his thesis topic and thesis director, the latter is designated as chairman of the advisory committee. This committee advises the student in the preparation of the thesis, evaluates the thesis when completed, and supervises the final examination, written or oral, when one is required by the major department.

The maximum burden of course work for graduate students during a regular quarter is eighteen hours; twelve is considered to be a normal load. The maximum for graduate assistants, research assistants, and assistant instructors, who are employed half-time, is fourteen hours; for persons who are otherwise employed full-time it is eight. Summer session loads are in proportion. Graduate fellows may in ordinary circumstances carry full loads. These maxima may be exceeded only with the written permission of the dean of the Graduate School.

A number of graduate courses, particularly in the College of Education, are scheduled for evenings and Saturdays, for the benefit of those who are employed during the day. Courses on the 400 level which carry four hours' credit are required to meet for sixteen sessions of two and one-half hours during the quarter, rather than for only one session per week.

A graduate student is expected to plan his work carefully; hence program changes after registration should seldom be necessary. Such changes must be approved by the student's chief adviser and the dean of the Graduate School. They may involve the payment of a program change fee. Program change cards may be obtained from the Graduate School.

The graduate student must assume responsibility for his progress by keeping an up-to-date record of the courses he has taken and by checking periodically with his adviser and the Graduate School Office. Responsibility for errors in program or in interpretation of regulations of the Graduate School and the University rests entirely upon the student. Advice is always available on request.

## BULLETINS

The *Southern Illinois University Bulletin* is published by the University in the issues listed on page ii. Each graduate student should have a copy of the General Information issue and the Schedule of Classes for the campus he is attending, in addition to the Graduate School issue. The other issues, which are not intended primarily for graduate students, relate to the undergraduate colleges, schools, divisions, and institutes.

## TUITION AND FEES

The tuition and fees charged students are established by the Board of Trustees and are subject to change whenever conditions make changes necessary. At the present time, fees for a quarter during the regular year are as follows:

Tuition Fee .....	\$42.00*
Book Rental Fee .....	5.00
Student Union Building Fund Fee .....	5.00
Student Activity Fee .....	9.50
Total .....	<u>\$61.50</u>

\* Out-of-state students (non-Illinois residents) pay \$92 tuition rather than \$42.

Students registered for eight or fewer hours pay one-half tuition, one-half book rental fee, full student union building fund fee, and have an option on paying the student activity fee. The student activity fee includes the fees for limited hospitalization, entertainment, athletics, the student newspaper and yearbook, and such other privileges as may be provided.

Graduate assistants and fellows do not pay tuition and have an option on paying the student activity fee. They pay other fees.

In addition to the above fees, a student is subject to certain other charges under the conditions listed below:

1. A matriculation fee of \$5, which is assessed a graduate student the first time he registers if he is a graduate of a school other than Southern.

2. A late registration fee, which is \$2 for the first day and which increases \$1 each day to a maximum of \$5 when a student registers after the regular registration period has ended.

3. A \$1 charge for the completion of an incomplete grade.

4. A \$2 program-change charge whenever a student changes his program from the one for which he originally registered, unless the change is made for the convenience of the University.

5. A graduation fee of \$17; and, for doctoral candidates, a dissertation microfilming fee of from \$22.75 to \$35.00, depending upon the service selected.

6. Other charges which a student may incur are those for departmental field trips, library fines, and excess breakage. Also a student taking a course involving use of materials, as distinct from equipment, will ordinarily pay for such materials.

## GRADUATE DEGREES OFFERED

Graduate degrees are available in the following fields:

<i>MASTER OF ARTS</i>	Botany	Instructional Materials
Anthropology	Business	Mathematics
Art	Chemistry	Physical Education
Biological Sciences	Community Development	Physical Sciences
Botany	Design	Physiology
Chemistry	Economics	Recreation and Outdoor Education
Economics	English	Secondary Education
English	Forestry	Secretarial and Business Education
Foreign Languages	Geography	Social Studies
Geography	Geology	Special Education
Government	Home Economics	Speech
History	Industrial Education	Speech Correction
Inter-American Studies	Journalism	Theater
Journalism	Mathematics	
Mathematics	Microbiology	<i>DOCTOR OF PHILOSOPHY</i>
Microbiology	Physical Sciences	Anthropology
Philosophy	Physics	Botany
Physical Sciences	Physiology	Chemistry
Physics	Plant Industries	Economics
Physiology	Psychology	Educational Administration and Supervision
Psychology	Rehabilitation	Elementary Education
Rehabilitation	Sociology	English
Sociology	Speech	Geography
Speech	Speech Correction	Government
Speech Correction	Theater	Guidance
Theater	Transportation	Health Education
Zoology	Zoology	Higher Education
	<i>MASTER OF SCIENCE IN EDUCATION</i>	Home Economics
<i>MASTER OF FINE ARTS</i>	Art	Journalism
Art	Biological Sciences	Microbiology
<i>MASTER OF MUSIC</i>	Chemistry	Philosophy
Music	Educational Administration and Supervision	Physical Education
<i>MASTER OF MUSIC EDUCATION</i>	Elementary Education	Physiology
Music	English	Psychology
	Foreign Languages	Secondary Education
<i>MASTER OF SCIENCE</i>	Geography	Sociology
Agricultural Industries	Guidance	Speech
Animal Industries	Health Education	Speech Pathology
Biological Sciences	Higher Education	Zoology
	Home Economics	
	Industrial Education	

PERSONS RESPONSIBLE FOR APPROVING GRADUATE PROGRAMS  
CARBONDALE

Agricultural Industries — Walter J. Wills  
Animal Industries — Alex Reed  
Anthropology — Walter W. Taylor  
Art — Herbert L. Fink  
Biological Sciences — John C. Downey  
Botany — Walter B. Welch  
Business — Henry J. Rehn  
Chemistry — James W. Neckers  
Community Development — Richard C. Franklin  
Design — Harold L. Cohen  
Economics — Robert G. Layer  
Educational Administration and Supervision — George Bracewell  
Elementary Education — J. Murray Lee  
English — W. B. Schneider  
Foreign Languages — Vera L. Peacock  
Forestry — Neil W. Hosley  
Geography — Robert A. Harper  
Geology — Stanley E. Harris  
Government — Orville Alexander  
Guidance — Eugene D. Fitzpatrick  
Health Education — Donald N. Boydston  
Higher Education — George H. Hand  
History — Harry Ammon  
Home Economics — Eileen E. Quigley  
Industrial Education — Ralph O. Gallington  
Instructional Materials — Paul R. Wendt  
Inter-American Studies — Albert W. Bork

Journalism — Howard R. Long  
Mathematics — John M. H. Olmsted  
Microbiology — Carl C. Lindegren  
Music — Robert E. Mueller  
Philosophy — Willis Moore  
Physical Education (Men) — Edward J. Shea  
Physical Education (Women) — Dorothy Davies  
Physical Sciences — (chairmen of the departments involved)  
Physics — Charles J. Brasefield  
Physiology — Harold M. Kaplan  
Plant Industries — Alfred B. Caster  
Psychology — Mortimer H. Appley  
Recreation and Outdoor Education — William H. Freeberg  
Rehabilitation — Guy A. Renzaglia  
Secondary Education — Clarence D. Samford  
Secretarial and Business Education — Harves C. Rahe  
Social Studies — William A. Pitkin  
Sociology — Paul J. Campisi  
Special Education — Oliver P. Kolstoe  
Speech — Ralph A. Micken  
Speech Correction — Isaac P. Brackett  
Theater — Archibald McLeod  
Transportation — Alexander R. MacMillan  
Zoology — Harvey I. Fisher

PERSONS RESPONSIBLE FOR GRADUATE ADVISEMENT  
EDWARDSVILLE

Chief Graduate Adviser — Leonard B. Wheat  
Business — Walter L. Blackledge  
Educational Administration and Supervision — Leonard B. Wheat  
Elementary Education — David E. Bear, Robert H. Steinkellner  
English — Nicholas T. Joost  
Government — S. D. Lovell  
Guidance — Frank L. Eversull, Lawrence E. Taliana

History — Herbert H. Rosenthal  
Mathematics — Eric A. Sturley  
Music — Lloyd G. Blakely  
Physical and Health Education — Howard C. Nesbitt  
Physics — William C. Shaw  
Secondary Education — Harry H. Smith, Myllan Smyers  
Social Sciences — S. D. Lovell, Herbert H. Rosenthal  
Special Education — Mark M. Tucker



## MASTER'S DEGREES

### *GENERAL REQUIREMENTS*

Forty-eight hours of acceptable graduate credit are required for the master's degree, except in fine arts, where sixty hours are necessary, and in psychology, rehabilitation counseling, and college student personnel work, where seventy-two hours are required. At least twenty-four hours must be earned in courses numbered 500 or above. No more than sixteen hours earned for work done at another university or in extension may be counted toward the degree. No credit toward the degree may be earned in correspondence; and only credit earned within a six-year period preceding the completion of requirements for the degree will be counted toward it. The students should not expect that work presented for transfer credit will automatically be accepted at face value. An evaluation is made in every case and may result in a reduction of the credit recorded.

Ordinarily a graduate student is expected to select both a major and a minor field. This is particularly true of those who major in the field of educational administration, most of whom find it to their advantage to complete a minor in an academic field. A student may be permitted by his advisory committee and the dean of the Graduate School to concentrate his efforts in one particular area of study. The graduate major, in most fields, consists of a minimum of thirty hours of credit in the area of special concentration; some departments, however, require as many as forty hours for the major, in which case no minor is required. The graduate minor consists of a minimum of fifteen hours. A student may have a double major recorded upon completing the necessary number (sixty hours) of designated courses. One who has a master's degree in a field other than education from another institution, and who wishes to obtain a master's degree in education from Southern Illinois University, may count his major of the first degree as his minor for the second. In this case the student must demonstrate his competence in that major by taking a graduate course in it at Southern Illinois University.

Grades are recorded by the letters A, B, C, D, and E. An average of "B" (4.0) in all courses taken for graduate credit is a prerequisite of the master's degree. Credit for any course for which the grade given is below "C" will not be counted toward the degree. If the graduate student fails to complete a course by the end of a quarter, he may be given a grade of

"deferred." Such a grade should be given for uncompleted work in progress, such as research or thesis work.

Each candidate for the master's degree shall either write a thesis, which may be counted for not more than nine nor less than five hours' credit, carry out a special project, or take specific courses on the graduate level, as may be recommended by his advisory committee and approved by the dean of the Graduate School. Each student who does not write a thesis must submit to the Graduate School, for its permanent records, an approved copy of a research paper as evidence of his knowledge of formal research techniques. The subject of the thesis is to be reported to the Graduate School by the student and is to be approved by the chairman of the advisory committee and the dean of the Graduate School at least two quarters before the date of graduation. The completed thesis shall be submitted for evaluation to the members of the student's advisory committee at least three weeks before the expected date of graduation. Two copies of the approved thesis (the original and first carbon) must be presented to the Graduate School at least two weeks prior to the date of graduation, to be bound and shelved in the libraries of Southern.

Each candidate for a master's degree may be required by his major department to pass a comprehensive examination covering all his graduate work, including the thesis. This examination may be written or oral, or both, as determined by the student's advisory committee. If a written examination is required, at least half of it shall be of a subjective nature. The committee for the oral examination shall be appointed by the chairman of the major department.

Candidates are expected to meet requirements in force during the year of graduation, but due consideration will be given the fact that a student may have been admitted and may have planned his work when other requirements were current. Important changes in requirements are put into effect gradually. Any change in intention, no matter how minor, should be reported to the Graduate School Office, so that records may be accurately kept. It is especially important that the following data should be kept up to date on the student's record in the Graduate School Office: the major and minor, the degree for which the student is a candidate or a potential candidate, the chairman of the advisory committee, and the thesis adviser.

The following deadlines are for the guidance of the candidate for the master's degree, who is advised to plan to finish each task well in advance of the deadline and reminded that failure to meet an established deadline may result in postponement of graduation.

1. The required English test is to be taken during the first quarter in which the student is enrolled in a course given for residence credit.
2. Any general or departmental foreign language requirement is to be met at least three months prior to graduation.
3. The thesis subject is to be approved by the chairman of the advisory committee at least twenty weeks before the date of graduation and is then to be reported by the student to the Graduate School.
4. The student is to supply a copy of his thesis to each member of his committee at least three weeks before graduation.
5. The completed thesis must be approved by the dean of the Graduate School at least ten days prior to graduation. Since the dean may require certain changes, it should be presented for his inspection at an earlier date.
6. The preliminary checkup and application for graduation are to be made with the Graduate School and the Registrar's Office at least three weeks prior to the graduation date. Application forms, which may be secured from either of these offices, should be completed and returned to one of these offices after payment of the graduation fee at the Bursar's Office.

### *MASTER OF ARTS AND MASTER OF SCIENCE DEGREES*

A reading knowledge of a modern foreign language is required in all cases for the Master of Arts degree. The requirement also applies for the Master of Science degree for majors in those departments which have an undergraduate foreign language requirement. The major department in each case will determine whether the requirement is satisfied by one year of successful course work in the chosen language, or whether passage of a proficiency examination, given by the Department of Foreign Languages, will be required. The foreign language requirement is to be fulfilled at least three months prior to graduation.

The requirement that a thesis be submitted is administered for each individual student by the chairman of the major department, the student's chief adviser, and the dean of the Graduate School. In most cases the requirement is met by the presentation of a formal thesis, written in the conventional manner, rather than by the substitution of specific courses or special projects.

### *MASTER OF FINE ARTS DEGREE*

Sixty hours of acceptable graduate credit are required for the Master

of Fine Arts degree, of which a minimum of twenty-four hours must be on the 500 level. Further information may be obtained by writing the Graduate School or the Department of Art.

### *MASTER OF MUSIC AND MASTER OF MUSIC EDUCATION DEGREES*

Forty-eight hours of acceptable graduate credit are required for the Master of Music and Master of Music Education degrees, of which a minimum of twenty-four hours must be on the 500 level.

### *MASTER OF SCIENCE IN EDUCATION DEGREE*

Forty-eight hours of credit are required for the Master of Science in Education degree. A candidate for the degree who is a prospective teacher in the public schools of Illinois must meet the minimum educational requirements for teaching in Illinois, as established by the State Teacher Certification Board. Any exception to this rule must be approved by the dean of the College of Education and the dean of the Graduate School. The student should seek counsel regarding the completion of these requirements before his first enrollment for graduate work.

The thesis requirement will be administered for each individual student by the chairman of the major department, the student's chief adviser, and the dean of the Graduate School. For majors in educational administration and elementary education, Educational Administration and Supervision 500 and Guidance 420 or 422 will be required in lieu of the thesis. There is no foreign language requirement for the Master of Science in Education degree.

### *SPECIALIST'S CERTIFICATE (Sixth-Year Program)*

Forty-five hours of work beyond the master's degree, selected with particular regard for each candidate's training and experience, are required for the Specialist's Certificate, which may now be earned in the fields of educational administration, instructional supervision, elementary education, secondary education, guidance and counseling, and special education. (Eventual authorization of work in other fields is expected.) No transfer credit will be accepted. Up to sixteen hours may be taken in extension, in carefully selected courses. It is desirable for all credit to be taken in full-time residence and highly recommended that not more than sixteen hours



be allowed for extension, evening, and Saturday courses. Students enrolled full-time on campus may earn as much as twelve hours per quarter. Those who are executing the duties of a regular teaching or administrative position may carry no more than one course per quarter. Candidates for the Specialist's Certificate may ordinarily take no more than twenty hours at the 400 level.

A field study is required of each candidate for the Specialist's Certificate. Its nature and the number of hours of credit it will carry are determined in each case by an advisory committee, which is named by the dean of the Graduate School. Credit for the field study will range from six to nine hours.

Applicants should have had three years of successful teaching or administrative experience and must have had two. Candidates are to continue their specialization in the same area in which their majors or minors were earned at the master's level. The advisory committee will design a course of study to fit the needs of each candidate in terms of his educational background and plans for the future.

## DOCTOR OF PHILOSOPHY DEGREE

Those interested in working toward a doctor's degree should watch for special announcements from time to time, consult the Graduate School bulletin, or request to have their names placed on the Graduate School's mailing list. Candidates may now apply in those departments listed for the Ph.D. program on an earlier page of this bulletin.

### *SUMMARY OF REQUIREMENTS*

1. Forty-eight hours of credit beyond the master's degree, or the equivalent, and the dissertation are required.
2. The dissertation shall represent at least three quarters of full-time work and at least thirty-six hours of credit.
3. Credit up to twenty-four hours beyond the master's degree may be transferred; more, upon the express recommendation of the advisory committee that work be taken elsewhere.
4. A "B" (4.0) average is required for the degree. No credit with a grade below "C" shall count toward the degree; however, the grade shall count in the student's average.
5. Language proficiencies must be demonstrated by examinations

given by the Department of Foreign Languages; proficiency in statistics may be shown by examination or by successful completion of the course sequence Guidance 420, 520, 521, or Mathematics 410, 411, 412, or 480, 481, 482.

6. Two academic years, or the equivalent, of full-time graduate work in residence are a minimum requirement. Each student must spend at least three successive full-time quarters in residence.

7. The degree may not be conferred less than six months, nor more than five years, after admission to candidacy. Admission to candidacy follows successful completion of at least forty-eight hours of course work, the language requirements, and the preliminary examination.

8. Each student must submit with the approved dissertation a signed microfilm contract and evidence of payment to the University of the microfilm fee.

### *DETAILED REQUIREMENTS*

The minimum requirement for the Doctor of Philosophy degree is forty-eight hours, or its equivalent, beyond the master's degree or its equivalent, plus the dissertation. All work at other institutions offered in partial fulfillment of the requirements for the Doctor of Philosophy degree is submitted to the Graduate Council for approval, upon the recommendation of the department concerned, when the student applies for admission to candidacy for the degree. Any such transfer of credit will be subject to the following rules: (1) that it be made an integral part of the student's total plan; (2) that it be of excellent quality; (3) that it be earned within five years preceding the date of the student's admission to candidacy for the Doctor of Philosophy degree at Southern Illinois University; (4) that credit earned more than five years prior to the request may be evaluated and rejected or accepted for partial value; (5) that in no case will the acceptance of transferred credit reduce the basic residence requirement or reduce such basic tools or requirements as the student's committee may prescribe. No more than twenty-four hours of credit may be transferred toward the Doctor of Philosophy degree, beyond the master's degree or its equivalent, except in cases in which the student's advisory committee recommends that work be taken elsewhere.

A "B" (4.0) average shall be required, as a minimum, for the Doctor of Philosophy degree. No course in which the grade is below "C" shall count toward the degree; however, the grade shall count in the student's average.

Competence in two foreign languages, or one language and statistics, shall be required of each candidate for the Doctor of Philosophy degree. The advisory committee is to decide in each case which alternative is to be followed, and which language or languages will be acceptable. Proficiency examinations may be used to test these competencies. If courses are taken to satisfy the special research tools requirement, they shall not count toward the minimum credit requirement for the degree.

Examinations will be given in French, German, Italian, and Spanish by members of the Department of Foreign Languages assigned in each case by the chairman of that department. Examinations will be given in other languages by special arrangement, in cases in which the language is needed in dissertation work. Students may arrange with the department to take these examinations at any time that the University is in regular session; and they must pass them before they take their preliminary examinations. Students may present two or more books or periodicals, totaling no less than 700 pages, suggested by their major departments and accepted by the Department of Foreign Languages. The examiner will select passages from these books to be translated, with the aid of a dictionary, if necessary. The required proficiency will approximate that of a student who has completed two years of college language with a "B" average.

Doctoral candidates may substitute competence in statistics for one foreign language, with the approval of the major department. This competence may be demonstrated by the acceptable completion of a sequence of graduate courses in statistics in the department of Guidance or Mathematics, or by passing a proficiency examination equivalent to the final examination of the final course in a given sequence and administered by its instructor. The individual departments are to determine whether courses in statistics are to be required of each of their majors as a necessary part of the graduate program. Candidates who substitute competence in statistics for a foreign language may receive credit toward the doctorate for only those statistics courses taken beyond the basic one-year sequence in statistical inference, such as Mathematics 410-412 and 480-482, and Guidance 420, 520, and 521.

A program leading to the Doctor of Philosophy degree requires a minimum of three "years" in resident study at an accredited educational institution; such "years" ordinarily are defined as follows:

First year—The time required to fulfill all requirements for the master's degree or the equivalent.

Second year—The time required to progress from the completion of the first year's work through the completion of the preliminary examina-

tion. This involves obtaining satisfactory grades in an acceptable program of at least forty-eight hours of work, or its equivalent, completing the language requirement, and passing the preliminary examination.

Third year—The time spent between passing the preliminary examination and the completion of all requirements for the doctor's degree, including authorized research, writing a satisfactory dissertation, and passing the final examination. The third "year" may not be shorter than six months.

In order to achieve the Doctor of Philosophy degree one must be in full-time residence at graduate work at Southern Illinois University for a minimum of two academic years.

A student who spends the first two years in residence at Southern Illinois University may petition to spend the last year in absentia. A student who has completed the first year of graduate work elsewhere must be in residence during the two remaining years. In exceptional cases, a student with two years of graduate study elsewhere who satisfies his major department that he has completed work equivalent to the standard departmental requirements will be permitted to take the preliminary examination, provided he has fulfilled the language requirement. If such a student passes the preliminary examination he may complete the requirements for the Doctor of Philosophy degree by devoting the third year to research in residence.

Candidates may be given leaves of absence by the Graduate Council (not to exceed one-fourth of the required residence) to make use of special facilities elsewhere.

A student may partially satisfy the residence requirement by attending summer sessions at Southern Illinois University. Full-time attendance during four eight-week summer sessions is considered the equivalent of one academic year's residence. However, at some time during the second or third year of his doctoral program the student must be in full-time residence at the University through three successive quarters.

The term "residence" as used above means the physical presence of the candidate, from day to day, in the immediate area in which classes are offered, complete University library facilities are available, and academic supervision can be provided at any time at the discretion of the advisory committee. A student shall be considered in full-time residence only during those quarters in which he shall be registered for at least twelve hours of credit, or its equivalent in Dissertation 600. The rate of residence credit given to students carrying less than twelve hours per quarter shall be determined by the Graduate Council.



All work for the Doctor of Philosophy degree must be completed in not more than five calendar years from the close of the quarter or semester in which the student is admitted to candidacy for the degree. If completion of requirements is delayed for reasons beyond the control of the student, he may request an extension of time by petitioning the dean and the Graduate Council, but he should do so only after consultation with his adviser. Under such circumstances, a student may be required to take another preliminary examination and be admitted to candidacy a second time.

A dissertation showing high attainment in independent, original scholarship or creative effort shall be submitted toward the requirements for the Doctor of Philosophy degree. It shall be supervised by a faculty member, who is recommended by the major department and approved by the dean of the Graduate School, and who thus becomes chairman of the candidate's advisory committee. The topic of the dissertation must be approved by the supervisor, by the chairman of the major department or one authorized by him, and by the dean of the Graduate School before the project is undertaken.

The student must register for the course Dissertation 600 for at least three normal full-time quarters or their equivalent. Students may register for Dissertation 600 on a full-time or fractional basis. In any case the grade will be deferred until the thesis is completed and approved.

The dissertation must be approved by the supervisor and at least one other qualified reader before being circulated among advisory committee members. It must be submitted to the committee, in complete and acceptable form (see Graduate School regulations for preparation of manuscripts), one month before the date of graduation.

All dissertations will be microfilmed according to a plan approved by the Graduate School. Two weeks before commencement the candidate must have fulfilled the following requirements:

1. Submission to the Graduate School of two approved, typewritten copies of his dissertation (one the original copy) and a signed microfilm contract.
2. Submission to the Graduate School of an abstract of the dissertation of 600 words or less (or a description of the project, if it is a creative work).
3. Payment of a fee sufficient to cover cost of publication of abstract and microfilming of the dissertation.

If copyright is desired, an additional fee will be required. However, the dissertation will not be available for circulation until it has been microfilmed.

## THE GRADUATE INTERNSHIP PROGRAM IN EDUCATION

The Southern Illinois University Teacher-Supervisor-Administrator Internship Program is designed to meet the needs of graduate students who desire to obtain practical experience in a public school while working toward the Master of Science in Education degree, the Specialist's Certificate in the Sixth-Year Program, or the Doctor of Philosophy degree. Graduate students may enroll in either a teaching, a supervising, or an administrative curriculum, and may major on either the secondary or the elementary level. The form with which application for admission is made may be secured from the director of Teacher Training and Graduate Internship and should be completed and returned to him at the earliest possible date. Interns will be admitted in the order in which their applications are approved.

The schedule according to which credit in the Graduate Internship Program for the Master of Science in Education degree and the Specialist's Certificate is earned is as follows:

	HOURS
<i>Summer session on campus.</i> .....	12
<i>The regular school year.</i> During this period the student will be working under the supervision of a consultant from the office of the director of Teacher Training and Graduate Internship.	
A field study. ....	4
Two Saturday or evening courses. ....	8
Teaching, supervisory, or administrative duties assigned by the public school and the University consultant acting together, on a half-time basis. The co-operating public school will pay the intern a salary of approximately one-half that which would be received for full-time work. ....	0
A one-half-time "practicum" assigned by the consultant. ....	12
<i>Summer session on campus.</i> .....	12

Students working toward the Doctor of Philosophy degree will work on a schedule designed to meet their individual needs.

Prerequisites for participation in the Graduate Internship Program are as follows:

1. The application for admission should be filed with the director

of Teacher Training and Graduate Internship no later than the beginning of the spring quarter which precedes the summer session immediately prior to the actual internship.

2. In order for the applicant to be accepted, the application must receive the approval of the dean of the Graduate School, the director of Teacher Training and Graduate Internship, and the administrator of one of the public schools approved for the program.

3. In order for the application to be approved, the applicant must be a graduate of an accredited college or university, with a minimum of thirty-two hours of education including student teaching, and must be certified to teach in the state of Illinois.

4. Following acceptance, the applicant must meet with the director of Teacher Training and Graduate Internship and an adviser so that a suitable curriculum can be designed.

5. Such factors as emotional maturity, adherence to democratic principles, moral character, and scholarship will be taken into consideration in the admission of applicants to the Graduate Internship Program.

## RESEARCH

The Graduate Council allocates certain funds available for research to individual faculty members, to departments, and to special research agencies of the University. It also assists in acquiring research funds from foundations and other outside sources.

# Instructional Units

GRADUATE MAJORS on the Carbondale campus are usually offered on a departmental basis, although a few interdepartmental majors are available. On the Edwardsville campuses the graduate programs are supervised by the various academic divisions. The descriptive material presented includes the listing of graduate faculty when appropriate.

## CARBONDALE UNITS

### AGRICULTURAL INDUSTRIES

Henrik Aune, Ph.D. (Minnesota)

Ralph A. Benton, Ph.D. (Illinois)

Herman M. Haag, Ph.D. (Cornell)

William M. Herr, Ph.D. (Cornell)

J. J. Paterson, M.S. (Saskatchewan)

Walter J. Wills, Ph.D. (Illinois), *Chairman*

A Master of Science degree may be earned with a major in agricultural industries. Within the major field two specializations are offered; one is agricultural economics, and the other is agricultural services.

The agricultural economics specialization requires a minimum of 24 hours in courses in agricultural economics and the School of Business. A thesis is required. Graduates from this program are sought by industry and government. Many receive offers of financial assistance for continued work toward the doctoral in agricultural economics. In this program the student may take work in farm credit, farm policy, farm management, and agricultural marketing and prices.

The agricultural services specialization requires a minimum of 24 hours in agriculture. The remaining work may be in any field in the University. A thesis is not required, but an approved research paper must be submitted. This is a terminal degree. This program is designed primarily to meet the needs of individuals wishing to strengthen their training and provide the basis for performing their work more efficiently. The participants include



farm advisers, vocational agricultural teachers, soil conservation personnel, and industrial specialists in agriculturally related businesses.

In both master's specializations the individual's course program is designed to fit his particular goals and objectives.

Students interested in agricultural economics on the doctoral level should consult with the Department of Economics in the School of Business concerning approval to major in economics with a specialization in agricultural economics.

For further information concerning the program and availability of assistantships, write to the Chairman, Department of Agricultural Industries.

### ANIMAL INDUSTRIES

Joseph E. Burnside, Jr., Ph.D. (Wisconsin)	William G. Kammlade, Jr., Ph.D. (Illinois)
Billy L. Goodman, Ph.D. (Ohio State)	
Scott W. Hinners, Ph.D. (Illinois)	Alex Reed, Ph.D. (Illinois), <i>Chairman</i>
	Howard H. Olson, Ph.D. (Minnesota)

The Department of Animal Industries offers major work for the Master of Science degree. A minimum of 24 hours in animal industries courses, including a thesis, is required. Programs may be designed to meet the desires of candidates with emphasis upon animal nutrition, breeding, physiology or production of beef, dairy, poultry, sheep, or swine. The fields of major emphasis may include courses in other related departments such as chemistry, microbiology, physiology, and zoology. Graduates from this program wishing to work for a Doctor of Philosophy degree have many opportunities for financial assistance at other institutions.

Students majoring in another department may choose a minor in animal industries.

For information concerning a specific program and assistantships available, write to the Chairman, Department of Animal Industries.

### ANTHROPOLOGY

Pedro Armillas, D.P. (Barcelona)	Charles H. Lange, Ph.D. (New Mexico)
Philip J. C. Dark, Ph.D. (Yale)	Carroll L. Riley, Ph.D. (New Mexico)
Melvin L. Fowler, Ph.D. (Chicago)	Walter W. Taylor, Ph.D. (Harvard),
George W. Grace, Ph.D. (Columbia)	<i>Chairman</i>
J. Charles Kelley, Ph.D. (Harvard)	

Graduate work is available in anthropology leading to the Master of Arts and the Doctor of Philosophy degrees.

Acceptance for graduate study in anthropology is at the discretion of

the Department of Anthropology. No specific program of previous work is required, and applicants with academic degrees in other fields than anthropology are accepted. In all cases, however, entering students must take the Preliminary Examination, which is given twice yearly. The purpose of this examination is to assess the students' capabilities and aptitudes in anthropology with a view to giving appropriate direction to their programs of study. Students with degrees in anthropology are expected to take the first of the semi-annual examinations after entrance and students with degrees in other fields the second.

The program of study for each student will be worked out by the student and his adviser; and decisions as to his curriculum, research, and examinations will be made on an individual basis.

For all graduate degrees a student must pass the General Examination. In addition, candidates for the master's degree must pass one language examination and present a thesis, and candidates for the Ph.D. degree must pass two language examinations and the Special Examination and present a dissertation.

The General Examination is a test of the students competence within the entire field of anthropology.

The Special Examination is based upon the field of concentration chosen by the student in consultation with an adviser after he has passed the General Examination.

The language examinations are given by the Department of Foreign Languages and are written. The use of a dictionary is permitted. The examinations are in two parts, one covering technical anthropological works and the other nontechnical materials such as belles-lettres, periodicals, and newspapers. The languages selected must be approved by the Department of Anthropology; those usually recommended are French, German, Russian, and Spanish. A candidate whose native language is other than English must pass the Graduate English Examination at the earliest possible moment after entering the Graduate School. In some cases, he is permitted to select his native language to meet one of his language requirements. At least one language examination must be passed before the General Examination and both before the Special Examination.

Before he submits his doctoral dissertation, a candidate for the Ph.D. degree must undertake field work applicable to some anthropological problem approved by the department. It is not necessary that the dissertation be based on this field work, although this is the usual practice.

The master's thesis is usually a report on a well defined and relatively restricted problem, either of library or of field work. The doctoral dissertation stresses original research of much greater scope.

The Department of Anthropology does not require that a student take

a master's degree on his way to the doctorate. All work for the doctorate, including the dissertation, must be completed within five years after the student has passed the Special Examination. Further information can be obtained from the Chairman, Department of Anthropology.

## ART

Bruce Breland, M.F.A. (Cranbrook)	Burnett H. Shryock, M.A. (Columbia)
Herbert L. Fink, M.A. (Yale), Chairman	Milton Sullivan, M.A. (Columbia)
Harvey Harris, M.F.A. (Yale)	Nicholas Vergette, A.T.D. (London)
Warren Sanderson, M.A. (Boston)	Benjamin Watkins, M.A. (Louisiana State)
Alice Schwartz, D.Ed. (Pennsylvania State)	Martin Werner, M.A. (New York)

Graduate programs in art lead to the Master of Fine Arts, Master of Arts, and Master of Science in Education degrees. The candidate is expected to select an area of specialization (i.e., painting, weaving, art education) around which his program will be planned in consultation with the chairman of his advisory committee appointed by the Graduate School.

The Master of Fine Arts and Master of Arts degrees require the attainment of a professional level of performance in the area of specialization as evidenced by the successful presentation of a graduate exhibition scheduled near the end of residence. During residence, students are encouraged to submit their work to various local, regional, and national juried exhibitions.

Those seeking the Master of Science in Education degree are required to complete sixteen hours of work advised by the College of Education.

No general statement can be made concerning undergraduate requirements in art for admission to candidacy for one of the graduate degrees. A strong undergraduate major in art is desirable. The student who lacks such preparation may, on the recommendation of the chairman of his committee, be required to complete undergraduate "deficiencies." In such cases, quality of work rather than appraisal of credits provides the basis for judgment.

The Department of Art reserves the right to select an example of the work of each candidate for the master's degree. Such works become a part of the permanent collection of student works from which exhibitions may be prepared.

Throughout the year, a program of exhibitions is presented in the University Galleries. Exhibitions are chosen with the intention of providing students and interested public with a continuous experience of viewing and judging significant and representative works of art of contemporary or historical character.

### ASIAN STUDIES

Courses available in the field of Asian studies are listed by department and include the following: Anthropology 541, 549, 559, Economics 561, Geography 522, Government 457, 458, 459, 460, 480, History 449, 455, 510, 590, Philosophy 490.

Although no graduate major or minor is offered in Asian studies, interested graduate students may consult with members of the Committee on Asian Studies in regard to their programs or research. Further information may be obtained by writing to the Committee on Asian Studies or to its members: Floyd F. Cunningham, professor of geography; William H. Harris, associate professor of philosophy; Hellmut A. Hartwig, professor of foreign languages; H. B. Jacobini, associate professor of government; George W. Grace, assistant professor of anthropology; Ping-chia Kuo, associate professor of history (chairman of the committee); Arthur E. Lean, dean of the College of Education; and Donald A. Wells, assistant professor of economics.

### BIOLOGICAL SCIENCES

Students interested in pursuing advanced studies in the biological sciences without majoring in a specific science should consult with Dr. John C. Downey of the Department of Zoology relative to the program to be followed. No uniform program can be listed, as the one to be followed will depend upon the student's interests and objectives. A program in biological sciences is available to students seeking the Master of Arts, Master of Science, and Master of Science in Education degrees. Work in two or three departments is required.

### BOTANY

Howard G. Applegate, Ph.D. (Michigan State)	Ladislao V. Olah, Ph.D. (Stepher Tisza, Hungary)
William C. Ashby, Ph.D. (Chicago)	Aristotle J. Pappelis, Ph.D. (Iowa State)
Margaret Kaeiser, Ph.D. (Illinois)	John W. Voigt, Ph.D. (Nebraska)
Ralph W. Kelting, Ph.D. (Oklahoma)	Walter B. Welch, Ph.D. (Chicago), Chairman
Robert H. Mohlenbrock, Ph.D. (Washington University)	

Graduate work may be taken in the Department of Botany as a major or minor leading to the Master of Arts, Master of Science, and Doctor of Philosophy degrees and as a part of the program in biological sciences lead-



ing to the Master of Science or the Master of Science in Education degree.

Candidates for the advanced degrees must have the consent of the department and at least an undergraduate minor in botany including Botany 101 or 102, 202, 203, 320, a year of chemistry, and a reading knowledge of a foreign language. In addition to the general requirements of the Graduate School, a Master of Science or a Master of Arts degree candidate must complete a thesis. A master's degree candidate must enroll in Botany 580 each quarter unless excused by the chairman of the department.

The Doctor of Philosophy degree requires, in addition to the above, a reading knowledge of two foreign languages, and statistics if the candidate's committee so rules. Dr. William C. Ashby will act as adviser until the candidate's committee is appointed. The doctoral candidates will enroll in Botany 580 each quarter unless excused by the chairman of the department and the chairman of the advisory committee.

## BUSINESS

### ACCOUNTING

Mary Noel Barron, M.B.A. (Michigan)  
Clifford R. Burger, M.S. (Indiana State  
Teachers)  
Leo Favrot, M.B.A. (Harvard)  
Susie Ogden, A.M. (Illinois)

Roy Richards, M.B.A. (Indiana)  
Edward J. Schmidlein, Jr., Ph.D. (New  
York)  
Ralph D. Swick, D.B.A. (Indiana), *Chairman*

### MANAGEMENT

Thomas W. Douglas, Ph.D. (Pennsylvania)  
Everette N. Hong, Ph.D. (Southern California), *Chairman*

Irving Kovarsky, Ph.D. (Iowa)  
Henry J. Rehn, Ph.D. (Chicago)  
Frank Stamberg, B.S. (Illinois)

### MARKETING

James D. Benson, Ph.D. (Iowa)  
Charles H. Hinderman, D.B.A. (Indiana)

Paul M. Hoffman, Ph.D. (New York),  
*Chairman*

The Departments of Accounting, Management, and Marketing combine in offering a major in business on the graduate level leading to the Master of Science degree. Within the limits of courses offered, the individual candidate may concentrate his work in any of these three areas. All candidates will be expected to offer a substantial amount of work in economics.

Each student who intends to concentrate in accounting should have some familiarity with accounting theory, cost accounting, auditing, and federal income taxes. Students entering this program with a liberal arts

background will normally be required to complete, without credit, certain undergraduate courses in accounting, and perhaps courses in other departments as well, in order to prepare for courses at the graduate level. As a minimum, one year of additional study will be needed to complete the graduate program if no previous work has been taken in business.

Courses in these areas may also be taken as a minor by graduate students majoring in other departments of the University.

### CHEMISTRY

James N. BeMiller, Ph.D. (Purdue)	Douglas E. Sellers, Ph.D. (Kansas State)
Roger E. Beyler, Ph.D. (Illinois)	Russell F. Trimble, Ph.D. (M.I.T)
Elbert H. Hadley, Ph.D. (Duke)	Robert E. VanAtta, Ph.D. (Pennsylvania State)
Wilbur N. Moulton, Ph.D. (Minnesota)	Kenneth A. Van Lente, Ph.D. (Michigan)
Boris Musulin, Ph.D. (Northwestern)	
James W. Neckers, Ph.D. (Illinois), <i>Chairman</i>	

Graduate courses in chemistry may comprise a major or minor toward the Master of Arts, Master of Science, or Master of Science in Education degree. Graduate courses may also be taken as a part of a physical sciences program leading to any of those degrees.

Effective with the fall of 1962, candidates will be accepted for work toward the Doctor of Philosophy degree. Interested students should contact the department chairman for further details.

#### MASTER OF ARTS AND MASTER OF SCIENCE

In addition to the general requirements of the Graduate School, minimum requirements for the Master of Arts (or Master of Science) degree in chemistry are as follows:

1. (a) Earned credit, either as an undergraduate or graduate student, in Chemistry 446, 461, 462, 463, 490, 575; (b) Earned credit, or proficiency shown in a diagnostic examination, in Chemistry 411, 433, 444;
2. (a) A three-course subject-matter sequence in chemistry at the 500 level; (b) One additional chemistry course at the 500 level in each of two areas other than 2(a); (Chemistry 451 and 452 may be substituted for one of these courses.)
3. A minimum of 5 hours in research and thesis (Chemistry 599);
4. A final oral examination;
5. A reading knowledge of German (or one year of undergraduate credit); and
6. Attendance at seminar (Chemistry 575).

If an outside minor is chosen, 30 hours of chemistry must be earned.

### MASTER OF SCIENCE IN EDUCATION

In addition to the general requirements of the Graduate School, minimum requirements for the Master of Science in Education degree with a major in chemistry are as follows:

1. (a) Earned credit, either as an undergraduate or graduate student, in Chemistry 460 or 461, 462, 463, 490, 575; (b) Earned credit, or proficiency shown in a diagnostic examination, in Chemistry 411, 433, 444;
2. (a) A two-course, subject-matter sequence in chemistry at the 500 level; (b) One additional 500-level subject-matter course in chemistry; (Chemistry 451 and 452 may be substituted.)
3. A minimum of 30 hours in chemistry and 15 hours of graduate credit in education, including at least 3 hours for a scholarly report on some phase of chemistry or chemistry education;
4. A final oral examination;
5. A reading knowledge of German, Russian, or French (or one year of undergraduate credit); and
6. Attendance at seminar (Chemistry 575).

This degree is considered terminal for graduate study in chemistry.

### COMMUNITY DEVELOPMENT

This curriculum is interdisciplinary in nature. A candidate for a Master of Science degree in community development will take a portion of his work in related academic fields. Depending on his professional plans, it will be possible for him to minor in a field such as agriculture, anthropology, economics, education, geography, government, history, psychology, sociology. Undergraduate work in more than one of these fields is a desirable background for graduate study in community development. Students with inadequate backgrounds may be required to take certain courses to strengthen their backgrounds.

The period of study and training is planned to encompass one and one-half years. Included must be a minimum of 48 hours of graduate credit, plus a six-month internship in a local community-development program in southern Illinois. Only a limited number of interns can be enrolled in any one year.

The requirements for the Master of Science degree in community development include the following:

1. Twenty-eight to 32 hours in courses specifically designed or approved by the Community Development Institute, to include thesis or research paper.

2. Sixteen to 20 hours of work in one or more allied fields, such as anthropology, education, psychology, sociology.
3. Six months of noncredit graduate internship. (This may be reduced or waived for exceptional students with one or more years of acceptable professional experience in community development work.)
4. Fulfillment of the requirements of the Graduate School.

### DESIGN

Harold L. Cohen, B.A. (Institute of Design), *Chairman*  
R. Buckminster Fuller

Robert Hunter, B.A. (Southern Illinois)  
Davis Pratt  
Elsa Kula Pratt  
Herbert Roan

Forty-nine hours of graduate credit in design are required for the Master of Science degree. Of these 49, 30 are to be in 490F or 490G, 500F or 500G, and 510F or 510G, 10 in 550, and 9 in 599 (minimum time one year).

In addition to the above requirements, a major in design requires a minimum of twelve undergraduate or graduate hours of electives selected with the adviser, based upon the area of the thesis. These hours are not to be included in the forty-nine hours required in design as outlined above.

Students transferring from other departments and other schools will be placed in the proper curricular stage after a personal interview with the adviser and the showing of examples of their previous undergraduate work.

### ECONOMICS

Clark L. Allen, Ph.D. (Duke)  
John A. Cochran, Ph.D. (Harvard)  
Robert L. Decker, Ph.D. (Colorado)  
Milton T. Edleman, Ph.D. (Illinois)  
C. Addison Hickman, Ph.D. (Iowa)  
Robert G. Layer, Ph.D. (Harvard), *Chairman*

Bernard J. Marks, Ph.D. (Minnesota)  
Thomas A. Martinsek, Ph.D. (Ohio State)  
Vernon Morrison, Ph.D. (Nebraska)  
Donald A. Wells, Ph.D. (Oregon)  
G. Carl Wiegand, Ph.D. (Northwestern)

Graduate courses in economics may be taken as a major or minor leading to the Master of Arts, Master of Science, and Doctor of Philosophy degrees.

A student may complete the requirements for the master's degree through the successful completion of: (a) 48 hours of graduate work, including the master's thesis; (b) 54 hours of graduate work, including a



research paper for which 5 hours of credit will be given in 501, and a final, departmental comprehensive examination; or (c) 96 hours of graduate work and the preliminary doctoral examination.

Each master's degree candidate is required to complete at least 33 hours in economics.

If a student wishes to combine his study of economics with one of the fields represented in the College of Liberal Arts and Sciences, he should apply for a Master of Arts degree. If he wishes to combine his study of economics with fields represented in the School of Business, the School of Agriculture, or a similar field, he should apply for a Master of Science degree.

The Ph.D. degree candidate may substitute an approved series of mathematics courses (251, 252, 253, and 305) or an approved series of statistics courses for one of the required foreign languages. A final, proficiency examination must be successfully passed if the mathematics sequence is selected.

Information on graduate assistantships may be obtained from the Chairman, Department of Economics.

After a student has been granted admission to the Graduate School, he should contact the chairman of the Department of Economics. The chairman will refer him to the departmental supervisor of graduate students, who will act as his adviser until the student has chosen his thesis topic and a member of the department has consented to direct the thesis. The thesis director will then become the student's adviser and will function together with an advisory committee.

Graduate students with no undergraduate deficiencies, with no language handicaps, and with no outside demands upon their time may find it possible (by taking the heavy graduate load of 16 hours each quarter) to complete the master's degree in three quarters (roughly nine months). Most students who have none of these deficiencies or demands upon their time take three quarters and a summer to complete their master's program. Students with undergraduate deficiencies (determined by the chairman of the Department of Economics), with language difficulties (especially foreign students), or outside work demands upon their time should expect to take longer. Such students should plan to be in residence longer than the usual three quarters or three quarters and a summer.

### EDUCATIONAL ADMINISTRATION AND SUPERVISION

George E. Axtelle, Ed.D. (California)  
Jacob O. Bach, Ph.D. (Wisconsin)  
Harlan D. Beem, Ed.D. (Illinois)

George Bracewell, Ed.D. (Washington  
University), *Acting Chairman*  
P. Roy Brammell, Ph.D. (Washington)

Roye R. Bryant, Ed.D. (Washington University)

Arthur E. Lean, Ph.D. (Michigan)

Charles D. Neal, Ed.D. (Indiana)

Woodson W. Fishback, Ph.D. (Chicago)

William E. Shelton, Ph.D. (Chicago)

James Herrick Hall, Ed.D. (George Washington)

Graduate programs in this department include the master's and doctor's degrees and the sixth year specialist's certificate.

Graduate courses in educational administration and supervision may be concentrated in educational administration or in instructional supervision, both leading to the Master of Science in Education degree. Graduate courses in the department may also be taken toward a minor in education.

The program of courses for the sixth year specialist's certificate is individually planned in conference with the departmental chairman. A field study is required.

Students interested in working toward the doctorate should familiarize themselves with the basic requirements of the Graduate School before conferring with the departmental chairman regarding a specific program of study.

#### EDUCATIONAL ADMINISTRATION

A master's degree program in educational administration must include 424, 456 or 556, 460, 500, 533 or 534; Guidance 420 or 422. In addition, elective hours may be taken in 420 or 520; Elementary Education 557; Secondary Education 564; and Guidance 442, so as to total at least thirty-two hours in these areas.

Those students who have had any of the above 400-level courses at the undergraduate level will be expected to substitute other graduate courses from the next succeeding listing in order to complete the forty-eight-hour degree requirement. Since it is not mandatory that a minor be declared, an additional sixteen hours may be selected from courses in the succeeding listing. Only those who are now actively engaged in positions involving school administration or those who contemplate such placement should follow this curriculum: 431, 432, 501-510, 539, 554, 563, 575; Secondary Education 470, 508, 550, 562, 591; Guidance 412, 537, 562.

#### INSTRUCTIONAL SUPERVISION

The program in instructional supervision consists of a minimum of thirty-two hours of approved graduate credit in the area, plus a sixteen-hour minor or that number of credits in guided electives. Approved graduate-credit courses include 424, 456 or 556, 460, 500, 575; Elementary Education 461; Secondary Education 550; Guidance 420 or 422, 515. The sixteen-hour minor or that number of credit in guided electives should be

selected from 554, 555; Elementary Education 437, 441, 442, 465, 540, 541, 542, 543; Secondary Education 470; Guidance 412, 442, 511, 520, 522, 525, 537, 543, 562; Special Education 414, 513.

Students in instructional supervision may also earn credit under the graduate internship program.

### ELEMENTARY EDUCATION

Rebecca E. Baker, Ph.D. (Iowa)  
 Luther E. Bradfield, Ed.D. (Indiana)  
 Ernest E. Brod, Ed.D. (Colorado State)  
 Clyde M. Brown, Ed.D. (Missouri)  
 Robert Karlin, Ph.D. (New York)  
 J. Murray Lee, Ph.D. (Columbia), *Chairman*

Harold H. Lerch, Ed.D. (Illinois)  
 Willis E. Malone, Ph.D. (Ohio State)  
 Ted R. Ragsdale, Ph.D. (St. Louis)  
 Victor Randolph, Ph.D. (George Peabody)

Graduate programs in the Department of Elementary Education lead to the Master of Science in Education degree, the Doctor of Philosophy degree, and the specialist's certificate.

The graduate major in elementary education for the Master of Science in Education degree consists of a total of 48 hours. Programs have been developed for prospective elementary principals and elementary supervisors. Programs have also been developed for teachers who wish to specialize somewhat in one of the following areas: language arts, reading, social studies, elementary mathematics, elementary science.

Each of the above programs includes certain required courses, guided electives, and related courses in liberal arts. All programs must be planned with and approved by the graduate adviser in elementary education. Specific course requirements for a given program may be obtained upon request from the Department of Elementary Education.

Students in early-childhood education who have not had psychology or Guidance 412, Sociology 427, Health Education 312, or the equivalent of one of these, are required to take four hours in psychology or guidance. Educational Administration and Supervision 554 or 555 or the equivalent is required.

### RULES RELATING TO THE MASTER'S DEGREE

1. In lieu of a thesis, all students are required to take Guidance 422 or its equivalent and Educational Administration and Supervision 500.
2. A total of from eight to twelve hours should be selected from departments outside of the College of Education.
3. At least twenty-four hours must be on the 500 level.
4. Those who have undergraduate degrees in other fields regardless of

teaching experience, are required to complete, without graduate credit, at least four hours of elementary methods (314 or equivalent) and eight hours of elementary student teaching. The teaching must be done in residence at a university or college approved by the American Association of Colleges of Teacher Education.

5. Any student taking graduate courses without first being approved by his adviser risks having work not accepted for the degree.

Students interested in the Doctor of Philosophy degree with a major in elementary education should write to the Chairman, Department of Elementary Education, for the requirements.

### ENGLISH

Thomas W. Baldwin, Ph.D. (Princeton)	Fred K. Lingle, A.M. (Illinois)
Frances M. Barbour, M.A. (Washington University)	Harry T. Moore, Ph.D. (Boston)
James Benziger, Ph.D. (Princeton)	Robert B. Partlow, Jr., Ph.D. (Harvard)
Charles Blinderman, Ph.D. (Indiana)	Raymond J. Rainbow, Jr., Ph.D. (Chicago)
Winifred Burns, A.M. (Illinois)	W. B. Schneider, Ph.D. (Chicago), <i>Chairman</i>
George G. Camp, Ph.D. (Illinois)	William E. Simeone, Ph.D. (Pennsylvania)
E. C. Coleman, Ph.D. (Illinois)	Walter E. Staton, Ph.D. (Pennsylvania)
Daniel Cook, Ph.D. (California)	E. Earle Stibitz, Ph.D. (Michigan)
Robert D. Faner, Ph.D. (Pennsylvania)	Charles D. Tenney, Ph.D. (Oregon)
John Frank, M.A. (Johns Hopkins)	Howard W. Webb, Jr., Ph.D. (Iowa)
John Grinnell, Ph.D. (Stanford)	Georgia G. Winn, Ph.D. (Pittsburgh)
J. W. Harris, Ph.D. (Illinois)	
Edith Krappe, Ph.D. (Pennsylvania)	

Graduate courses in English may be taken for a major or minor leading to the Master of Arts and Master of Science degrees, for a major leading to the Master of Science in Education degree, and for the Doctor of Philosophy degree. After admission to full graduate standing, the student should confer with the supervisor of graduate study in English.

For the Master of Arts or the Master of Science degree in English, the student must satisfy the following requirements: (1) He must complete at least 48 hours of acceptable graduate work. (2) Before the beginning of his last quarter of residence, he must submit to the supervisor a copy of a research paper which has been accepted in a 500-level course. (3) He must pass a comprehensive examination.

For the Doctor of Philosophy degree, the student must satisfy the following requirements: (1) If he does not hold a master's degree in English from this university, he must pass before the end of his third full quarter of doctoral study a comprehensive examination similar to that re-



quired of candidates for the master's degree. (2) He must complete at least 96 hours of acceptable graduate work (including credit awarded for the dissertation) beyond the master's degree or its equivalent. (3) He must present evidence of competence in two foreign languages approved by the supervisor. (4) He must pass the preliminary examination on English and American language and literature. (5) He must submit an acceptable dissertation and pass a final oral examination.

For important detailed information on these requirements, inquiry should be directed to the supervisor of graduate study in English.

### FOREIGN LANGUAGES

A. W. Bork, Doctor en Letras (National University of Mexico)	Helmuth Liedloff, Ph.D. (Phillips University, Marburg, Germany)
Boyd G. Carter, Ph.D. (Illinois)	Vera L. Peacock, Ph.D. (Cornell), <i>Chairman</i>
J. Cary Davis, Ph.D. (Chicago)	
Hellmut A. Hartwig, Ph.D. (Illinois)	Madeleine M. Smith, Ph.D. (Yale)

Graduate courses in French, Spanish, German, and certain other languages may be taken as a major or a minor leading to the Master of Arts and Master of Science in Education degrees.

Before receiving either the Master of Arts or Master of Science in Education degree with a foreign language specialization, the candidate, as part of his regular examinations for the degree, must satisfactorily pass a written examination in the literature of his language speciality and an oral examination in that language itself.

For the Master of Science in Education degree, Romance Philology 410 is required for students specializing in French or Spanish. For the Master of Arts degree, Romance Philology 410 and 515 are required for such students. All romance philology courses may be counted toward either French or Spanish specializations. Other course requirements will be determined upon the basis of the student's undergraduate preparation.

### FORESTRY

Ronald I. Beazley, Ph.D. (Purdue)	Neil W. Hosley, Ph.D. (Michigan), <i>Chairman</i>
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The Department of Forestry offers major work for the Master of Science degree. Some work in other departments is recommended, the amount varying with the individual student's objectives.

In forestry research or teaching, graduate work is essential. It also leads to a higher grade classification than that of the bachelor's graduate on entrance into federal employment.



## GEOGRAPHY

Ronald Beveridge, Ph.D. (Illinois)	Theodore H. Schmudde, Ph.D. (Wisconsin)
Charles C. Colby, Ph.D. (Chicago)	Howard A. Stafford, Ph.D. (Iowa)
Floyd F. Cunningham, Ph.D. (Clark)	Frank H. Thomas, Ph.D. (Northwestern)
Robert A. Harper, Ph.D. (Chicago), <i>Chairman</i>	Joseph Velikonja, Ph.D. (Rome)
Annemarie Krause, Ph.D. (Chicago)	Wilbur Zelinsky, Ph.D. (California)

The Department of Geography offers programs leading to the Master of Arts, Master of Science, and Master of Science in Education degrees.

Effective with the fall of 1962, candidates will be accepted for work toward the Doctor of Philosophy degree. Interested students should contact the department chairman for further details.

An entering graduate student need not have an undergraduate major, but it is expected that he will have had at least one course in each of the following aspects of geography: physical geography, economic geography, map reading, meteorology, climatology, and the geography of Anglo-America. A student without these courses may be asked to make up these undergraduate deficiencies.

Each entering graduate student is required to take an entrance examination. This examination is regarded as a diagnostic test to provide a clear picture of the student's background and to point up strengths and weaknesses that should be considered in planning his graduate program.

A thesis is required of all master's degree candidates who major in geography.

Each student must give evidence of a reading competence in one modern foreign language (French, German, Spanish, or Russian). This can be accomplished either by evidence of the successful completion of a year of college-level language courses or by passing a reading examination.

Course work in the graduate geography program centers around a basic core of courses dealing with geographic literature and thought, field methods, research techniques, and cartographic methods. This core, including Geography 500, 501, 511, and 416, totals 16 quarter hours. The remainder of the graduate student's program is tailored to his interests within the resources of the department and other co-operating departments.

Candidates for the Master of Arts or Master of Science degrees may or may not present a minor. Candidates for the Master of Science in Education degree must work out a program acceptable to the College of Education. Students without a minor may receive credit toward their de-

gree in geography for courses in other departments approved by their adviser.

The normal load is 12 hours during each quarter and 8 hours during the summer session. Although the 48 quarter hours required for graduation can be accomplished in five quarters, the department suggests that students think in terms of two academic years (six quarters) as the time normally required to complete the degree. This longer time allows the student to complete a richer program and to spend a more adequate time in writing the thesis.

Before formally beginning thesis work and not sooner than two quarters after entering the graduate program, the student must take a general comprehensive examination covering the general field of geography. Upon successful completion of this examination the student may begin his thesis work.

An oral defense of the thesis is the final requirement in the program.

Although the relatively large staff allows a wide range of graduate courses, overlapping and interrelated interests of staff members enable particularly strong programs in several fields. Most important of these programs at present are in the fields of cultural geography, economic geography, and the geography of Anglo-America.

## GEOLOGY

Dewey H. Amos, Ph.D. (Illinois)  
F. Donald Bloss, Ph.D. (Chicago)

Stanley E. Harris, Jr., Ph.D. (Iowa),  
*Chairman*  
David Nicol, Ph.D. (Stanford)

Graduate courses in geology may be taken as a major leading to the Master of Science degree or as a minor toward the Master of Arts, Master of Science, and Master of Science in Education degrees.

## GOVERNMENT

Orville Alexander, Ph.D. (Iowa), *Chairman*  
Clarence Berdahl, Ph.D. (Illinois)  
Earl Hanson, Ph.D. (Illinois)  
William Hardenbergh, Ph.D. (Illinois)  
Irving Howards, Ph.D. (Wisconsin)  
Horace B. Jacobini, Ph.D. (Kansas)  
Egon Kamarasy, Dr. Pol. Sci. (Budapest)  
David T. Kenney, Ph.D. (Illinois)

Frank L. Klingberg, Ph.D. (Chicago)  
Manfred Landecker, A.M. (Johns Hopkins)  
Robert A. McGrath, Ph.D. (Iowa)  
Ward M. Morton, Ph.D. (Texas)  
Randall Nelson, Ph.D. (Michigan)  
Marian E. Ridgeway, Ph.D. (Illinois)  
Willis G. Swartz, Ph.D. (Iowa)  
Max Wesley Turner, Ph.D. (Iowa)  
William O. Winter, Ph.D. (Michigan)

Graduate courses in government may be taken as a major or minor

leading to the Master of Arts degree, as a part of the social studies major toward the Master of Science in Education degree, and as a major leading to the Doctor of Philosophy degree. Graduate students are required to take 499.

A minor is available on the doctoral level in all areas where a major is available on the master's level. A student is to select his minor only with the approval of his doctoral advisory committee.

## GUIDANCE

Eugene D. Fitzpatrick, Ed.D. (Colorado State), <i>Chairman</i> Clinton R. Meek, Ph.D. (George Peabody) Kenneth D. Orton, Ph.D. (Iowa)	Aileen W. Parker, Ed.D. (Indiana) William Neal Phelps, Ed.D. (Colorado State) Wellington A. Thalman, Ph.D. (Cornell)
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Graduate majors in the Department of Guidance are available in the areas of guidance and counseling (elementary schools), guidance and counseling (secondary schools), and guidance and counseling (general). A major in this department leads to the Master of Science in Education degree, to the Specialist's Certificate, or to the Doctor of Philosophy degree.

The major in guidance, leading to a master's degree, consists of at least thirty-two hours in guidance. Each student, under the direction of his adviser, will design a program to meet his individual needs. A course in educational psychology and a course in tests and measurements are prerequisites to entry into this program.

A program that is typical for secondary school guidance workers includes 412, 420, 442, 522, 537, 541, 543, and 545.

A program that is typical for elementary school guidance workers includes 412, 420, 442, 522, 525, 526, 545, and 562.

The candidate may complete the master's program with guided electives from the Department of Guidance and related areas. He may minor in a subject matter area or in another area of education.

The candidate may be certified by his state teacher certification agency in the speciality of guidance by taking additional courses as recommended by his state.

## HEALTH EDUCATION

James E. Aaron, Ed.D. (New York) Donald N. Boydston, Ed.D. (Columbia), <i>Acting Chairman</i> A. Frank Bridges, D.H.S. (Indiana) Ralph Casey, Ed.D. (Columbia)	Deward K. Grissom, Ed.D. (Columbia) John R. LeFevre, Ed.D. (Columbia) Charles E. Richardson, Ed.D. (California) Andrew T. Vaughan, Ed.D. (Columbia)
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Graduate courses leading to the Master of Science in Education and the Doctor of Philosophy degrees are offered in the Department of Health Education. On the master's degree level, the candidate may select from three areas of concentration: school health education, community health education, and safety education. In school health and safety education, two programs may be followed: (1) a minimum of 24 hours in health education, a minimum of 16 hours in a minor field, and 8 hours, with departmental approval, from other graduate courses in the University, (2) a maximum of 40 hours in health education and 8 hours from offerings in the field of education having departmental approval.

The program in community health education extends over four quarters of study with 60 quarter hours required for the degree. Required courses for the degree in community health are 488, 489, 500, 511, 533, 534, 535, 590, Food and Nutrition 404, Radio-Television 367, and Journalism 393.

A program leading to the Doctor of Philosophy degree is offered in health education, and qualified candidates wishing to pursue this program will receive individual guidance from the department.

### HIGHER EDUCATION

I. Clark Davis, Ed.D. (Indiana)	Clarence D. Samford, Ph.D. (New York)
John E. Grinnell, Ph.D. (Stanford)	Max Sappenfield, Ph.D. (Illinois)
George H. Hand, Ph.D. (Princeton),	Harold W. See, Ed.D. (Indiana)
<i>Chairman</i>	Charles D. Tenney, Ph.D. (Oregon)
Alonzo F. Myers, Ph.D. (Columbia)	Dennis Trueblood, Ed.D. (Indiana)

The Department of Higher Education was established on July 1, 1959. It offers programs leading to the Master of Science in Education and the Doctor of Philosophy degrees.

The general goal of the department is a program: (1) to interest and instruct college graduates in the college teaching profession and its problems, (2) to interest and instruct college graduates in the field of college administration, (3) to interest and instruct college graduates in the field of college student personnel work, (4) to analyze and call attention to historical and current problems, issues, and opportunities in higher education.

The program in college student personnel work is a two-year course of study with a balance of theory and practice. Graduates receive a Master of Science in Education degree (72 quarter hours) plus a full academic year of experience in student personnel work with both women and men. The student plans his experience, in co-operation with his adviser, within the following framework: (1) courses in the major field including theory and supervised experiences, (2) courses in the foundation fields of higher



education including theory, philosophy, problems, curriculum, finance, and administration and of human behavior including personality theory, psychopathology, learning theory, group dynamics, counseling theory, and psychological measurement, and (3) courses in elective areas of professional education or the traditional academic disciplines to strengthen the student's college teaching or other professional needs.

Admission to the program is by Selection Committee. Qualifications for admission include a bachelor's degree, a "B" average or better in undergraduate study, and personal qualities to live with students as an adviser and counselor.

Room, board, and tuition are offered for service as a residence hall fellow. Fellowship funds of \$80 per month are available for students accepted with a "B" average or above. Especially for married students, a limited number of graduate assistantships at \$180 per month and tuition are available through the Office of Student Affairs.

For further information, address inquiries to Co-ordinator, College Student Personnel Graduate Studies Program, Department of Higher Education, Southern Illinois University, Carbondale, Illinois.

### HISTORY

Harry Ammon, Ph.D. (Virginia)

Harold E. Briggs, Ph.D. (Iowa)

George L. Cherry, Ph.D. (Northwestern)

C. Harvey Gardiner, Ph.D. (Michigan)

Ping-Chia Kuo, Ph.D. (Harvard)

William A. Pitkin, Ph.D. (Texas)

Gunther E. Rothenberg, Ph.D. (Illinois)

History may be chosen as a major for the Master of Arts degree and as part of a social studies major for the Master of Science in Education degree. In either case a minimum of 32 quarter hours (of the 48 hours required for the degree) of appropriate history credit is required. At least 16 of the required 32 hours must be taken in courses on the 500 level, the remainder on the 400 level. Candidates for the Master of Arts degree are required to present a thesis (5 to 9 quarter hours) and must pass a reading examination given by the Department of Foreign Languages in a modern foreign language. They must also pass an oral examination in history after the thesis has been accepted. The thesis is optional for Master of Science in Education degree candidates, and there is no language requirement for that degree. All candidates for either degree should consult the chairman or his representative before enrolling for courses. When a student has decided with which department member he wishes to write his thesis, that professor will become his adviser. The department believes that programs should be planned in the light of the student's previous studies, and it discourages undue specialization.



## HOME ECONOMICS

### CLOTHING AND TEXTILES

Helen M. Evans, Ph.D. (Michigan State)     Ritta Whitesel, M.A. (Columbia)  
 Adeline M. Hoffman, Ph.D. (Pennsylvania  
     State), *Chairman*

### FOOD AND NUTRITION

Jennie M. Harper, Ph.D. (Cornell)     Frank Kinishio, Ph.D. (Cornell)

### HOME AND FAMILY

Abraham Blum, Ph.D. (Cornell)     Eileen E. Quigley, Ed.D. (Missouri)  
 Betty Jane Johnston, Ph.D. (Purdue),     Lois R. Schulz, Ed.D. (California)  
     *Chairman*

### HOME ECONOMICS EDUCATION

Anne Cameron, Ph.D. (Ohio State)     Eileen E. Quigley, Ed.D. (Missouri)  
 Anna Carol Fuels, Ph.D. (Ohio State),  
     *Chairman*

The Master of Science and Master of Science in Education degrees with a major in home economics are available with specialization in clothing and textiles, food and nutrition, home economics education, and home and family. Work toward the Ph.D. degree may be taken in home economics in the areas of family economics and home management, home economics education, and clothing.

## INDUSTRIAL EDUCATION

Charles A. Bunten, Ed.D. (Missouri)     James Jenkins, Jr., D.Ed. (Pennsylvania  
 John H. Erickson, D.Ed. (Pennsylvania     State)  
     State)     Marvin E. Johnson, Ed.D. (Missouri)  
 Ralph O. Gallington, Ed.D. (George     John M. Pollock, Ed.D. (George Peabody)  
     Washington), *Chairman*     Wayne S. Ramp, Ed.D. (Bradley)  
 M. Keith Humble, Ph.D. (Missouri)

Graduate students may elect industrial education as a major or minor for the Master of Science or Master of Science in Education degree. Advanced study beyond the master's degree is also provided in connection with the minor of a doctoral degree, the major of which is in another field.

## INSTRUCTIONAL MATERIALS

Gordon K. Butts, Ed.D. (Indiana)     Roy W. Evans, A.M. (George Peabody)

Kathleen G. Fletcher, M.S. (Illinois)  
Ralph E. McCoy, Ph.D. (Illinois)  
Grosvenor C. Rust, A.M. (Chicago)

Paul R. Wendt, Ph.D. (Minnesota),  
*Chairman*

Graduate courses in instructional materials may be taken for a major toward the Master of Science in Education degree. They may be taken also as a minor in library service or as a minor in audio-visual education toward the Master of Science in Education degree.

The graduate major in instructional materials, toward a Master of Science in Education degree, involves professional training in both audio-visual education and school library service. It meets the state and national certification standards for full-time school librarians and the standards recommended by the Department of Audio-Visual Instruction of the National Education Association. In Illinois, every school librarian is also required to have a teaching certificate.

Fifty-two quarter hours are required for the major. No minor is required. At least 26 hours must be earned in courses numbered 500 or above.

The following courses are required for the major in instructional materials: 403, 405, 406, 417, 420, 445, 510, 514, 546, 554, 599. To complete the major, 12 hours must be elected from the following courses: 440, 457, 458, 530, 547, 548, 549, 560, 576.

A minor in instructional materials toward the Ph.D. degree can be obtained through a proper choice of electives.

The graduate minor in school library service is offered for students taking a major in another department. This minor, consisting of a minimum of 15 hours, is intended primarily for teachers who wish to gain an appreciation of literature for children and adolescents. It is not intended for the preparation of professional school librarians.

The following courses are required for the graduate minor in school library service: 405, 406, and 514. To complete the minor, at least three hours must be elected from the following courses: 420, 510, 530, and 576.

The graduate minor in audio-visual education is also offered for students taking a major in another department. This minor is intended primarily to prepare audio-visual directors and co-ordinators. It meets the certification recommendations of the state and national audio-visual organizations.

The following courses are required for the minor in audio-visual education: 417, 546, 548. To complete the minor, at least three hours must be elected from the following courses: 440, 445, 457, 458, 547, 549, 560, 576. This area may serve as a minor toward the Ph.D. degree.

For further information on planning major or minor programs, work experiences, job opportunities, or other related matters, consult the Chairman, Department of Instructional Materials.

### INTER-AMERICAN STUDIES

The purpose of this program is to give the student a broad understanding of inter-American affairs. With this objective in mind, a graduate supervisory committee counsels on the selection of courses for the individual student.

Course work in the inter-American studies program is offered by the departments of Anthropology, Economics, Foreign Languages, Geography, Government, and History.

Prerequisites for the Master of Arts degree include a command of the Spanish language adequate to meet the student's needs for research and communication within the area of his program. The director of the Latin American Institute and the supervisory committee will determine the student's linguistic competence on registration and, where necessary, specify what the student must do to improve his proficiency in Spanish. Whenever the student's program involves the need for Portuguese or French, he will also need to demonstrate or attain satisfactory proficiency in that language. In addition, a satisfactory basic preparation in inter-American studies is required.

Requirements for the Master of Arts degree include

1. The completion of an area of concentration of at least thirty hours of courses acceptable for graduate credit, in one of the above listed departments.
2. The completion of a minimum of eighteen hours of related studies approved by the student's supervisory committee which will meet the requirement for a minor in the Latin American Institute. A maximum of three areas is permitted in the minor field of concentration.
3. The completion of a satisfactory thesis on a Latin American topic in the area of concentration for which five to nine hours of credit are given.

A minor in inter-American studies for those students with a major in a department outside of the institute will consist of a minimum of eighteen hours to be taken in two of the participating departments. Specific course programs will be worked out by the director of the institute, in consultation with the chairmen of the departments involved.

In every case the student's final program must be approved by the graduate supervisory committee, acting under policies established by the Latin American Institute and the Graduate School. Courses and staff employed in the program will be those already approved by the Graduate Council.

## JOURNALISM

Charles C. Clayton, B.J. (Missouri)

James L. C. Ford, Ph.D. (Minnesota)

Donald G. Hileman, Ph.D. (Illinois)

Howard R. Long, Ph.D. (Missouri), *Chairman*

Marlan D. Nelson, A.M. (Stanford)

W. Manion Rice, A.M. (Missouri)

Courses in journalism leading to the Master of Arts, Master of Science, and Doctor of Philosophy degrees are offered by the Department of Journalism. Candidates for a master's degree must complete 48 hours of graduate work (half in professional journalism courses, the remainder in courses in the liberal arts) including a thesis demonstrating a capacity for investigation and independent thought.

Doctoral students take 36 hours of advanced journalism courses, 24 hours in each of three other approved related fields (above a bachelor's degree), write a dissertation, and meet all requirements of the Graduate School.

## MATHEMATICS

F. Gonzalez Asenjo, Ph.D. (La Plata)

Amos Black, Ph.D. (Cornell)

James R. Boen, Ph.D. (Illinois)

Leslie D. Gates, Jr., Ph.D. (Iowa State)

Dilla Hall, Ph.D. (St. Louis)

Morton R. Kenner, Ph.D. (Columbia)

Carl E. Langenhop, Ph.D. (Iowa State)

Paul E. Long, Ph.D. (Oklahoma State)

Abraham M. Mark, Ph.D. (Cornell)

Wilbur C. McDaniel, Ph.D. (Wisconsin)

Marian Moore, Ph.D. (Purdue)

John M. H. Olmsted, Ph.D. (Princeton),  
*Chairman*

Louis D. Rodabaugh, Ph.D. (Ohio State)

Michael Skalsky, D.N.Sc. (Gottingen)

Thomas H. Starks, Ph.D. (Virginia Poly-  
technic Institute)Joseph C. Wilson, Ph.D. (Louisiana  
State)

Graduate work in mathematics may be taken as a major or minor leading to the Master of Arts, Master of Science, or Master of Science in Education degree. For a major, the Master of Arts degree requires a thesis, and the Master of Science degree requires a special research paper. For both of these degrees there must be a "B" average in the major courses as well as a "B" average in all graduate work, and the candidate must demonstrate a reading knowledge of French, German, or Russian by passing a special examination given by the Department of Foreign Languages. Both written and oral comprehensive examinations are required.

## SPECIAL GRADUATE MINOR

A special group of graduate courses is offered for secondary school



teachers who did not take undergraduate majors in mathematics or who may have taken such majors some time ago. These courses may be taken for a minor by persons working for a Master of Science in Education degree with a major in secondary education, guidance, or educational administration and supervision. The purpose of these courses is to provide a modern viewpoint of the basic principles of algebra, geometry, calculus, and some of the fields of application. The courses which are offered for this special program include 440, 442, 541, 542, 544. It is planned to offer at least six hours of work on this program each summer so that a graduate minor may be completed in three summers.

### MICROBIOLOGY

Carl C. Lindegren, Ph.D. (California Institute of Technology), *Chairman*  
Dan O. McClary, Ph.D. (Washington University)

Maurice Ogur, Ph.D. (Columbia)  
Isaac L. Shechmeister, Ph.D. (California)

Graduate courses in microbiology may be taken as a major or minor leading to the Master of Arts and Master of Science degrees, or as a part of a biological sciences program leading to the Master of Arts, Master of Science, and Master of Science in Education degrees.

The Doctor of Philosophy degree in microbiology will be awarded to a candidate in recognition of achievement in independent research and in advanced studies. His original contribution to knowledge, evidenced in the dissertation, together with a superior comprehensive scholarship record and satisfactory completion of prescribed examinations are the criteria for the degree. Emphasis will be placed on his critical evaluation of and familiarity with the existent developments in microbiology and related areas of study.

The Department of Microbiology and the Biological Research Laboratory offer facilities for research in microbial genetics, cytology, radiation biology, physiology and biochemistry of microorganisms, medical microbiology, immunology, and virology. In addition to the library facilities, reprint collections covering many topics in microbiology are available for student use.

To be eligible for the doctoral degree, the student must satisfy the following requirements. (1) He must complete at least 144 hours of graduate work and research. Credit for research may not exceed sixty out of the 144 hours. (2) He must demonstrate his proficiency in statistics and his ability to read with reasonable facility scientific literature in two modern languages. (3) He must pass the qualifying examination and a final oral examination. (4) He must submit a dissertation based on his research.



A minor may be elected as part of a doctoral program in microbiology, subject to approval of the department, from courses in any program which constitute a major for the master's degree. A minor in microbiology for the doctorate in another biological science consists of general microbiology and twenty hours selected from courses offered and approved by the department.

## MUSIC

Steven Barwick, Ph.D. (Harvard)  
 Will Gay Bottje, A.Mus.D. (Rochester)  
 Fred H. Denker, Ph.D. (Rochester)  
 Carmine Ficocelli, M.Mus. (Indiana)  
 Robert Forman, Ed.D. (Florida)  
 Carol MacClintock, Ph.D. (Indiana)  
 Wesley Morgan, Ph.D. (Southern California)

Robert E. Mueller, Ph.D. (Indiana),  
*Chairman*  
 Phillip H. Olsson, M.M. (Chicago Conservatory)  
 Robert S. Resnick, M.M. (Wichita)  
 Charles C. Taylor, Ed.D. (Columbia)  
 William K. Taylor, M.Mus. (Indiana)  
 Robert E. Thomas, Ed.D. (Illinois)

Work may be taken toward the Master of Music and the Master of Music Education degrees.

The Master of Music degree is offered with specialization in music history-literature, theory-composition, and applied music.

Requirements are eighteen hours in the field of specialization; five to nine hours in 599 (thesis); 501; 502 (nine hours); plus sufficient elective hours in music to total forty-eight hours.

The Master of Music Education degree follows a similar pattern of course distribution: eighteen hours in the specialization area with a minimum of twelve hours in music education courses and a maximum of eight hours to be elected in professional education courses in consultation with the adviser; five to nine hours in 599 (thesis); 501; 502 (nine hours); plus sufficient elective hours in music to total forty-eight hours.

## PHILOSOPHY

George E. Axtelle, Dr. Ed. (California)  
 Luis A. Baralt, Ph.D. (Havana)  
 James A. Diefenbeck, Ph.D. (Harvard)  
 William Henry Harris, Ph.D. (Boston)  
 George T. McClure, Ph.D. (Ohio State)

Willis Moore, Ph.D. (California), *Chairman*  
 George Kimball Plochmann, Ph.D. (Chicago)  
 Charles D. Tenney, Ph.D. (Oregon)  
 Henry N. Wieman, Ph.D. (Harvard)

The Department of Philosophy offers graduate work leading to the Master of Arts degree. Graduate courses in philosophy may be used also as a minor in programs leading either to the Master of Arts or Master of

Science in Education degree. Many students, particularly those who do not plan to continue graduate work in philosophy beyond the master's level, are encouraged to elect a graduate minor or to combine philosophy with another subject in a sixty-hour double major.

Effective with the fall of 1962, candidates will be accepted for work toward the Doctor of Philosophy degree. Interested students should contact the departmental chairman for further details.

The department expects an applicant for admission to its graduate program to have had at least 24 hours in philosophy or closely related theoretical subjects. The chairman may waive a portion of this credit requirement in favor of maturity and of quality and breadth of academic experience. The applicant will be required to make up serious background deficiencies by taking appropriate undergraduate philosophy courses without credit.

The Department of Philosophy requires the candidate for a master's degree to present a thesis, for which 9 hours of credit are allowed. He must pass two examinations: a written examination covering all of the course work he is offering for the degree and an oral examination devoted chiefly to the thesis.

The department has available each year a number of assistantships for qualified graduate students. Applications for these assistantships should be sent to the department before April 1 of the scholastic year preceding that for which the application is made.

### PHYSICAL EDUCATION

Jay A. Bender, Ph.D. (Illinois)

L. Ralph Casey, Ed.D. (Columbia)

Dorothy Davies, Ed.D. (Cincinnati),

*Chairman*, Physical Education for

Women

Ronald G. Knowlton, Ph.D. (Illinois)

Edward J. Shea, Ph.D. (New York), *Chair-*

*man*, Physical Education for Men

James J. Wilkinson, P.E.D. (Indiana)

Helen Zimmerman, Ph.D. (Wisconsin)

Graduate courses in physical education may be taken as a major or minor toward the Master of Science in Education degree or the Doctor of Philosophy degree.

### MASTER'S DEGREE

The departmental requirements for unconditional admission as a master's degree candidate are

1. Fulfillment of the requirements for admission to the Graduate School;
2. Presentation of at least an undergraduate minor (preferably a major) in physical education;
3. Presentation of at least one undergraduate course in anatomy or

kinesiology and at least one in educational psychology or psychology of the particular field of the student's specialty (such as adolescent psychology); and

4. Possession of the ability to teach and demonstrate an acceptable variety of physical education activity skills and techniques.

A student may be conditionally admitted to the program and be permitted to start graduate course work while he fulfills the above requirements.

Physical education courses required of all majors and minors are 500, 501, 502, 503, and 504. Certain other courses may be required to remedy weakness in a student's background preparation.

There are two major programs and one minor program in physical education:

*A major in physical education with a minor in a related field*

This program is made up of 20 to 31 hours of required courses in physical education, 1 to 12 hours of elective courses in physical education, and 16 hours in a minor area related to physical education.

*A major in physical education with no minor*

In this program the student takes 20 to 31 hours of required courses in physical education, 1 to 12 hours of elective courses in physical education, and 16 hours in several fields related to physical education, with no attempt being made to achieve a minor in any one field.

*A minor in physical education*

Students majoring in a related area may minor in physical education. The minor consists of 16 hours, including 501, 502, and 503. For students who have not had adequate courses in tests and measurements and in principles of physical education, 400 and 406 are also required.

#### DOCTORAL DEGREE

The departmental qualifications for admission to advanced graduate study are

1. Fulfillment of the requirements of the Graduate School;
2. Presentation of professional course work equivalent to Southern Illinois University's undergraduate and master's program in physical education; and
3. Presentation of at least one course in anatomy and one in physiology.

A student may be permitted to start on advanced graduate work while making up deficiencies.

Three years of full-time graduate study after obtaining a bachelor's

degree or two years of full-time graduate study after a master's degree (or its equivalent) constitute the minimum requirement for the doctorate. The student and his adviser will determine a pattern of course work to equip the student in physical education and its allied fields, foundations of education, cultural courses outside the area of education, and for independent research.

The program of studies beyond the master's degree must include a minimum of 96 hours of approved graduate courses of which 60 hours must be in courses on the 500 level. Of these, 36 must be in Dissertation 600. Any dissertation credit beyond 36 hours may not be included as part of the 96-hour requirement. Additional course work beyond the 96 hours may be required to insure professional competence and broad cultural knowledge.

Competence in two foreign languages, the selection of which shall be approved by his adviser, or in one foreign language and statistics (similarly approved) is required of the student.

The procedure for beginning a program of study leading to a Ph.D. degree is as follows:

1. Submit an application for admission, with transcript or transcripts, to the Admission Office.

2. Submit a transcript to the Department of Physical Education.

3. Present acceptable professional recommendations to the Departments of Physical Education. If the transcript and recommendations are acceptable, the departments will appoint an adviser for the student.

4. Initiate a meeting with the appointed adviser to work out a program of study.

## *PHYSICS*

Martin Joseph Arvin, Ph.D. (Illinois)

Richard L. Linster, Ph.D. (Illinois)

Charles J. Brasefield, Ph.D. (Princeton),

George A. Russell, Ph.D. (Illinois)

*Chairman*

Richard Elvis Watson, Ph.D. (Illinois)

John A. Eisele, Ph.D. (Ohio State)

Otis B. Young, Ph.D. (Illinois)

Graduate work in physics may be taken as a major or minor leading to the Master of Arts or Master of Science degree, or as part of a physical sciences program toward the Master of Arts, Master of Science, or Master of Science in Education degree. Research is in progress in solid-state physics, in cosmic rays, in theoretical nuclear physics, and in nuclear spectroscopy.

Each candidate for a master's degree in physics must take 501, 502, and 503 and write a thesis in one of the fields of research mentioned above. The remaining 24 hours of required graduate credit will be ob-



tained by completing certain of the following electives, at least two of which must be in physics: 405, 414, 450, 520; Mathematics 452, 453, 454, 480, 481, 555, 556.

Required courses for the physical sciences program are 405, 414, and 420 which have as prerequisites 305, 306, and 314.

### PHYSIOLOGY

Frank J. Finamore, Ph.D. (Florida State)    Harold M. Kaplan, Ph.D. (Harvard),  
George H. Gass, Ph.D. (Ohio State)        *Chairman*

Graduate courses in physiology may be taken as a major toward the Master of Arts, Master of Science, Master of Science in Education, and Doctor of Philosophy degrees, and as a minor toward the Master of Arts and Master of Science degrees.

The graduate prerequisites at the master's level include the equivalent of an undergraduate major in biological sciences plus inorganic, analytic, and organic chemistry and a minimum of one full year each of physics and mathematics.

For a master's degree in physiology, a student must ordinarily work two years and present an acceptable thesis based upon original investigation. Equivalent work completed elsewhere can be accepted in part.

Courses should be elected from other departments such that a major of about 32 hours and a minor of about 16 hours are attained. Because of the rising importance of biochemical and biophysical knowledge to physiology, students are urged to select their minors in those areas. Other biological sciences are also acceptable.

Training is provided in cellular, comparative, and mammalian physiology. Because of this trichotomy, entering students are urged first to obtain a basic knowledge of the whole field and then to specialize in one of the three areas after being advised by their major professor in conjunction with the chairman of the department.

### PLANT INDUSTRIES

A. B. Caster, Ph.D. (Arizona), *Chairman*    H. L. Portz, Ph.D. (Illinois)  
I. G. Hillyer, Ph.D. (Michigan State)        L. V. Sherwood, Ph.D. (Illinois)  
J. F. Kelley, Ph.D. (Wisconsin)            L. R. Tucker, Ph.D. (Massachusetts)  
J. B. Mowry, Ph.D. (Rutgers)              J. P. Vavra, Ph.D. (Purdue)

Graduate courses in plant industries may be taken for a major or a minor leading to the Master of Science degree.

The Master of Science degree can be earned in the Department of



Plant Industries in the general fields of soils, field crops, and horticulture.

It is customary to require supporting courses in botany, microbiology, chemistry, statistics, and other areas deemed essential for an intelligent approach to a problem in the student's chosen field. Once the general field has been selected, the research and thesis may be completed in any one of the many divisions of that field. In horticulture, for example, the research and thesis may be in olericulture, floriculture, landscaping, or pomology; in soils the problem may relate to fertility, soil physics, soil microbiology, or soil conservation; in field crops the problem may be directed toward weeds, grains, forages, or specialty crops. Often a problem can combine study in two of these more restricted divisions.

An oral examination over all graduate work and the submission of a thesis are required of each candidate for the degree.

Graduates earning the Master of Science degree in plant industries are in demand as technical specialists and sales executives for feed, seed, and fertilizer firms directly serving the farmer, in government agencies such as the Soil Conservation Service or the Food and Drug Administration, and in a continuation of graduate programs.

For additional information concerning programs and assistantships write to the Chairman, Department of Plant Industries.

## PSYCHOLOGY

Sheldon Alexander, Ph.D. (Rochester)	John G. Martire, Ph.D. (Michigan)
Dee G. Appley, Ph.D. (Michigan)	James H. McHose, Ph.D. (Iowa)
Mortimer H. Appley, Ph.D. (Michigan), Chairman	Janet Rafferty, Ph.D. (Ohio State)
Nathan H. Azrin, Ph.D. (Harvard)	Guy A. Renzaglia, Ph.D. (Minnesota)
Neil A. Carrier, Ph.D. (Michigan)	Donald J. Shoemaker, Ph.D. (Ohio State)
Ernest J. Doleys, Ph.D. (Missouri)	Robert C. Steck, M.D. (Illinois)
William Gerler, Ph.D. (Illinois)	Bonnie B. Tyler, Ph.D. (Ohio State)
Jack W. Graham, Ph.D. (Purdue)	Forrest B. Tyler, Ph.D. (Ohio State)
Peter Hemingway, Ph.D. (Michigan State)	William Wagman, M.A. (Columbia)
Noble H. Kelley, Ph.D. (Iowa)	William C. Westberg, Ph.D. (Pennsyl- vania State)
Alfred Lit, Ph.D. (Columbia)	

The Department of Psychology offers graduate work leading to the Master of Arts, Master of Science, and Doctor of Philosophy degrees.

Doctoral programs are offered in general psychology and in the professional specialty areas of clinical psychology, counseling psychology, and industrial psychology. The Master of Arts and Master of Science degrees are normally awarded upon the successful completion of two years of study. A minimum of four years beyond the bachelor's degree is ordinarily required for the Ph.D. degree.

In addition to approved programs of study, doctoral students in the clinical, counseling, and industrial areas must complete the equivalent of a full-time academic year of internship in an agency approved by the department. Doctoral students in general psychology have an equivalent period of experience in teaching or research.

Minor programs may be worked out in all areas in which specialization is offered, provided that the candidate presents suitable preparation for the level of work to be undertaken.

No student will be accepted for graduate work in the department without prior application to and approval by the departmental admissions committee as well as the University's Admissions Office. Departmental application forms and information concerning fellowships and assistantships may be obtained from the Chairman, Department of Psychology.

### RECREATION AND OUTDOOR EDUCATION

William H. Freeberg, D.Rec. (Indiana), William E. O'Brien, M.S. in P.Ed. (Indiana)  
*Chairman*  
Loren E. Taylor, Ed.D. (Columbia)

The graduate major curriculum in recreation and outdoor education is designed to meet the needs of (1) administrators and supervisors who wish to extend their professional competencies, (2) leaders and group workers already employed, especially those who seek to qualify for advancement, and (3) graduate students with undergraduate preparation in recreation or closely related fields who wish to prepare themselves for higher roles in recreation.

The graduate program consists of a core curriculum of 20 hours selected from 450, 480, 510, 520, 530, 540. Educational Administration and Supervision 500 or an equivalent research course in an area of specialization, such as Sociology 513, is required. A thesis is optional but is encouraged.

The graduate program is divided into four areas of specialization, and there are 32 hours of required courses.

1. School Recreation and Outdoor Education. Required courses: 450, 480, 510, 520, 530, 540, 550, 560, Educational Administration and Supervision 539. It is recommended that a minor be selected from one of the following fields: educational administration, guidance, health education, physical education, psychology, sociology, or a related field.

2. Community Recreation. Required courses: 450, 480, 520, 530, 540, 550, 560, Geography 470, and Sociology 486. It is recommended that a minor be selected from one of the following fields: sociology, government, conservation, forestry, education, or community development.

3. Agency, Church, and Youth Organization Work. Required courses: 450, 520, 530, 540, 550, 560, Sociology 481, 489, 511. It is recommended that a minor be selected from one of the following fields: sociology, guidance, physical education, educational administration, or a related field.

4. Recreation for the Ill and Handicapped (Hospital and Institution). Required courses: 450, 480, 520, 530, 540, 550, 560, Special Education 413, 417, 574. It is recommended that a minor be selected from one of the following fields: special education, rehabilitation, sociology, guidance, health education, psychology, or instructional materials.

To supplement the recreation leadership curriculum, selected courses from related fields are recommended: Educational Administration and Supervision 500, 539, Guidance 420, Government 467, Sociology 407, 481, 486, 511, Special Education 413, 417, 574.

The graduate minor in recreation consists of a minimum of sixteen hours from the recreation curriculum including 450 and 520.

A special course of study is designed for teachers and school administrators and church leaders who are primarily interested in the outdoor education program.

### REHABILITATION

Nathan H. Azrin, Ph.D. (Harvard)  
E. C. Cline, Ph.D. (Cincinnati)

Ernest J. Doleys, Ph.D. (Missouri)  
Guy A. Renzaglia, Ph.D. (Minnesota)  
Albert J. Shafter, Ph.D. (Iowa State)

### REHABILITATION COUNSELING

The graduate program in rehabilitation counseling is a two-year program leading to a Master of Arts or Master of Science degree. A minimum of 72 hours is required for graduation, and the Master of Arts degree requires a thesis.

The curriculum is flexible so that it may be adapted to the trainee's previous training and experience and to his future occupational interests. The curriculum includes course work, practicum, and field work.

Course work includes required courses, required equivalents, and electives. Required courses must be taken in the departments designated to offer them. Required equivalents are courses that must be taken, but the trainee may select the department. For example, the required courses in methodology may be taken in guidance, psychology, sociology, or special education. Electives are selected on the basis of conferences with the trainee and his adviser. Course work is taken in the departments of guidance, physiology, psychology, sociology, special education, and speech correction. A central core of courses in counseling and rehabilitation integrates the offerings of these departments.

The program is orientated toward developing competency in eleven general areas. Suggested courses for satisfying the requirements in each area are listed below.

*Introduction and Legislative Aspects of Rehabilitation.* Sociology 480; Government 438

*Human Development and Behavior.* Psychology 431, 440, 451; Sociology 426

*Medical Aspect of Rehabilitation.* Physiology 455

*Cultural and Psycho-Social Aspects of Disability.* Special Education 410, 571, 572

*Psychological Evaluation.* Psychology 421, 541, 542, 543, 544, 545, 546; Guidance 422, 522, 535; Special Education 573

*Counseling Theory and Practice.* Guidance 537, 575A; Psychology 536, 537, 593N

*Occupation and Education Information.* Guidance 481, 541

*Community Resources.* Sociology 481, 482

*Placement and Follow-up.* Guidance 573; Psychology 573

*Research and Statistics.* Guidance 420, 520, 521; Mathematics 410, 411, 412; Psychology 420, 520, 521, 522; Sociology 511, 513, 514

*Pre-counseling Experience.* Guidance 574; Psychology 593M

An integral part of the training for rehabilitation counseling includes agency orientation, practicum, and field work experiences. Trainees receive concurrent assignments in these areas along with their course work throughout their two-year programs. In addition, each trainee receives a three-month training assignment in the field.

In general, first-year student activity is directed toward orientation and pre-counseling experiences, second-year activity toward practicum experiences in counseling. The general plan follows:

#### *First Year*

1. ORIENTATION. Leaders in rehabilitation are brought to the campus to present papers and confer with both students and staff. Efforts are made to have at least one consultant per month. In addition, trips are arranged to various rehabilitation settings to observe clients, staff, techniques, and physical facilities. These settings include medical rehabilitation centers, mental hospitals, schools for the retarded, and prisons.

2. PRE-COUNSELING. Prior to actual counseling work, students work under supervision in several different settings such as (1) participation in the annual interview of Division of Vocational Rehabilitation clients on campus, (2) assignments in the Co-ordinated Services for Handicapped Students, (3) a three-month period of orientation and field work with the Rehabilitation Department of Anna State Hospital, and (4) part-time practicum with the local Division of Vocational Rehabilitation office.



*Second Year*

COUNSELING. This includes an assigned and supervised case load of individuals who have sought counseling or who are clients of the Co-operative Clinical Services Center.

*Summer Work*

Each student is required to complete a training assignment in an approved rehabilitation setting under supervision. This may be done in such facilities as a state mental hospital, a community agency for the blind, a tuberculosis sanitarium, a summer camp for handicapped persons, a state penitentiary, a local office of the Division of Vocational Rehabilitation, or a rehabilitation center.

## REHABILITATION ADMINISTRATION

The graduate program in rehabilitation administration is a 48-hour program leading to the Master of Science degree. In general, the curriculum is a modification of the rehabilitation counseling program with less emphasis on counseling and testing. Departments offering courses which are utilized include guidance, physiology, psychology, sociology, special education, and speech correction. Since the program is directed toward persons who have had considerable experience in the field, those courses listed in the rehabilitation counseling program will serve as a guide in preparing a final selection of course work for each student. Moreover, equivalent courses may be substituted. In addition to the suggested core courses, students may be encouraged to take work in journalism, secretarial and business education, or speech. In every case, the following requirements apply:

1. The completion of 48 graduate hours. Academic work shall lead toward a general knowledge of medical and paramedical terminology and practice, fundamentals in counseling, community resources and organization, allied professions, occupational information, methodology, administration and supervision, and current concepts relating to rehabilitation theory and practice.
2. A thesis, or a research paper of equivalent standard.
3. Three to six months of satisfactory, supervised experience in an approved rehabilitation setting may be required after the major portion of the course work has been completed. Satisfactory, supervised experience is defined as employment in a rehabilitation setting under the direction of a person of competent and certified experience.

In every case, the student's program will be based on previous experience and occupational goals. Programs will be approved by a graduate



supervisory committee, acting under policies established by the Rehabilitation Institute and the Graduate School.

### SECONDARY EDUCATION

Raymond H. Dey, Ed.D. (Washington University)

Claude J. Dykhous, Ph.D. (Michigan)

Troy W. Edwards, Ed.D. (Indiana)

R. Jean Fligor, Ph.D. (Michigan State)

Clarence D. Samford, Ph.D. (New York),  
*Chairman*

Work in this department may be taken toward the Master of Science in Education degree and the Doctor of Philosophy degree. It is intended for those who expect to become teachers or to work in other capacities in the secondary school. Work in this department may be taken toward the Specialist's Certificate.

A program consisting of forty-eight hours of work for the master's degree will be arranged jointly by the Department of Secondary Education and the subject matter area department in which the student plans to teach. A student's undergraduate record, experience, and future plans will be taken into account in determining the number of courses in secondary education and subject matter to be taken. The same procedure will be followed for those who plan to pursue administrative or supervisory duties in the secondary school. Appropriate elective courses will be found for those individuals who plan to work in junior colleges or other post-high-school situations.

It is assumed that the future plans of candidates seeking the Doctor of Philosophy degree will involve one or more of the following areas: administration of a secondary school, supervision of selected area(s) in a secondary school, or the teaching of courses in education in a teacher-training institution, directing the student teaching program and/or student teachers in a secondary education laboratory school.

Those who work toward the doctor's degree will be guided by the following:

Required courses: 36-48 hours of dissertation; 508, 550, 562, 564, 580; Guidance 562. If identical or equivalent courses have not been previously taken, guided electives will be substituted.

Guided electives, to complete 96 hours with preference being given to the following: 16-32 hours of a subject field commonly taught in secondary school; Higher Education, 579, 581, 582, 583; Educational Administration and Supervision 431, 460, 503, 539, 554, and 556; 12 hours of educational psychology and guidance including Guidance 551 and 562.

A minor is available on the doctoral level in all areas where a major

is available on the master's level. A student is to select his minor only with the approval of his doctoral advisory committee.

### SECRETARIAL AND BUSINESS EDUCATION

Harry B. Bauernfeind, M.A. (Northwestern)

Van A. Buboltz, M.A. (Northwestern)

Viola M. DuFrain, Ph.D. (Chicago)

Bonnie A. Lockwood, Ph.D. (Pittsburgh)

Harves Rahe, Ed.D. (Indiana), *Chairman*

Leonard J. West, Ph.D. (Columbia)

Graduate courses in business teacher education may be taken as a major or minor in the Department of Secretarial and Business Education leading to the Master of Science in Education degree. The program in business teacher education consists of a minimum of 48 hours of course work distributed as follows:

1. 18-24 hours in business teacher education courses;
2. 12-18 hours in other School of Business courses;
3. 8-16 hours in College of Education courses; and
4. 3-12 hours of approved electives.

The graduate program is planned for those students who have an adequate subject-matter and professional-education background in at least one of the following business teaching areas: (1) secretarial, (2) general business, (3) bookkeeping and accounting, or (4) distributive education. Deficiencies in background, if any, must be eliminated by taking appropriate courses.

The graduate program is aimed at upgrading and making more proficient those individuals who have already met or surpassed the minimum requirements for teaching business subjects in the high schools of Illinois. The dual purpose of the program is to provide advanced professional education in business teaching fields and to develop competence in utilizing research findings in the field. In keeping with the general requirements of the Graduate School, each student is required to write a research paper. Those who have special interest and ability in research or who expect to go on to advanced graduate study are encouraged to write a thesis.

Graduate courses in business teacher education also may be taken as a part of a graduate program in the Department of Secondary Education leading to the Master of Science in Education degree.

### SOCIOLOGY

Melvin S. Brooks, Ph.D. (Wisconsin)

Paul J. Campisi, Ph.D. (Chicago), *Chairman*

Richard C. Franklin, Ed.D. (Columbia)

Joseph K. Johnson, Ph.D. (Washington University)

Herman R. Lantz, Ph.D. (Ohio State)	Eloise C. Snyder, Ph.D. (Pennsylvania State)
Peter A. Munch, Ph.D. (Oslo)	George M. Stabler, Ph.D. (Michigan State)
Louis Petroff, Ph.D. (Southern California)	William J. Tudor, Ph.D. (Iowa State)
Richard W. Poston, B.A. (Montana)	James D. Turner, Ph.D. (Indiana)
Douglas L. Rennie, Ph.D. (Yale)	Ronald Vander Wiel, M.S.W. (Washington University)
A. J. Shafter, Ph.D. (Iowa State)	
Charles R. Snyder, Ph.D. (Yale)	

The Department of Sociology offers major and minor programs for the Master of Arts, Master of Science, and Doctor of Philosophy degrees. Graduate courses in sociology may also be applied against the requirements of the social studies program.

Detailed statements of specific departmental requirements for the Master of Arts and the Doctor of Philosophy degrees are available upon request.

### SPECIAL EDUCATION

Roger M. Frey, Ed.D. (Illinois)	B. E. McKay, Ph.D. (Syracuse)
O. P. Kolstoe, Ph.D. (Iowa), <i>Chairman</i>	Dan Rainey, M.S.Ed. (Southern Illinois)
	Marjorie Stull, M.S.Ed. (Southern Illinois)

Graduate majors in the Department of Special Education are available in specific areas of exceptionality. These majors meet state requirements for certification. For selected individuals, graduate majors are available also in the fields of supervision and administration. Desirable background courses are those offered in psychology, guidance, sociology, and speech correction. Each prospective student should consult the chairman of the department prior to outlining a course of study to be followed. A major in this department leads to the Master of Science in Education degree.

No particular group of courses is listed for the major in special education, since each student must specialize in one particular area, such as deaf and hard of hearing. Among the more general courses which majors in special education will take, however, are these in the Department of Special Education: 413, 414, 428, 513, 577. Other courses will be selected by the student and his adviser, according to the area of specialization.

### SPEECH

A. Craig Baird, M.A. (Columbia)	Cameron W. Garbutt, Ph.D. (Louisiana State)
Earl E. Bradley, Ph.D. (Northwestern)	Ralph A. Micken, Ph.D. (Northwestern), <i>Chairman</i>
Lester R. Breniman, Ph.D. (Ohio State)	David Potter, Ph.D. (Columbia)
William E. Buys, Ph.D. (Wisconsin)	C. Horton Talley, Ph.D. (Iowa)
Marion L. Davis, Ph.D. (Wisconsin)	

Graduate courses are offered in speech with a major or minor in general speech (rhetoric and public address, or interpretation) toward the Master of Arts, Master of Science, and Doctor of Philosophy degrees. Graduate courses in all fields of speech may be taken as a major or minor leading to the Master of Science in Education degree.

A minor is available on the doctoral level in all areas where a major is available on the master's level. A student is to select his minor only with the approval of his doctoral advisory committee.

### SPEECH CORRECTION

John O. Anderson, Ph.D. (Ohio State)	Gene Jerome Brutten, Ph.D. (Illinois)
Chester J. Atkinson, Ph.D. (Ohio State)	Hugo H. Gregory, Ph.D. (Northwestern)
I. P. Brackett, Ph.D. (Northwestern),	Michael S. Hoshiko, Ph.D. (Purdue)
<i>Chairman</i>	Herbert Koepp-Baker, Ph.D. (Iowa)

Speech correction, pathology, and audiology is an area which has as its objective the training of qualified personnel to work with people handicapped in either speech or hearing. Course work in this area leads to certification as a speech therapist in the public schools in Illinois and meets basic membership requirements in the American Speech and Hearing Association.

Graduate courses in the Department of Speech Correction may be taken as a major leading to the Master of Arts, Master of Science in Education, Master of Science, and Doctor of Philosophy degrees.

### THEATER

Sherwin F. Abrams, Ph.D. (Wisconsin)	Christian H. Moe, Ph.D. (Cornell)
Mordecai Gorelik	Charles W. Zoeckler, B.A. (West Virginia)
Archibald McLeod, Ph.D. (Cornell),	
<i>Chairman</i>	

The Department of Theater offers courses leading to the Master of Arts, Master of Science, and Master of Science in Education degrees. The candidate is expected to plan his program in consultation with the chairman of the department. Each candidate will do a thesis or its equivalent (a thesis production, for example) under the supervision of the chairman of his advisory committee appointed from the department. Graduate courses in theater may be taken as a minor leading to the Ph.D. in speech.

An undergraduate major in theater is not essential for admission to candidacy for a graduate degree. A student with an undergraduate major



in speech or English, for instance, may "audit" undergraduate courses in theater to make up any deficiencies.

Graduate students are urged to supplement their class work with practical experiences in acting and production: membership in the Southern Players is open to graduate students, and they may also earn graduate course credit as members of the Southern Touring Company and the Summer Stock Company.

## TRANSPORTATION

A Master of Science degree in transportation is available through the Transportation Institute in co-operation with the School of Business. Courses are selected from several departments of the University with consideration given to the student's specialized interest and education. Certain courses in transportation and traffic management are required.

## ZOOLOGY

Richard E. Blackwelder, Ph.D. (Stanford)	George Garoian, Ph.D. (Illinois)
John W. Crenshaw, Jr., Ph.D. (Florida)	Willard M. Gersbacher, Ph.D. (Illinois)
John C. Downey, Ph.D. (California)	W. D. Klimstra, Ph.D. (Iowa State)
Harvey I. Fisher, Ph.D. (California), <i>Chairman</i>	Richard R. Kudo, D.Sc. (Tokyo)
Charles L. Foote, Ph.D. (Iowa)	William M. Lewis, Ph.D. (Iowa State)
Edwin C. Galbreath, Ph.D. (Kansas)	Howard J. Stains, Ph.D. (Kansas)

Graduate work in zoology may be taken as a major or a minor toward the Master of Arts, Master of Science, and Doctor of Philosophy degrees and as part of a program in biological sciences toward the Master of Science and Master of Science in Education degrees.

Candidates for the Master of Science and Master of Arts degrees must have the consent of the department and at least thirty-five hours of undergraduate credit in zoology equivalent to 100, 102, 103, 202, 300, 401, and one of the following courses: 303, 306, 335, 408, 461, 465. Further required undergraduate work includes one year of chemistry, one year of botany, two quarters of physics, and one year of, or demonstrated proficiency in, a foreign language. Deficiencies in undergraduate preparation may be removed concurrently with graduate work.

Completion of work for the Master of Science and Master of Arts degrees requires, in addition to the general requirements of the Graduate School, an approved thesis, Zoology 581, and continuous registration in Zoology 582. A minor outside the department is recommended.



In addition to the above requirements for the master's degree, the Doctor of Philosophy degree requires organic chemistry, animal physiology, experience in marine ecology, and demonstrated proficiency in statistics and two foreign languages.

## EDWARDSVILLE UNITS

A program of graduate study is available at the Alton and East St. Louis campuses of Southern Illinois University. Early in 1961 there were 109 faculty members, approved to teach an aggregate of 271 graduate courses at these campuses. Of those courses, 71 were in education, 138 in liberal arts, 23 in business, and 39 in fine arts. Further increases in graduate staff and courses are anticipated.

The fields in which major study may be pursued are educational administration and supervision, elementary education, guidance, secondary education, and special education. Graduate minors are available in most business, fine arts, and liberal arts fields, as well as in the education areas.

Graduate advisers are available at Alton and East St. Louis for all of the major fields in education listed above. Each student seeking a master's degree in any of these fields must work out an approved master's program with the appropriate adviser. There are advisers, also, in some of the non-education fields at Alton and East St. Louis, who can advise students in their particular subject fields. These advisers keep close liaison with their counterparts at Carbondale to assure that the courses on a student's program will be suitable ones. All programs culminating in a degree conferred at Carbondale must have approval of the major department there.

Graduate courses taken on any campus of Southern Illinois University may be used for degree-earning purposes at any other campus, but the courses must be ones which the major adviser has approved for a student's program of study leading toward a graduate degree. Non-education graduate students are basically enrolled at Carbondale and have a major adviser there, but they may take part of their work toward a graduate degree or toward a sixth-year specialist's certificate at Alton or East St. Louis, provided that the particular courses needed are available at the latter places and that they have been authorized for the student's program by his adviser. Students who major in non-education fields at present must expect to take a substantial part of their graduate work at Carbondale. Their graduate records are kept at Carbondale, and their thesis work and oral examinations are cared for at that campus.

*BUSINESS DIVISION*

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|---|--|
| Walter L. Blackledge, Ph.D. (Iowa)            | Norbert V. Schmitt, M.S. in C. (St. Louis) |
| Mary M. Brady, Ed.D. (New York)               | Joe R. Small, M.B.A. (Kansas)              |
| Leo Cohen, Ph.D. (California)                 | Thomas E. Van Dahm, Ph.D. (Michigan)       |
| John J. Glynn, Ph.D. (St. Louis), <i>Head</i> | Clarence E. Vincent, D.B.A. (Indiana)      |
| Richard J. Milles, M.S. in C. (St. Louis)     | Dimitter E. Wassen, D.P.Ec. (Vienna)       |

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| Evelyn T. Buddemeyer, B.S. in Ed. (Central Missouri State) | Assen D. Kreteff, Ph.D. (Munich)                |
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| Regan Carpenter, Ed.D. (Colorado)                  | Norman E. Showers, M.S. (Southern California) |
| Alfred D. Curry, M.Ed. (Missouri)                  | Richard D. Spear, H.S.D. (Indiana)            |
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| Frank L. Eversull, Ph.D. (Yale)                    | Lawrence E. Taliana, Ph.D. (Purdue)           |
| Betty Jo Kelley, M.S. in Ed. (Southern Illinois)   | Raymond E. Troyer, Ph.D. (Chicago)            |
| Alfred E. Kuenzli, Ed.D. (Indiana)                 | Mark M. Tucker, Ed.D. (California)            |
| Cameron W. Meredith, Ph.D. (Michigan), <i>Head</i> | Leonard B. Wheat, Ph.D. (Columbia)            |

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William C. Shaw, Ph.D. (Iowa State)  
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Jesse E. White, Ph.D. (Indiana)  
Frederick W. Zurheide, M.S. (Southern  
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Philip E. Vogel, Ph.D. (Nebraska)

# Course Descriptions

THIS CHAPTER contains the descriptions of courses offered by the University on the graduate level. Graduate courses are in three categories:

1. Courses numbered 400 to 499 are open to both seniors and graduate students. Seniors who wish to receive graduate credit for a 400 course during their last term of undergraduate study must apply for admission to the Graduate School and must obtain, at the time of registration, the approval of the instructor and the dean of the Graduate School; and the instructor must indicate on the class card which is submitted to the Registrar at the end of the term that the student has earned graduate credit in the course.

2. Courses numbered 500 to 599 are open only to graduate students. Undergraduates of advanced senior standing who are within sixteen hours of graduation and who have applied to the Graduate School may take 500-level courses for graduate credit during the last term of undergraduate study.

3. The course numbered 600 represents work on the doctoral dissertation.

Courses are listed below by departments, as they are offered at Carbondale. At the Edwardsville campuses they are offered, in part, by the divisions. The fact that these courses are listed does not mean that all of them are available on both campuses of the University, or that they are offered each year.

Information concerning when and where the courses are available appears in the following issues of the *Southern Illinois University Bulletin*: Schedule of Classes (Carbondale), Schedule of Classes (Edwardsville), and Summer Session (Carbondale). Copies may be obtained from General Publications, Southern Illinois University, Carbondale, Illinois.

## ACCOUNTING

410-4. SURVEY OF ACCOUNTING. To permit non-accounting majors and

teachers to study advanced accounting from the standpoint of its usefulness in controlling and administering an enterprise. Critical analysis of reports, statements, and other accounting data but with little attention given to accounting techniques used in collecting and reporting such information. Prerequisite: 250 or 253 or equivalent. Not open to accounting majors.

- 432-4. PROBLEMS IN FEDERAL TAXATION. Income tax problems which arise from partnership, corporation, estate, and trust types of organization. Federal estate and gift taxes. Student does research in source materials in arriving at solutions to complicated tax problems. Prerequisite: 331.
- 442-4. ADVANCED COST ACCOUNTING. Standard costs and distribution costs. Special problems in cost accounting, including joint product, by-product, and capacity costs. Prerequisite: 341.
- 458-4. ACCOUNTING SYSTEMS. Problems in accounting systems design and installation. Examination of existing systems and practice in system design. Prerequisites: 341, 352.
- 459-4. INTERNSHIP IN ACCOUNTING. Supervised work experience in professional accounting. Prerequisite: outstanding record in accounting and recommendation of the committee on internship.
- 461-4. CPA AND ADVANCED ACCOUNTING PROBLEMS. A study of the knowledge and techniques required for solving problems from the uniform examinations sponsored by the American Institute of Certified Public Accountants. Some problems also drawn from other sources. Prerequisites: 341, 352.
- 500-2 to 5. READINGS IN ACCOUNTING. Directed readings on selected topics in the accounting field.
- 501-2 to 5. INDIVIDUAL RESEARCH IN ACCOUNTING. Directed research in selected areas of accounting.
- 550-4. ACCOUNTING THEORY. Contemporary advanced accounting theory, including controversial issues with emphasis on net income determinations and asset valuation. Particular attention given to current publications of the profession and governmental agencies. Prerequisite: 352 or 410 or equivalent.
- 557-4. ADVANCED AUDITING. A study of more advanced auditing procedures applicable to medium and large scale businesses. Careful attention is given to auditing standards as outlined by the American Institute of Certified Public Accountants, and the rulings of governmental agencies, such as the Securities and Exchange Commission. The case method is utilized extensively. Prerequisite: 356 or consent of instructor.
- 562-4. CERTIFIED PUBLIC ACCOUNTING AND ADVANCED ACCOUNTING PROBLEMS II. A problems course including some highly technical Certified Public Accountant examination problems not studied in undergraduate courses.
- 565-4. CONTROLLERSHIP. A study of the function of controllership in a business organization. Includes an analysis of the duties and responsibilities of a controller, in his capacity as the chief accounting executive of a firm. Attention is given to the contribution of a controller to effective planning, co-ordination, and control through accounting. Prerequisites: 341 and 352 or consent of instructor.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.



## AGRICULTURAL INDUSTRIES

- 410-2 to 4. PROBLEMS IN AGRICULTURAL SERVICES. Discussion, assignments, and special workshops on problems related to in-service training programs in the agriculturally related fields. Development of more effective programs in working with farm people. Prerequisite: graduate student in agricultural services or consent of instructor.
- 411-3. AGRICULTURAL EXTENSION. A study of the history, organization, objectives, programs, and methods of agricultural extension work. Prerequisites: Journalism 393 and a course in psychology or sociology or consent of instructor.
- 414-4. AGRICULTURAL PROBLEMS AND POLICIES. Recognition of agricultural problems and their origins. Attempts to solve them. Prerequisites: Economics 205 and consent of instructor.
- 450-4. ADVANCED FARM MANAGEMENT. Methods of analyzing farm enterprises, comparing farm enterprises, comparing farm businesses, allocating farm resources, combinations of enterprises, and production factors. Prerequisite: 350. Field trips cost about \$5.
- 452-4. AGRICULTURAL PRICES. Fluctuation in the general price level, causes and stabilization policies as they affect agricultural prices. Price determination including the measurement of supply and demand, elasticity, and the theory of price stabilization as applied to agriculture. Prerequisites: Economics 205 and consent of instructor.
- 456-3. AGRICULTURAL CO-OPERATIVES. (Agricultural Marketing I.) Development of the agricultural co-operative movement, agricultural co-operative organization, legal requirements, principles and practices of agricultural co-operative associations. Prerequisites: 354, Economics 205, or consent of instructor.
- 457-4. LIVESTOCK MARKETING. (Agricultural Marketing II.) Problems and their solutions in marketing livestock. Field trip to market center to observe operating problems costs about \$5. Prerequisites: 354, Economics 205, or consent of instructor.
- 458-4. GRADING AND MARKETING OF FIELD CROPS. (Agricultural Marketing III.) Grading and marketing factors affecting the quality of grain and hay crops; standards employed in their classification and grading in the commercial markets; laboratory practices in grading; economic problems and market operations in marketing field crops. Field trips to commercial grain-grading laboratory and marketing center cost about \$5. Prerequisites: 354, Economics 205, Plant Industries 209, or consent of instructor.
- 471-4. LAND RESOURCE ECONOMICS. (Same as Forestry 471 and Economics 471.) The use of land as an economic variable in production of goods and services; land markets; group versus individual conflicts; elementary land resources planning techniques. Field trips cost about \$5. Prerequisite: Economics 205, 206, or Forestry 470.
- 473-4. MATERIALS HANDLING. A study of different systems for handling materials on the farm. Use of air, conveyors, and water to move products. Components of successful systems for storing and using products on the

- farm. Planning of buildings and equipment to be most effective. Economic problems in establishing various types of materials handling systems. Required field trips cost about \$5. Prerequisites: 350 and 215 or 373.
- 520-1 to 6. READINGS. Contemporary books and periodicals on selected areas of the field.
- 520b-1 to 6. READINGS IN RESOURCE ECONOMICS. (Same as Forestry 520b and Economics 502.) Directed reading in the field of natural resource economics.
- 550-4. PRODUCTION MANAGEMENT. A study of the principles of production economics upon which problems in agricultural production and resource use can be analyzed. Emphasis on principles applicable to the farm business and to farm policy, including concepts relating to the decision-making process and farm planning under perfect and imperfect knowledge and with limited resources. Prerequisites: 12 hours equivalent in economics and agricultural economics and consent of instructor.
- 554-4. ADVANCED AGRICULTURAL MARKETING. Current complex problems in agricultural marketing and methods of developing solutions; co-operative activities. Prerequisite: 12 hours or equivalent in economics and agricultural economics.
- 575-1 to 6. RESEARCH. Directed research in selected areas of agricultural industries.
- 581-1 to 6. SEMINAR. Problems relating to various phases of the field of agricultural industries, such as farm management, marketing, prices, farm policy, land economics.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## ANIMAL INDUSTRIES

- 415-4. ANIMAL NUTRITION. Physical and chemical properties of nutrients; digestion and metabolism; functions and utilization of nutrients; principles involved in determination of nutritive requirements. Prerequisite: 315.
- 420-4. COMMERCIAL POULTRY PRODUCTION. Broilers, layers, and turkeys as adapted to poultry specialty farms. Field trips. Prerequisite: 125.
- 423-3. POULTRY NUTRITION. Nutrients, vitamins, chemical and biological analysis as related to production. Ration requirements and formulation, methods and economics of feeding. Prerequisites: 125, 315.
- 430-4. DAIRY PRODUCTION. Milk production; feeding, breeding, calf raising; records, buildings, and equipment; sanitation; and diseases. Field trip, approximate cost \$2.00. Prerequisites: 231, 315.
- 431-4. PHYSIOLOGY OF REPRODUCTION AND ARTIFICIAL INSEMINATION OF FARM ANIMALS. The anatomy and physiology of reproduction and the principles of artificial insemination in farm animals. Prerequisites: 105 or 231, Zoology 100.
- 433-3. DAIRY CATTLE FEEDING. Nutrient requirements of dairy cattle. Feeding calves and heifers for economical growth and cows for economical milk production. Pasture, hay, and silage utilization in milk production. Prerequisites: 231, 315.
- 457-4. LIVESTOCK MARKETING. (Same as Agricultural Industries 457.)

- Problems and their solution in marketing livestock. Field trip to market center to observe operating problems. Prerequisite: Economics 205.
- 465-4 to 5. SWINE PRODUCTION. Breed selection, breeding, feeding, management, and marketing of swine. Field trip, approximate cost \$3.00. Prerequisites: 105, 315.
- 480-4. SHEEP PRODUCTION. Breeding, feeding, and management of sheep. Field trip, approximate cost \$3.00. Prerequisites: 105, 315.
- 485-4. BEEF PRODUCTION. Breeding, feeding, and management of beef and dual-purpose cattle. Field trip, approximate cost \$3.00. Prerequisites: 105, 315.
- 486-4. THE RANGE LIVESTOCK INDUSTRY. Designed to acquaint advanced animal industries students with range livestock operation; consists of full-time classroom review of beef cattle and sheep production followed by a two- to three-week field trip through the range area. Prerequisites: 380, 385. Summer only.
- 487-3. COMMERCIAL LIVESTOCK FEEDING. Principles and problems in fattening beef cattle and sheep for market. Prerequisites: 105, 315.
- 505A-5, 505B-2. RESEARCH METHODS IN AGRICULTURAL SCIENCE. Training and experience in designing experiments and use of various techniques in agricultural research. Prerequisite: consent of instructor.
- 520-1 to 6. READINGS IN ANIMAL INDUSTRIES. Readings in specialized fields under direction of approved graduate specialists.
- 525-4. ADVANCED POULTRY PRODUCTION. Study and interpretation of the objectives, design, and results of research in poultry feeding, breeding, and management.
- 530-4. ADVANCED DAIRY PRODUCTION. Study and interpretation of research in dairy farming, including buildings, herd management, quality milk production, and dairy marketing problems.
- 565-4. ADVANCED SWINE PRODUCTION. Study and interpretation of research in swine feeding, breeding, housing, management and marketing problems.
- 575-1 to 6. INDIVIDUAL RESEARCH. Investigation of a problem in animal science under the supervision of an approved graduate specialist in that field.
- 580-4. ADVANCED SHEEP AND WOOL PRODUCTION. Research findings in sheep and wool production problems.
- 581-1 to 6. SEMINAR. Problems relating to various phases of animal industries.
- 585-4. ADVANCED BEEF PRODUCTION. Principles and practices in beef cattle production in the light of research findings.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## ANTHROPOLOGY

- 400-4. MAN AND CULTURE. The nature of culture and cultural process. Relationships of culture and man as an individual and as a group. Emphasis on "the anthropological point of view."
- 401-4. LANGUAGE IN CULTURE. Language as a part of culture. Linguistics and the study of culture.
- 404-4. PRIMITIVE ART AND TECHNOLOGY. The development of man as

- a tool-using and art-loving being. Artistic and technological traditions of non-Western peoples, past and present.
- 405-4. **SOCIAL ANTHROPOLOGY.** A comparative approach to the organizational features of human groups. Functional aspects and distributions of kinship, political, religious, and economic systems.
- 408-4. **HISTORY OF ANTHROPOLOGICAL THOUGHT.** The growth of Anthropology to about 1850, followed by a more intensive survey of the concepts and ideas of anthropology during the past hundred years.
- 409-4. **ANTHROPOLOGY AND MODERN LIFE.** The applications of anthropological principles to the solution of problems of the modern world. Contributions of anthropology to the work of the educator, social worker, administrator, business man, government official, and other specialists dealing with man in Western and non-Western cultures.
- 413-3. **INTRODUCTION TO GENERAL LINGUISTICS.** The theory and method of linguistics. Analysis and classification of languages.
- 414-3. **GENERAL PHONETICS AND PHONEMICS.** The theory and practice of linguistic recording and the analysis of sound systems.
- 415-3. **GENERAL GRAMMATICAL ANALYSIS.** The theory and method of analyzing grammatical systems.
- 420-3. **INDIANS OF NORTH AMERICA.** A survey of proto-historic and historic Indian and Eskimo cultures north of Mexico.
- 421-3. **INDIANS OF MESO-AMERICA.** A survey of the native peoples of Mexico and Central America, their history and their contributions to modern mestizo culture.
- 422-3. **INDIANS OF SOUTH AMERICA.** A survey of the native peoples of South America and the West Indies, their history and their contributions to the life of modern nations.
- 430-3. **ARCHAEOLOGY OF NORTH AMERICA.** A survey of prehistoric Indian and Eskimo cultures north of Mexico.
- 431-3. **ARCHAEOLOGY OF MESO-AMERICA.** A survey of prehistoric Indian cultures of Mexico and Central America.
- 432-3. **ARCHAEOLOGY OF SOUTH AMERICA.** A survey of prehistoric Indian cultures of South America.
- 462-3. **SOCIAL ORGANIZATION.** Deals specifically with those aspects of social organization which are based on kin and status relationships.
- 465-3. **RELIGIONS OF THE WORLD.** The origins of religion and a survey of religions past and present. Emphasis on the beliefs of non-Western peoples.
- 470-3. **CULTURAL BACKGROUND OF ART.** The role of culture in artistic expression. Art as a system in culture. The artist's role in society. Aesthetic aspects and appreciation of non-Western art.
- 475-3. **CULTURAL BACKGROUND OF EDUCATION.** How societies pass on their cultural patterns. Comparative study of educational processes over the world. Our own methods and goals in helping non-Western peoples adapt themselves to Western culture.
- 480-3. **CULTURE-HISTORY OF SOUTHERN ILLINOIS.** A survey of the human occupation of southern Illinois from earliest Indian times to modern communities and ethnic groups.
- 481-3 to 6. **SEMINAR IN ANTHROPOLOGY.** Students should consult the department before enrolling.
- 483-3 to 6. **RESEARCH IN ANTHROPOLOGY.** Guided research upon anthro-



- pological problems. Students should consult the department before enrolling.
- 485-3 to 6. **READING IN ANTHROPOLOGY.** Guided reading designed to cover special topics and to fill gaps in the student's basic anthropological background. Prerequisites: previous course work in anthropology and consent of department.
- 490-3. **THEORY AND METHOD IN ARCHAEOLOGY.** The conceptual schemes of archaeological research and the methods which implement them in practice.
- 491-5. **ARCHAEOLOGICAL FIELD METHODS.** The theory, methods, and techniques of field research in archaeology. Training and practice is offered in surveying, photography, field recording, and other basic skills required by the archaeologist.
- 495-3. **FIELD AND RESEARCH METHODS IN ETHNOLOGY.** Methods used in the field and in the analysis and presentation of research on living peoples. Organization, field situations, and documentary research will be stressed.
- 497-3 to 9. **FIELDWORK IN ANTHROPOLOGY.** Students should consult the department before enrolling.
- 500-3. **PRO-SEMINAR.** Anthropology as an academic and research discipline. A survey of the personnel and source materials of the profession, Professional standards, ethics, values, aims.
- 513-3. **HISTORICAL LINGUISTICS.** An introduction to the study of the processes of language change and linguistic techniques of reconstruction.
- 520-3. **ETHNOLOGY OF THE GREATER SOUTHWEST.** Problems pertaining to the cultures of arid America.
- 525-3. **MESO-AMERICAN CHRONICLES.** Comparative study of the pre-Spanish writings of the Indians of Meso-America.
- 526-3. **COLONIALISM AND NATIVE CULTURES IN LATIN AMERICA.** The impact of European conquest and dominance upon the native peoples and cultures in Latin America.
- 527-3. **NEGRO CULTURES OF THE CARIBBEAN.** Their origins and development and their relationships with the other cultures, Indian and European, of the Caribbean area.
- 529-3 to 9. **ETHNOLOGICAL CULTURES OF THE NEW WORLD.** Intensive study of selected areas and cultures. Students should consult the department before enrolling.
- 530-3. **ARCHAEOLOGY OF THE EASTERN UNITED STATES.** The prehistoric cultures east of the Rocky Mountains.
- 531-3. **ARCHAEOLOGY OF THE GREATER SOUTHWEST.** The prehistoric cultures of arid America.
- 533-3. **MEXICAN ARCHAEOLOGY.** The non-Maya cultures of prehistoric Mexico.
- 534-3. **MAYA ARCHAEOLOGY.** Prehistoric Maya cultures of southern Mexico and Central America.
- 539-3 to 9. **ARCHAEOLOGICAL CULTURES OF THE NEW WORLD.** Intensive study of selected areas and cultures. Students should consult the department before enrolling.
- 540-3. **ETHNOLOGY OF EUROPE.** Problems pertaining to the traditional and contemporary cultures of Europe. Population movements and the spread of ideas as background for the modern ethnic situation.



- 541-3. ETHNOLOGY OF RUSSIAN ASIA. Problems pertaining to the cultures of northern Asia.
- 543-3. ETHNOLOGY OF AFRICA. Problems pertaining to the cultures of Africa, with emphasis on negro Africa.
- 546-3. ETHNOLOGY OF SOUTHERN ASIA. Problems pertaining to the cultures of India, southeast Asia, and Indonesia.
- 547-3. ETHNOLOGY OF OCEANIA. Problems pertaining to the cultures of Australia and the Pacific Islands: Melanesia, Micronesia, and Polynesia.
- 549-3 to 9. ETHNOLOGICAL CULTURES OF THE OLD WORLD. Intensive study of selected areas and cultures. Students should consult the department before enrolling.
- 559-3 to 9. ARCHAEOLOGICAL CULTURES OF THE OLD WORLD. Intensive study of selected areas and cultures. Students should consult the department before enrolling.
- 562-3. PEASANT CULTURES. The theory of "peasant society" and comparative analysis of particular communities so classified.
- 565-3. BUILDING OF CULTURES. The factors involved in the growth, change, and breakdown of cultural patterns. Theories of innovation and culture change.
- 570-3. TECHNOLOGY IN CULTURE. Intensive study of the locus and function of technologies in culture as exemplified in selected areas in Oceania, Africa, North America, and elsewhere.
- 575-3. CULTURAL THEMES AND VALUES. Comparative study of systems of beliefs, interests, goals which influence and guide the individual's participation in his own and other cultures.
- 580-3. CULTURE-HISTORY AND CULTURE-ECOLOGY OF NORTHERN MEXICO. A joint faculty-student seminar designed to attack problems arising from Departmental field-work in central and northern Mexico and the American Southwest.
- 581-3 to 9. GRADUATE SEMINAR IN ANTHROPOLOGY. Students should consult the department before enrolling.
- 582-3 to 9. ADVANCED PROBLEMS IN ARCHAEOLOGY. Guided research upon archaeological problems. Students should consult the department before enrolling.
- 584-3 to 9. ADVANCED PROBLEMS IN CULTURAL ANTHROPOLOGY. Guided research upon problems of ethnology, social anthropology, and linguistics. Students should consult the department before enrolling.
- 585-3 to 9. ADVANCED READING IN ANTHROPOLOGY. Guided reading designed to cover special topics and to fill gaps in the student's specialized anthropological background.
- 597-3 to 9. GRADUATE FIELDWORK IN ANTHROPOLOGY. Students should consult the department before enrolling.
- 599-3 to 9. THESIS.
- 600-3 to 48. DISSERTATION.

## ART

### STUDIO

- 401-2 to 12. RESEARCH IN PAINTING.

- 406-2 to 12. STUDIO IN PAINTING.
- 410-2 to 12. RESEARCH IN PRINTS.
- 416-2 to 12. STUDIO IN PRINTS.
- 420-2 to 12. RESEARCH IN POTTERY.
- 426-2 to 12. STUDIO IN POTTERY.
- 430-2 to 12. RESEARCH IN METAL CONSTRUCTION.
- 436-2 to 12. STUDIO IN METAL CONSTRUCTION.
- 440-2 to 12. RESEARCH IN WEAVING.
- 446-2 to 12. STUDIO IN WEAVING.
- 501-2 to 12. SEMINAR IN PAINTING.
- 506-2 to 12. RESEARCH IN PAINTING.
- 511-2 to 12. SEMINAR IN PRINTS.
- 516-2 to 12. RESEARCH IN PRINTS.
- 520-2 to 12. SEMINAR IN POTTERY.
- 526-2 to 12. RESEARCH IN POTTERY.
- 530-2 to 12. SEMINAR IN METAL CONSTRUCTION.
- 536-2 to 12. RESEARCH IN METAL CONSTRUCTION.
- 540-2 to 12. SEMINAR IN WEAVING.
- 546-2 to 12. RESEARCH IN WEAVING.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

### *ART EDUCATION*

- 460-2 to 12. RESEARCH IN ART EDUCATION.
- 466-2 to 12. STUDIO IN ART EDUCATION.
- 560-2 to 12. SEMINAR IN ART EDUCATION.
- 566-2 to 12. RESEARCH IN ART EDUCATION.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

### *ART HISTORY AND ART APPRECIATION*

- 444-3. ART OF THE TWENTIETH CENTURY. The principal movements and styles of twentieth-century art with special emphasis upon change in modern society.
- 449-3. RENAISSANCE ART. Fifteenth- and sixteen-century European art with consideration of the significance of Renaissance art to the growth of Humanism.
- 471-3. BAROQUE PAINTING IN ITALY. Major developments in style and expression in Italian painting from the late Mannerist period until the early eighteenth century.
- 473-3. ROMANTIC ART OF THE 19TH CENTURY. A study of the sources and characteristics of Romantic art, approached through the works of such masters as Gros, Delacroix, Blake, Friedrich, Goya, and certain Americans.
- 475-3. IMPRESSIONIST AND POST-IMPRESSIONIST PAINTING. The late nineteenth century in France: Impressionism, Neo-Impressionism, Pointillism, and early Expressionism. The styles of Manet, Monet, Degas, Renior, Seurat, Van Gogh, and Cezanne receive emphasis.
- 482-3 to 9. ART HISTORY SEMINAR. Lectures, readings, and reports on artists,

styles, subjects of special interest which will be announced periodically by the art department.

483-3 to 12. RESEARCH IN ART HISTORY. Individual research in the painting, sculpture, architecture, and related arts of the various periods.

571-2 to 5. READINGS IN ART HISTORY.

573-3 to 12. PROBLEMS IN ART HISTORY. A detailed study of single works of stylistic problems in selected areas of world art.

## BOTANY

404-5. THE ALGAE. Structure, development, and relationships of the algae. Laboratory and some field work. Prerequisites: 101 or 102, 202.

405-5. MYCOLOGY. Structure, development, and relationships of fungi. Problems of economic and scientific interest stressed. Laboratory. Prerequisites: 101 or 102, 202.

411-5. THE BRYOPHYTES AND PTERIDOPHYTES. Structure, development, and relationships of the liverworts and mosses, and the ferns and fern allies. Laboratory. Prerequisites: 101 or 102, 202.

412-5. THE SPERMATOPHYTES. Structure, development, and relationships of the gymnosperms and angiosperms. Laboratory. Prerequisites: 101 or 102, 202, 203.

425-5. ADVANCED PLANT PHYSIOLOGY I. Water relations, mineral nutrients, and colloidal phenomena in plants. Laboratory. Prerequisites: 101 or 102, 202, 310, 320. Desirable antecedents: year of chemistry, some physics.

426A-3. BIOCHEMISTRY AND PHYSIOLOGY OF MICROORGANISMS. (Same as Microbiology 425.) 3 hours lecture. Prerequisites: Microbiology 201 and organic chemistry.

426B-2. BIOCHEMISTRY AND PHYSIOLOGY OF MICROORGANISMS. (Same as Microbiology 426.) 4 hours laboratory.

427-4. MINERAL NUTRITION OF PLANTS. Covers the absorption, translocation, function, and interaction of inorganic nutrient elements in green plants with application to forest, agronomic, and horticultural species. Prerequisite: 320.

428-3. PLANT NUTRITION. The role and function of organic compounds in plants. Physiological importance of carbon-, nitrogen-, and phosphorus-containing compounds is stressed. Prerequisite: 320.

430-5. ADVANCED PLANT PHYSIOLOGY II. Photosynthesis, plant pigments, plant foods, enzymes, respiration, growth, and movement. Laboratory. Prerequisites: 101 or 102, 202, 310, 320. Desirable antecedents: year of chemistry, some physics.

440-4. ECOLOGY OF GRASSES AND GRASSLANDS. Structure, analysis and dynamics of grassland communities; structure and growth of individual species. Field and laboratory work cost about \$5. Prerequisite: 340 or consent of instructor.

450-3. PLANT GEOGRAPHY. A world survey of natural areas of vegetation. Evolution of floras and present distribution. Prerequisites: 101 or 102, 202, 203, or consent of instructor.

- 451-5. INTRODUCTION TO FLORISTICS. Principles involved and methods used in the analysis of the flora of an area. Laboratory and field work. Prerequisite: 203 or consent of instructor.
- 455-4. MEDICAL MYCOLOGY. Fungi which are responsible for infection of man and animals. Problems of classification, identification, isolation, and activity of these fungi. Prerequisites: 405, Microbiology 100 or consent of instructor.
- 457-4. FOREST PATHOLOGY. Nature and control of forest and shade tree diseases. A study of tree diseases in forests, parks, streets, and nurseries. Fungi important in decay and stain of timber and its products are included. Prerequisite: 355 or consent of instructor.
- 470-4. METHODS IN BIOLOGY. Methods, objectives, types of courses taught in secondary school biology. Laboratory and field trips. Prerequisite: major in botany or zoology.
- 480-4. CLASSIC PRINCIPLES OF BOTANY. Theories, principles, and developments in the various divisions of the plant sciences. Prerequisites: 101 or 102 or consent of instructor.
- 501-4. PLANT BIOLOGY FOR HIGH SCHOOL TEACHERS. Field work is required. The principles of plant biology are illustrated in the field. Emphasis is placed on the relation of the plant to the environment. Two lectures and two laboratories per week. Open to all graduate students. Prerequisite: one year of biological science.
- 502-2. RECENT DEVELOPMENTS IN BIOLOGICAL SCIENCES. (Same as Zoology 502.) A series of lectures based upon recent research, designed to acquaint the teacher with advances and changes in concepts. Prerequisite: one year of biological science.
- 503-5. ANGIOSPERM TAXONOMY I. Systematic treatment of all families of the monocotyledoneae. Prerequisite: 203.
- 504-5. ANGIOSPERM TAXONOMY II. Systematic treatment of all families of Dicotyledoneae. Prerequisite: 503.
- 505-3. ADVANCED FIELD TAXONOMY. An advanced field course designed to teach the families and genera of plants in southern Illinois. Emphasis on principles of taxonomy and methods of collection and preservation. Saturday field trips. Prerequisite: consent of NSF institute director.
- 520-5. PHYSIOLOGY OF THE FUNGI. Environmental and nutritional factors involved in the growth, reproduction, and metabolism of the fungi. Prerequisite: consent of the department.
522. ADVANCED HISTOLOGICAL TECHNIQUE. Preparation and presentation of research materials. Laboratory work only. Prerequisite: consent of department. Credit on work completed.
- 525-5. CYTOLOGY. Microscopical study of cellular constituents and of nuclear divisions: Structure and function of the hereditary material. Laboratory. Prerequisite: consent of department.
- 526-5. CYTOGENETICS. Correlation of cytology with genetics. Cell mechanics and nuclear division. Mitosis, meiosis, crossing over and mapping of chromosomes. Mutation, mitotic agents, effect of irradiation, polyploidy, structural aberrations, polytene chromosomes. Synthesis of new species, comparative karyomorphology. Evolution and cytogenetics. Prerequisite: 525 or consent of instructor.
- 533-3 to 4. GROWTH AND DEVELOPMENT IN PLANTS. External and in-



- ternal factors as they affect development and growth of plants, photoperiodism, and the role of growth-promoting substances. 1 hour to be arranged. Prerequisite: 320.
- 540-5. ECOLOGY OF FORESTS AND ARABLE LANDS. Studies in secondary succession. Field trips cost not more than \$10. Prerequisite: 340 or equivalent.
- 542-3. GENECOLOGY AND COMMUNITY CONCEPTS. Implications of findings on the nature of plant adaptation to environment. Genecology and physiological ecology viewpoints, considered at the species and community levels. Prerequisites: 203, 315, 320, 340, or consent of instructor.
- 543-5. EXPERIMENTAL ECOLOGY. Experiments on plant response to environmental factors. Design of experiments, statistical methods, presentation of individual research findings. Laboratory. Prerequisites: 320, 340 or consent of instructor.
- 551-4. THE NATURAL VEGETATION OF THE CENTRAL MISSISSIPPI BASIN, UPLAND. Floristic studies of the uplands vegetation which occurs in the central basin of the Mississippi River. Prerequisite: 451 or consent of instructor.
- 552-4. THE NATURAL VEGETATION OF THE CENTRAL MISSISSIPPI BASIN, AQUATIC. An analysis of the aquatic vegetation of the Central Mississippi basin, discussing importance to wildlife. Prerequisite: 203.
- 555-4. ADVANCED PLANT PATHOLOGY I. Diseases of field crops, horticultural crops, and trees incited by Physomycetes and Fungi Imperfecti. Individual problems assigned. Prerequisite: 355 or consent of instructor.
- 556-4. ADVANCED PLANT PATHOLOGY II. Diseases of field crops, horticultural crops, and trees incited by Ascomycetes and Basidiomycetes. Individual problems assigned. Prerequisite: 355 or consent of instructor.
- 557-4. ADVANCED PLANT PATHOLOGY III. Diseases of field crops, horticultural crops, and trees incited by bacteria and viruses. Individual problems assigned. Prerequisite: 355 or consent of instructor.
- 570-2 to 5. READINGS.
- 580-1 to 4. SEMINAR. To be taken by all graduate students.
- 590-2 to 4. INTRODUCTION TO RESEARCH. Methods of presentation of research materials, including written reports, graphs, photographs, bibliographies.
- 591-3 to 9. RESEARCH. Assignments involving research and individual problems. Prerequisite: consent of department. Students to register for not more than 3 quarters.
- 599-3 to 9. THESIS. Work involved in the research for and presentation of a thesis. Not more than 9 hours nor fewer than 5 hours will be allowed on thesis work. Student advised to take no more than 3 hours per quarter. Total hours in 591 and 599 cannot exceed 15 hours to be applied to the master's degree.
- 600-3 to 48. DISSERTATION. Minimum of 36 hours to be earned for the Ph.D. degree.

## CHEMISTRY

- 401-3 to 5. GENERAL AND INORGANIC CHEMISTRY—REFRESHER. Pre-

- requisite: one year of college chemistry or equivalent. Not to be counted toward chemistry major or minor.
- 403-3 to 5. ANALYTICAL CHEMISTRY—REFRESHER. A condensed introduction to or review of analytical chemistry. Aspects of both qualitative and quantitative analysis. 3 lectures and 2 optional laboratory periods per week. Prerequisite: one year of college chemistry.
- 404-3 to 5. ORGANIC CHEMISTRY—REFRESHER. Prerequisite: one year of college chemistry or equivalent. Not to be counted toward chemistry major or minor.
- 411-3. INTERMEDIATE INORGANIC CHEMISTRY. Modern inorganic chemistry involving atomic structure, chemical bonds, complexes, and chelate structures; chemistry of familiar and less familiar elements. 3 lecture hours per week. Prerequisites: 235 or 331, 306 or 343.
- 412-3. INORGANIC PREPARATIONS. A study of several important inorganic syntheses. 1 lecture and 6 laboratory hours per week. Prerequisites: 235 or 331, 306 or 343.
- 432-4. INSTRUMENTAL ANALYTICAL TECHNIQUES. Theory and practice of common instrumental analytical measurements. 2 lecture and 6 laboratory hours per week. Prerequisites: 235 or 331, 306 or 343, and one year of physics.
- 433-4. INTERMEDIATE QUANTITATIVE ANALYSIS. A comprehensive study of complex methods of analysis, with emphasis on separations. 2 lecture and 6 laboratory hours per week. Prerequisite: 460 or 462.
- 444-3. ORGANIC REACTIONS. An intermediate course with emphasis on monofunctional compounds. Additional topics, not included in elementary courses, will be considered. Three lecture hours per week. Prerequisite: 343.
- 446-4. QUALITATIVE ORGANIC ANALYSIS. A systematic study of the separation and identification of organic compounds by a procedure based on solubility and classification reagents. 2 lecture and 6 laboratory hours per week. Prerequisite: 306 or 343.
- 447-3. QUANTITATIVE ORGANIC CHEMISTRY. The determination of functional groups and elements commonly found in organic compounds by selected methods of analysis; illustration of general method of procedure in the field of quantitative organic chemistry. 1 lecture and 6 laboratory hours per week. Prerequisite: 306 or 343.
- 451-4. BIOCHEMISTRY. Carbohydrates, fats and related substances, proteins and amino acids, enzymes, digestion, absorption, and detoxication. 3 lecture and 3 laboratory hours per week. Prerequisite: 460 or 462.
- 452-4. BIOCHEMISTRY. The blood and lymph; acid-base regulation; metabolism of carbohydrates, lipids, and proteins; urine; calorimetry and energy metabolism; nutrition and vitamins; and hormones. Analysis of blood and urine. 3 lecture and 3 laboratory hours per week. Prerequisite: 451.
- 460-5. THEORETICAL CHEMISTRY. A one-quarter course on the traditional aspects of physical chemistry without the requirement of calculus. 3 lecture and 6 laboratory hours per week. Prerequisites: 235 or 331, 306 or 343, and one year of physics or consent of instructor.
- 461-4. PHYSICAL CHEMISTRY. Gases, liquids, solids, solutions, homogeneous and heterogeneous equilibria. 3 lecture and 3 laboratory hours per week. Prerequisites: 331 (concurrent), 343, twelve hours of physics, and one year of calculus.

- 462-4. PHYSICAL CHEMISTRY. A continuation of 461, including chemical kinetics, electrical conductance, electromotive force, and electrolytic equilibrium. 3 lecture and 3 laboratory hours per week. Prerequisite: 461.
- 463-4. PHYSICAL CHEMISTRY. A continuation of 462, including chemical thermodynamics, the quantum theory, nuclear structure, photochemistry, atomic and molecular structure. 3 lecture and 3 laboratory hours per week. Prerequisite: 462.
- 471-3. INDUSTRIAL CHEMISTRY. A survey course on modern industrial chemistry and an introduction to chemical research processes. 3 lecture hours per week. Prerequisite: 306 or 343.
- 476-3. SPECIAL METHODS IN TEACHING CHEMISTRY. To help the teacher improve his presentation of chemistry, particularly the use of the year-long filmed chemistry series. Prerequisite: 1 year of public school chemistry teaching.
- 490-2. CHEMICAL LITERATURE. A description of the various sources of chemical information and the techniques for carrying out literature searches. 2 lecture hours per week. Prerequisites: 235 or 331, 306 or 343, reading knowledge of German or consent of instructor.
- 496-2 to 6. CHEMICAL PROBLEMS. Investigation of relatively simple problems under the direction of a staff member. Prerequisites: senior standing, major in chemistry with 4.0 average, and consent of department.
- 511-3. ADVANCED INORGANIC CHEMISTRY. A theoretical and empirical treatment of chemical bonding and molecular structure. Lecture. Prerequisite: 460 or 461 (concurrent).
- 512-3. ADVANCED INORGANIC CHEMISTRY. A systematic consideration of the chemistry of the elements, including special topics such as non-aqueous solvent systems, and inorganic stereochemistry. Lecture. Prerequisite: 511.
- 513-3. ADVANCED INORGANIC CHEMISTRY. A continuation and extension of 512. Lecture. Prerequisite: 512.
- 531-3. THEORY OF QUANTITATIVE ANALYSIS. The phenomena utilized in analytical chemistry, with emphasis on separation, organic reagents, and complex methods. Lecture. Prerequisite: 433 or equivalent.
- 532-2 or 3. INSTRUMENTAL METHODS OF ANALYSIS. Theory and practice of instrumental measurements in analysis with emphasis on commercial samples and applications to research. Lecture and laboratory. Prerequisites: 432, 460 or 462 (concurrent).
- 533-3. INDUSTRIAL ANALYTICAL METHODS. Theory of analytical procedures and techniques, current industrial applications. Lecture. Prerequisite: 532.
- 541-3. ADVANCED ORGANIC CHEMISTRY. Theoretical organic chemistry with emphasis on stereochemistry, electronic theory, reaction mechanisms, and the application of physical methods to organic chemistry. Lecture. Prerequisite: 444 or satisfactory diagnostic test.
- 542-3. ADVANCED ORGANIC CHEMISTRY. Application of modern theory to synthesis and reactions of organic compounds, with emphasis on polyfunctional compounds. Lecture. Prerequisite: 541.
- 543-3. ADVANCED ORGANIC CHEMISTRY. Selected topics in organic chemistry such as heterocyclic compounds, steroids, carbohydrates, or polymers. Lecture. Prerequisite: 542.



- 551-3, 552-3, 553-3. **ADVANCED BIOCHEMISTRY.**
- 561-3. **CHEMICAL THERMODYNAMICS.** Basic methods and theories as applied to chemical problems. Lecture. Prerequisites: 463 and satisfactory diagnostic test.
- 562-3. **ATOMIC AND MOLECULAR STRUCTURE.** A survey of basic principles in atomic spectroscopy, quantum chemistry, and statistical thermodynamics. Lecture. Prerequisite: 561.
- 563-3. **CHEMICAL KINETICS.** Factors determining the rates of chemical reactions. Lecture. Prerequisite: 562.
- 575-1 to 3. **GRADUATE SEMINAR.** Advanced level talks presented and discussed by graduate students. Required for all graduate students.
- 576-3. **GENERAL SEMINAR FOR TEACHING CHEMISTRY.** Includes recent advances in chemistry, technology, and current problems in science education. Prerequisite: 1 year of public school chemistry teaching.
- 596-3 to 9. **ADVANCED CHEMICAL PROBLEMS.** Independent study and investigation in selected advanced fields under the supervision of a staff member. Prerequisite: consent of department chairman.
- 599-3 to 15. **RESEARCH AND THESIS.** Research in the several fields of chemistry. Prerequisite: consent of department chairman. Minimum of 5 hours to be counted toward a Master's degree.

## CLOTHING AND TEXTILES

- 461-4. **PROBLEMS IN FITTING AND PATTERN ALTERATIONS.** Principles of fitting and pattern alterations as related to various figure types and special figure problems. Application made by fitting and constructing a dress. Prerequisites: 127, 233, or equivalent.
- 473-4. **ADVANCED TAILORING.** The student will tailor one garment for herself. Time-saving methods, high-quality construction details, and professional finishes stressed. Prerequisite: 360 or equivalent. Offered on demand.
- 474-4. **ADVANCED TEXTILES.** The physical and chemical analysis of textiles. Problems dealing with standards, labeling, and legislation. Current literature of developments with the field. Offered on demand.
- 481-2 to 6. **READINGS.** Supervised readings for qualified students. Prerequisite: consent of instructor and chairman of department.
- 570-4. **CLOTHING AND TEXTILES SEMINAR.** Selected problems within the field of clothing and textiles. Offered on demand.
- 571-4. **RECENT RESEARCH.** Review of selected research in various phases of home economics in related fields. Sources of research include colleges universities, and governmental and industrial agencies. Offered on demand.
- 572-2 to 8. **SPECIAL PROBLEMS.** For students recommended by their chairman and approved by the head of the department and the instructor in charge for independent work or directed study.
- 582-4. **FOUNDATIONS OF FASHION.** Anthropological approaches to fashion and socio-economic and psychological forces as determinants of fashion in modern times. Prerequisites: 329, 339 or consent of instructor.
- 589-8. **FASHIONS AND TEXTILES OF WESTERN EUROPE.** Study of the



fashion and textile industries in western Europe; their history and present social, economic, and cultural significance. Field trip to western Europe.

599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.  
600-3 to 48. DISSERTATION. Minimum of 36 hours to be earned for the Ph.D. degree.

## DESIGN

- 400-3 to 9. MATERIALS AND BASIC TECHNIQUES. Same as 200 and 300.
- 465F-5 to 15. RESEARCH IN PRODUCT-SHELTER DESIGN. Three-quarter sequence. Problems dealing with large groups. All problems carried from conception to actual full-scale construction. Development of prototype for mass-production techniques. Small research projects will be developed under grants given to the department. Prerequisite: 12 hours of 366 or its equivalent.
- 465G-5 to 15. RESEARCH IN VISUAL DESIGN. Three-quarter sequence. Problems dealing with room-to-eye scale and larger, i.e., posters, car cards, strip film, film, exhibitions, etc. Advanced graphic and photographic technology. Development of prototypes for mass-production techniques. Small research projects will be developed under grants given to the department. Prerequisite: 12 hours of 375 or its equivalent.
- 490F-2 to 12. SEMINAR IN PRODUCT-SHELTER DESIGN. Special seminars developed with visiting professors. Prerequisite: 12 hours of 366 or its equivalent.
- 490G-2 to 12. SEMINAR IN VISUAL DESIGN. Special seminars developed with visiting professors. Prerequisite: 10 hours of 375 or its equivalent.
- 500F-2 to 12. STUDIO IN PRODUCT-SHELTER DESIGN. The development of one problem given individually in preparation for the student's thesis. Prerequisite: 10 hours of 465F.
- 500G-2 to 12. STUDIO IN VISUAL DESIGN. The development of one problem given individually in preparation for the student's thesis. Prerequisite: 10 hours of 465G.
- 510F-2 to 12. RESEARCH IN PRODUCT-SHELTER DESIGN. The development of research projects with direct supervision by the staff. Prerequisite: 10 hours of 465F.
- 510G-2 to 12. RESEARCH IN VISUAL DESIGN. The development of research projects, supervised by the staff. Prerequisite: 10 hours of 465G.
- 550-2 to 16. FIELD STUDY IN DESIGN. Design activity (local, national, or international) carried out with a designated faculty member as liaison. Written report assigned and final report required. All projects must first have written approval by the chairman and the liaison faculty member.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## ECONOMICS

- 411-4. COLLECTIVE BARGAINING AND DISPUTE SETTLEMENT. Nature,

- issues, procedures, economic effects. Analysis of actual collective bargaining situations. Prerequisite: 310 or consent of instructor.
- 416-4. MONEY AND BANKING II. Emphasis upon the Federal Reserve and other banking systems. Prerequisite: 315 or consent of instructor.
- 418-4. ECONOMIC HISTORY OF EUROPE. A survey of the economic growth of Europe with emphasis upon the development of European agriculture, industry, finance, and international trade since 1750. Prerequisites: 205 and 206, or consent of instructor.
- 419-4. LATIN AMERICAN ECONOMIC DEVELOPMENT. A survey of the resource base of Latin American economic development with special reference to the problems of transition from an export-import to an integrated industrial economy; monetary policies; problems of economic planning. Prerequisites: 205, 315.
- 429-4. INTERNATIONAL ECONOMICS II. Intensive treatment of the principles of international economics with special emphasis on the classical and modern theories of international trade. Income effects. Balance of payments adjustments. Prerequisites: 205, 206; or consent of instructor.
- 432-3 to 4. FISCAL POLICY OF THE UNITED STATES. Countercyclical, secular, and emergency use of government expenditures, debt, and taxes. Prerequisites: 205 and 206, or consent of instructor.
- 436-3. GOVERNMENT AND LABOR. (Same as Government 436.) A study of labor relations and legislation considering both constitutional and economic aspects. Prerequisite: 205 or Government 101 or 231 or 300 or consent of instructor.
- 437-4. ECONOMICS OF SOCIAL SECURITY. The federal and state social security programs, including Social Security Act, Workmen's Compensation, Disability Insurance, Unemployment Compensation, with emphasis on their economic aspects. Prerequisites: 205 and 206, or consent of instructor.
- 440-4. INTERMEDIATE THEORY. A more intensive treatment of price and income theory. Prerequisites: 205 and 206, or consent of instructor.
- 445-2 to 8. SOUTH AMERICAN STUDY TOUR. See Foreign Languages 445 for course description.
- 450-3. HISTORY OF ECONOMIC THOUGHT. Great economists and the development of economic theory. Prerequisites: 205 and 206, or consent of instructor.
- 451-3. ECONOMIC THEORIES. Theories of recent leading economists. Prerequisite: 450 or consent of instructor.
- 460-4. RUSSIAN ECONOMY. Development of Russian trade, agriculture, industry, government, finance, and standards of living in successive periods in relation to the historical, geographic, economic, and ideological background. Prerequisite: 205 or consent of instructor.
- 465-4. MATHEMATICAL ECONOMICS. A systematic survey of mathematical economic theory. Conditions of static equilibrium (including stability conditions), dynamic models using difference equations, and linear production models of input-output analysis and activity analysis (linear programming). Prerequisite: 440 and consent of instructor.
- 470-3. BUSINESS CYCLES. Major business fluctuations in the United States. Prices, employment, production, credit, inflation and deflation, and government action during the cycles. Prerequisite: 315 or 440 or consent of instructor.

- 471-4. LAND RESOURCE ECONOMICS. (Same as Forestry 471 and Agricultural Industries 471.) The use of land as an economic variable in production of goods and services; land market; group versus individual conflicts; elementary land resources planning techniques. Field trip costs about \$5. Prerequisite: Economics 205.
- 481-3. COMPARATIVE ECONOMIC SYSTEMS. Capitalism, socialism, fascism, and other forms of the economy. Prerequisite: 205 or consent of instructor.
- 490-4. WORKSHOP IN ECONOMIC EDUCATION. (Same as Education 490.) Designed to assist elementary and secondary school teachers in promoting economic understanding in the minds of their students through the translation of economic principles and problems into classroom teaching materials.
- 500-4 to 8. ECONOMICS SEMINAR. A study of a common, general topic in the field of economics, with individual reports on special topics. Prerequisite: 205 or consent of instructor.
- 501-1 to 5. ECONOMICS READINGS. Contemporary books and periodicals in economics. Prerequisite: consent of chairman.
- 502-1 to 6. READINGS IN RESOURCE ECONOMICS. (Same as Forestry 520B and Agricultural Industries 520B.) Directed readings in the field of resource economics. Prerequisite: consent of instructor.
- 512-4. LABOR ECONOMICS. Economic principles involved in the employment relationship. Such topics as wage theory, the labor market, employment and unemployment, and the economic effect of collective bargaining are covered. Prerequisite: 310 or consent of instructor.
- 519-4. ECONOMIC GROWTH. Intensive examination of the problems (past and present) of economic development faced by nations everywhere. Attention to the alternative solutions which have been, or are being, attempted. Prerequisite: 317 or 418 or consent of instructor.
- 533-4. PUBLIC FINANCE THEORY AND PRACTICE. Historical development of public finance theories with analysis of their policy implications. Prerequisite: 330; or consent of instructor.
- 541-4. NATIONAL INCOME THEORY. Keynesian and post-Keynesian developments in national income theory. Empirical research concerned with characteristics and magnitudes of important national income concepts, such as the consumption function, is examined. Recent American policies and problems bearing on national income fluctuations are considered. Prerequisites: 205 and 206, or consent of instructor.
- 542-4. PRICE THEORY. Designed to develop skills in the use of the analytical tools, including the basic mathematical techniques, used in price theory. Prerequisite: 440 or consent of instructor.
- 561-4. COMPARATIVE ECONOMIC DEVELOPMENT IN ASIA. A comparison of the economies of Japan, India, and China within the framework of emerging economic theory of developing economies. Performance, goals, problems of self-sustaining growth, problems of resource allocation, and changes in the institutional framework in each case. Economic role of the United States in Asian development. Prerequisite: 205 or consent of instructor.
- 575-4. ECONOMIC REGULATION. An analysis of the economic causes and effects of the regulation of agriculture, business, and labor. Prerequisites: 330 and Management 473, or consent of instructor.



- 581-4. **ECONOMICS OF WELFARE.** The application of economic theory to the quest for economic welfare. Includes consideration of income distribution, rates of growth, the pricing system, and the role of government. Prerequisite: 440 or equivalent.
- 582-4. **ECONOMIC BEHAVIOR.** A theoretical and empirical study of the behavioral aspects of economics, including the behavior of firms, households, and government. This course draws upon the recent literature of economics and also, on frontier areas, upon directly relevant concepts and findings of related behavioral sciences. Prerequisite: 440 or equivalent or consent of instructor.
- 598A-1, 598B-1, 598C-1. **TEACHING COLLEGE ECONOMICS.** A seminar course on the graduate level devoted to the general and specific problems of teaching economics. Required of all graduate assistants who are given teaching assignments, and strongly recommended for other graduate students who contemplate teaching economics. Open to staff members.
- 599-2 to 9. **THESIS.** Minimum of 5 hours to be counted toward a master's degree.

## EDUCATIONAL ADMINISTRATION AND SUPERVISION

- 411-4. **SEMINAR IN INSTRUCTION.** To assist student teachers and in-service teachers in solving classroom problems. Involves clinical study and discussion of behavioral and learning situations, with special attention to the development characteristics and needs of students.
- 420-4. **LEGAL BASIS OF AMERICAN EDUCATION.** Legal concepts governing education in the United States. Particular emphasis is placed on common-law principles.
- 424-4. **SCHOOL ADMINISTRATION.** Designed primarily for those who look forward to positions as supervisors, principals, or superintendents.
- 431-3. **HISTORY OF EDUCATION IN THE UNITED STATES.** An historical study of the problems of American education which have relevance to contemporary education.
- 432-4. **PUBLIC OPINION, PROPAGANDA, AND EDUCATION.** Analysis and classification of propaganda. Designed to show how public opinion is formed by a use of current materials from the different channels of communication. Differences between propaganda and indoctrination.
- 434-1 to 3. **ADMINISTRATOR'S WORKSHOP.** A special program for the consideration of administrative problems pertinent to superintendents, high school principals, and elementary school principals of Southern Illinois. Held during spring vacation week.
- 456-4. **SCHOOL SUPERVISION.** The function of the principal or supervisor in the improvement of instruction. Some activities, methods, and devices for improving the effectiveness of teaching.
- 460-4. **CURRICULUM.** Modern practices and procedures in curriculum development, with attention to the professional, social, economic, and other major factors in curriculum planning.
- 485-4 to 9. **WORKSHOP IN EDUCATIONAL UTILIZATION OF COMMUNITY RESOURCES.** (Same as Guidance 485.)



- 500-4. RESEARCH METHODS. Practical training in research and writing techniques in the field of education. Bibliographical materials, footnotes, use of the library. Recommended that students have had Guidance 420 or 422.
- 501-4. SEMINAR IN EDUCATIONAL ADMINISTRATION. Special study of administrative problems. For advanced graduate students.
- 502-4. SEMINAR IN COMPARATIVE EDUCATION. Educational ideas and practices of various countries of the world, both Eastern and Western, and their impact upon our culture and education.
- 503-4. SEMINAR IN PHILOSOPHY OF EDUCATION. An interpretation of modern educational problems and trends in the light of basic philosophical viewpoints. Excerpts from leading writings will be used.
- 504-4. SEMINAR IN HISTORY OF EUROPEAN EDUCATION. A survey and interpretation of education in Europe from the Greek era to the present. Stresses the relationship of European to American education.
- 506-4. SEMINAR: CURRICULUM IN RELATION TO AMERICAN CULTURE. The effect of historical movements on curriculum in our nation at all age and grade levels, continued on a more intensive basis as applied to present-day curricular patterns.
- 511-4, 512-4, 513-4. INTERNSHIP PRACTICUM. Courses of instruction relating to the study of theory and practical experience, both being carried on simultaneously in conjunction with a co-operating public school and the College of Education. Open only to students who have been admitted to the internship program.
- 520-4. ILLINOIS SCHOOL LAW. Study of the legal aspects of Illinois public education with principal emphasis on statutory law and its interpretation by the courts. Prerequisite: 420 or Government 499.
- 527-4 to 6. ADMINISTRATIVE PROBLEMS OF SMALL SCHOOLS. A field laboratory course for principals and superintendents, both elementary and secondary, focused upon specific problems presented by the students. Two days a week devoted to visiting schools in the area, and the remaining days spent in research and in seminar. Problems of plant construction and maintenance, budgeting, evaluation, curriculum, classroom organization, office practice, and administration. Specialists used as consultants when possible. Limited to administrators.
- 533-4. SCHOOL BUILDINGS. Various phases of physical plant design and maintenance of concern to the school administrator.
- 534-4. SCHOOL FINANCE. Fiscal administration of public education at the national, state, and local levels. Prerequisite: 424.
- 535-4. RESEARCH IN PROBLEMS OF ADMINISTRATION. An intensive four-week course for school principals on the theory and principles of administration for small schools, special administrative problems, school plant evaluation, curriculum revision, class scheduling, budgeting and school accounting, community relationships, supervision, pupil accounting, and evaluation of instructional services.
- 539-4. COMMUNITY DEVELOPMENT THROUGH THE SCHOOL. Comprehensive survey of the resources of a particular community; the cataloguing of material for use by the teachers of the community to help determine needed curriculum changes.
- 551-4, 552-4, 553-4. PHILOSOPHIC PROBLEMS OF CONTEMPORARY CIVILIZATION. An examination of the crisis in contemporary civiliza-

- tion, the reconstruction of ideas and values involved, and an analysis of crucial problems in terms of their intellectual reconstruction. Cross-listed with Department of Philosophy.
- 554-4. CONTRASTING PHILOSOPHIES OF EDUCATION. Deals both historically and contemporaneously with the ideologies which have developed from different concepts of education.
- 555-4. PHILOSOPHICAL FOUNDATIONS OF EDUCATION. A course examining, in the primary sources, the basic concepts which have influenced and are influencing modern education. Not open to students who have had 355.
- 556-4. SEMINAR IN EDUCATIONAL SUPERVISION. Special research problems in supervision, for advanced graduate students. Prerequisite: 456.
- 563-4. WORKSHOP IN SCHOOL PUBLIC RELATIONS. To meet the needs of teachers, supervisors, and administrators in the area of public relations.
- 575A to K-2 to 4. INDIVIDUAL RESEARCH. Selection, investigation, and writing of a research topic under the personal supervision of a member of the departmental graduate faculty. By special arrangement.
- 589-2 to 12. GENERAL GRADUATE SEMINAR. (Same as Philosophy 589.)
- 596-5 to 9. INDEPENDENT INVESTIGATION. Field study required of each student working for the sixth-year professional certificate.
- 597-1 to 3, 598-1 to 3, 599-1 to 3. THESIS. Minimum of 5 hours to be counted toward a master's degree.
- 600-3 to 48. DISSERTATION. Minimum of 36 hours to be earned for the Ph.D. degree.

## ELEMENTARY EDUCATION

- 401-2. PROBLEMS IN PUBLIC SCHOOL READING. Requirements: attendance at all sessions of a reading conference; preparation of a paper showing practical applications of theory to the student's own teaching situation. Summer.
- 402-4. AERO-SPACE EDUCATION WORKSHOP. (Same as Secondary Education 402.)
- 410-4. IMPROVEMENT OF INSTRUCTION IN ARITHMETIC IN KINDERGARTEN-PRIMARY GRADES. Recent findings and current practices in building a basis for quantitative thinking in early childhood education. Special emphasis upon grade placement of content and of techniques to aid children in understanding of the number system. Prerequisite: Mathematics 210.
- 411-4. SEMINAR IN INSTRUCTION. To assist student teachers and in-service teachers in solving classroom problems. Involves clinical study and discussion of behavioral and learning situations, with special attention to the development characteristics and needs of students.
- 415-2 to 4. IMPROVEMENT OF INSTRUCTION IN ARITHMETIC IN THE ELEMENTARY SCHOOL. Items to be taught, the grade placement of content, newer instructional practices and materials of instruction, and means of evaluating achievement. Prerequisite: Mathematics 210 or consent of instructor.
- 433-4. WORKSHOP IN ELEMENTARY EDUCATION. Meets needs of in-

- service teachers in such areas as curriculum adjustment, remedial teaching, child development, and early childhood education. No credit if student has had 333 or 390.
- 435-4 to 8. **WORKSHOP IN ELEMENTARY SCHOOL FOREIGN LANGUAGE INSTRUCTION.** Designed to assist elementary school teachers in integrating foreign languages into their teaching program as well as to encourage high school teachers to introduce or supervise foreign languages or education. Prerequisite: basic language credit.
- 437-4. **PROBLEMS IN READING.** Practices and trends in the teaching of reading; materials of instruction in reading, particularly remedial materials; techniques and materials for prevention of reading difficulties; diagnosis and remediation of reading difficulties. Prerequisites: senior standing, 337. Not open to students having had 505.
- 441-4. **TEACHING ELEMENTARY SCIENCE.** A workshop course for teachers of elementary school science.
- 442-4. **MATERIALS AND METHODS IN ELEMENTARY SCHOOL SCIENCE.** Study of content and methods of elementary school science.
- 443-4. **WORKSHOP IN SOCIAL STUDIES.** Material on critical areas of the world, not commonly emphasized in elementary social studies. Areas considered: significant geographical concepts, Asia, Africa, Russia, and Eastern Europe. Outstanding specialists in social science present their specialties.
- 461-4. **THE ELEMENTARY SCHOOL CURRICULUM.** A critical study of the reorganization, construction, and administration of the elementary school curriculum, and the installation, adaptation, and administration of the revised curriculum. Not open to students having had 561.
- 465-4. **SEMINAR IN PSYCHOLOGY OF ELEMENTARY SCHOOL SUBJECTS.** Psychological principles of learning applied to the mastery of materials used in elementary school subjects. Prerequisites: 314, Guidance 305.
- 505-4. **IMPROVEMENT OF READING INSTRUCTION.** First course in the reading sequence; survey of reading problems; aspects of the reading process; modern practices in teaching reading.
- 507-2 to 4. **READINGS IN READING.** Independent reading; acquaintanceship with the literature and research in reading. Conference periods.
- 509-4 to 8. **PRACTICUM IN READING.** For advanced students; teaching demonstrations and evaluations. Each student works with a group of reading disability cases.
- 510-4 to 8. **SEMINAR: PROBLEMS IN READING.** Major field content seminar: Problems and practices; comprehensive review and evaluation of research and literature. Each student pursues a problem of his own interest.
- 514-4. **ORGANIZATION AND ADMINISTRATION OF READING PROGRAMS.** For reading specialists, principals, supervisors, consultants. Recent trends in elementary and high school reading programs; providing reading instruction for total school population; materials and equipment; in-service training; role of the reading specialist. Problems of class members are studied and discussed. Prerequisite: 461.
- 515-4. **SPECIAL PROBLEMS IN THE TEACHING OF ARITHMETIC IN THE ELEMENTARY SCHOOL.** A seminar course which covers important problems in arithmetic in the elementary school. Variable content. Prerequisite: 415 or consent of instructor.



- 516-8 to 12. INTERNSHIP IN READING. Culminating experience for doctoral candidates. Each student supervises reading services in his own or co-operating school. Conference periods.
- 517-2 to 4. KINDERGARTEN-PRIMARY PRACTICUM. Practical applications of advanced theory in the Laboratory School. Readings and research related to special problems in the kindergarten-primary classroom. Prerequisite: 8 hours of student teaching.
- 518-2. SUPERVISION OF KINDERGARTEN-PRIMARY STUDENT TEACHING. The function of the supervisory teacher in the student teacher situation. Particular attention to the problem of student teaching in the public schools. A course for present and prospective teachers who wish to be more effective in dealing with student teachers.
- 521-3. DIAGNOSIS & CORRECTION OF READING DISABILITIES I. Causes of reading difficulties; observation and interview procedures; standardized tests, instruments, and informal inventories; analysis techniques; experiences in preparing materials for corrective purposes. Each student diagnoses and treats a reading disability case under supervision. Prerequisite: 505 or 540 or concurrent registration with 505.
- 522-3. DIAGNOSIS & CORRECTION OF READING DISABILITIES II. A continuation of 521. Prerequisite: 521.
- 523-3. DIAGNOSIS & CORRECTION OF READING DISABILITIES III. A continuation of 522. Prerequisite: 522.
- 525-4. SEMINAR IN KINDERGARTEN-PRIMARY EDUCATION. Exploration of research literature on problems in early childhood education. Each student to select problem or problems and to present paper to the seminar. Prerequisite: Educational Administration and Supervision 500 or equivalent.
- 537-4. KINDERGARTEN-PRIMARY READING. A survey of problems in the developmental reading program for the primary grades, followed by extensive study of selected problems. Prerequisite: 337 or consent of instructor.
- 541-4. SELECTED TEACHING AND CURRICULUM PROBLEMS IN ELEMENTARY SCHOOL SCIENCE. A course to help teachers with the problems of teaching science in the elementary school. Aims, methods, materials, and equipment. Emphasis placed upon grade placement of materials and the use of community resources.
- 542-4. LANGUAGE ARTS IN THE ELEMENTARY SCHOOL. The practical bearing of investigation and theory on the improvement of current practices in the teaching of the language arts, other than reading. Attention given to evaluation of teaching materials in these areas.
- 543-4. TEACHING THE SOCIAL STUDIES IN THE ELEMENTARY SCHOOL. Organization of material for teaching purposes, techniques of classroom presentation, bibliographies of materials, use of audio and visual aids to instruction, and techniques for evaluating student progress. Readings, lectures, and discussions related to required teaching experience. No credit for students having had 544.
- 544-4. SOCIAL STUDIES IN KINDERGARTEN-PRIMARY GRADES. Reading and research related to improving the child's understanding of his place in a group and his knowledge of his social world. No credit for students having had 543. Prerequisite: consent of instructor.
- 545-4. LANGUAGE IN PRESCHOOL AND PRIMARY GRADES. Review of



- research in the development of both oral and written language of children.
- 546-4. CURRICULUM PROBLEMS IN SCIENCE AT THE KINDERGARTEN-PRIMARY LEVEL. Designed to help teachers with the problems peculiar to the teaching of science in the kindergarten-primary grades.
- 557-4. THE ELEMENTARY PRINCIPALSHIP. Designed to meet many of the particular needs of persons interested in qualifying for appointments as elementary school principals. Other than the administrative responsibilities of the elementary principal, such topics as the grouping of pupils, the elementary school's program, and personnel are studied.
- 560-4. KINDERGARTEN-PRIMARY EDUCATION. A survey of current problems and practices in early childhood education for children from four to eight years of age, with emphasis on wide reading in current research literature. Prerequisite: consent of instructor.
- 563-4. ORGANIZATION OF THE ELEMENTARY SCHOOL. An analysis of types of elementary school organization with special attention to influence of school organization upon the educational program. Application of research findings to selection and use of materials of instruction. Special consideration to student's professional problems.
- 575-2 to 4. INDIVIDUAL RESEARCH. The selection, investigation, and writing of a research topic, under the personal supervision of a member of the departmental graduate staff, in one of the following areas: A. Curriculum, B. Supervision, C. Language Arts, D. Science, E. Reading, F. Social Studies, G. Problems in Elementary Education, H. Arithmetic, J. Problems in Kindergarten-Primary, K. Elementary Education Administration and Supervision.
- 596-5 to 9. INDEPENDENT INVESTIGATION. Field study required of each student working for the sixth-year professional certificate. The work should be done in the setting of a school system where the student is employed or where full co-operation is extended. The study involves selecting of the problem, survey of pertinent literature, recording of results, and appropriate interpretations and summarizations.
- 597-1 to 3, 598-1 to 3, 599-1 to 3. THESIS. Minimum of 5 hours to be counted toward a master's degree.
- 600-3 to 48. DISSERTATION. Minimum of 36 hours to be earned for the Ph.D. degree.

## ENGLISH

- 400-4. INTRODUCTION TO ENGLISH LINGUISTICS. An analysis of English structure, its phonemics, morphemics, and syntax. Recommended for those preparing to teach English grammar and needing an introduction to the structural approach.
- 403-4. THE HISTORY OF THE ENGLISH LANGUAGE. A survey of the development of the language from Indo-European to modern English with special emphasis on Middle and Early Modern English changes.
- 404-4. CONTEMPORARIES AND SUCCESSORS OF CHAUCER. Late fourteenth and early fifteenth century English literature, from *Sir Gawayne and the Grene-Knight* to the Scottish Chaucerians.

- 412-4. SIXTEENTH CENTURY NON-DRAMATIC ENGLISH LITERATURE. A survey of representative selections from the verse and prose of the period, supplemented by intensive reading on special topics by individual students: the origins and growth of the new literature, its debt to the past and to contemporary European sources.
- 413-4. SEVENTEENTH CENTURY NON-DRAMATIC ENGLISH LITERATURE.
- 414-4. EIGHTEENTH CENTURY NON-DRAMATIC ENGLISH LITERATURE.
- 415-4. EARLY ROMANTICS. Major emphasis on general background and on Blake, Coleridge, and Wordsworth.
- 416-4. LATER ROMANTICS. Major emphasis on Byron, Shelley, and Keats; also the minor figures.
- 417-4. VICTORIAN LITERATURE. Ideas, forms, and personalities in English literature from 1830 to 1900.
- 421-4. VICTORIAN POETRY. Tennyson, Browning, Arnold, and other poets of England, 1830-1900.
- 422-4. MODERN BRITISH POETRY.
- 423-4. MODERN AMERICAN POETRY. A study of the important poets, beginning with Robinson.
- 431-4. AMERICAN LITERATURE I, to 1789.
- 432-4. AMERICAN LITERATURE II, to 1865.
- 433-4. AMERICAN LITERATURE III, to 1914.
- 438-4. INTELLECTUAL BACKGROUNDS OF AMERICAN LITERATURE. The relationship of basic ideas in America to American literature.
- 441-4. THE EIGHTEENTH CENTURY ESSAY. Stresses the informal essay. Studies the principal literary periodicals, *The Spectator*, *The Tatler*, *Guardian*, *Rambler*, *Idler*, and Goldsmith's *Citizen of the World* ("Chinese Letters").
- 443-4. VICTORIAN PROSE. The chief writers of non-fiction prose from the late Romantics to 1900.
- 447-4. AMERICAN HUMOR AND SATIRE. A consideration of the writers and forms of nineteenth and twentieth century humor.
- 454-4. EIGHTEENTH CENTURY NOVEL. Defoe through Jane Austen.
- 455-4. VICTORIAN NOVEL. Major novelists and principal tendencies in English fiction, 1830-1900.
- 456-4. CONTEMPORARY CONTINENTAL FICTION.
- 457-4. CONTEMPORARY BRITISH FICTION. Outstanding figures, influences, and trends in the British novel and short story since 1914.
- 458-4. AMERICAN NOVEL. The novel in America from its beginnings to the early twentieth century.
- 459-4. CONTEMPORARY AMERICAN FICTION. Trends and techniques in the American novel and short story since 1914.
- 460-4. RENAISSANCE DRAMA. Mostly concerned with the evolution of the "regular" drama from the mid 1550's to the closing of the theatres. Course involves extensive reading of plays and familiarity with the contemporary theatrical background.
- 461-4. RESTORATION AND EIGHTEENTH CENTURY DRAMA. A study of the British drama after the restoration of 1660; representative types of plays which appeared from Dryden to Sheridan.
- 463-4. MODERN BRITISH DRAMA.

- 464-4. MODERN CONTINENTAL DRAMA. A survey of the continental drama of Europe since 1870; representative plays of Scandinavia, Russia, Germany, France, Italy, Spain, and Portugal.
- 468-4. AMERICAN DRAMA. The rise of the theater in America, with reading of plays, chiefly modern.
- 470-4. CHAUCER.
- 471-4. SHAKESPEARE. The plays before 1600. Supplementary readings on the life of Shakespeare, the theater, and the acting company.
- 472-4. SHAKESPEARE. The plays of 1600 and later. Supplementary readings on the life of Shakespeare, the theater, and the acting company.
- 473-4. MILTON.
- 485-4. PROBLEMS IN THE TEACHING OF ENGLISH. Aims, methods, materials, tests, programs, and other aspects of English instruction in the high school.
- 486-2 to 8. WORKSHOP IN HIGH SCHOOL ENGLISH. Intensive workshop study in lectures, laboratory, conferences, to arrive at agreement on the teaching of English in high school. Curriculum, materials, methods, aims. Directed by authorities in the field.
- 487-2 to 8. WORKSHOP IN JUNIOR HIGH SCHOOL ENGLISH. Intensive workshop study in lectures, laboratory, conferences, to arrive at agreement on the teaching of English in junior high school. Curriculum, materials, methods, aims. Directed by authorities in the field.
- 492-4. PROFESSIONAL WRITING II. Prerequisites: 392 and/or approval of instructor.
- 493-4. PROFESSIONAL WRITING III. Prerequisites: 492 and approval of instructor.
- 495-4. HISTORY OF LITERARY CRITICISM. The ideas and techniques of criticism, from Aristotle to the end of the nineteenth century.
- 498-4. MODERN LITERARY CRITICISM. Recent critics and critical attitudes, and practice in writing criticism.
- 499-2 to 6. READINGS IN ENGLISH. For English majors only. Departmental approval required. No more than 4 hours may be taken in any one quarter.
- A prerequisite to each of the following courses (except 500, 501, 502, 585, 586, and 598) is a 300 or 400 course in the period or form represented by the offerings.
- 500-2. MATERIALS AND METHODS OF RESEARCH IN ENGLISH. The principal tools of literary scholarship and the more important studies and journals. Practice in the preparation of selective bibliographies and scholarly reports.
- 501-4. OLD ENGLISH GRAMMAR. The development of the forms; the grammar; and readings. Credit allowed only if the student also takes 502.
- 502-4. BEOWULF. Reading of the poem, and study of its form, language and history. Prerequisite: 501.
- 503-4 or 8. STUDIES IN LINGUISTICS. In alternate years (a) Phonetics and Phonemics, (b) Morphemics and Syntax.
- 508-4 or 8. STUDIES IN CHAUCER. Problems in Chaucer, scholarship and criticism.
- 509-4 or 8. STUDIES IN MIDDLE ENGLISH. At the discretion of the instructor: (a) Readings chiefly in Early Middle English with attention to the grammar and phonology of the dialects; (b) A study of Middle English

literature exclusive of Chaucer or of one or more literary types, the scholarship and criticism.

- 511-4 or 8. STUDIES IN THE RENAISSANCE. Individual research problems involving the use of primary source materials in extensive microfilm and microcard collections, etc.
- 513-4 or 8. STUDIES IN SEVENTEENTH CENTURY LITERATURE.
- 514-4 or 8. STUDIES IN RESTORATION AND EIGHTEENTH CENTURY LITERATURE.
- 518-4 or 8. STUDIES IN THE VICTORIAN PERIOD. Study of a topic, a movement, or an author.
- 519-4 or 8. STUDIES IN CONTEMPORARY BRITISH LITERATURE.
- 520-4 or 8. STUDIES IN ROMANTIC WRITERS.
- 524-4 or 8. STUDIES IN METAPHYSICAL POETS.
- 531-4 or 8. STUDIES IN AMERICAN COLONIAL PERIOD.
- 532-4 or 8. STUDIES IN AMERICAN TRANSCENDENTALISM.
- 534-4 or 8. STUDIES IN EARLY NINETEENTH CENTURY AMERICAN WRITERS.
- 536-4 or 8. STUDIES IN LATER NINETEENTH CENTURY AMERICAN WRITERS.
- 537-4 or 8. STUDIES IN TWENTIETH CENTURY AMERICAN WRITERS.
- 538-4 or 8. PROBLEMS IN AMERICAN LITERATURE. Study of a topic, concept, or idea as it appears in American writing.
- 543-4 or 8. STUDIES IN VICTORIAN NON-FICTION PROSE. Study of a topic or individual author.
- 555-4 or 8. STUDIES IN THE VICTORIAN NOVEL. Study of an individual author or of a type of novel.
- 566-4 or 8. STUDIES IN SHAKESPEARE. Detailed study of a limited number of the major plays: historical and technical problems considered in the light of recent scholarship in the field.
- 580-4. TRADITIONAL THEMES IN LITERATURE. Persistent themes and legends in literature—King Arthur, Faust, Utopia, and the like.
- 585-2 to 8. TEACHING COLLEGE COMPOSITION. Objectives, methods, and materials for the course; observation, and practice under supervision.
- 586-4 or 8. TEACHING COLLEGE LITERATURE. Chief emphasis on freshman and sophomore literature; objectives; methods; materials; observation; and practice under supervision.
- 598A-1 to 3, B-1 to 3, C-1 to 3. REVIEW OF ENGLISH AND AMERICAN LITERATURE. Review through reading, lecture, and discussion of the major texts in English and American literature. Grade in the course to be given upon completion of the master's comprehensive examination in English.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.
- 600-3 to 48. DISSERTATION. Minimum of 36 hours to be earned for the Ph.D. degree.

## FOOD AND NUTRITION

- 404-4. PERSONAL AND COMMUNITY NUTRITION. Normal nutrition with



- an emphasis on the role of nutrition in personal and community health, and the influence of various cultural patterns on nutritional status. Planned primarily for nonmajors; open to home economics majors with consent of instructor.
- 481-2 to 6. READINGS. Supervised readings for qualified students. Prerequisite: consent of instructor and chairman of department.
- 490-4. NUTRITION AND PHYSICAL GROWTH. Lectures, readings, discussions, and practical application of nutrition in relation to human growth through adolescence. Prerequisite: 320 or consent of instructor.
- 500-4. RESEARCH METHODS. Study of methods employed in research in food and nutrition. The development of a research design selected on the basis of the interest and need of the student. Field trips. Prerequisites: 359 or 356, Guidance 420 (420 may be concurrent), or consent of instructor.
- 515-1 to 6. SEMINAR. Staff and student participation in reports and discussion on assigned research papers, research in progress, or current professional meetings. Recommended for all graduate majors in food and nutrition. Prerequisite: consent of instructor.
- 556-4. ADVANCED EXPERIMENTAL FOOD. Experimental approach to the study of the chemical and physical properties of selected foods; laboratory investigation of a problem in food research and guided work in interpretation of research data. Field trips. Prerequisite: 356 or consent of instructor.
- 571-4. RECENT RESEARCH. Review of selected research in various phases of home economics in related fields. Sources of research include colleges universities, and governmental and industrial agencies. Offered on demand.
- 572-2 to 8. SPECIAL PROBLEMS. For students recommended by their chairman and approved by the head of the department and the instructor in charge for independent work or directed study.
- 580-4. RECENT DEVELOPMENTS IN NUTRITION. Critical study of recent scientific literature in nutrition. Prerequisite: 320 or equivalent.
- 581-4. RECENT TRENDS IN FOODS. An evaluation of recent literature on food preparation principles and the commercial development of prepared foods for home use. Prerequisite: 335. Offered on demand.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## FOREIGN LANGUAGES

### *FOREIGN LANGUAGES*

- 435-4 to 8. WORKSHOP IN ELEMENTARY SCHOOL FOREIGN LANGUAGE INSTRUCTION. Designed to assist elementary school teachers in integrating foreign languages into their teaching program as well as to encourage high school teachers to introduce or supervise foreign languages at the elementary school level. To count as education or foreign languages. Prerequisite: basic language credit.
- 445-2 to 8. SOUTH AMERICAN STUDY TOUR. Study tour of various South American countries. Tour preceded by required reading, lectures, and examination. Lectures by professors of universities in countries visited on

topics of special interest in each country. Study of political, economic, social, historical, artistic, and geographic characteristics of these countries. Credit may be earned in foreign languages, or in a combination of departments, as determined by consultation with department chairmen and the Latin American Institute. Final week on campus for completion of papers and reports. Prerequisite: advanced standing in major department.

## *FRENCH*

- 161-0. FRENCH FOR GRADUATE STUDENTS. To help graduate students prepare for proficiency examination in French for the Ph.D. degree. No previous study required.
- 440-2. FRENCH POETRY OF THE RENAISSANCE. Development of French poetry from 1550 to 1600.
- 500-2. SEMINAR IN CONTEMPORARY FRENCH LITERATURE. Intensive study of the "Roman fleuve" as exemplified in the works of Duhamel, Martin du Gard, and Romains.
- 501-2 to 6. SEMINAR ON A SELECTED FRENCH AUTHOR. Intensive study of one author—his life, his work, and his place in the literary and cultural developments of civilization. A. Balzac, B. Baudelaire, C. Moliere, D. Montaigne, E. Proust.
- 509-4. FRENCH LITERATURE FROM 1800 TO 1850. Romanticism in French literature and its relation to the general European Romantic movement.
- 510-4. FRENCH LITERATURE FROM 1850 TO 1900.
- 511-3. TWENTIETH-CENTURY FRENCH DRAMA. French drama from 1900 to the present.
- 520-4. GRADUATE COMPOSITION AND DICTION. Composition based on study of contemporary French authors; individual work in pronunciation and diction determined by entrance tests.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## *GERMAN*

- 161-0. GERMAN FOR GRADUATE STUDENTS. To help graduate students prepare for proficiency examination in German for the Ph.D. degree. No previous study required.
- 401-2. GOETHE'S FAUST, PART I. The Faust legend and early Faust books and plays; the genesis of Goethe's Faust; reading of Part I. Lectures, reports.
- 402-2. GOETHE'S FAUST, PART II. Reading of Part II; study of symbolisms, such as Part II's blending of paganism with Christianity, ancient Greek culture with Germanic culture, Helen's Classicism with Faust's Romanticism. Lectures, reports.
- 403-3. GERMAN BALLADS AND LYRICS. A selective study of the foremost examples of German balladry and lyric poetry, ranging from the poetry of Klopstock and Bürger to that of Rilke and Werfel. Lectures, recitations.
- 411-3. MIDDLE HIGH GERMAN I. Grammar and selective readings in such

- national epic poems of the Middle High German Period as the Nibelungen Lied and Gudrun. Lectures, reports.
- 412-3. MIDDLE HIGH GERMAN II. The courtly epic poetry of such representative authors as Wolfram von Eschenbach, Gottfried von Strausburg, Hartmann von Aue, and the lyric poetry of Walther von der Vogelweide. Lectures, reports.
- 500-2. SEMINAR IN CONTEMPORARY GERMAN LITERATURE. Intensive study of the works of representative German authors, with special reference to the correlation existing between literary expression and social, economic, and political conditions since 1900. Lectures, outside readings, reports.
- 501-2. SEMINAR ON A SELECTED GERMAN AUTHOR. Intensive study of one author—his life, his work, and his place in the literary and cultural development of civilization. Lectures, outside readings, reports.
- 511-3 to 9. THESIS OR RESEARCH IN GERMAN LITERATURE. For students who are writing a thesis or making an advanced graduate study of some phase of German literature. Lectures, compilation of bibliographies, other research techniques, papers. 2 to 4 hours each (maximum of 9 hours).
- 591-2 to 6. SEMINAR ON KANT. A selective study of the works of Immanuel Kant, with special emphasis on the influence exerted by Kantian philosophy on subsequent German literature. Course counted on a major in philosophy, subject to the consent of the Department of Philosophy. Lecture, outside readings, reports. 2 hours each.

### SPANISH

- 415-3. SPANISH PHONETICS. Analysis of the sounds of Spanish and their manner of production; special drill in connected passages of prose and poetry.
- 478-4. SEMINAR IN LATIN AMERICAN THOUGHT. (Same as Philosophy 478.)
- 500-2. SEMINAR IN LATIN-AMERICAN LITERATURE. Intensive study of the modern novel in Latin America as an expression of social and cultural movements. Outside readings and class discussions.
- 501-2. SEMINAR ON A SELECTED SPANISH AUTHOR. Intensive study of one author—his life, his works, and his relationships to the literary and social currents of his time.
- 505-3. THE PICARESQUE NOVEL. Class study of the Lazarillo, and collateral readings of other masterpieces of this genre.
- 506-3. THE RENAISSANCE. A study of the literature of the Renaissance in Spain, including the drama, the novel, the lyric poetry, and the histories of the Indies.
- 520-4. COMPOSITION AND GRAMMAR. Free composition, based upon analysis of the style of contemporary Spanish authors, with special reference to grammatical construction. Special projects in grammar.
- 525-3. THE SPANISH BALLADS. The *romance* studied as a part of the literature and folklore of Spain and the New World.
- 530-3. LATIN-AMERICAN POETRY. Study of the modern trends in the poetry of Latin America as a whole, with emphasis on its international

aspect and its relation to other literary forms. Prerequisite: 333 or consent of instructor.

- 535-3. ENSAYISTAS MEXICANOS DEL SIGLO DIECINUEVE. Study and discussion of ideologies and conflict in thought as reflected in writings of Mexican essayists of the past century.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

### ROMANCE PHILOLOGY

- 410-4. ROMANCE PHILOLOGY I. A survey of the phonology, morphology, and syntax changes in Romance languages in general; special attention to the developments in French and Spanish for majors in these fields.
- 514-4. ROMANCE PHILOLOGY II. Studies in syntax of Old French and Old Spanish, with special problems in the field of the student's major interest.
- 515-4. READINGS IN ROMANCE. Selected readings in the literature of Old French and Old Spanish, with emphasis upon the student's major field. Prerequisite: 410 or equivalent.
- 516-4. ARTHURIAN ROMANCE. Intensive readings in the Arthurian Romances in the field of the student's major interest (French or Spanish) with reference to the genre as a whole. Prerequisite: 410 or equivalent.

### FORESTRY

- 427-4. MINERAL NUTRITION OF PLANTS. (Same as Botany 427.)
- 440-4. ECOLOGY OF GRASSES AND GRASSLANDS. (Same as Botany 440.) Structure analysis and dynamics of grassland communities; structure and growth of individual species. Field and laboratory work costs about \$5. Prerequisite: Botany 340 or consent of instructor.
- 464-4. ADVANCED SILVICULTURE. Analysis and measurement of site quality; stand density; growth as related to site factors and competition; factors affecting reproduction; the tree as a variable. Prerequisites: 364, 365.
- 465-2 to 4. FORESTRY FIELD STUDIES. An extended trip to study forest conditions and silviculture in different forest regions of the United States. Cost shared by students. Prerequisites: 330, 363, 364, 365.
- 470-4. ECONOMICS OF PRODUCTION AND MARKETING IN FORESTRY. Introduction to forestry economics; micro-economics of forestry production and conservation; marketing and pricing of forest products. Prerequisite: Economics 205.
- 471-4. LAND RESOURCE ECONOMICS. (Same as Agricultural Industries 471 and Economics 471.) The use of land as an economic variable in production of goods and services; land markets; group versus individual conflicts; elementary land resources planning techniques. Field trip costs about \$5. Prerequisites: Economics 205, 206 or Forestry 470.
- 475-4. MACRO-ECONOMICS AND PLANNING IN FORESTRY. Study of forestry economy; introduction to public planning in forestry including consumption and production goals. Prerequisite: 470 or consent of instructor.
- 520A-1 to 6. READINGS IN FORESTRY. Directed readings in selected subjects.



- 520B-1 to 6. READINGS IN RESOURCE ECONOMICS. (Same as Agricultural Industries 520B and Economics 502.) Directed readings in the field of natural resource economics.
- 575-1 to 6. RESEARCH. Directed research in selected fields of forestry.
- 581-1 to 6. SEMINAR. Study and discussion of forestry problems.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## GEOGRAPHY

- 402-4. THE SOVIET UNION. A study of the U.S.S.R. based on both a systematic and a regional approach. Appraisal of the natural-resource base of Russia as well as an estimate of her industrial and agricultural strength. Prerequisite: 100 or consent of instructor.
- 404-4. GEOGRAPHY OF AGRICULTURE. A functional study of the bases, interrelationships, and geographic distribution of agricultural production. Prerequisites: 100, 101, 210, or consent of instructor.
- 405-4. GEOGRAPHY OF MANUFACTURING. A functional study of the bases, interrelationships, and geographic distribution of industries. Prerequisites: 100, 101, 210, or consent of instructor.
- 406-4. GEOGRAPHY OF TRANSPORTATION. The pattern of modern transport networks and trade routes; the importance of trade routes; the importance of trade and transportation as geographic factors. Prerequisites: 100, 101, 210, or consent of instructor.
- 407-4. REGIONAL CLIMATOLOGY. Principles of climatology; physical bases for the differentiation of climate types, description and interpretation of climatic regions. Prerequisite: 100 or consent of instructor.
- 411-4. URBAN GEOGRAPHY. The urban population: environment, development, and distribution; geographic factors related to the origin, structure, and functions of urban centers. Prerequisites: 100, 101, 210, or consent of instructor.
- 413-3 to 4. GEOGRAPHY OF THE CARIBBEAN LANDS. A regional approach to the study of the lands bordering the Caribbean. Appraisal of the natural-resource base of the various countries. Prerequisite: 100.
- 416-4. CARTOGRAPHY. Instruction and practice in the basic techniques of map-making; consideration and solution of problems involved in the construction of maps; problems in map reproduction. Prerequisite: 100 or consent of instructor.
- 417-3. AIR PHOTO INTERPRETATION. Techniques in the use of air photos as source material for research in the physical and social sciences. Laboratory. Prerequisite: 212 or consent of instructor.
- 420-4. GEOGRAPHY OF AFRICA. A regional approach to the study of the continent. Patterns of climate, soils, minerals, vegetation, and relative location to be woven together with the agricultural, economic, and industrial features into the regional framework of Africa. Prerequisite: 100 or consent of instructor.
- 421-4. RESOURCES FOR THE FUTURE.
- 424-4. REGIONAL PROBLEMS IN CONSERVATION. The distribution, use, and interrelationship of the resources in the various resource management regions of the United States, the conservation techniques applied to them,

and the problems of public policy in their effective management. Prerequisites: 100, 324, or equivalent courses.

- 430-4. **PHYSIOGRAPHIC PROVINCES OF NORTH AMERICA.** (Same as Geology 430.) Designed to give the students an appreciation of the evolution of land forms in the physiographic provinces of North America; to explain the surface features in a landscape; and to interpret the human drama related thereto. Prerequisites: 100, 101, 210, and advanced standing.
- 431-4. **GEOMORPHOLOGY.** (Same as Geology 431.)
- 435-4. **GEOGRAPHY OF LANDFORMS.** This course attempts to develop concepts of objective landform description. Using this approach the world distribution of landforms will be examined with special emphasis on the landforms of the United States. Prerequisite: 101 or consent of instructor.
- 436-3. **PLANT GEOGRAPHY.** (Same as Botany 450.)
- 440-2 to 4. **READINGS IN GEOGRAPHY.** Supervised readings in selected subjects. Prerequisites: 100, 101, 210, and advanced standing.
- 444-4. **POLITICAL GEOGRAPHY.** An examination of principles of political geography followed by an analysis of the world pattern of political organization by regions. Prerequisite: at least three courses in geography and completion of university social science requirements.
- 445-2 to 8. **SOUTH AMERICAN STUDY TOUR.** See Foreign Languages 445 for course descriptions.
- 450-3 to 15. **TRAVEL STUDY COURSES.** Designed chiefly for in-service teachers and for others whose work needs enrichment through travel. Prior to departure from campus, intensive supervised study and/or readings relative to areas or countries to be visited. Written report due within six weeks after completion of study in the field. Not open for credit to graduate students in geography. Prerequisite: 100 or equivalent.
- 455-4. **GEOGRAPHY OF POPULATION.** Study of the geographic significance of population numbers, characteristics, and change throughout the world and the relationships between population and economic resources. Emphasis on assessing possible causes and effects of population distribution. Study of data sources and techniques of measurement and mapping. Prerequisites: 13 hours of geography including 210 or consent of instructor.
- 460-2. **CURRENT GEOGRAPHICAL JOURNALS.** Designed to acquaint students with the leading journals in the field. Each student to report content of certain recent or current issues. Prerequisite: minimum of 14 hours of geography.
- 470-4. **URBAN PLANNING.** (Same as Government 470.) An interdepartmental course in the basic problems of planning in the urban community. The course includes the administrative and physical principles involved in the planning of urban land use. Emphasis is upon research techniques, design principles, and governmental instrumentalities in the planning process. Prerequisite: consent of instructor.
- 485-4. **WORKSHOP IN THE GEOGRAPHY OF LATIN AMERICA.** For in-service geography and social studies teachers in elementary and junior high, to provide understanding of and identification with Latin American environment and culture. Prerequisite: 100. Not open to students who have had 316 or 413.
- 500-4. **GEOGRAPHIC TECHNIQUES I.** Field experience in the techniques of

observation, mapping, interview, and analysis as applied in geography. One day a week spent in the field near Carbondale.

- 501-4. GEOGRAPHIC TECHNIQUES II. Introduction to and appraisal of library sources and bibliographical aids. Thesis organization, form, and investigational procedures. Individual projects and reports.
- 511-4. PHILOSOPHY OF GEOGRAPHY. The nature of geography. Current trends in the field, present-day geographers, and schools of thought. Geography's place among the disciplines.
- 521-2 to 4. SEMINAR IN ECONOMIC GEOGRAPHY.
- 522-2 to 12. SEMINAR IN REGIONAL GEOGRAPHY.
- 523-4. SEMINAR IN CARTOGRAPHY.
- 524-2 to 8. SEMINAR IN CULTURAL GEOGRAPHY.
- 530-2 to 10. INDEPENDENT STUDIES IN GEOGRAPHY.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## GEOLOGY

- 401-4. ADVANCED GENERAL GEOLOGY. Deals with certain broader problems of geology; earthquakes, volcanism, submarine canyons, coral islands, mountain building. Laboratory. Prerequisites: 220, 302.
- 405-3. MAP AND AIR PHOTOS. Interpretation and use of air photos in geologic mapping; interpretation and construction of geologic maps, such as areal, structure, isopach, paleogeologic. Laboratory. Prerequisites: 212, 221, 302, 431.
- 410-4. STRATIGRAPHY AND SEDIMENTATION. The characteristic features of sedimentary rocks and their processes of origin; the classification of stratigraphic units, methods of correlation, and paleogeologic reconstruction. Laboratory. Prerequisites: 220, 221.
- 415-4. OPTICAL MINERALOGY. The optical properties of minerals and the use of the petrographic microscope for identification of crystals by the immersion method and by thin section. Laboratory. Prerequisites: 310, Physics 208.
- 416-4. X-RAY CRYSTALLOGRAPHY. Introduction to the study, measurement, and identification of unknown crystalline materials by X-ray diffraction techniques (especially the Debye-Scherrer method). Upon request, non-geology majors may work with unknowns from their own fields of study. Prerequisites: 310, Mathematics 113.
- 420-3, 421-3, 422-3. GEOLOGY OF PETROLEUM. A sequence of courses considering the geological occurrence of petroleum, including origin, migration, and accumulation; a survey of exploration methods and production problems and techniques. Laboratory study applies geological knowledge to the search for and production of petroleum. Laboratory. Prerequisites: 221, 302.
- 425-5, 426-4, 427-4. PALEONTOLOGY I, II, and III. 425 is a survey of the important invertebrate phyla and their fossil representatives; 426 the mollusca, arthropoda, brachiopoda, and echinodermata; 427 the protozoa, porifera, coelenterata, bryozoa, and other minor groups. Includes classification, evolution, paleoecology, and geographic and stratigraphic distribution. Laboratory. Prerequisites: 221, 425, Zoology 100.

- 430-4. **PHYSIOGRAPHIC PROVINCES OF NORTH AMERICA.** (Same as Geography 430.) Designed to give the student an intelligent appreciation of the evolution of land forms in the physiographic provinces of North America and to explain the surface features in a landscape. Prerequisite: 220 or Geography 100.
- 431-4. **GEOMORPHOLOGY.** A study of land forms, relating topographic features to the underlying rocks and structure and to processes of erosion, deposition, and earth movements. Prerequisite: 220 or Geography 100.
- 440-1 to 4. **INDEPENDENT STUDY.** Prerequisites: 220, 221, advanced standing.
- 450-9. **FIELD GEOLOGY.** A field mapping course including problems in stratigraphy, structure, paleontology, physiography, and economic geology. Requires a written geologic report. Consult the department for dates, cost, and equipment. Students will live at the Little Grassy Lake campus. Prerequisite: 302.
- 510-3, 511-3, 512-3. **STRATIGRAPHY.** (Paleozoic, Mesozoic, Cenozoic.) Character, chronologic sequence, correlation, time relations, facies, analysis and comparison of rock and biostratigraphic units of selected regions throughout the world with emphasis on North America. Laboratory problems involving stratigraphic interpretation from maps, construction of stratigraphic sections, facies maps, and faunal analysis. Field trip and written report required. 3 lectures, 1 laboratory. Prerequisites: 302 425, 426.
- 515-4, 516-4, 517-4. **MINERAL DEPOSITS.** (Principles, Metallics, Non-metallics.) Principles of mineral deposition and genesis, and the origins and geologic settings of the important mineral deposits of the world. Laboratory. Prerequisites: 302, 310.
- 520-4. **IGNEOUS PETROLOGY.** Physical chemistry, petrographic classification, and genetic relationships of the igneous rocks. Prerequisites: 310, 415, or equivalent.
- 521-4. **METAMORPHIC PETROLOGY.** Physical chemistry, petrographic classification, and genetic relationships of the metamorphic rocks. Prerequisites: 310, 415, or equivalent.
- 522-4. **SEDIMENTARY PETROLOGY.** Petrographic classification and origin of sedimentary rocks. Prerequisites: 310, 415.
- 528-3. **INTRODUCTION TO MICROPALAEONTOLOGY.** The study of Foraminifera and Ostracoda is emphasized, but a survey of microscopic fossil organisms and skeletal elements of megafossils is included. Laboratory work in techniques of collection and preparation and methods of study of microfossils. Prerequisite: 426.
- 540-1 to 9. **ADVANCED STUDIES.**
- 541-1 to 9. **RESEARCH.**
- 599-2 to 9. **THESIS.** Minimum of 5 hours to be counted toward a master's degree.

## GOVERNMENT

- 406-4. **THE AMERICAN CHIEF EXECUTIVE: PRESIDENT AND GOVERNOR.** A study of the origin and background of the presidency and the governorship, qualifications, nomination and election, succession and re-



- moval, the organization of the executive branch, and the powers and functions of the president and governor. Prerequisites: 231, 232.
- 410-5. **LABOR AND POLITICS.** A political history of the American labor movement from its early nineteenth-century origins to the present day. Attention is given to the political philosophy and practice of labor unions. Prerequisite: 231.
- 415-3. **POLITICAL BEHAVIOR.** An analysis of the nature of public opinion and methods of influencing political behavior. Major attention given to studying the basic psychological attitudes and behavior. Prerequisite: 231.
- 420-3. **PRESSURE GROUPS AND POLITICS.** An analysis of interest groups and their techniques of political propaganda. Prerequisite: 101 or 231.
- 432-3. **GOVERNMENT AND NATURAL RESOURCES.** A study of the administrative and policy problems in the development of multiple purpose conservation programs by the national government. Prerequisite: 231 or consent of instructor.
- 434-3. **GOVERNMENT AND AGRICULTURE.** An historical and contemporary survey of the role of agriculture in politics, the major and minor farm parties and pressure groups, the elements of the current "farm problem," and the influence of agriculture in public agencies and the formation of public policy. Prerequisite: 231.
- 435-4. **GOVERNMENT AND BUSINESS.** An historical study, with contemporary emphasis upon relations between government and economic institutions. Prerequisite: 231 or consent of instructor.
- 436-3. **GOVERNMENT AND LABOR.** (Same as Economics 436.) A study of labor relations and legislation considering both constitutional and economic aspects. Prerequisites: 101 or 231 or 300, Economics 205, or consent of instructor.
- 438-4. **SOCIAL WELFARE LEGISLATION.** The Social Security Act and other legislation of major significance for the welfare and maintenance of the family, the handicapped, children, and other special groups. Their relationship to the legal structure of federal, state, county, township, and municipal welfare facilities and institutions with indications of economic and social consequences. Prerequisite: 101 or consent of instructor.
- 440-5. **PUBLIC PERSONNEL MANAGEMENT.** A survey of the methods and functions of modern public personnel administration. Prerequisite: 360.
- 441-4. **PHILOSOPHY OF GOVERNMENT.** (Same as Philosophy 441.) Some of the central problems of modern political life, such as sovereignty, world government, authority and consent, the relations of economics and social studies to political theory. Prerequisite: Philosophy 140 or 340, or consent of instructor.
- 445-2 to 8. **SOUTH AMERICAN STUDY TOUR.** Study tour of various South American countries. Tour preceded by required reading, lectures, and examination. Lectures by professors of universities in countries visited on topics of special interest in each country. Study of political, economic, social, historical, artistic, and geographic characteristics of these countries. Credit may be earned in foreign languages, or in a combination of departments, as determined by consultation with department chairmen and the Latin American Institute. Final week on campus for completion of papers and reports. Prerequisite: advanced standing in major department.
- 452-4. **GOVERNMENTS AND POLITICS OF SUB-SAHARA AFRICA.** A

- study of the governments and politics of the former and present British and French territories: Ghana, Nigeria, Kenya, Guinea, Congo, Senegal, etc. Prerequisite: 390 or consent of instructor.
- 453-4. SOVIET RUSSIA AND THE COMMUNIST STATES OF EASTERN EUROPE. An intensive study and research exercise in communist government and politics. Prerequisite: 390 or consent of instructor.
- 454-8. DEVELOPMENT OF GERMAN DEMOCRACY. Offered co-operatively by Southern Illinois University and the University of Hamburg. Involves a summer's residence in Hamburg, Germany, and study under professors of the two co-operating universities. Prerequisite: consent of the American professor.
- 455-4. MAJOR GOVERNMENTS OF WESTERN AND CENTRAL EUROPE. A comparative study of the political systems of the major countries of Western and central Europe. Prerequisite: 390 or consent of instructor.
- 456-4. GOVERNMENT OF THE BRITISH COMMONWEALTH AND EMPIRE. A survey of the governmental institutions and practices within the British Empire, with particular attention to the political systems of Australia, Canada, and South Africa. (The governments of India and Pakistan are treated in 458.) Prerequisite: 390 or consent of instructor.
- 457-4. GOVERNMENT AND POLITICS IN THE NEAR AND MIDDLE EAST. Iran, Iraq, Syria, Lebanon, Egypt, Jordan, Saudi Arabia, etc. Prerequisite: 390 or consent of instructor.
- 458-4. GOVERNMENT AND POLITICS OF SOUTHEAST ASIA. Burma, Thailand, Malaya, Indochina, Indonesia, Philippines. Prerequisite: 390 or consent of instructor.
- 459-4. GOVERNMENT AND POLITICS OF THE FAR EAST. China, Japan, Korea, Formosa. Prerequisite: 390 or consent of instructor.
- 460-4. GOVERNMENT AND POLITICS OF SOUTH ASIA. India, Pakistan, Ceylon. Prerequisite: 390 or consent of instructor.
- 461-4. THEORY OF PUBLIC ADMINISTRATION. Analysis of various theoretical approaches to public administration with emphasis on recent American literature in this field. Prerequisite: 360 or consent of instructor.
- 462-3. ADMINISTRATIVE ORGANIZATION. A survey of the reorganization movement as a whole in the United States with emphasis on recent national, state, and local developments. Prerequisite: 360 or consent of instructor.
- 463-3. PROBLEMS OF EXECUTIVE MANAGEMENT. Principles of organization; techniques of conducting organization and procedural studies; work simplification; problems of the executive. Prerequisite: 360.
- 464-3. REGULATORY ADMINISTRATION. A study of the work of the major regulatory commissions of the national government. Prerequisite: 360 or consent of instructor.
- 466-3. STATE GOVERNMENT AND ADMINISTRATION. Leading problems of government and administration of American states. Prerequisite: 232.
- 467-3. MUNICIPAL GOVERNMENT AND ADMINISTRATION. Development and functioning of city government in the United States. Prerequisite: 232.
- 468-3. COUNTY GOVERNMENT IN THE UNITED STATES. An examination of the traditional rural county and township, the growing number of metropolitan counties, and the associated growth of special districts in the United States. Prerequisite: 232.

- 469-3. ADMINISTRATION OF STATE AND LOCAL FINANCE. An examination of the administrative problems connected with local and state revenues and expenditures in the United States. Prerequisite: 232.
- 470-4. URBAN PLANNING. (Same as Geography 470.) An interdepartmental course in the basic problems of planning in the urban community. The course includes the administrative and physical principles involved in the planning of urban land use. Emphasis is upon research techniques, design principles, and governmental instrumentalities in the planning process. Prerequisite: consent of instructor.
- 471-4. THE ORGANIZATION AND ADMINISTRATION OF AMERICAN FOREIGN POLICY. An advanced course dealing with the organizational and administrative aspects of American foreign policy. Prerequisite: 243 or 371.
- 472-4. INTERNATIONAL GOVERNMENT. Development and organization of international governmental and administrative systems, with emphasis on the United Nations. Prerequisite: 370.
- 475-4. INTERNATIONAL LAW. Rules and practices governing the nations in their relations in peace and war. Prerequisite: 370.
- 478-4. INTERNATIONAL POLITICS. A study of the interplay of political forces in the international community. Particular emphasis will be placed on war-time diplomacy, peace treaties, the alignments and conflicts of power in the post-war period. Prerequisite: 370 or consent of instructor.
- 480-4. THE PACIFIC AND THE FAR EAST. Political and strategic problems in this area. Prerequisite: 370 or History 370
- 484-4. ANCIENT AND MEDIEVAL POLITICAL THEORIES. Outstanding political theories of the ancient and medieval periods, including theories of Aristotle, Plato, Cicero, St. Augustine, and Thomas Aquinas. Prerequisite: 6 hours of government.
- 485-4. MODERN POLITICAL THEORIES. Important political theories from the Renaissance to the end of the eighteenth century, including the theories of Machiavelli, Hobbes, Rousseau, Locke, and Burke. Prerequisite: 6 hours of government.
- 487-4. AMERICAN POLITICAL IDEAS. An historical study of the political ideas of leading American statesmen and publicists, and their resulting influence upon our governmental system. Prerequisite: 305 or 385.
- 488-3. RECENT POLITICAL THEORY I. The outstanding Anglo-American liberal political theorists from John Stuart Mill to the present. Prerequisite: 305 or 390.
- 489-3. RECENT POLITICAL THEORY II. The outstanding "scientific" political theorists from Karl Marx to the present. Prerequisite: 385 or 391.
- 490-3. RECENT POLITICAL THEORY III. The outstanding idealistic and nationalistic political theorists from Hegel to the present. Prerequisite: 385 or 390.
- 495-4. CONSTITUTIONAL LAW I. Constitutional law of the United States with emphasis upon cases dealing with the framework of our federal system. Prerequisite: 231.
- 496-4. CONSTITUTIONAL LAW II. Constitutional law of the United States with emphasis upon cases dealing with the framework of American liberties. Prerequisite: 231.
- 497-4. ADMINISTRATIVE LAW. Law as it affects public officials in carrying



- out the rights, duties, and necessary functions of the public office. Prerequisite: 360.
- 498-4. JURISPRUDENCE. (Theories of Law.) Major schools in legal thinking. Positive law and natural law. Idea of justice and concept of natural rights. Prerequisite: 231.
- 499-2. RESEARCH METHODS. Practical training in research and writing techniques in the field of government. Bibliographical materials, foot-notes, use of law library facilities, and government documents. Required of all beginning graduate students.
- 501-525. SEMINARS. Preparation and presentation, for criticism, of assigned research papers. Hours of credit as announced.
501. SEMINAR IN CONTEMPORARY LEGISLATION. Prerequisite: 340 or consent of instructor.
502. SEMINAR IN GOVERNMENTAL PROBLEMS. Prerequisite: consent of instructor.
503. SEMINAR IN PRESSURE GROUPS. Prerequisite: 420 or consent of instructor.
505. SEMINAR IN POLITICAL PARTIES. Prerequisites: 380, 420, or consent of instructor.
508. SEMINAR IN INTERNATIONAL RELATIONS. Prerequisites: 370, 472 or 475, or consent of instructor.
509. SEMINAR IN INTERNATIONAL ORGANIZATION. Prerequisite: 472 or consent of instructor.
510. SEMINAR IN STATE GOVERNMENT. Prerequisite: 466 or consent of instructor.
511. SEMINAR IN LOCAL GOVERNMENT. Prerequisite: 467 or consent of instructor.
512. SEMINAR IN PUBLIC ADMINISTRATION. Prerequisite: 360 or consent of instructor.
513. SEMINAR IN CONSTITUTIONAL LAW. Prerequisite: 395 or consent of instructor.
515. SEMINAR IN COMPARATIVE CONSTITUTIONS.
516. SEMINAR IN MUNICIPAL ADMINISTRATION. Prerequisite: 467 or consent of instructor.
517. SEMINAR IN PROBLEMS IN POLITICAL THEORY. Prerequisite: 360 or consent of instructor.
520. SEMINAR IN AMERICAN FOREIGN POLICY. Prerequisite: 371 or consent of instructor.
- 521-1 to 12. READINGS IN GOVERNMENT. Supervised readings in selected subjects. Not more than 6 hours may apply toward the master's degree. Prerequisite: consent of instructor.
525. SEMINAR IN INTERNATIONAL LAW. Prerequisite: 475 or consent of instructor.
526. SEMINAR IN COUNTY GOVERNMENT. Prerequisite: 465 or consent of instructor.
- 530-4 to 12. INTERNSHIP IN PUBLIC AFFAIRS. Field work in the office of a governmental agency; city, county, state, national, or international. Under certain circumstances it might be in the office of a political party organization or in that of some organized pressure group. The type of internship and the place and organization in which it is taken must be mutually satisfactory to the student and the department. A paper in



- which the student correlates his academic knowledge with his practical experience is required. Prerequisite: consent of department.
- 595-2 to 4. **INDIVIDUAL RESEARCH.** Selection, investigation, and writing of a research topic under the personal supervision of a member of the departmental graduate staff. Prerequisite: 499 or consent of instructor.
- 598A-1, 598B-1, 598C-1. **TEACHING GOVERNMENT.** A seminar course devoted to the general and specific problems of teaching government on the college level. Required of all graduate assistants who are given teaching assignments, and recommended for other graduate students who contemplate teaching on the college level. Open to staff members.
- 599-2 to 9. **THESIS.** Prerequisite: 499 or consent of instructor. Minimum of 5 hours to be counted toward a degree.
- 600-3 to 48. **DISSERTATION.** Minimum of 36 hours to be earned for the Ph.D. degree.

## GUIDANCE

- 400-4. **ORIENTATION PRACTICUM IN COLLEGE PERSONNEL.** The student spends 4-5 hours per week doing routine work under supervision in the Office of Student Affairs.
- 412-4. **MENTAL HYGIENE.** An integration of knowledge and principles concerning factors and conditions in the personal life that tend to facilitate or deter mental health. Mental health viewed as living creatively in an atmosphere of satisfactory interpersonal relations. Prerequisite: 305.
- 420-4. **EDUCATIONAL STATISTICS.** The statistics needed by teachers for classroom use, the reading of educational literature, and informal educational research. Includes methods of organizing and presenting data, describing group performance, describing individual performance, model distributions, measure of relationship, measures of reliability, and tests of significance. Prerequisite: 305.
- 422-3 or 4. **EDUCATIONAL MEASUREMENTS I.** Study of the philosophy and techniques of measurement. Special attention to the construction and use of teacher-made tests. Prerequisite: 305.
- 426-4. **INDIVIDUAL INVENTORY.** Principles and procedures for studying individual pupils and their problems, for guidance purposes. Emphasis on interview, observation, ratings, case study, cumulative record, etc. Prerequisites: 442, and 421 or 422.
- 442-4. **BASIC PRINCIPLES OF GUIDANCE.** Introductory course on student personnel services. Survey of philosophy, principles, and organization of guidance services. Prerequisite: 305.
- 475-4. **IMPLEMENTATION OF GUIDANCE PRINCIPLES IN THE PUBLIC SCHOOLS.** Survey course for non-guidance personnel. Emphasizes methods of co-operating with guidance personnel in establishing and maintaining a functional program of guidance services. Prerequisite: consent of instructor. Offered on demand.
- 481-1 to 6. **SEMINAR ON A SELECTED TOPIC.** Seminars conducted by staff members and/or distinguished guest lecturers on topics related to the area of guidance. Amount of credit will be determined on the basis of the topic and the amount of time required for adequate presentation.

- 485-4 to 9. WORKSHOP IN EDUCATIONAL UTILIZATION OF COMMUNITY RESOURCES. (Same as Education 485.)
- 501-2 to 6. SPECIAL RESEARCH PROBLEMS. For majors in the Department of Guidance. Formulating, investigating, and reporting on a problem in the area of guidance. Prerequisite: advanced standing and consent of instructor.
- 502-4. MEASUREMENT AND EVALUATION OF PRODUCTS AND PROCEDURES. See Industrial Education 502 for course description.
- 503-4. TESTS AND MEASUREMENTS IN BUSINESS EDUCATION. See Secretarial and Business Education 503 for course description.
- 511-4. EDUCATIONAL IMPLICATIONS OF LEARNING THEORIES. Survey of the major theories of learning; conditioning, connectionism, and field theory. Emphasizes the implications of these theories for classroom practice. Prerequisite: 412, 420, 422, 442.
- 515-4. PSYCHOLOGICAL ASPECTS OF EDUCATION. Seminar in which each student prepares and presents a paper concerning a specific application of psychological principles in an educational situation. Discussion by class and staff follows each presentation. Prerequisites: 412, 420, 422, 442.
- 520-4. ADVANCED EDUCATIONAL STATISTICS. Statistical methods needed for educational research. Includes reliability of statistics, tests of significance, nonparametrics, correlational analysis, and test selection. Prerequisite: 420.
- 521-4. DESIGNING OF EXPERIMENTS IN EDUCATION. Systems of organizing and analyzing data so that maximum information can be obtained. Includes analysis of variance, factorial design, square designs, mixed designs, tests of homogeneity, analysis of covariance, etc. Prerequisite: 520.
- 522-4. EDUCATIONAL MEASUREMENTS II. Study of standardized tests and other measuring devices to reveal individual and group characteristics. Emphasizes application and interpretation for counseling, education, and research purposes. Prerequisites: 420, 422.
- 525-4. SCHOOL BEHAVIOR PROBLEMS AND THEIR PREVENTION. Etiological factors, differential diagnosis, and methods used in the correction of behavior problems. Consideration of intra-community and extra-community facilities available in treatment programs. Includes in-service field work. Prerequisites: 412, 442.
- 526-4. TECHNIQUES IN INDIVIDUAL GUIDANCE. Each student employs psychometric procedures, makes observations, and holds interviews with the student, the parent, the teachers, and others. The student to work with one individual throughout the term. Prerequisite: 525.
- 528-4. ADVANCED GUIDANCE OF THE INDIVIDUAL. A continuation of 426 or 526. Techniques and the methods of treatment which would apply to a particular case. Individual directions and guidance given students by members of the staff. Problems for consideration; educational difficulties, physical disorders, and the way in which these are related to behavior of school children. Prerequisite: 526.
- 535-4. INTRODUCTION TO INDIVIDUAL MEASUREMENT. Survey of theories and practices in the individual assessment of human behavioral characteristics, to develop understanding and appreciation of these concepts for use in the counseling relationship. Prerequisite: 522.
- 536A-4. APPRAISAL OF INTELLIGENCE (Elementary School Level).

- 536B-4. APPRAISAL OF INTELLIGENCE. (Adolescents).
- 537-4. COUNSELING THEORY AND PRACTICE I. Systematic study of the major approaches to counseling. Observation and practice utilized to supplement didactic discussion. Prerequisite: 441 or 442 or consent of instructor.
- 538-3. COUNSELING THEORY AND PRACTICE II. Systematic study of major theories of counseling, as they apply to school situations. Supervised experience in role-playing utilizing these approaches to counseling. Prerequisite: 537.
- 539-3. COUNSELING THEORY AND PRACTICE III. Continuation of 538 with supervised experience in actual counseling to illustrate relationship of theory and practice. Prerequisite: 538.
- 541-4. OCCUPATIONAL INFORMATION AND GUIDANCE. Designed for school counselors, industrial supervisors, and teachers to give them an orientation to and experience with occupational information and vocational adjustment. Prerequisites: 412, 442.
- 543-4. GUIDANCE THROUGH GROUPS. Study of the methods, techniques, and materials for the organization and utilization of groups for guidance purposes. Prerequisites: 412, 442.
- 545-4. SEMINAR IN GUIDANCE. A seminar-laboratory course to discuss current problems in guidance as met by guidance workers in the field in the following areas. A. Problems in Guidance, B. College Student Personnel, C. Educational Diagnosis, D. Test Development, E. Test Analysis, F. Pupil Adjustment, G. Learning and Instruction, H. Individual Differences, J. Organization and Administration, K. Rehabilitation.
- 550-2 to 8. PRACTICUM IN STUDENT PERSONNEL WORK. Practical work experience, under supervision, is provided in each of the following practicum areas. Open to majors in student personnel work who present adequate background and course work. Not more than 8 hours granted in any one area. A. Counseling, B. Group Activities, C. Housing, D. Student Aids, E. Administration, F. Testing.
- 562A-4. CHILD DEVELOPMENT IN EDUCATION. How children mature and develop with emphasis upon manipulating the curriculum and other school activities to promote normal healthy development. Prerequisite: 412.
- 562B-4. ADOLESCENT DEVELOPMENT IN EDUCATION. The problems of adolescence with emphasis upon ways in which the school can help adolescents in solving these problems. Prerequisite: 412.
- 565-4. PSYCHOLOGY OF ELEMENTARY SCHOOL SUBJECTS.
- 566-4. PSYCHOLOGY OF SECONDARY SCHOOL SUBJECTS.
- 573-2. SELECTION, PLACEMENT, AND FOLLOW-UP. Survey of current techniques and criteria used in selection, placement, and follow-up of both handicapped and non-handicapped employees.
- 574-1 to 12. SUPERVISED EXPERIENCE IN REHABILITATION. Experience both on and off campus in interviewing, counseling, case study, and placement of rehabilitation clients under adequate supervision.
- 575A-1 to 4. PRACTICUM IN REHABILITATION: COUNSELING. Practical experience in counseling the handicapped. Prerequisites: consent of Rehabilitation Institute.
- 576-4. PRACTICUM IN SCHOOL PERSONNEL WORK. Laboratory research course for advanced majors. Students to assist with testing programs,



keeping records, counseling students. Research projects to accompany practical experience. Minimum of 12 hours per week "on the job." Prerequisite: advanced standing.

- 581-4. INTERNSHIP: APPRAISAL TECHNIQUES AND PROCEDURES. Supervised experience in administering, scoring, interpreting, and using tests in a public school program. Prerequisite: consent of instructor. Offered on demand.
- 582-4. INTERNSHIP: COUNSELING. Supervised counseling experience with students in a public school guidance program. To include counseling of educational, vocational, social, and personal problems. Prerequisite: consent of instructor. Offered on demand.
- 583-4. INTERNSHIP: GROUP GUIDANCE TECHNIQUES. Supervised experience in conducting group guidance in a public school program. To include work with regularly scheduled group guidance classes as well as with clubs and other student organizations. Prerequisite: consent of instructor. Offered on demand.
- 596-5 to 9. INDEPENDENT INVESTIGATION. This is a field study required of each student working for the sixth-year professional certificate. The work should be done in the setting of a school system where the student is employed or where full co-operation is extended. The study will involve selecting of the problem, survey of pertinent literature, recording of results, and appropriate interpretations and summations.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.
- 600-3 to 48. DISSERTATION. Minimum of 36 hours to be earned for the Ph.D. degree.

## HEALTH EDUCATION

- 400-4. HEALTH APPRAISAL OF SCHOOL CHILDREN. The role of the teacher in the health appraisal of the school child, including school health examinations, use of health records, and emphasis on training for recognition of health deviations from normal common among school children. Not open to students who have had 450.
- 405-3. METHODS AND MATERIALS IN SOCIAL HYGIENE. Designed to prepare the prospective teacher to instruct in various phases of family life education.
- 413S-4. SAFE AND HEALTHFUL LIVING OUTDOORS. Included are foods, sanitation, survival, plants and animals, natural hazards, emergency care, water, riflery, and others. Prerequisites: 334, and at least 10 hours of biological sciences.
- 415S-3 to 4. WORKSHOP IN DRIVER EDUCATION AND TRAFFIC SAFETY. Summer course designed for pre-service and in-service teachers of driver education and traffic safety. Individual and group problems will be treated. Lectures by safety authorities, demonstrations, field trips, audio-visual materials, and individually supervised research in special problem areas. Prerequisite: 302 or equivalent.
- 443S-4. METHODS AND MATERIALS IN DRIVER EDUCATION. An advanced course in driver education which includes a study of existing courses of study, review of research, course-of-study planning, visitation



and reporting, panel discussions, accident statistics, conducting the secondary school program, testing, and demonstration in the car. Prerequisite: 302.

- 450-4. **HEALTH EDUCATION IN THE ELEMENTARY SCHOOL.** Responsibilities of schools to instruct their students in basic fundamentals of how to live healthfully. Principles, methods, programs, and materials for the elementary teacher. The integration of health with other subjects, health observation of children, abnormalities, screening tests, and related materials. Not open to students who have had 400.
- 460-4. **METHODS AND MATERIALS IN SECONDARY SCHOOL HEALTH EDUCATION.** Shows the prospective teacher the fundamental processes involved in the teaching of health education at the secondary level.
- 461-4 to 8. **WORKSHOP IN HEALTH EDUCATION.** Summer course for in-service teachers, administrators, advanced students, nurses, social workers, and others interested in public health aspects of school and community living. Individual problems of classroom health treated as units in such fields as speech defects and their detection and correction, communicable disease control, nutrition, social and mental hygiene. Lectures, demonstrations, films, field trips, and individually supervised research in special problems. Prerequisite: 100 or equivalent.
- 462-4. **HEALTH EDUCATION WORKSHOP.** A continuation of 461 with emphasis on total school health teaching objectives.
- 463-4. **HEALTH EDUCATION WORKSHOP.** A continuation of 462 with emphasis on evaluation of total school health teaching program.
- 471-4. **ORGANIZATION AND ADMINISTRATION OF SCHOOL HEALTH.** Appraisal of over-all school organization for health education, including health service and personnel, health and safety instruction, school environment, school health examination, local, state, and federal resources for health, health councils, and interdepartmental relationships.
- 475S-3. **TRAFFIC LAW ENFORCEMENT AND PLANNING.** To acquaint safety and driver education teachers with the purposes of traffic law enforcement and control, and the methods used to fulfill these purposes. Emphasis on ways of improving existing services and co-ordinating the efforts of many official and nonofficial agencies concerned with the traffic problem. Prerequisite: 443 or consent of instructor.
- 480S-4. **WORKSHOP IN SAFETY EDUCATION.** Summer course for in-service teachers, nurses, administrators, advanced students, and others interested in safety education as it applies to the public school and the community. Individual problems, lectures, demonstrations, films, field trips, and individual group study in special areas of interest. Prerequisite: 313 or 323 or consent of instructor.
- 488-4. **HEALTH EDUCATION ASPECTS OF ENVIRONMENTAL SANITATION.** Application of principles of learning to man's contacts with his environment: water, food, air, radiation, housing, and refuse. Emphasis upon both individual and community aspects of environmental health. Prerequisites: 100, 205, or equivalent.
- 489-4. **INTRODUCTION TO VITAL STATISTICS.** An introduction to biostatistics; examination of theories of population growth; understandings of collection, organization, summarization, presentation, evaluation, and interpretation of data relative to biologic happenings. Prerequisite: Mathematics 120 or equivalent.

- 490-4 to 6. FIELD WORK IN SCHOOL AND COMMUNITY HEALTH. Field training, observation, and participation in current public and school health programs. Area schools and public health agencies will be utilized to provide practical experience for the health education student. Restricted to majors in the department.
- 500-4. COMMUNITY ORGANIZATION FOR HEALTH EDUCATION. Review of the philosophies of community organization for health; techniques of group work, current research in community organization, and examination of programs of community health agencies.
- 510-4. CONSTRUCTION OF THE CURRICULUM IN HEALTH EDUCATION. Review of health instruction programs in elementary and secondary schools, consideration of health needs and interests and their relationship to the curriculum, evaluation of health texts, and evaluation of current research.
- 511-5. PRACTICUM IN HEALTH EDUCATION WORKSHOP. Designed to give graduate and post-graduate students experiences in organizing, planning, and operating in-service training programs through workshop methods.
- 515-4. REVIEW OF CURRENT LITERATURE IN HEALTH EDUCATION, PUBLIC HEALTH, AND SAFETY EDUCATION. A survey and analysis of the newer publications in the related fields of health education, public health, and safety education.
- 520-4 to 6. SPECIAL PROJECTS IN HEALTH EDUCATION. For students who may wish to conduct more detailed research and study on advanced problems in the fields of public health, safety education, and health education.
- 525S-4. ORGANIZATION, ADMINISTRATION, AND SUPERVISION OF SAFETY EDUCATION. Basic principles, problems, policies, practices, and methods involved in the organization and administration of a safety education program.
- 530S-4. PROBLEMS AND RESEARCH IN ACCIDENT PREVENTION. Principles of accident prevention, causes of accidents, problems of behavior, and study of current research related to safe behavior in the school, home, traffic, and transportation. Prerequisites: 443S, 525S, or consent of instructor.
- 533-3. HUMAN CONSERVATION I. An analysis of community health problem trends and changes including aging; chronic and degenerative diseases; mental illnesses; traumatic illnesses, injuries, and defects; radiological hazards; communicable diseases; and maternal and child health problems. An epidemiological approach to the cause, nature, extent, and trends in erosion and wastage of human resources. Prerequisite: consent of instructor.
- 534-3. HUMAN CONSERVATION II. An analysis of community structures in relation to positive health services, education, and healthful living in respects to community health problems and health requirements. A study of trends in programming to meet minimum health requirements and to care for or ameliorate existing health problems and hazards on a community-wide basis. Prerequisite: 533.
- 535-3. HUMAN CONSERVATION III. An analysis of the unmet health needs or requirements for optimum conservation of human resources in the community including a study of pilot and experimental programs and

research in community efforts to meet health needs and solve existing health problems. An evaluative approach to existing health programming and research including an analysis of further needed experimentation and research and possible sources for leadership and funds for promoting community health research, programmings, and planning. Prerequisites: 533, 534.

590-4 to 12. FIELD INTERNSHIP. Full quarter of field work with an approved department of public health or voluntary health agency under the supervision of the agency officer in charge and the supervisor from the Department of Health Education.

## HIGHER EDUCATION

- 401-2. CAREERS IN HIGHER EDUCATION—COLLEGE TEACHING.
- 402-2. CAREERS IN HIGHER EDUCATION—COLLEGE STUDENT PERSONNEL.
- 403-2. CAREERS IN HIGHER EDUCATION—COLLEGE ADMINISTRATION. 401-403: A series of exploratory courses designed to acquaint the student with the career possibilities and functions of the respective areas.
- 410-4. HIGHER EDUCATION IN THE UNITED STATES. An overview of higher education with emphasis on current problems and organizational relationships.
- 441-4. FUNCTIONS AND ORGANIZATION OF COLLEGE STUDENT PERSONNEL. A description and discussion of the functions of college student personnel programs with an emphasis on the organizational relationships of the various functions.
- 450-1. ORIENTATION TO COLLEGE TEACHING. An introduction to the problems of college teaching with emphasis on classroom techniques for the graduate assistant or inexperienced college teacher.
- 477-2. PRINCIPLES OF COLLEGE STAFF MANAGEMENT. A study of systems and problems of personnel practices.
- 511-4. HISTORY AND PHILOSOPHY OF HIGHER EDUCATION. A study, using the historical approach, of the development of American philosophy of higher education.
- 512-4. HIGHER EDUCATION IN THE NATIONS OF THE WORLD. A comparative study of higher education systems.
- 513-4. POLICY MAKING AND CONTROL OF HIGHER EDUCATION. A case approach to a study of the sources of policy making, the methods of control, and the relationships among various policy making and operating units
- 521A - 521S. A series of seminars arranged to meet the needs of specific groups of students.
- 521A-2. SEMINAR—COLLEGE TEACHING.
- 521B-2. SEMINAR—STUDENT VALUES.
- 521C-2. SEMINAR—HOUSING.
- 521E-2. SEMINAR—STAFF PERSONNEL.
- 521F-2. SEMINAR—FINANCE.
- 521G-2. SEMINAR—THE JUNIOR COLLEGE.
- 521M-2. SEMINAR—SOCIOLOGY OF HIGHER EDUCATION.



- 521S-2. SEMINAR—CONTINUING EDUCATION.
- 521Y-2. SEMINAR IN HIGHER EDUCATION—THE TECHNICAL INSTITUTE.
- 522A-1 to 6. READINGS—COLLEGE TEACHING.
- 522B-1 to 6. READINGS—COLLEGE STUDENT PERSONNEL.
- 522C-1 to 6. READINGS—COLLEGE ADMINISTRATION.
- 523A-1 to 12. INTERNSHIP—COLLEGE TEACHING. Supervised work experiences in appropriate settings.
- 523B-1 to 12. INTERNSHIP—COLLEGE STUDENT PERSONNEL. Supervised work experiences in appropriate settings.
- 523C-1 to 12. INTERNSHIP—COLLEGE ADMINISTRATION. Supervised work experiences in appropriate settings.
- 546-4. PERSONNEL WORK WITH COLLEGE STUDENT GROUPS. A case approach to the understanding of the various aspects and relationships of student cocurricular activities. Emphasis on the role of group activities in the educational life of the student and the college community.
- 551-4. CURRICULUM DESIGN AND DEVELOPMENT IN HIGHER EDUCATION. Examination of methods and resources in designing various college curricula. Emphasis on experimentation in curriculum development.
- 565-4. THE JUNIOR COLLEGE. A study of the function of the junior college in American higher education with particular emphasis on relationships to the secondary school and to the community. Course content treats special problems of curriculum, student services, finance, and faculty selection and growth.
- 576-4. ADMINISTRATIVE PRACTICES IN HIGHER EDUCATION. A study of administrative behavior with applications to higher education setting.
- 578-4. FINANCE OF HIGHER EDUCATION. A description of the economic aspects of higher education. Study of sources and management of college finance including budgeting and control.

## HISTORY

- 400-3 to 6. TEACHERS' WORKSHOP IN CURRENT HISTORY. A series of lectures, readings, discussions, and projects designed to aid the teacher in understanding and interpreting some of the major problems of present-day society.
- 401-3. THE OLD SOUTH. An intensive study of the social, economic, political, and cultural development of the "Old South" to the Civil War, to bring out the distinctive culture and problems of the section. Prerequisite: 201.
- 402-3. THE NEW SOUTH. The Civil War, political and economic reconstruction, and problems of the "New South." Prerequisite: 202 or 401.
- 405-3. CIVIL WAR AND RECONSTRUCTION. Emphasis upon the clash of national and sectional interests; economic, political, and military aspects of the conflict; course and consequences of reconstruction. Prerequisites: 201, 202.
- 410-2 to 5. SPECIAL READINGS IN HISTORY. Supervised readings for students with sufficient background. Registration by special permission only. Offered on demand.



- 411-3, 412-3, 413-3. SOCIAL AND INTELLECTUAL HISTORY OF THE UNITED STATES. (1607-1830, 1830-1900, 1900 to present.) The development of American society and a study of various types of economic, social, and political thought that have influenced it.
- 415-3. THE AGE OF THE RENAISSANCE. A treatment of the Italian Renaissance and its relationship to the political, economic, social, and cultural changes in the countries of northern and western Europe. Prerequisites: 101, 102, 103.
- 416-3. THE AGE OF THE REFORMATION. A study of the reform movement which divided the Christian Church into Protestantism and Catholicism, with a treatment of the Counter Reformation. Prerequisites: 101, 102, 103.
- 417-3. THE BRITISH COMMONWEALTH OF NATIONS. The evolution and present status of the Commonwealth of Nations and its self-governing and dependent units with an emphasis on the impact of the social, economic, and political ideas upon the pattern of control and development during each stage of growth.
- 418-3. ENGLISH CONSTITUTIONAL HISTORY. The evolution and functioning of the English legislative, administrative, and judicial systems with an emphasis on the ideas and principles that determined growth during each age.
- 419-3. ENGLISH CULTURE IN THE AGE OF AMERICAN COLONIZATION. An analysis of the English social, economic, political, and religious institutions and ideas which provided the foundation for the growth of American civilization.
- 420-3. THE FRENCH REVOLUTION. A sketch of the passing of feudalism in France, the background and development of the revolutionary movement, and the Napoleonic period.
- 425-3. AMERICAN COLONIAL HISTORY. Founding of the American colonies, both French and English, and the development of social, political, economic, and cultural institutions through the Revolutionary period. Prerequisite: 201.
- 435-3, 436-3, 437-3. RECENT UNITED STATES HISTORY, 1865 TO PRESENT. A sequence of courses covering the major problems and trends from the Civil War to the present. Courses may be taken separately. Prerequisites: 201, 202.
- 440-3. AMERICAN DIPLOMACY TO 1898. A study of the important treaty relations of the United States, and a general consideration of American foreign policies. Prerequisites: 201, 202.
- 441-3. AMERICAN DIPLOMACY SINCE 1898. A continuation of 440.
- 442-3, 443-3, 444-3. HISTORY OF THE WEST. A series of three courses providing an intensive study of the Colonial, Trans-Alleghany and Trans-Mississippi frontiers and showing the influences of the West in the various periods in United States history.
- 449-4. DEVELOPMENT OF AFRO-ASIAN NATIONALISM. A study of the rise of national movements, the winning of independence, and the vast array of reconstructional problems. Post-Bandung developments and the relation of Afro-Asian nationalism to the Communist world are extensively discussed.
- 450-3. EUROPE SINCE 1914. Brief review of the results of World War I. Em-

phasis upon the League of Nations, war debts, disarmament, the rise of national socialism, causes and conduct of World War II.

- 451-3. HISTORIOGRAPHY. Development of history as a written subject, including works and philosophy of the various outstanding historians in ancient, medieval, and modern periods.
- 452-3. HISTORICAL RESEARCH AND THESIS WRITING. The rules of historical research studied and applied to a definite topic.
- 454-3. BIOGRAPHY IN AMERICAN HISTORY. Outstanding leaders and their contributions to the history of the United States. Attention to historical writers who specialize in biography. Prerequisite: a course in United States history.
- 455-3. HISTORY OF INNER-ASIAN RELATIONS. Tribes, migrations, wars, and power politics in Central Asia and outlying areas of China from Han times through 19th century rivalries to latest developments along the Sino-Soviet frontier.
- 470-3. ARGENTINA, BRAZIL, AND CHILE. A narrative and comparative study of the independent era of the history of the three leading states of South America.
- 471-3. MEXICO IN THE NINETEENTH CENTURY. Significant aspects of Mexican life from independence to the decline of the Diaz Era.
- 472-3. MEXICO IN THE TWENTIETH CENTURY. An analysis of the political, economic, diplomatic, social, and cultural forces in modern Mexican life.
- 473-3. THE CARIBBEAN AREA IN THE TWENTIETH CENTURY. An inquiry into the changing role of the political, economic, strategic, and cultural nature of this Mediterranean of the New World.
- 480-3. ROME: THE LATE REPUBLIC. The framework of the course is political, covering the years from 133 B.C. to A.D. 14. Attention is given also to Roman literature and culture, and to a broad view of the early empire (including Palestine) in the years immediately preceding the Christian Era.
- 481-3. ROME: THE EMPIRE. The civilization of the first two centuries of the Roman Empire. Against a background of general political history, attention is directed to the philosophical schools, pagan religions, and other factors affecting the rise and extension of Christianity.
- 485-3. GREEK CIVILIZATION. Development of the unique features of Greek thought (historical, religious, scientific, philosophical), art, literature, architecture, etc.
- 490-3. HISTORY IN THE SECONDARY SCHOOL. A comprehensive methods course for prospective teachers: history, government and civics, current events, economics, sociology, and geography; curriculum revision; grading of materials; classroom methods; teacher preparation; professional publications. Attention to the unified social science course.
- 500-3 to 9. HISTORY SEMINAR. Research methods applied to the various history fields.
- 510-2 to 5. READINGS IN HISTORY. Registration by special permission only.
- 515-3. CURRENT UNITED STATES HISTORY AND PROBLEMS. A content and research course dealing with contemporary American affairs. Consists of textbook assignments, outside readings. Prerequisite: proper background.

- 516-5. STUDIES IN CONTEMPORARY EUROPE. A content and research course in European civilization since 1914 which stresses the rise of totalitarianism and the democratic crisis.
- 517-3. CONSTITUTIONAL HISTORY OF THE UNITED STATES AND PROBLEMS. A content and research course involving origin and development of the American Constitution, from English background, through the convention, to the present.
- 518-3. ENGLAND IN THE AGE OF THE "GLORIOUS REVOLUTION." An analysis of the ideas and forces that converted the English government into a liberal state with an emphasis on the concepts and principles later applied in the establishment of the American Constitution.
- 519-5. THE AGE OF JEFFERSON. Rise and development of Jeffersonian Democracy, 1790-1824, with emphasis upon social, economic, and political programs of Republicans and Federalists; the clash of mercantile and agrarian interests.
- 520-3. THE AGE OF CONSTANTINE. A study of fourth-century Rome. Particular attention is given to religious policy. Such problems as the religious persecution preceding Constantine, his conversion to Christianity, the reaction following his death, the final establishment of Christianity as the official religion of the Empire.
- 553-3. NEW VIEWPOINTS IN AMERICAN HISTORY. New interpretations and recent developments in American History. Prerequisites: 201, 202.
- 590-1 to 6. INDIVIDUAL RESEARCH. The investigation of a research topic in history under the supervision of a member of the graduate staff in the particular field. By special arrangement.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## HOME AND FAMILY

- 424-4. SELECTION, USE, AND CARE OF APPLIANCES. Materials used in equipment, methods of construction, principles of operation of appliances for cooking, refrigeration, laundering, cleaning; selection, operation, and care of appliances to obtain maximum satisfaction in use. Offered on demand.
- 435-4. WORK SIMPLIFICATION IN HOME MANAGEMENT. Basic scientific work simplification principles applied to work done in the home by full-time employed or physically handicapped homemakers.
- 456-4. INFANT DEVELOPMENT. Current theories and knowledge concerning growth and development of infants with related laboratory and field experiences. Prerequisite: 237 or Psychology 301.
- 466-2. PRACTICUM IN PARENT-CHILD STUDY. Designed to increase students' ability to work with parents and parent groups through an awareness of factors in the parent-child relationship and knowledge of current research and methods in parent education. Integration with infant and child development laboratories and related field experience.
- 481-2 to 6. READINGS. Supervised readings for qualified students. Prerequisite: consent of instructor and chairman of department.
- 540-4. TRENDS IN CONSUMER PROBLEMS. Social, legal, and economic

- problems that pertain to the consumer. Consumer education in the public school program; selection of individual problems for investigation. Prerequisite: 341 or equivalent.
- 550-4. **ADVANCED HOME MANAGEMENT.** Readings, observations, projects, and discussions on selected problems with emphasis on time, money, energy, and family relations. Prerequisites: 331, 332, or equivalent.
- 556-4. **THE PRE-SCHOOL CHILD.** Growth of the child from birth to six years with emphasis on the various aspects of growth and their interrelationships.
- 562-4. **CHILD DEVELOPMENT THROUGH HOME AND SCHOOL.** The normal, healthy development of children as it takes place in the home and is promoted by the curriculum and other school activities.
- 566-4. **INTERPERSONAL RELATIONSHIPS WITHIN THE FAMILY.** Factors that promote satisfactions within the immediate family; planning and preparing teaching units and source materials in this field.
- 571-4. **RECENT RESEARCH.** Review of selected research in various phases of home economics in related fields. Sources of research include colleges universities, and governmental and industrial agencies. Offered on demand.
- 572-2 to 8. **SPECIAL PROBLEMS.** For students recommended by their chairman and approved by the head of the department and the instructor in charge for independent work or directed study.
- 599-2 to 9. **THESIS.** Minimum of 5 hours to be counted toward a master's degree.
- 600-3 to 48. **DISSERTATION.** Minimum of 36 hours to be earned for the Ph.D. degree.

## HOME ECONOMICS EDUCATION

- 414-4. **HOME ECONOMICS FOR ELEMENTARY TEACHERS.** Units of work in nutrition, school lunches, family and social relationships, textiles, and clothing.
- 415-1. **INTRODUCTION TO GRADUATE STUDY.** Seminar to orient the student to graduate work through relation of courses to goals of program, standards of work, habits of thinking, communication of ideas, uses of professional materials and publications. Required. Student should take at first opportunity.
- 481-2 to 6. **READINGS.** Supervised readings for qualified students. Prerequisite: consent of instructor and chairman of department.
- 500-4. **RESEARCH METHODS.** Methods employed in research in home economics education with special study of one according to interest and needs of student. Development of prospectus. Prerequisites: Guidance 420, 422, or consent of instructor.
- 505-4. **HOME ECONOMICS IN SECONDARY SCHOOLS.** Consideration of the curriculum for homemaking education in the secondary school. A critical survey of resources. The place of homemaking education in the school and community.
- 506-4. **EVALUATIVE PROCEDURES IN HOME ECONOMICS.** Principles and procedures underlying appraisal and evaluation. Development and



- critical consideration of instruments for appraising pupil growth and the program of instruction. Emphasis placed on values.
- 507-2 to 4. WORKSHOP. Designed to aid home economics teachers, supervisors, leaders in the field with current problems. Resource people are used. Discussions, reports, lectures, and other methods of analyzing and working on solutions to problems. Emphasis for the workshop will be stated in the announcement of the course.
- 510-4. SUPERVISION OF HOME ECONOMICS. Nature, function, and techniques of supervision at all levels. Emphasis given to supervision of student teachers. Experience in the field will be provided for qualified teachers.
- 510A-1 to 4. PRACTICUM IN SUPERVISION. Experience in using a variety of techniques at various levels and areas of supervision both on and off campus. Prerequisite: 510 or Educational Administration and Supervision 456 or consent of instructor.
- 515-4. TRENDS IN HOME ECONOMICS EDUCATION. Current trends, problems, needs in the field. Attention given to problems and needs of students.
- 516-4. ADVANCED METHODS OF TEACHING HOME ECONOMICS. Recent trends in methods based on research and experimental programs; furthering good relations in homemaking classes as means of clarifying and accomplishing goals; teacher's role; techniques useful in furthering good relations within group and in meeting individual needs. Emphasis given to social significance of these procedures.
- 517-4. METHODS AND MATERIALS FOR ADULT PROGRAMS IN HOME ECONOMICS. Philosophy of adult education; unit planning, methods, techniques, and resources useful in adult homemaking programs.
- 571-4. RECENT RESEARCH. Review of selected research in various phases of home economics in related fields. Sources of research include colleges universities, and governmental and industrial agencies. Offered on demand.
- 572-2 to 8. SPECIAL PROBLEMS. For students recommended by their chairman and approved by the head of the department and the instructor in charge for independent work or directed study.
- 573-1 to 6. SEMINAR: RESEARCH IN HOME ECONOMICS EDUCATION. Presentation of prospectus outlines, research projects, problems for research, progress reports of research by graduate students and faculty. Prerequisite: consent of instructor.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.
- 600-3 to 48. DISSERTATION. Minimum of 36 hours to be earned for the Ph.D. degree.

## INDUSTRIAL EDUCATION

- 430-2 to 6. SPECIAL PROBLEMS IN THE ARTS AND INDUSTRIES. An opportunity for students to obtain special instruction in the solution of problems in specific subject matter fields. Prerequisite: consent of department.
- 435-6 to 12. MANUAL ARTS INTERNSHIP. Supervised hospital experience

featuring various applications of manual arts therapeutical treatments. A maximum of 12 hours allowed for course with a maximum of 6 hours for any one enrollment period.

- 450-1 to 6. **ADVANCED SKILLS IN TECHNICAL SUBJECTS.** Modern industrial practices and techniques in various selected technical fields. For experienced persons seeking opportunities to develop advanced skills and to increase understandings in specialized industrial fields. Emphasis on modern industrial processes, methods, materials, and techniques used in school shops, drafting rooms, and industrial organizations. Prerequisite: basic training in area selected for study.
- 480-4. **PROBLEMS OF INDUSTRIAL ARTS CRAFTS IN ELEMENTARY SCHOOLS AND RECREATIONAL PROGRAMS.** For elementary school teachers and supervisors of elementary education craft programs. Three lectures and one laboratory.
- 490-4. **PRINCIPLES OF INDUSTRIAL TEACHING.** Activities of industrial arts and motivation of learning in industrial subjects. Emphasis on planning and methods of presentation. Prerequisite: consent of department.
- 491-3 to 4. **METHODS OF TEACHING TRADE AND TECHNICAL SUBJECTS.** Emphasis on teaching methods especially appropriate for vocational trade programs and technical schools. Required in the Trades and Industries specialization. Prerequisite: consent of department.
- 492-4. **SCHOOL SHOP PLANNING.** Principles and practices underlying modern school shop planning. Actual school shop plans required.
- 494-3 to 4. **ORGANIZATION AND ADMINISTRATION OF INDUSTRIAL EDUCATION.** Principles and policies governing the administration of industrial education programs in elementary, junior, senior high schools; relation of federal and state supervision of industrial education to local administration.
- 495-3 to 4. **OCCUPATIONAL ANALYSIS.** Involves the fundamental steps for analyzing trades and other occupations with some thought toward establishing appropriate units of instruction for the apprentice or student. Jobs, operations, and essential related information are analyzed.
- 496-3 to 4. **SELECTION AND ORGANIZATION OF SUBJECT MATTER.** Selection and arrangement of teaching content; preparation of assignment, operation, information, and job sheets; preparation of tests.
- 497-4. **THE LITERATURE OF INDUSTRIAL EDUCATION.** An introduction to the literature in the field of industrial arts and vocational industrial education. Of importance to persons who expect to make industrial teacher education a career.
- 498-4. **ORGANIZING AND ADMINISTERING THE GENERAL SHOP.** Study and practice in the development of a general shop featuring multiple offerings. Development and organization of appropriate instructional materials and teaching aids.
- 502-4. **MEASUREMENTS AND EVALUATION OF PRODUCTS AND PROCEDURES.** Criteria and instrument development, testing techniques, and appraisals. Special emphasis given to the principles and methods of evaluation of progress in laboratory and shop subjects of a practical arts nature. Experience in development and construction of pertinent and effective evaluative devices.
- 504-4. **HISTORY AND PHILOSOPHY OF INDUSTRIAL EDUCATION.**

- Leaders, organizations, and movements in development and progress of industrial education.
- 505-4. SUPERVISION OF INDUSTRIAL EDUCATION. Study of basic philosophy, purposes, and procedures of specified staff and national plans. Qualifications of the supervisor, of adopted plans, his duties and responsibilities at the various school levels with respect to development and improvement of instruction in shop and drawing subjects. Procedures used in upgrading teachers and facilities; development and use of professional incentives.
- 506-4. PROBLEMS OF CO-ORDINATOR. Problems and procedures involved in setting up and operating co-operative part-time and evening school programs.
- 508-4. TEACHING AIDS IN INDUSTRIAL EDUCATION. Selection, development, and use of industrial illustrations and instructional aids and devices.
- 540-3 to 6. RESEARCH IN INDUSTRIAL EDUCATION.
- 541-4. OCCUPATIONAL INFORMATION AND GUIDANCE. Designed for school counselors, industrial supervisors, and teachers to give them orientation to and experience with occupational information and vocational adjustment. Prerequisite: consent of instructor.
- 550-4. COLLEGE TEACHING OF INDUSTRIAL AND TECHNICAL SUBJECTS. Problems of college students and their adjustments to college-level industrial and technical subject-matter. Organization of instructional materials; methods of instruction; organization and administration of college laboratory facilities; and the professional problems, ethics, and advancement of college technical teachers. Prerequisite: 540 or Educational Administration and Supervision 500.
- 560-1 to 8. NEW DEVELOPMENTS IN INDUSTRIAL EDUCATION. An intensive course designed to acquaint graduate students and teachers with the most recent and significant developments, pressing problems, and emerging trends in the industrial education and technical fields. Selected subjects will be considered by recognized authorities in the field, who will present their ideas and conduct discussions on the selected topics. Credit is available in one- or two-hour units as scheduled.
- 570-2 to 4. SPECIAL INVESTIGATIONS IN INDUSTRIAL EDUCATION. For students who wish to make a thorough study or investigation of a specific problem in industrial education.
- 580-3 to 9. SEMINAR IN INDUSTRIAL EDUCATION.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## INSTRUCTIONAL MATERIALS

- 400-2. LIBRARY RESEARCH METHODS. Introduction to the use of library materials in graduate research. Includes a survey of scholarly publishing and the use of reference works in various subjects.
- 403-4. SCHOOL LIBRARY FUNCTIONS AND MANAGEMENT. Effective library services in relation to the educational objectives of elementary and secondary school programs: organization, supervision, finance, housing, equipment, standards, and evaluation.



- 405-4. LIBRARY MATERIALS FOR CHILDREN. Study of the aids, methods, and criteria for the selection and use of books and other instructional materials for children in the elementary schools. Open to juniors with consent of instructor.
- 406-4. LIBRARY MATERIALS FOR ADOLESCENTS. A study of the aids, methods, and criteria for the selection and use of books and other instructional materials for students in the high school. Open to juniors with consent of instructor.
- 417-4. AUDIO-VISUAL METHODS IN EDUCATION. Selection and utilization of audio-visual methods in the teaching situation, elementary through adult levels. Motion pictures, slides, filmstrips, and recordings particularly stressed.
- 420-4. SCHOOL LIBRARY ACTIVITIES AND PRACTICE. Supervised practice and observation integrated with instruction in the typical activities of school librarianship: storytelling, publicity, developing units of library instruction, and work with students. Prerequisite: 306, 308, 403, 405, or 406.
- 440-2. PHOTOGRAPHY FOR TEACHERS. Techniques of picture-taking and the preparation of slides and photographs of community resources for use in classroom instruction—and for school public relations. Materials and techniques for making pictures for classroom use. Emphasizes the getting of educational material for color slides and study prints.
- 445-4. PREPARATION OF TEACHER-MADE AUDIO-VISUAL MATERIALS. Laboratory practice in the preparation of bulletin boards, opaque materials, models, lantern slides, recordings, feltboards, and other graphic materials. Prerequisite: 417 or consent of instructor.
- 457-4. RADIO AND TELEVISION IN THE CLASSROOM. Educational programs and their value to the teacher in the classroom. Sample tapes of radio programs and kinescopes are used.
- 458-4. THE MEDIUM OF THE MOTION PICTURE. A study of the full range of expression by motion pictures including the documentary, theatrical, educational, experimental, and industrial films. Representative films are screened.
- 510-4. MASS COMMUNICATIONS IN EDUCATION. The school and libraries in mass communication. The problems of propaganda, intellectual freedom, methods of research, and international aspects of communication are considered.
- 514-4. READING AND VISUAL STUDIES. A survey of research in individual reading interests and habits, the sociological effect of reading, and the reading of pictures. Prerequisite: 405, 406, 417.
- 530-4. HISTORY OF BOOKS AND LIBRARIES. The evolution of the printed book and the rise and development of modern libraries.
- 546-4. INTEGRATION OF AUDIO-VISUAL MATERIALS IN THE CLASSROOM. Selection of materials on the basis of curricular needs. Problems in disseminating information about audio-visual materials. Techniques of evaluating each type of audio-visual material for use in the classroom. Prerequisite: 417.
- 547-4. SCHOOL FILM AND FILMSTRIP PRODUCTION. Simplified techniques for teachers and audio-visual co-ordinators who may need to produce school-made films and filmstrips to meet local school problems.
- 548-4. SUPERVISION AND ADMINISTRATION OF AN AUDIO-VISUAL



- PROGRAM. Intended to provide professional information and training for anyone who has administrative responsibilities for an audio-visual program. For teachers, co-ordinators, or directors. Prerequisite: 417.
- 549-4. VISUAL LEARNING. Learning from pictures in the classroom, the design of still and moving pictures, pictures used in testing perception, and the place of pictures in advertising and communication. Prerequisite: consent of instructor.
- 554-4. ADMINISTRATION OF AN INSTRUCTIONAL MATERIALS CENTER. Based on the concept of a single agency in the school that encompasses all forms of instructional materials. It is designed to further the training of specialists in the supervision and administration of integrated audio-visual and library programs. Prerequisites: 403, 548, Educational Administration and Supervision 456, 460, or equivalent.
- 560-4. SEMINAR IN INSTRUCTIONAL MATERIALS. Designed to give advanced graduate students an opportunity to investigate and discuss topics in instructional materials before the seminar group. Topics selected would depend on background and interest of individuals.
- 576-2 to 4. PROBLEMS IN INSTRUCTIONAL MATERIALS. Opportunity for individual study of selected problems. Prerequisite: consent of instructor.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## JOURNALISM

- 421-4. SCHOOL PUBLICATIONS. Designed for the prospective journalism teacher or high school publications director. Deals with practical production problems of newspapers and yearbooks.
- 422-3. TEACHING HIGH SCHOOL JOURNALISM. Teaching methods of journalism in secondary schools, organization and course of study, bibliography, use of journalism courses for school publications production.
- 430-2. SEMINAR IN FAR EASTERN PROPAGANDA. Review of propaganda activities by Western and Far Eastern Powers in Asia between the two world wars.
- 432-3. COMMUNICATION AGENCIES AND PUBLIC OPINION. Press, radio, television, and motion pictures and their role in the opinion process.
- 433-3. MEASUREMENT OF PUBLIC OPINION. The sampling survey as a research tool; survey methodologies.
- 449-2. PRACTICUM. Study, observation, and participation in publication supervision. Work required on *The Egyptian* newspaper.
- 499-3. NEWS ANALYSIS IN THE CLASSROOM. A study of the relationship of the newspaper to other high school coursework. Time spent in developing ways of integrating the newspaper in the classroom.
- 501-1 to 9. LITERATURE OF JOURNALISM. Critical reading of selected books relating directly and indirectly to journalism; lectures; reviews; discussions.
- 530-4. SEMINAR IN NEWSPAPER EDITORIAL POLICIES. Observation of the comment function performed by the daily newspaper as related to current issues; role of the editorial writer, syndicated columnist, cartoonist.

- 532-4. SEMINAR IN PUBLIC OPINION AND PROPAGANDA. Study of the developing literature in this field of specialization.
- 533-1 to 9. RESEARCH PROBLEMS IN JOURNALISM. Individual work on selected problems for research.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## MANAGEMENT

- 421-4. MANAGEMENT OF BUSINESS FINANCE. The principal problems of managing the financial operations of an enterprise. Emphasis upon analysis and solutions of problems pertaining to policy decisions. Scope includes both short-term working capital and long-term financing. Prerequisite: 320.
- 428-4. LIFE INSURANCE. Particular attention given to policy forms and provisions, reserve and investment problems, company organization, legal aspects, taxation, and personal and business needs. Prerequisite: 327.
- 429-4. FIRE AND CASUALTY INSURANCE. Economic services performed, contracts, benefits, and premiums of fire and casualty insurance. Prerequisite: 327.
- 455-4. PROGRAMMING FOR DIGITAL COMPUTERS. An intensive course in digital computer programming using an IBM 650 computer for laboratory work. Topics include computer organization and characteristics; machine language coding; flow charts, sub-routines; optimum and symbolic coding; compilers and interpretive systems. Prerequisite: consent of instructor.
- 472-5. SMALL BUSINESS. The position of small business in the national economy, including organization, financing, location, personnel policies, merchandising practices, records, government regulations, and taxes. Prerequisites: Economics 205, senior standing.
- 473-4. BUSINESS ENTERPRISE AND PUBLIC POLICY. Some major problems of social control of business arising out of the operation of business in modern society; the necessity for control, types of control from business self-regulation to government ownership, the effect of control on business, and the general effect of control on the well-being of society. Prerequisite: senior standing in business.
- 475-4. BUDGETING AND SYSTEMS. Budgeting and system as aids in coordinating and directing business operation. Prerequisites: 320, Accounting 253.
- 479-2 to 8. PROBLEMS IN BUSINESS AND ECONOMICS. Application of economic theory to practical business problems. Open to undergraduate majors and graduate minors in business administration or economics. Prerequisite: senior standing in business.
- 480-4. RECENT LABOR LAW DEVELOPMENTS AND PROBLEMS. A legal and social evaluation of the most recent labor law problems and court decisions, including the Taft-Hartley Act and the 1959 amendments, Fair Employment Practice Laws and the Fair Labor Standards Act. Prerequisite: business law or Economics 310 or Government 395 or consent of instructor.
- 481-4. ADMINISTRATIVE MANAGEMENT. An intensive study of the prin-

- ciples of management and their application to the current industrial setting. Lecture and case methods will be used. Prerequisite: 340.
- 483-4. ADVANCED PRODUCTION MANAGEMENT. Internal problems of managerial control of production including recent developments in theory and techniques; case material will be utilized for the development of analytical ability.
- 485-4. PROBLEMS IN PERSONNEL MANAGEMENT. Analysis of problems in personnel administration arising from current developments in organization and techniques; case problems and special reports. Prerequisite: 385.
- 500-2 to 5. READINGS IN BUSINESS ADMINISTRATION. Directed readings in classical and current writings on selected topics. Prerequisite: consent of instructor.
- 501-2 to 5. INDIVIDUAL RESEARCH IN BUSINESS ADMINISTRATION. Directed research in selected areas of business administration.
- 527-3 to 5. SEMINAR IN FINANCE. Current issues and practices in business finance. Each student will select a problem for intensive exploration and report his findings to the class. Prerequisite: 421 or consent of instructor.
- 540-5. HISTORY AND THEORY OF MANAGEMENT. An analytical study of the background and growth of management theory from its beginnings with Taylor and Fayol to the present. Emphasis will be largely on industrial application. Individual reports as well as case and lecture methods will be used. Prerequisite: 481.
- 594-4. SEMINAR IN MANAGEMENT. Study of the most recent developments in a particular area of management. Individual reports, book reports, and survey of current professional literature form the bases of the course. Prerequisite: 340 or consent of instructor.
- 595-4. SEMINAR IN PERSONNEL MANAGEMENT. Study of recent developments in personnel management. Individual reports, book reports, and survey of current professional literature form the bases of the course. Prerequisite: 485 or consent of instructor.
- 596-4. SEMINAR IN PRODUCTION MANAGEMENT. Current theories in production management. Individual reports, book reports, and survey of professional literature form the bases of the course. Prerequisite: 483 or consent of instructor.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## MARKETING

- 438-4. SALES MANAGEMENT. Developing and training a sales force. The different types of sales forces. Managing sales functions; determining salesmen's territories, quotas, compensation. Budget preparation. Developing and implementing the merchandise plan. Prerequisites: 230, 337, or consent of the instructor.
- 451-4. TRAFFIC MANAGEMENT. Primary industrial traffic management functions, including determination of rates, classification, routing, and proper documentation. Consideration given to loss and damage claims, terminal charges, demurrage, reconsignment and conversion, transit

- privileges, warehousing, and packing. Emphasis upon co-operative aspects of traffic management requiring transportation.
- 463-3. ADVERTISING MANAGEMENT. The effective use of advertising by business management. An understanding of what advertising can be expected to accomplish under different sets of marketing factors and products. The selection of advantageous advertising programs under different marketing mixes. Prerequisite: 333.
- 490-4. MARKETING RESEARCH AND ANALYSIS. A nonmathematical development of the basic procedures, methods, and theory underlying analysis of primary and secondary market data. Prerequisites: 230, and one quarter of basic statistics or its equivalent.
- 500-2 to 5. READINGS IN MARKETING. Readings in classical and current writing on selected topics in various areas in the field of marketing.
- 501-2 to 5. INDIVIDUAL RESEARCH IN MARKETING. Directed research in marketing.
- 550-4. GRADUATE SURVEY OF MARKETING. An over-all view of the field of marketing and the field of policy-making decisions. Cases are used to illustrate the theory covered. An accelerated course. Not open to students who have had Marketing 230.
- 560-4. MARKETING POLICIES. The marketing management approach in the determination of policies employed in solving problems in marketing. Prerequisite: 550 or an undergraduate major in marketing.
- 590-4. ADVANCED MARKETING RESEARCH AND ANALYSIS. The development of advanced procedures, methods and theory of quantitative and qualitative analysis of primary and secondary market data. Prerequisite: 490 or consent of instructor.
- 595-3. SEMINAR IN MARKETING. Problems in marketing theory, research, and policy. May be repeated by a student no more than two times. Prerequisite: 230 or 550.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## MATHEMATICS

- 400-3. HISTORY OF MATHEMATICS. An introduction to the development of major mathematical concepts. Particular attention given to the evolution of the abstract concept of space, to the evolution of abstract algebra, to the evolution of the function concept, and to the changes in the concept of rigor in the development of mathematics from 600 B.C. to the present time. Prerequisite: 251 and 320 or consent of instructor.
- 410-4, 411-4, 412-4. STATISTICAL ANALYSIS I, II, III. An introduction to the principles and techniques of statistical inference. Elements of probability theory. Population, sample, and sampling distributions. Estimation and testing hypotheses on means and variances. Analysis of enumeration data. Regression and correlation. Analysis of variance and covariance. Nonparametric methods. Topics in experimental design. For students in fields using statistical methods. Will not normally be counted on a mathematics major.
- 415-2 to 4. NON-EUCLIDEAN GEOMETRY. An introduction to hyperbolic



and elliptic plane geometry and trigonometry. Emphasis given to the nature and significance of geometry and the historical background of non-Euclidean geometry. Occasionally offered as part of the special graduate minor for secondary school teachers. Prerequisite: 252 or consent of instructor.

- 421-3, 422-3. LINEAR ALGEBRA I, II. Linear algebra, including the theory of determinants and systems of linear equations; vector spaces, linear independence, bases, dimension; linear transformations, change of base, similarity; quadratic and Hermitian forms; orthogonal and unitary transformations; triangular and diagonal form; eigenvalues and eigenvectors; normal matrices; nilpotent and idempotent matrices, the spectral theorem. Prerequisite: 253.
- 425-3. THEORY OF NUMBERS. Topics in elementary number theory, including properties of integers and prime numbers, divisibility, Diophantine equations, and congruence of numbers.
- 430-4. PROJECTIVE GEOMETRY. Introduction to the fundamental concepts of projective geometry. Topics usually include the study of conics, polar systems of conics, homogeneous co-ordinates, cross-ratio, harmonic sets, duality, projectivities, and involutions. Prerequisite: 252 or consent of instructor.
- 433-3. THEORY OF POINT SETS. General properties of sets; topology of plane sets, closed sets, and open sets in metric spaces, homeomorphisms and continuous mappings, connectedness. Prerequisite: 253 and six credits in courses numbered 300 or higher, or consent of instructor.
- 440-2 to 4. MODERN ALGEBRA FOR TEACHERS. An introduction to algebra as a logical system, including groups, rings, and fields. Offered as part of the special graduate minor for secondary school teachers. Prerequisite: consent of instructor.
- 442-3. SURVEY OF GEOMETRY. A survey of geometry, including projective geometry, topology, etc. Offered as part of the special graduate minor for secondary school teachers. Prerequisite: consent of instructor.
- 443-4. ANALYTIC METHODS IN GEOMETRY. An investigation into the use of analytic methods in geometry, with particular attention to Cartesian plane and solid geometry. Synthetic and analytic methods contrasted. Prerequisite: consent of chairman.
- 449-3 to 4. TEACHING MODERN ALGEBRA. Topics in modern algebra and their implications for the secondary school mathematics program. Prerequisite: consent of instructor.
- 452-3, 453-3, 454-3. ADVANCED CALCULUS. The fundamental concepts of analysis: limits, continuity, differentiation, and integration. Major topics include partial differentiation, vector analysis, Riemann-Stieltjes integrals, multiple integrals, infinite series, improper integrals, uniform convergence, Fourier series, and line and surface integrals. Prerequisite: 253.
- 455-4. PROGRAMMING FOR DIGITAL COMPUTERS. (Same as Management 455.) An intensive course in digital computer programming. Topics include computer organization and characteristics, machine language coding, flow charts, subroutines, symbolic coding, and compiler systems. Equipment of the University's Data Processing and Computing Center is used for applications. Prerequisite: consent of instructor.
- 460-4. MODERN GEOMETRY. Advanced topics in Euclidean geometry by the synthetic method. Topics including the nine-point circle, Simson line,

theorems of Ceva and Menelaus, coaxal circles, harmonic section, poles and polars, similitude, and inversion. Prerequisite: 20 hours of college mathematics.

- 475-3. **NUMERICAL METHODS.** An introduction to approximation methods including finite differences and interpolation; numerical differentiation and integration; curve fitting, numerical solution of algebraic, transcendental, and differential equations. Prerequisites: 305, or 253 and consent of instructor.
- 480-3, 481-3, 482-3. **PROBABILITY AND STATISTICS.** An introduction to probability theory and the mathematical methods used in obtaining procedures for various problems of statistical inference. Topics include the algebra of probabilities, discrete and continuous distributions, limit theorems, sampling distributions, principles of statistical estimation, and testing hypotheses. Prerequisite: 253.
- 501-3, 502-3, 503-3. **REAL VARIABLES.** A basic course in mathematical analysis. The real number system; fundamental theorems in limits and continuity; open, closed, compact, and connected sets in Euclidean and metric spaces; the Riemann and the Riemann-Stieltjes integrals and functions of bounded variation; infinite series; uniform continuity; uniform convergence of series and improper integrals; arcs and curves; implicit function theorem; multiple integrals. The third quarter presents the general theory of measure and integration from an abstract point of view. Additive classes of sets, Borel sets, measurability, measure and outer measure; integrable functions, convergence theorems; absolute continuity and the Radon-Nikodym theorem; Fubini's theorem. Prerequisite: 454.
- 510-4. **FOUNDATIONS OF MATHEMATICS.** A critical survey of the logical basis of mathematical systems. Deductive processes, mathematical proof theory, axiomatics, nature of model systems, principles of theory construction, views concerning the nature of mathematics. Prerequisites: 253, consent of instructor.
- 520-4, 521-4. **MODERN ALGEBRA.** Intended to display some of the richness of algebra when mathematical systems other than the traditional one based upon the real numbers are considered. Abstract theory of groups, rings, and fields, with particular attention to examples from permutation groups, matrices, vector spaces, and polynomial and other function spaces; rational numbers and fields, complex numbers, unique factorization, algebraic number fields. Prerequisite: 321.
- 530-3 to 6. **POINT SET TOPOLOGY.** Topological spaces; denseness, category; open, closed sets, Borel sets; separation axioms; subspaces; continuity; lattice of topologies; countability axioms; connectedness, compactness, local properties; regularity to complete normality; Hilbert space, metrizable spaces; extension theorems; well-ordering; product spaces. Prerequisite: 433 or 502.
- 535-4. **ALGEBRAIC PLANE CURVES.** Prerequisite: 253.
- 536-3. **DIFFERENTIAL GEOMETRY.** Curvature, torsion, the Frenet formulas, and intrinsic equations of curves in three dimensional Euclidean space; applications to kinematics. Curves on a surface; first and second fundamental forms; normal sections and Meusnier's theorem; mean and total curvature. Prerequisite: 454.
- 540-4. **GROUPS AND LINEAR TRANSFORMATIONS.** A study of groups

- with their connection with the movements of regular plane figures, matrices, vectors, determinants with their interpretation and use in analytic geometry, and ruler and compass constructions. Prerequisite: 440 or equivalent.
- 541-2 to 4. SETS AND PROBABILITY. The elements of probability, with some applications to social sciences. Offered as part of the special graduate minor for secondary school teachers. Prerequisite: consent of instructor.
- 542-2 to 4. ELEMENTARY FUNCTIONS FROM AN ADVANCED STAND-POINT. Analysis of properties of algebraic, trigonometric, exponential, and logarithmic functions using contemporary notion of function. Prerequisite: consent of department chairman.
- 544-3. FUNDAMENTAL CONCEPTS OF CALCULUS. A careful study offered as part of the special graduate minor for secondary school teachers. Prerequisite: consent of instructor.
- 550-1 to 10. SEMINAR. Supervised study and preparation of reports on assigned topics. Reports presented for class discussion. 550A – Seminar in Algebra; 550B – Seminar in Geometry; 550C – Seminar in Analysis; 550D – Seminar in Probability and Statistics; 550E – Seminar in Mathematics Education. Prerequisite: consent of instructor.
- 555-3, 556-3. COMPLEX VARIABLES. A thorough treatment of classical analytic function theory including the Cauchy-Riemann equations, conformal mapping, Riemann mapping theorem, Cauchy-Goursat theorem, calculus of residues, analytic continuation, entire functions, gamma and beta functions, Bessel's and Legendre's equations, elliptic integrals. Prerequisite: 454.
- 595-1 to 10. SPECIAL PROJECT. An individual project, including a written report. 595A in Algebra; 595B in Geometry; 595C in Analysis; 595D in Probability and Statistics; 595E in Mathematics Education.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## MICROBIOLOGY

- 401-2 to 6. SEMINAR. Prerequisites: 100 and 201, or 301.
- 402-5. GENETICS. See Zoology 401 for course description.
- 403-5. MEDICAL BACTERIOLOGY. A general survey of the mechanisms of infection, epidemiology, and immunity and the specific application of these principles to the symptomatology, diagnosis, treatment, and control of the more common bacterial, rickettsial, and viral infections of man. 3 hours lecture and 4 hours laboratory. Prerequisite: 201 or 301 or equivalent.
- 406-5. PROTOZOOLOGY. (Same as Zoology 406.) Taxonomy, cytology, reproduction and physiology of unicellular animals. Laboratory methods of culturing and studying. Prerequisite: one year of zoology.
- 422-5. MICROBIOLOGY OF FOODS. The relationships of microorganisms to the preparation and preservation of foods with consideration of the laws governing sanitation, chemical preservatives, and fair dealing of the food producer. 3 hours lecture, 4 hours laboratory. Prerequisite: 201 or 301.
- 423-5. INDUSTRIAL FERMENTATION. The application of the chemical activities of microorganisms to the industrial production of beverages,



- foods, antibiotics, and various commercial chemicals. 3 hours lecture, 4 hours laboratory. Prerequisites: 201 or 301 and organic chemistry.
- 424A-2 to 3. SOIL MICROBIOLOGY. (Same as Plant Industries 424A.) Numbers, characteristics, and biochemical activities of soil microorganisms, with particular consideration of their role in the transformations of organic matter, nitrogen, and minerals as related to soil fertility and management. Lectures. Prerequisite: Botany 101.
- 424B-2. SOIL MICROBIOLOGY LABORATORY. (Same as Plant Industries 424B.) Experiments designed to determine numbers, and to study the characteristics and biochemical activities of the soil microflora as related to fertility. Prerequisites: 100 or 301, 424A.
- 425-3. BIOCHEMISTRY AND PHYSIOLOGY OF MICROORGANISMS. The chemical basis of physiological functions in microbial cells with emphasis on the pathways of metabolism common to all living things. 3 hours lecture. Prerequisites: 201 and organic chemistry.
- 426-2. BIOCHEMISTRY AND PHYSIOLOGY OF MICROORGANISMS. 4 hours laboratory. Prerequisite or corequisite: 425.
- 441-5. VIROLOGY. Properties, cultivation and titration of viruses and rickettsiae; cellular infection, multiplication and liberation of virus; immunological reactions and serological identification; haemagglutination and interference phenomena. Consideration of selected viral and rickettsiae diseases of animals. 3 hours lecture, 4 hours laboratory. Prerequisite: 403.
- 451-5. IMMUNOLOGY. Natural and acquired immunity; antigens, antibodies and antigen-antibody reactions; hypersensitivity; practical use of immunity and hypersensitivity. 4 hours lecture, 4 hours laboratory. Prerequisite: 403.
- 500-2 to 6. SEMINAR.
- 501-2. GENETICS OF MICROORGANISMS. The general principles of genetic analysis with accent on tetrad analysis of yeast. 2 hours lecture.
- 503-2. CYTOLOGY OF MICROORGANISMS. Problems involved in the behavior of chromosomes at meiosis with special consideration of genetical data. 2 hours lecture.
- 504-5. METHODS OF MICROBIOLOGICAL RESEARCH. The recognition and plan of attack upon unsolved problems in microbiology. 3 hours lecture.
- 506-2. BIBLIOGRAPHICAL METHODS IN MICROBIOLOGY. Methods of communication of information in microbiology. 1 hour lecture, 2 hours laboratory.
- 511, 512, 513-3 to 15. RESEARCH.
- 525-3. BIOCHEMISTRY AND PHYSIOLOGY OF MICROORGANISMS. A continuation of 425.
- 526-2. BIOCHEMISTRY AND PHYSIOLOGY OF MICROORGANISMS. A continuation of 426. 4 hours laboratory. Prerequisite or corequisite: 525.
- 528-1 to 10. READINGS IN MICROBIOLOGY. Supervised readings for qualified graduate students.
- 550-4. MICROBIOLOGY FOR HIGH SCHOOL TEACHERS. Principles of microbiology with emphasis on the relation of the microbial world to plants and animals. Information regarding materials and methods applicable to high school biology courses. 2 lectures and 2 laboratory periods or field trips per week. Offered only for N.S.F. institutes.



- 551-2. INTERMEDIATE MICROBIOLOGY FOR HIGH SCHOOL TEACHERS. Continuation of 550 with emphasis on recent developments in microbial genetics, aspects of medical bacteriology, immunology, and virology. Two lectures and occasional demonstrations.
- 552-1. SEMINAR IN BIOLOGICAL SCIENCES. Discussion of topics in biology of particular interest to high school biology teachers.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.
- 600-3 to 48. DISSERTATION. Minimum of 36 hours to be earned for the Ph.D. degree.

## MUSIC

- 411-3. SYMPHONIC LITERATURE. Development of the symphony and the symphonic poem to 1900.
- 412-3. CHORAL LITERATURE. The literature of the larger vocal forms such as the cantata and oratorio to 1900.
- 413-3. CHAMBER MUSIC LITERATURE. Chamber music literature from the Renaissance to the present.
- 441-2. SIXTEENTH-CENTURY COUNTERPOINT. Species counterpoint and creative writing in the style of Palestrina and his contemporaries. Prerequisite: 207.
- 442-2. EIGHTEENTH-CENTURY COUNTERPOINT. Analysis and creative writing in the contrapuntal-harmonic technique of Bach and his contemporaries. Prerequisite: 207.
- 443-2. CANON AND FUGUE. Analysis and creative writing of the larger imitative forms. Prerequisite: 442.
- 451-2. THE TEACHING OF GENERAL CLASSROOM MUSIC IN THE JUNIOR AND SENIOR HIGH SCHOOL.
- 455-4. WORKSHOP FOR ELEMENTARY MUSIC EDUCATION.
- 461-2. TEACHING TECHNIQUES AND MATERIALS FOR THE INTERMEDIATE LEVELS. (Piano or Voice.) Designed to meet the needs of piano or voice majors in the Bachelor of Music or the Master of Music degree programs in which the problems of private studio teaching and college-level teaching are discussed.
- 462-2. TEACHING TECHNIQUES AND MATERIALS FOR THE ADVANCED STUDENT. Continuation of 461.

Candidates for the Master of Music or Master of Music Education degree who wish to choose applied music courses as *electives* will take the 470-level course in their major instrument or voice for two hours of credit per quarter. Applied music *majors* in the master of music curriculum will take the 570-level course in their major instrument or voice for four hours of credit per quarter. These are considered artist-level courses, and admission to them and to the degree program must be obtained from the chairman of the department after passing a jury placement examination.

In both the 470 and 570 series of courses the emphasis is upon the literature of the instrument or voice with the assumption that techniques will have largely been mastered at the undergraduate level.

For specific repertoire requirements in each course, see the chairman of the Department of Music.

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|-----------------------------------|---------------------------------|
| 471-2 to 8. PRIVATE PIANO.        | 474D-2 to 8. PRIVATE BASSOON.   |
| 472-2 to 8. PRIVATE VOICE.        | 474E-2 to 8. PRIVATE SAXOPHONE. |
| 473A-2 to 8. PRIVATE VIOLIN.      | 475A-2 to 8. PRIVATE TRUMPET.   |
| 473B-2 to 8. PRIVATE VIOLA.       | 475B-2 to 8. PRIVATE FRENCH     |
| 473C-2 to 8. PRIVATE CELLO.       | HORN.                           |
| 473D-2 to 8. PRIVATE STRING BASS. | 475C-2 to 8. PRIVATE BARITONE.  |
| 474A-2 to 8. PRIVATE FLUTE.       | 475D-2 to 8. PRIVATE TROMBONE.  |
| 474B-2 to 8. PRIVATE OBOE.        | 475E-2 to 8. PRIVATE TUBA.      |
| 474C-2 to 8. PRIVATE CLARINET.    | 476-2 to 8. PRIVATE ORGAN.      |

- 501-3. INTRODUCTION TO GRADUATE STUDY IN MUSIC. Basic bibliographical and research techniques in music theory, literature, and education.
- 502-3 to 9. HISTORY AND ANALYSIS OF MUSICAL STYLE. Style in relation to evolution of musical materials.
- 510-3. HISTORY OF PERFORMANCE PRACTICE. Tempo, pitch, and techniques of performance as they relate to musical literature and instruments of the various periods in music history.
- 512-3. HISTORY OF OPERA. The development of opera as a form, with a detailed study of operas since 1600.
- 515-3. TWENTIETH-CENTURY LITERATURE. A survey of contemporary music of Russia, Western Europe, and the Americas in its relation to sociological, political, and cultural developments.
- 518-3. PEDAGOGY OF MUSIC LITERATURE. Principles of teaching music literature and music appreciation courses at the college level.
- 520-3. AMERICAN MUSIC. The development of music in America from colonial days to present.
- 522-3. SEMINAR IN MUSIC HISTORY-LITERATURE. Advanced study in special periods of music history-literature. Offered on demand.
- 530A-3 to 9. MUSIC HISTORY.
- 530B-3 to 9. MUSIC LITERATURE.
- 530C-3 to 9. MUSIC THEORY.
- 531-2 to 9. ADVANCED COMPOSITION. Composition in the larger forms for solo and ensemble performance. Prerequisites: 314, 442, and consent of instructor. Required of all theory-composition majors three hours per term; elective credit for majors in other areas.
- 535-3. CONTEMPORARY IDIOMS. Techniques of composition developed during the twentieth century by composers of Europe and America.
- 545-3 to 9. PHILOSOPHIES OF MUSIC THEORY. Includes an orientation of the philosophies of theory to the problems of pedagogy. Required of all theory-composition majors.
- 550-2 to 4. ORGANIZATION AND ADMINISTRATION OF THE MUSIC EDUCATION PROGRAM—ELEMENTARY. Grades Kindergarten through 6.
- 551-2 to 4. ORGANIZATION AND ADMINISTRATION OF THE MUSIC EDUCATION PROGRAM—SECONDARY. Grades 7 through 12.
- 553-3. SEMINAR IN CHORAL MATERIALS AND TECHNIQUES.
- 554-3. SEMINAR IN INSTRUMENTAL MATERIALS AND TECHNIQUES.
- 556-2 to 6. ADVANCED CONDUCTING. Problems in reading symphonic scores and interpretation. Laboratory conducting of larger University ensembles.

- 560-2 to 3. SEMINAR IN MUSIC EDUCATION. Trends, current practices, philosophies of music education.
- 566-1 to 4. INSTRUMENTAL ENSEMBLE. Participation in a chamber or large ensemble for purposes of studying and performing literature in the field of the major instrument other than solo literature.
- 567-1 to 4. VOCAL ENSEMBLE. Participation in a chamber or large ensemble for purposes of studying and performing literature in the field of the vocal music other than solo literature. Includes madrigal groups, choral ensembles, women's chorus, etc.
- 568-2 to 8. OPERA WORKSHOP. An intensive course in opera for voice majors, including the study and public performances of scenes and entire operas.
- Applied music majors in the master of music curriculum will take the 570-level course in their major instrument or voice for four hours of credit per quarter. These are considered artist-level courses, and admission to them must be obtained from the chairman of the Department of Music. Emphasis is placed upon the literature of the instrument or voice with the assumption that techniques will have largely been mastered at the undergraduate level.
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|---------------------------------|----------------------------------|
| 571-4 to 16. PRIVATE PIANO.     | 574D-4 to 16. PRIVATE BASSOON.   |
| 572-4 to 16. PRIVATE VOICE.     | 574E-4 to 16. PRIVATE SAXOPHONE. |
| 573A-4 to 16. PRIVATE VIOLIN.   | 575A-4 to 16. PRIVATE TRUMPET.   |
| 573B-4 to 16. PRIVATE VIOLA.    | 575B-4 to 16. PRIVATE FRENCH     |
| 573C-4 to 16. PRIVATE CELLO.    | HORN.                            |
| 573D-4 to 16. PRIVATE STRING    | 575C-4 to 16. PRIVATE BARITONE.  |
| BASS.                           | 575D-4 to 16. PRIVATE TROMBONE.  |
| 574A-4 to 16. PRIVATE FLUTE.    | 575E-4 to 16. PRIVATE TUBA.      |
| 574B-4 to 16. PRIVATE OBOE.     | 576-4 to 16. PRIVATE ORGAN.      |
| 574C-4 to 16. PRIVATE CLARINET. |                                  |
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## PHILOSOPHY

- 406-4. PHILOSOPHY OF BIOLOGY. Leading concepts of biological sciences: species, evolution, life, organism and part, etc. Abstract ideas of biology are related, wherever possible, to specific experiments recorded in scientific literature. Prerequisites: 300 or 320, and three laboratory or field courses in the biological sciences or consent of instructor.
- 415-3. LOGIC OF THE SOCIAL SCIENCES. Logical and epistemological examination of the social studies as types of knowledge. Basic problems in philosophy of science with major emphasis upon social science: relationship of theory to fact, nature of induction, nature of causal law, testability, influence of value judgments, etc. Intended for students with considerable maturity in a social science or in philosophy.
- 420-4. ADVANCED LOGIC. A careful study of symbolic and discursive systems of logic: Aristotle, Spinoza, Boole, Whitehead, and Johnson. Prerequisites: 320 and consent of instructor.
- 422-3. MATHEMATICAL LOGIC I. Matrix and set theory, axiomatic development of the propositional calculus. Many-valued logics, modal logics; related problems. Prerequisites: 6 hours of philosophy, including 320 or 6 hours of Mathematics courses 300 or higher or consent of instructor.



- 423-3. MATHEMATICAL LOGIC II. The predicate calculus and related problems. Prerequisite: 422 or consent of instructor.
- 424-3. LOGIC OF THE EXACT SCIENCES. Critical study of the technical and philosophical problems associated with formal logic and its uses as a tool for model construction, for formalizations, reconstructions, and as an image of rational thought. Prerequisites: 422 and 423, or consent of instructor.
- 441-4. PHILOSOPHY OF POLITICS. Some of the central problems of modern political life, such as sovereignty, world government, authority and consent, the relations of economics and social studies to political theory. Prerequisite: 140 or 340 or consent of instructor.
- 443-4. PHILOSOPHY OF HISTORY. Classical and contemporary reflections on the nature of history and historical knowledge as the basis for dealing with the humanities. Prerequisite: consent of instructor.
- 460-4. ADVANCED PHILOSOPHY OF ART. The definition of art, its relations to science, culture, and morals; the various types of art defined. Familiarity with at least one of the fine arts is assumed. Prerequisites: 160 or 360, and six courses in music, painting, sculpture, literature, or drama.
- 477-4. LATIN AMERICAN PHILOSOPHY. A survey of philosophic thought in Latin America from colonial times through nineteenth century positivism and the reactions against it, up to recent trends. Reading of original texts in English translations. Discussions and reports.
- 478-4. SEMINAR IN LATIN AMERICAN THOUGHT. Investigation of research topics connected with Latin American thought during the nineteenth and twentieth centuries in the fields of government, social sciences, education, literature, and philosophy. Individual studies and reports. (Same as Spanish 478.) Prerequisite: consent of instructor.
- 490-2 to 12. SPECIAL PROBLEMS. Hours and credits to be arranged. Courses for qualified seniors and graduates who need to pursue certain topics further than regularly titled courses permit. Special topics announced from time to time. Students are invited to suggest topics for individual study and papers or for group study. Consent of instructor in all cases required.
- 500-2 to 4. SEMINAR IN METAPHYSICS. Study of recent writers and current problems in metaphysics with the intent of familiarizing the student with the traditional problems of the area.
- 501-2 to 4. SEMINAR IN THE PHILOSOPHY OF RELIGION. Analysis of a selected problem in philosophical theology or the psychology of religion, or of the work of a particular thinker. Recent seminars have been on Paul Tillich and Henry Nelson Wieman.
- 530-2 to 4. SEMINAR IN THEORY OF KNOWLEDGE. Examination of a contemporary writer or problem in epistemology. Special emphasis is given to the problem of the reliability and structure of scientific knowledge.
- 551-4, 552-4, 553-4. PHILOSOPHIC PROBLEMS OF CONTEMPORARY CIVILIZATION. An examination of the crisis in contemporary civilization. The reconstruction of ideas and values involved and an analysis of crucial problems in terms of this intellectual reconstruction.
- 581-2 to 4. SEMINAR IN PLATO. A thorough study of several of the dialogues. Lectures on the system of Plato as a whole, discussions and reports on the readings.



- 582-2 to 4. SEMINAR IN ARISTOTLE. The philosophic ideas of Aristotle. Intensive reading of several texts, illustrating widely varied portions of his thought.
- 586-2 to 4. SEMINAR IN SPINOZA. Analysis of the *Improvement of the Understanding* and the *Ethics*. Lectures relating Spinoza to the medieval tradition and to his contemporaries. Discussions and reports.
- 588-2 to 4. SEMINAR IN KANT. The three great *Critiques* in their relation to the development of Kant's total philosophy. Intensive study of one of the *Critiques*.
- 589-2 to 12, 590-2 to 12. GENERAL SEMINAR. For students having special interests in the history of philosophy and the original systematic development of philosophic ideas. Prerequisite: consent of instructor.
- 591-1 to 5. READINGS IN PHILOSOPHY. Supervised readings for qualified students. Consent of instructor required.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## PHYSICAL EDUCATION

- 400-4. EVALUATION IN PHYSICAL EDUCATION. Historical background of measurement in physical education; selection and evaluation of contemporary testing devices; structure and use of tests; administering the testing program; and interpretation and application of results. Fulfills the tests and measurements course requirements for the Master of Science in Education degree.
- 402-3. ORGANIZATION AND ADMINISTRATION OF INTRAMURAL AND EXTRAMURAL ACTIVITIES. Planning intramural programs of sports; planning and co-ordinating extramural activities commonly associated with physical education.
- 403-4. THE ADAPTATION OF PHYSICAL AND RECREATIONAL ACTIVITIES TO THE HANDICAPPED INDIVIDUAL. Recognition of postural deviations; devising and planning programs for the physically atypical.
- 404-4. THE TEACHING OF SPORTS. Teaching methods, officiating, organization, safety precautions, and selecting equipment for sports.
- 405-4. CURRENT THEORIES AND PRACTICES IN THE TEACHING OF DANCE. History and evolution of dance; place of dance in education.
- 406-4. BASIC CONCEPTS OF PHYSICAL EDUCATION. The place of physical education in the school program, and the concepts underlying the program. (Required of all students not presenting the undergraduate courses 354 or 340.)
- 408-2 to 4. WORKSHOP—PHYSICAL FITNESS: ITS ROLE AND APPLICATION IN EDUCATION. Improvement of programs and teaching techniques involved in the development of various aspects of physical fitness. Units on postural status; body weight control; tension factors, causes, and control; exercise tolerance; and general body mechanics and control.
- 420-3. PHYSIOLOGICAL EFFECTS OF MOTOR ACTIVITY. The general physiological effect of motor activity upon the structure and function of body organs; specific effect of exercise on the muscular system. Prerequisite: Physiology 209 or equivalent.

- 500-4. **TECHNIQUES OF RESEARCH.** Critical analysis of research literature; study of research methods and planning research studies. Prerequisite: 400 or concomittant registration in 400.
- 501-4. **CURRICULUM IN PHYSICAL EDUCATION.** Principals and procedures for curriculum construction and revision; criteria for selecting activities and judging outcomes and the place of the physical education course of study within the total curriculum.
- 502-4. **FOUNDATIONS OF MOTOR SKILLS.** Application of physiological, kinesiological, and mechanical principles to intelligent control of large-muscle activities. Recommended background: a course in kinesiology.
- 503-4. **SEMINAR IN PHYSICAL EDUCATION.** The course content and its procedures center around group discussions of controversial issues that currently exist in physical education and provide opportunities for practice in seeking unbiased solutions to professional problems.
- 504-4. **PROBLEMS IN PHYSICAL EDUCATION.** Planning, conducting, and reporting original research studies. Prerequisite: 500 or equivalent.
- 507-4. **SCIENTIFIC BASIS OF ATHLETIC TRAINING.** Study of the factors which affect maximum human performance in athletic competition. The knowledge and application of scientific principles in preparing the athlete for maximum performance, in shielding him from possibly damaging sequelae, and in restoring him to maximum performance after injury. Consideration of the kinesiological, physiological, and behavioral factors in athletics. Designed to increase the effectiveness of physical education personnel in teaching and coaching athletes.
- 508-3. **ADMINISTRATION OF INTERSCHOOL ATHLETICS.** Existing problems in interschool athletics, with particular attention to secondary school athletic programs.
- 509-4. **SUPERVISION OF HEALTH AND PHYSICAL EDUCATION.** The functions of supervision in physical and health education; basic principles and methods of supervision. Techniques and methods for increasing the effectiveness of the program at the elementary and high school levels.
- 510-4. **CURRENT TRENDS IN MOTOR EDUCATION FOR THE KINDERGARTEN-PRIMARY CHILD.**
- 510A-2, 510B-2. **MOTOR DEVELOPMENT.** (A) Early patterns of motor behavior and the development of physical skills in childhood. (B) The development of physical abilities during adolescence. Individual differences in motor proficiency and factors affecting the acquisition of motor skills. Concepts of motor learning with inferences for improving instructional practices.
- 525-1 to 6. **READINGS IN PHYSICAL EDUCATION.** Supervised reading in selected subjects. Prerequisite: consent of instructor and chairman of department. Open only to last-quarter seniors and graduate students.
- 599-2 to 9. **THESIS.** Minimum of 5 hours to be counted toward a master's degree.
- 600-3 to 48. **DISSERTATION.** Minimum of 36 hours to be earned for the Ph.D. degree.

## PHYSICS

- 402-5. **CONTEMPORARY PHYSICS.** A survey course in atomic and nuclear

- physics. Offered principally for high school teachers who wish a refresher course covering recent developments in physics. Prerequisites: 206, 207, 208; or 211, 212, 213; or consent of instructor.
- 404-3. INTRODUCTION TO STATISTICAL MECHANICS. A brief treatment of the kinetic theory of gases; introduction of phase spaces and ensemble theory. Shows the connection between mechanical and thermodynamic concepts and obtains a statistical interpretation of thermodynamic processes. Prerequisites: 302; 304 or consent of instructor.
- 405-5. ELECTRONICS. Alternating current theory, including circuit analysis by the use of complex numbers; a study of various types of electronic tubes and electronic devices, and their use in circuits which are frequently encountered in experimental physics, including power supplies, amplifiers, oscillators, electronic meters, electronic relays, and scalars. Prerequisites: 305, 306.
- 410-5. PHYSICAL OPTICS. A theoretical and experimental study of light as electromagnetic energy; its production, detection, and measurement. Prerequisites: Mathematics 253 and three advanced physics courses.
- 413-4. PRINCIPLES OF MODERN PHYSICS II. A continuation of 313 in which the techniques of wave mechanics and perturbation theory are developed; applications include the harmonic oscillator, particle in a box, rigid rotator, the hydrogen atom and molecule, multi-electron atoms. Prerequisite: 313 or consent of instructor.
- 414-5. RECENT DEVELOPMENTS. Emphasis is placed on developments in the field of nuclear physics. Prerequisite: 314.
- 420-2 to 5. SPECIAL PROJECTS I. Each student is assigned a definite investigative topic. Adapted to advanced undergraduate students. Prerequisites: 301, 305, 306.
- 421-2 to 5. SPECIAL PROJECTS II. A continuation of 420. Credit in 420 and 421 not to exceed nine hours. Prerequisite: 420.
- 425-5. ELECTRICAL PHENOMENA IN GASES. Excitation and ionization of gas atoms; diffusion of ions; space charge; glow and arc discharges. Prerequisites: 305, 306.
- 430-2. PHYSICAL LITERATURE. A study of source materials in the field of physics. Also library search on special subjects. Prerequisite: integral calculus, three advanced physics courses, and one year of German.
- 450-5. INTRODUCTION TO SOLID-STATE PHYSICS. A study of the fundamentals of solid-state physics including classification of solids, interatomic and intermolecular forces, lattice energies, specific heats, lattice dynamics, free electron theory of metals, lattice defects, color centers, luminescence, magnetic materials, radiation damage, transport in ionic crystals, Fermi-Dirac statistics, Fermi distribution, and semiconductors. Prerequisites: 303, 305, 306, 314.
- 501-5. METHODS OF THEORETICAL PHYSICS I. A survey of classical theoretical physics, with emphasis on advanced dynamics. Vector analysis used throughout. Prerequisites: 301, 302, 305, 306, Mathematics 306.
- 502-5. METHODS OF THEORETICAL PHYSICS II. A continuation of 501, with emphasis on hydrodynamics, thermodynamics, statistical mechanics, and kinetic theory of gases. Prerequisite: 501.
- 503-5. METHODS OF THEORETICAL PHYSICS III. A continuation of 502, with emphasis on electrodynamics including radiation theory. Prerequisite: 502.



- 507-5. ADVANCED ELECTRICAL THEORY I. Advanced study of the theory of electrostatics, dielectrics, conductors, non-ohmic circuits elements, chemical, thermal, and photoelectric effects, and conduction in gases. The vector notation introduced at the beginning and used throughout. Prerequisites: 305, 306, Mathematics 306.
- 508-5. ADVANCED ELECTRICAL THEORY II. Prerequisite: 507.
- 511-4, 512-4, 513-4. MATHEMATICAL METHODS OF PHYSICS I, II, III. Vector analysis and curvilinear co-ordinate systems, partial differential equations of classical physics, expansions in orthogonal functions, boundary value problems, introduction to complex analysis, contour integration, linear transformations, and matrices, eigenvalue problems, integral equations and transforms, Schrödinger's equation and elementary quantum mechanics. Prerequisites: 314, Mathematics 306.
- 520-2 to 5. SPECIAL PROJECTS. Each student assigned a definite investigative topic requiring considerable resourcefulness and initiative. Prerequisite or corequisite: 501.
- 521-2 to 5. ADVANCED RESEARCH. A continuation of 520. Prerequisite: 520.
- 590-1 to 9. RESEARCH IN PHYSICS (THESIS). 1-5 hours each term. Prerequisite or corequisite: 501. Minimum of 5 hours counted toward a master's degree.

## PHYSIOLOGY

- 401-2 to 6. SEMINAR. Open to graduates and undergraduates with adequate training in physiology, physics, and chemistry.
- 410-5, 411-5, 412-5. ADVANCED ANATOMY. Dissection of the human body. Primarily for majors in physiology and other biological sciences. Not a premedical course. 2 hours lecture, 6 hours laboratory.
- 414-4. PHYSIOLOGY OF SPEECH. The anatomy and physiology of the vocal apparatus. Primarily for majors in speech pathology. 3 hours lecture, 2 hours laboratory.
- 415-4, 416-4. EXPERIMENTAL ANIMAL SURGERY I, II. Preparation of animals for surgery, anesthesia, instruments, care of animal quarters, selected exercises. 416 may be elected independently of 415. 2 hours lecture, 4 hours laboratory.
- 417-3. PRINCIPLES OF PHARMACOLOGY. Action of drugs and other chemical substances upon the living organism. Physiological and biochemical events resulting from the action of drugs. Pharmacodynamics, chemotherapy, toxicology, and therapeutics. Prerequisites: basic courses in chemistry and biological sciences. 2 hours lecture, 2 hours laboratory.
- 418-3. PRINCIPLES OF PHARMACOLOGY. Continuation of 417. 2 hours lecture, 2 hours laboratory.
- 420-3. PHYSIOLOGY OF EXERCISE. The effects of activity upon the human organism. 3 hours lecture and demonstrations.
- 421-1 to 6. READINGS IN CURRENT PHYSIOLOGICAL LITERATURE. Supervised reading in current topics. Open only by permission.
- 430-4, 431-4, 432-4. GENERAL (CELLULAR) PHYSIOLOGY. The nature and mechanism of the living cell. Chemical and physical aspects of vital activity. Required for majors in physiology. Recommended for students



- interested in biochemistry and biophysics. 3 hours lecture, 2 hours laboratory.
- 433-4. **COMPARATIVE PHYSIOLOGY.** Fundamental physiological processes and the manner in which they vary in various groups of animals. Recommended for majors in physiology and for students in other biological physical science. 2 hours lecture, 2 hours laboratory.
- 440-3. **ELECTRON MICROSCOPY.** Lectures, demonstrations, and practical experience with the electron microscope. Fundamentals of specimen preparation. Open to students with advanced knowledge of any natural or physical science. 2 hours lecture, 2 hours laboratory.
- 450-4 to 16. **SPECIAL PROBLEMS IN PHYSIOLOGY.** Selected problems in various aspects of physiology. 8 hours laboratory. Open only by permission.
- 455-2. **PHYSIOLOGICAL PROBLEMS IN REHABILITATION.** Designed specifically for the rehabilitation counseling program. Problems of the handicapped. Not for physiology majors. 2 hours lecture.
- 460-4, 461-4, 462-4. **MAMMALIAN PHYSIOLOGY.** Function and biochemical organization in mammals, especially man. Open to students with adequate courses in biological sciences and chemistry. Course 460: blood, circulation, respiration. Course 461: digestion, excretion, endocrines. Course 462: nervous system sense organs. 3 hours lecture, 4 hours laboratory.
- 470B-3. **RESEARCH FOR BIOLOGY TEACHERS.** Laboratory experience in research methods for teachers of biology and general science.
- 500-1 to 6. **ADVANCED SEMINAR.** One meeting per week. 1 credit per quarter. Formal presentation of research and/or current literature in physiology. Required of all majors each quarter in residence.
- 519-3. **EXPERIMENTAL PHARMACOLOGY.** Exercises to familiarize the student with advanced physiological investigation. Prerequisites: strong background in chemistry and the biological sciences. 1 hour discussion, 4 hours laboratory.
- 520A-4, 520B-4, 520C-4. **PHYSIOLOGICAL TECHNIQS.** (1) Analysis of protoplasmic components of tissue extracts under a variety of physiological conditions using chemical procedures. (2) Gas analysis and metabolic methods in physiology. (3) Instrumentation for the recording of the physiologic activity of living tissues and organs. Use of channel recorders. Prerequisite: undergraduate major in any of the biological or physical sciences. 2 hours lecture, 4 hours laboratory.
- 530A-4, 530B-4. **ADVANCED CELLULAR PHYSIOLOGY.** A detailed consideration given to basic physiological processes such as permeability, active transport, metabolic cycles, energy transformations, and bioelectric potentials. Selected projects undertaken by the students in the laboratory. Prerequisite: 430 or equivalent. 2 hours lecture, 4 hours laboratory.
- 540A-4, 540B-4. **ADVANCED COMPARATIVE PHYSIOLOGY.** A comparative study of the physiological systems in animals. Subjects such as nitrogen metabolism, carbohydrate metabolism, and water balance of organisms will be given. 2 hours lecture, 4 hours laboratory. Prerequisites: 430 or 433 or equivalent, and organic chemistry.
- 550-3. **RADIATION BIOLOGY.** Theory and specific applications of isotopes in physiology emphasized, and opportunity given to learn how to handle radioactive materials in the laboratory. 2 hours lecture, 2 hours labora-

tory. Prerequisite: 430 or equivalent, general physics, biochemistry or equivalent.

599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## PLANT INDUSTRIES

- 401-4. SOIL PHYSICS. Physical properties of the soil; factors affecting them, their measurements, evaluation, and influence in determination of soil productivity. Prerequisite: 301.
- 407-3 to 4. FERTILIZERS AND SOIL FERTILITY. Sources, manufacture, and use of fertilizer materials; effects of various fertilizers on soils and crops; fertility maintenance and soil management. Prerequisite: 301.
- 408-4. ADVANCED CROP PRODUCTION. Ecological and physiological considerations used in the interpretation of crops research data, with emphasis on modern developments and trends in production and research of major agronomic crops. Prerequisite: 209.
- 415-3. PLANT BREEDING. General principles and methods employed in the breeding of horticultural, agronomic, and forest plants. Emphasis on methods of selection, breeding, and testing; use of polyploidy; heterosis; male sterility; combining ability; and plot technique. Prerequisite: 315 or Zoology 401.
- 419-4. FORAGE CROP MANAGEMENT. Forage production and utilization; forage crop characteristics, breeding and ecology; grasslands as related to animal production, soil conservation, crop rotation, and land use. Prerequisite: 209.
- 424A-3. SOIL MICROBIOLOGY. (Same as Microbiology 424A.) Numbers, characteristics, and biochemical activities of soil microorganisms, with particular consideration of their role in the transformations of organic matter, nitrogen, and minerals as related to soil fertility and management. Lectures. Prerequisite: Botany 101.
- 424B-2. SOIL MICROBIOLOGY LABORATORY. (Same as Microbiology 424B.) Experiments designated to determine numbers and to study the characteristics and biochemical activities of the soil microflora as related to fertility. Prerequisites: 424A, Microbiology 100 or 301.
- 427-4. MINERAL NUTRITION OF PLANTS. (Same as Botany 427.)
- 438-3. ADVANCED VEGETABLE CROPS. Studies of the genetic, morphological, and physiological factors influencing the production of vegetable crops. Prerequisites: 264, Botany 320, or consent of instructor.
- 440-3. PLANT PROPAGATION. Fundamental principles of asexual and sexual propagation of horticultural plants. Actual work with seeds, cuttings, grafts, and other methods of propagation. Prerequisites: 264, Botany 101, or consent of instructor.
- 458-4. GRADING AND MARKETING OF FIELD CROPS. (Same as Agricultural Industries 458.) Grading and marketing factors affecting the quality of grain and hay crops; standards employed in their classification and grading in the commercial market operations in marketing field crops. Field trips to commercial grain-grading laboratory and marketing center cost about \$5. Prerequisites: 209, Economics 205, Agricultural Industries 354, or consent of instructor.

- 506-4. THE USE OF RADIOISOTOPES IN AGRICULTURE. Emphasis on current techniques. Laboratories devoted to giving experience in safe handling of isotopes in such techniques as measurement of soil moisture and fertilizer absorption and translocation. Prerequisite: consent of department.
- 520-1 to 6. READINGS. Contemporary books and periodicals on selected subjects within the fields of the plant industries.
- 575-1 to 6. RESEARCH. Directed research on approved projects investigating selected fields of the plant industries.
- 581-1 to 6. SEMINAR. Group discussions of and individual papers on subjects and problems relating to soils, field and horticultural crops, and other phases of the fields of the plant industries.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## PSYCHOLOGY

Courses on the 400 and 500 levels are listed according to areas. The second two digits indicate the content area:

- 00-19 General and experimental
- 20-29 Measurement, methodology, and research design
- 30-39 Personality, counseling, and psychotherapy
- 40-49 Tests and assessment procedures
- 50-59 Child and developmental
- 60-69 Social
- 70-79 Personnel and industrial
- 90-99 Independent projects, seminars, practica, and research

- 401-4, 402-4, 403-4. PROSEMINAR IN GENERAL PSYCHOLOGY I, II, III. Basic conceptual and methodological problems in the study of behavior. I. History and systems of psychology, philosophy of science, scientific methodology, behavior theory. II. Acquisition of behavior, sensory and perceptual processes, motivation and emotion. III. Personality and individual differences, new conceptual and methodological developments and trends. To be taken in sequence. Prerequisite: consent of instructor. Open to graduate students in other departments by arrangement with department chairman.
- 404-4. THEORIES OF PERCEPTION. An examination of the different theories concerned with an organism's sensory contact with his environment. Physiological, social, and organizational theories of perception will be considered. Prerequisite: 212 or consent of instructor.
- 406-4. LEARNING PROCESSES. Processes by which individual behavior is changed, using procedures developed in the learning laboratory. Introduction to major concepts and data of learning.
- 407-4. THEORIES OF LEARNING. A consideration of the major contemporary learning theories and their relation to experimental data. Prerequisite: 212 or consent of instructor.
- 408-4. THEORIES OF MOTIVATION. An examination of instinct theories,



biological drives, emotions, social motives, and psychodynamic theories as they contribute to a comprehensive psychology of motivation. Prerequisite: 212 or consent of instructor.

- 409-4. HISTORY AND SYSTEMS. Study of the important antecedents of contemporary scientific psychology. Considers issues, conceptual developments, and research advances, and presents the major schools and systems. Prerequisite: 20 hours in psychology or consent of instructor.
- 420-4. SCIENTIFIC METHODOLOGY IN PSYCHOLOGY. Scientific methodology as an approach to investigation and classification of problems involved in understanding the psychological nature of man. Prerequisite: consent of instructor.
- 421-4. PSYCHOLOGICAL TESTS AND MEASUREMENTS. Principles of psychological measurement, including errors of measurement, techniques for estimating reliability and validity, techniques of test construction, and problems in assessment and prediction. The laboratory will include the use of selected instruments. Lecture and laboratory. Prerequisite: 8 hours of psychology.
- 424-2. PSYCHOPHYSICAL METHODS. Survey of the major psychophysical methods, and their applications. Lecture and laboratory.
- 431-4. PSYCHOPATHOLOGY. Classification, description, etiology and treatment of the disorders of personality organization and behavioral integration. Observations in a state mental hospital setting. Prerequisite: 305 or consent of instructor.
- 432-4. MENTAL HYGIENE. An integration of psychological knowledge and principles concerning factors and conditions affecting the individual which tend to facilitate or to deter mental health. Prerequisite: 305 or consent of instructor.
- 433-2 to 6. PERSONALITY AND MENTAL HEALTH. Seminar on the basic factors in psychological development and their implications for mental health and psychopathology. Prerequisite: consent of instructor.
- 438-4. PSYCHOLOGICAL CONSIDERATIONS IN TREATMENT. For advanced undergraduates and graduate students entering allied professions in which they will be directly concerned with corrective or remedial service. Basic psychological principles and considerations relevant to planning and conducting such treatment; potentialities and limitations of individual and group treatment; environmental manipulation. Prerequisite: recommendation of student's major department.
- 440-4. THEORIES OF PERSONALITY. A review and critical evaluation of major personality theories and their supporting evidence. Prerequisite: 305 or consent of instructor.
- 451-4. ADVANCED CHILD PSYCHOLOGY. An examination of the concepts, methods, and problems of human development with consideration of both its psychobiological and psychosocial aspects. Prerequisite: 301 or 303 or consent of instructor.
- 461-4. ADVANCED SOCIAL PSYCHOLOGY. Examines current areas of interest in the study of social behavior: language behavior, communication, social influence, attitude change, interpersonal perception, etc. Emphasis is on the individual in the social context. Prerequisite: 307 or consent of instructor.
- 465-4. GROUP DYNAMICS AND INDIVIDUAL BEHAVIOR. Examination of research and theory in the area of small-group interaction. Examines



- such topics as group structure and function, group problem-solving, leadership, etc. Prerequisite: 307 or consent of instructor.
- 471-4. ADVANCED INDUSTRIAL AND PERSONNEL PSYCHOLOGY. An advanced course presenting selected topics in the field of industrial, engineering and personnel psychology. Prerequisite: 320 or 322 or consent of instructor.
- 490-1 to 16. INDEPENDENT PROJECTS. Independent readings and projects in psychology. Prerequisite: consent of instructor and chairman.
- 509-4. INSTRUMENTATION IN BEHAVIORAL SCIENCE. Study of methods of research instrumentation. Techniques of stimulation and of physiological and psychological response recording. Lecture and laboratory. Prerequisite: consent of instructor.
- 512-4. SENSORY PROCESSES. A study of the structure and functions of the sense organs. Emphasis will be placed on the psychological data which describe the function of these organs. Prerequisite: consent of instructor.
- 514-4. PHYSIOLOGICAL PSYCHOLOGY. Study of neural and endocrine mechanisms underlying behavioral processes. Lecture and laboratory. Prerequisite: consent of instructor.
- 520-4, 521-4, 522-4. RESEARCH DESIGN AND INFERENCE I, II, III. 520 an introduction to psychological measurement: types of scales, introduction to scaling and psychophysical methods, reliability, sources of error, and methods of estimation. 521 a continuation of 520 with emphasis on validity and multiple measures and inference. 522 an application of standard methods to the design, analysis and interpretation of psychological experiments. To be taken in sequence.
- 523-2. RESEARCH SEMINAR. Major methods of obtaining data, use of computational and laboratory equipment, planning of research projects. Every student will be expected to submit a detailed research prospectus for group criticism. Prerequisite: 522.
- 524-4. ADVANCED RESEARCH METHODOLOGY. Theory and application of complex experimental designs and multivariate procedures. Prerequisite: 522.
- 525-4. MENTAL TEST THEORY. Derivation of the basic psychometric equations, effects of test length and group heterogeneity on test parameters, criteria of parallel tests, weighing and differential prediction. Prerequisite: 524.
- 530-4. PERSONALITY THEORY AND DYNAMICS. Intensive treatment and critical analysis of several representative approaches to personality. Consideration also of important personality concepts common to most theoretical approaches. Prerequisite: consent of instructor.
- 531-4. ADVANCED PSYCHOPATHOLOGY. Consideration of special topics, including psychological theories of the nature and etiology of human pathology, assessment of pathology, and institutional care and treatment. Includes extensive field experience in a mental hospital setting. Prerequisite: 530, 541, 542, and consent of instructor.
- 532-2. EXPERIMENTAL APPROACHES TO PERSONALITY. Presentation of conceptual formulations and research data from representative experimental approaches to personality. Critical evaluation of methodological approaches to personality study. Prerequisite: 530 or consent of instructor.
- 536-4. FUNDAMENTALS OF COUNSELING. Introduction to the common assumptions, dimensions, and communicative skills underlying psycho-

- logical counseling. Observation utilized to supplement didactic discussion. Lecture and demonstration. Prerequisite: consent of instructor.
- 537-4. COUNSELING AND PSYCHOTHERAPY. Systematic presentation of major approaches to counseling and psychotherapy. Consideration of salient aspects of the therapeutic situation and of the process and nature of changes during psychotherapy. Critical evaluation of both theory and practice. Consideration of research findings and problems. Prerequisite: 530 and consent of instructor.
- 538-2. GROUP PSYCHOTHERAPY. Presentation of major approaches to group psychotherapy. Prerequisite: 537 and consent of instructor.
- 541-2 to 4, 542-2. PSYCHODIAGNOSTICS I AND II. Introduction to clinical psychology with attention to the function and clinical use of individual intelligence tests. Theories of intelligence and related research. 541: age scales with emphasis on infant and child testing. 542: point scales and tests of deterioration with emphasis on child and adult testing. Lecture and practicum. Prerequisite: 520 and consent of instructor.
- 543-4, 544-2. PSYCHODIAGNOSTICS III AND IV. Basic theory and assumptions underlying projective methods. Use of projective techniques as measures of personality and as tools for clinical diagnosis and research. 543: thematic projective techniques. 544: Rorschach and Bender-Gestalt. Lecture and practicum. Prerequisite: 542 or consent of instructor.
- 545-2. PSYCHODIAGNOSTICS V. Nature and theory of questionnaires for personality assessment and psychodiagnosis. Consideration of their use in clinical research. Lecture and practicum. Prerequisite: consent of instructor.
- 546-3 to 4. PSYCHODIAGNOSTICS FOR SPECIAL POPULATIONS. Tests used in diagnostics and measurement of special populations such as retarded, blind, deaf, brain injured, and the like. Lecture and laboratory. (Same as Special Education 573.) Prerequisite: consent of instructor.
- 547-2. ASSESSMENT PROCEDURES IN COUNSELING. Use and integration of psychological test data, vocational, socio-economic, and educational information in assessment and counseling. Prerequisite: 421 or consent of instructor.
- 552-4. EXPERIMENTAL CHILD PSYCHOLOGY. Consideration of relationship of methodology to child theory, typical methodological procedures and problems specific to children, and representative research topics. Prerequisite: 451 or consent of instructor.
- 554-2. DEVELOPMENTAL THEORY. Systematic study and critical evaluation of representative theories of child behavior. Prerequisite: 451 or consent of instructor.
- 556-2. PSYCHOLOGICAL TREATMENT OF THE CHILD. Investigation of personality and behavior problems. Etiological factors and methods of treatment. Prerequisite: 451 or consent of instructor.
- 561-4. SOCIAL INFLUENCE PROCESSES. Critical review of theoretical and empirical developments in the study of influence processes, attitude change, etc. Social and intrapersonal determinants are examined. Prerequisite: 461 or consent of instructor.
- 562-4. OBSERVATIONAL TECHNIQUES AND CONTENT ANALYSIS. Examination and evaluation of research methods and measurement techniques utilized in social psychology. Prerequisite: 461 or consent of instructor.

- 564-4. COMMUNICATION AND GROUP BEHAVIOR. Emphasis in this course is on language behavior and the psychological study of the communication process. Examines theories, methods and research in these areas. Prerequisite: 461 or consent of instructor.
- 571-4, 572-4. INDUSTRIAL PSYCHOLOGY I, II. 571 covers motivation and morale, job satisfaction, leadership, communication, industrial relations, market research. 572 covers job analysis, employee evaluation, selection and training, human engineering, accidents. Prerequisite: 520 or equivalent.
- 573-2. SELECTION AND PLACEMENT. Proficiency measurement, selection and validation of test batteries, use of the interview and personal history data in selection, quota, and classification problems, administration of a selection program. Prerequisite: 524 or consent of instructor.
- 574-2. PSYCHOLOGY OF INDUSTRIAL RELATIONS. Analysis of psychological factors involved in industrial organization, employer-employee relations, and union-management relations. Prerequisite: 571 or consent of instructor.
- 576-2 to 4. HUMAN ENGINEERING. Analysis of man-machine systems, human factors in the design of display and control systems, limitations and capabilities of the human operator. Prerequisite: consent of instructor.
- 590-1 to 16. READINGS IN PSYCHOLOGY. Readings in selected topics in psychology under staff supervision. Prerequisite: consent of department.
- 591-1 to 36. RESEARCH IN PSYCHOLOGY. Research under staff supervision in selected areas of psychology. Prerequisite: consent of the department.
- 593-1 to 18. PRACTICUM IN PSYCHOLOGY. Practicum experience in a professional setting is offered under staff supervision in the following areas: E. Clinical Psychology, F. Counseling Psychology, H. Industrial Psychology, J. Child Psychology, K. School-Community Mental Health Psychology, L. Teaching of Psychology, M. Rehabilitation, N. Rehabilitation Counseling.
- 595-1 to 40. ADVANCED SEMINAR. Seminars for advanced students in the following areas of psychology: A. Clinical Psychology, B. Counseling Psychology, C. School-Community Mental Health Psychology, D. Industrial Psychology, E. Personality, F. Child Psychology, G. Social Psychology, H. General-Experimental Psychology, J. Teaching of Psychology, K. Rehabilitation Counseling, L. Measurement in Psychology.
- 598-2. ETHICAL AND PROFESSIONAL PROBLEMS IN PSYCHOLOGY. Problems in the professional practice of psychology and in teaching and research. Professional ethics, relations to other professions and the public, organization and structure of the field, current trends. Prerequisite: major in psychology or consent of instructor.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.
- 600-3 to 48. DISSERTATION. Minimum of 36 hours to be earned for the Ph.D. degree.

## RECREATION AND OUTDOOR EDUCATION

- 413-4. SAFE AND HEALTHFUL LIVING OUTDOORS. Areas to be included



are foods, sanitation, survival, plants and animals, natural hazards, emergency care, water, riflery, and others. Prerequisites: 334, and at least 10 hours of biological sciences.

- 450-4. PRINCIPLES AND INTERPRETATIONS OF RECREATION. Principles of recreation in relation to education and everyday life. Basic concepts underlying the interpretation of recreation and leisure in the light of economic, psychological, political, and social conditions.
- 470-4. RECREATION IN PUBLIC EDUCATION. Emphasis on current practices and trends in curriculum content, adult education, extracurricular activities, after-school and vacation programs, and co-operative programs with other agencies.
- 480-4. TECHNIQUES IN CAMPING. Preparation of material for use in camps; techniques of camp procedure, camp craft, woodmanship, and crafts.
- 510-2 to 6. SCHOOL CAMPING AND OUTDOOR EDUCATION WORKSHOP. Current practices in school camps; the training of leaders for school camps and the place of outdoor education in the school program.
- 520-4. RECREATION PROGRAM WORKSHOP. Bases for planning community programs of recreation. Scope of leisure opportunities; selection, evaluation, and adaptation of activities.
- 530-4. ORGANIZATION FOR COMMUNITY RECREATION. The development and administration of a recreation program. A study of community recreation, including developing facilities and co-ordinating community agencies.
- 540-4. RECREATION SURVEYS AND PLANNING OF FACILITIES. An analysis of scope, content, objectives, procedures, and types of recreational surveys and appraisals. Collection and analysis of data.
- 550-2 to 6. FIELD PROBLEMS—COMMUNITY RECREATION. Internship in school recreation and outdoor education with emphasis on administrative problems.
- 560-2 to 6. FIELD PROBLEMS. Internship in school recreation and outdoor education with emphasis on administrative problems.

## SECONDARY EDUCATION

- 407-4. THE JUNIOR HIGH SCHOOL. The place of the junior high school in the organizational pattern, with major emphasis upon the areas of organization, administration, and curriculum.
- 422-4. EDUCATIONAL MEASUREMENTS I. (Same as Guidance 422.)
- 450-4 to 16. FIELD TRAINING IN COMMUNITY DEVELOPMENT. The student will study in a community where a development program is in progress under the supervision of professional consultants. Prerequisite: Sociology 487.
- 470-4. EXTRA-CLASS ACTIVITIES. Student expected to specialize in one extra-class activity in terms of his own interests and needs. Prerequisite: consent of instructor.
- 473-4. WORKSHOP IN CITIZENSHIP EDUCATION. Designed to improve the teaching of citizenship in the schools. Emphasis upon curriculum, materials, methods. Use made of Citizenship Education Project resources.
- 490-4. WORKSHOP IN ECONOMICS EDUCATION. Designed to assist ele-



- mentary and secondary school teachers in promoting economic understanding in the minds of their students through the translation of economic principles and problems into classroom teaching materials.
- 508-4. SEMINAR: TRENDS IN SELECTED AREAS IN SECONDARY SCHOOLS. For students in advanced graduate work. Individual class members will read basic bibliography related to secondary education and read widely about trends in the area of their own teaching fields. Prerequisites: completion of half or more of the work leading to a master's degree and consent of the instructor.
- 550-4. CORE CURRICULUM IN THE SECONDARY SCHOOL. Designed to help students gain a functional understanding of the core concept. Techniques of selecting materials and the co-operative planning of units of work. Critical study of current practices in this field. Prerequisite: Educational Administration and Supervision 460.
- 562-4. WORKSHOP IN HIGH SCHOOL CURRICULUM. Designed to permit students to work in groups on problems related to the high school curriculum. Such problems should originate in the schools where the students are or will be employed. The point of view maintained is that procedures should be very democratic. The instructor serves as a coordinator of activity; resource people are used freely. Prerequisite: one other graduate course in curriculum.
- 564-4. HIGH SCHOOL PRINCIPALSHIP. Designed to deal with problems met specifically by the high school principal. Emphasizes his role in relation to guidance, curriculum, schedule-making, extracurricular activities, public relations, budgeting of time, etc. Prerequisite: Educational Administration and Supervision 424 and consent of instructor.
- 575-2 to 4. INDIVIDUAL RESEARCH. The selection, investigation, and writing of a research topic, under the personal supervision of a member of the departmental graduate staff, in one of the following areas: A. Curriculum, B. Supervision, C. Language Arts, D. Science, E. Reading, F. Social Studies, G. Problems in Secondary Education.
- 586-3. THE CHANGE AGENT IN PLANNED CHANGE. An intensive diagnosis of the dynamics involved in planned change in a social system—using actual situations for study—and the consultant's relationship to this process. Prerequisite: Sociology 333 or consent of instructor.
- 589-2. SEMINAR IN COMMUNITY DEVELOPMENT.
- 591-4. WORKSHOP IN CURRENT PROBLEMS IN SECONDARY EDUCATION. Designed primarily to help high school principals to work effectively and with the help of resource leadership on the most urgent problems confronting their schools. Discussion, reports, lectures, and final examination. Prerequisite: consent of instructor.
- 596-5 to 9. INDEPENDENT INVESTIGATION. A field study required of each student working for the sixth-year professional certificate. The work should be done in the setting of a school system where the student is employed or where full co-operation is extended. The study will involve selecting of the problem, survey of pertinent literature, recording of results, and appropriate interpretations and summarizations.
- 597-1 to 3, 598-1 to 3, 599-1 to 3. THESIS. Minimum of 5 hours to be counted toward a master's degree.
- 600-3 to 48. DISSERTATION. Minimum of 36 hours to be earned for the Ph.D. degree.

## SECRETARIAL AND BUSINESS EDUCATION

- 402-4. A REVIEW OF RESEARCH IN BUSINESS EDUCATION. A study of the findings of outstanding research workers in business education: the problems studied, the investigational procedures used, and the major conclusions. Prerequisite: consent of instructor.
- 403-3. TEACHING TYPEWRITING. The programming of activities in type-writing training, methods of instruction, skill-building principles and techniques, selection and preparation of practice materials, standards of achievement, and evaluation of pupil progress. Prerequisite: 104 or equivalent.
- 404-3. TEACHING SHORTHAND AND TRANSCRIPTION. The programming of activities in shorthand and transcription training, methods of instruction, skill-building principles and techniques, selection and preparation of practice and homework materials, standards of achievement, and evaluation of pupil progress. Prerequisite: 216 or equivalent.
- 405-3. TEACHING BUSINESS SUBJECTS. Instructional methods and materials for, and the evaluation of pupil progress in, such basic business subjects as general business, consumer education, economic geography, business law.
- 406-4. TEACHING CLERICAL PRACTICE AND OFFICE MACHINES. Instructional methods and materials for, and the evaluation of pupil progress in, clerical practice and office machines.
- 407-4. OFFICE MANAGEMENT. The principles of management as applied to office problems. Emphasis on the role of the office in business management; office organization; physical facilities of the office; office services, procedures, standards, and controls; records management.
- 408-3. TEACHING BOOKKEEPING AND ACCOUNTING. Instructional methods and materials for, and the evaluation of pupil progress in, bookkeeping and accounting. Prerequisite: Accounting 253 or equivalent.
- 500-2 to 5. READINGS IN BUSINESS EDUCATION. Supervised readings in selected subjects. Prerequisite: consent of instructor.
- 501-2 to 5. INDIVIDUAL RESEARCH IN BUSINESS EDUCATION. Selection and investigation of a problem; use of relevant sources and techniques; collection, evaluation, and interpretation of data; and the writing of a report on the investigation. Prerequisite: consent of instructor.
- 502-4. RESEARCH IN BUSINESS EDUCATION. A study of research findings and techniques as exhibited in representative investigations in business education. Emphasis on reading and interpreting research, using research findings in solving instructional problems, and uncovering potential topics for future research. Mathematics 410 or Guidance 420 is a desirable but not a necessary corequisite.
- 503-4. TESTS AND MEASUREMENTS IN BUSINESS EDUCATION. (Same as Guidance 503.) The selection, construction, administration, and interpretation of tests and test scores in business education subjects. Principal emphasis on teacher-made tests, especially of the performance type, with secondary attention to published tests in the field. Prerequisite: Guidance 420 or Mathematics 410 or Economics 307.

- 504-4. **PSYCHOLOGICAL BASES FOR TEACHING SECRETARIAL SKILLS.** Findings of experimental research in human learning applicable to the learning of shorthand, typewriting, and other office skills. Treats the variables in skill-learning and modes of manipulating these variables for specific purposes. Special emphasis on the identification of needed research in the learning of the skill subjects and the design and conduct of experimental studies in the field. Prerequisites: 403 or 404, Economics 307 or Mathematics 410 or Guidance 420, Psychology 201, Guidance 305.
- 505-1 to 6. **WORKSHOP IN BUSINESS EDUCATION.** Major issues in business teacher education. Ordinarily offered during one or two weeks of the summer session. Prerequisite: consent of instructor.
- 506-4. **PRINCIPLES AND PROBLEMS OF BUSINESS EDUCATION.** A study of the fundamentals of business education; its relation to business, to general and vocational education, and to guidance programs; its history, current status, and trends; special emphasis on objectives and curriculum problems. Prerequisite: consent of instructor.
- 599-2 to 9. **THESIS.** Minimum of 5 hours to be counted toward a master's degree.

## SOCIOLOGY

### *PRINCIPLES, HISTORY, THEORY*

- 400-2. **CURRENT SOCIOLOGY.** Students read, report on, and evaluate content of leading sociological journals. Prerequisite: 8 hours of sociology.
- 407-4. **INTEGRATED SOCIOLOGY.** For seniors majoring in sociology. Integration of sociological concepts and principles: society and culture, the human group, social norms and patterns, status and role, organization, structure, and function, social change. Prerequisite: 15 hours of sociology.
- 450-4. **SOCIAL THOUGHT I: BEFORE 1800.** The ideological basis of Western society. The classical foundations. Trends of thought from the Renaissance to the Enlightenment. Prerequisite: background in history.
- 451-4. **SOCIAL THOUGHT II: THE SOCIOLOGICAL MOVEMENT.** From Romanticism to Realism; rise and development of scientific social thought. Prerequisite: background in 19th-century history or literature.
- 452-4. **SOCIAL THOUGHT III: TWENTIETH CENTURY.** Recent trends in social thought; from Spengler and Toynbee to Riesman and Whyte; the emergence of mass society. Prerequisite: consent of instructor.
- 501-4. **HISTORY OF EUROPEAN SOCIOLOGY.** The development of sociology as a science of society, from synthetic philosophy (St. Simon, Comte, H. Spencer) to analytic sociology (Durkheim, Tonnies, M. Weber, and others). Prerequisite: 451 or consent of instructor.
- 502-4. **SEMINAR IN EUROPEAN SOCIOLOGICAL THEORY: 1800-1910.** The theoretical systems of selected European sociologists studied from the original writings. Prerequisite: 15 hours of sociology or consent of instructor.
- 503-4. **SEMINAR IN EUROPEAN SOCIOLOGICAL THEORY: 1910 TO THE PRESENT.** A continuation of 502. Prerequisite: 15 hours of sociology or consent of instructor.
- 504-4. **SEMINAR IN AMERICAN SOCIOLOGY I: FOUNDATIONS.** Review of backgrounds and development of American sociology to World War



I. Special attention to theory. Prerequisite: 15 hours of sociology or consent of instructor.

- 505-4. SEMINAR IN AMERICAN SOCIOLOGY II. Continuation of 504. Convergence of theory and empirical research. Prerequisite: 15 hours of sociology or consent of instructor.
- 506-4. SEMINAR IN CONTEMPORARY SOCIOLOGICAL THEORY. An analysis of recent sociological theories, including a survey of current approaches to the construction and application of systematic theoretical models. Special attention will be given to "structural-functional" analysis and to the theoretical adequacy of selected theory-oriented empirical research areas. Prerequisite: 15 hours of sociology or consent of instructor.

### *SOCIAL ORGANIZATION AND STRUCTURE*

- 435-4. SOCIAL STRATIFICATION. A comparative study of social class systems, with emphasis on the American systems. Relationships of class position to behavior in family, religion, politics, etc. Prerequisite: 101.
- 438-3. SOCIOLOGY OF OCCUPATIONS AND PROFESSIONS. Natural history and institutional aspects of occupations in our society, cultural context of occupations in both primitive and modern society, preparation for jobs, human values in work, promotion and discharge, mobility, retirement. Prerequisite: 101.
- 449-4. SOCIOLOGY OF AGING. The social implications of an aging population; social adjustments to the aging process; personal adjustments to the roles and statuses of later maturity; a consideration of retirement and public assistance programs for older people. Prerequisite: 101 or consent of instructor.
- 471-4. PRINCIPLES OF DEMOGRAPHY. Techniques in analyzing and evaluating data on human population; composition, birth and death rates, life tables, migration data, estimates of future trend. Practical uses of demographic techniques. Prerequisites: 312, 371.
- 533-4. ECOLOGY OF HUMAN COMMUNITIES. Spatial and temporal organization of population and institutions with special reference to the organization of rural and metropolitan communities. Emphasis on basic research methods and current sources of data in respect to type, structure, and growth of the communities. Prerequisite: 15 hours of sociology or consent of instructor.
- 534-4. SEMINAR IN INTERGROUP RELATIONS. Cross-cultural study of inter-ethnic and inter-faith relations, with special attention to conflict, accommodation, acculturation and assimilation. Prerequisite: 15 hours of sociology or consent of instructor.
- 537-4. SOCIOLOGY OF LAW. An analysis of the relationship between law and society with special emphases on the origin and evolution of law and on the role of law in a changing society. Prerequisite: 15 hours of sociology or consent of instructor.
- 538-4. SEMINAR IN INDUSTRIAL SOCIOLOGY. Selected aspects of Industrial Organization and related problems including such topics as: functional and disfunctional deviations from ideal bureaucracy, promotion policies, labor relations, job aptitudes, job satisfactions, and public relations. Prerequisite: 15 hours of sociology or consent of instructor.



- 539-4. **SOCIOLOGY OF BUREAUCRACY.** Analysis of the structural characteristics and conditions for the emergence of bureaucratic and quasi-bureaucratic forms of organization. Attention will be given to such problems as the bases of authority, stabilizing mechanisms, systems of formal and informal relations, rationality and paradox in bureaucratic organization. The impact of bureaucratic organization upon character structure and its role in the formation of classes and elites will also be considered. Prerequisite: 15 hours of sociology or consent of instructor.
- 542-4. **SEMINAR ON THE FAMILY.** The family as a field of sociological study. Assessment of significant historical and contemporary writing. Prerequisite: 15 hours of sociology including 340, or consent of instructor.
- 543-4. **SEMINAR IN FAMILY VARIABILITY.** An analysis of the structure, organization and function of the family in several contemporary and primitive societies. Prerequisite: 15 hours of sociology including 340, or consent of instructor.
- 544-4. **SEMINAR IN FAMILY RESEARCH.** A detailed analysis of significant research in the field of the family. Special attention to be given to methods employed as they relate to the specific problems investigated. Prerequisite: 15 hours of sociology including 340, or consent of instructor.
- 545-4. **THE FAMILY AND SOCIAL CHANGE.** The significant social factors responsible for changes in the family from ancient times to present. Analysis of representative writings from several periods. Prerequisite: 15 hours of sociology including 340, or consent of instructor.

### *SOCIAL PSYCHOLOGY*

- 424-4. **COLLECTIVE BEHAVIOR.** The behavior of people in large groups; collective interstimulation and emotions; crowds, audiences, and publics; mass stimuli and mass response. Prerequisite: 321 or 322, or consent of instructor.
- 426-4. **SOCIAL FACTORS IN BEHAVIOR AND PERSONALITY.** How group situations and values affect behavior and shape personality; development of concepts, role-concepts, attitudes, values; theories of motivation; self-concepts; conflicting social values in relation to individual motivation. Prerequisite: 321 or Psychology 305.
- 427-4. **PERSONALITY AND SOCIAL ADJUSTMENT.** Basic mechanisms of adjustive behavior; concepts and criteria of personal integration and social adjustment; varieties of adjustive and non-adjustive behavior; theories of personal organization and disorganization; selected problems. Prerequisite: 321 or Psychology 305.
- 445-3. **SOCIOLOGY OF INFANCY AND CHILDHOOD.** Influences of primary groups; origins of self- and role-concepts; relationships between early and later development; cross-cultural and inter-class comparisons. Prerequisite: 340 and 426.
- 453-4. **SOCIAL MOVEMENTS.** A sociological study of modern social movements; social and cultural backgrounds, forms of expression and organization; social structure of social movements, their role and function in modern society. Prerequisite: 8 hours of sociology.
- 521-4. **SEMINAR IN SOCIAL PSYCHOLOGY.** Survey of theoretical systems; progress toward integrated body of behavioral theory. Prerequisite: 426.

- 553-4. SEMINAR ON SOCIAL MOVEMENTS. The student will be expected to make a sociological study of a particular social movement or a comparative study of a particular aspect of the sociology of social movements. Prerequisite: 453 or consent of instructor.

### *SOCIAL DISORGANIZATION AND CONTROL*

- 406-3. SOCIAL CHANGE. Processes of social change in the modern world; culture lag and conflict of norms; individual and social problems arising from conflicting systems of social values and cultural norms. Prerequisite: 8 hours of sociology.
- 472-4. TREATMENT AND PREVENTION OF CRIME. Principles of penology; history of punishment and prisons; criminal law, police function, criminal courts; the prison community; the juvenile court and related movements. Prerequisite: 372.
- 561-4. ALCOHOL AND SOCIETY. Analysis of the determinants of ranges of variation in drinking patterns, normal or pathological, viewed cross-culturally and in the context of complex society. Special consideration will be given to the following: the ecology of drinking and alcoholism, drinking patterns and social structure, drinking centered subcultures and institutions, as well as to the genesis and patterning of deviant drinking (alcoholism), responsive movements and systems of control. Prerequisite: consent of instructor.
- 562-4. DISORGANIZATION: PERSONAL AND SOCIAL. Comparative study of the role of social, cultural, and psychological factors in the genesis of specific social pathologies exhibiting marked variation in group rates. Pathologies such as suicide, homicide, and alcoholism will be taken as illustrative. The strategic significance of the study of such phenomena for theories of social and personal disorganization, will be considered in detail. Prerequisite: 15 hours of sociology or consent of instructor.
- 563-4. RESEARCH PROBLEMS IN DEVIANCE AND DISORGANIZATION. For students who are concerned to develop viable research projects in the areas of social disorganization and deviant behavior. Students formulate and present original research prospectuses for critical evaluation. Consideration given to questions of theoretical relevance, research design, and appropriate techniques. Prerequisite: 15 hours of sociology or consent of instructor.
- 572-3. SEMINAR IN CRIMINOLOGY. Critical study of important research through book reviews and theoretical analyses. Prerequisite: 372 or consent of instructor.
- 573-3. SEMINAR ON THE SOCIOLOGY OF WAR. Critical analysis of the hypothesis that modern war is part and product of an inherently understandable process or integration of processes. This approach will be contrasted with the moralistic approach. Prerequisite: 15 hours of sociology or consent of instructor.

### *METHODOLOGY*

- 412-4. SOCIOLOGICAL RESEARCH. Introduction to methods of sociological

research. Relations between theory and research design. Application of scientific methods to social data. Prerequisite: 12 hours of sociology or consent of instructor.

- 511-4. **METHODOLOGICAL FOUNDATIONS OF THE SOCIAL SCIENCES.** Social science methodology; the nature of social facts and phenomena, the formation of concepts, the application of logic in the social sciences. Prerequisites: 407, and Philosophy 420 or consent of instructor.
- 513-3. **RESEARCH TECHNIQUES I.** Scientific research methods and techniques applied to the study of social phenomena. Discussion of the scope and purpose of social research; evaluating and interpreting social data. Prerequisite: 312 or consent of instructor.
- 514-3. **RESEARCH TECHNIQUES II.** Continuation of Sociology 513.
- 516-4. **SEMINAR IN METHODOLOGY.** Supervised research, with practical application of research principles. Prerequisites: 511, 513, 514.  
Note: the following courses in statistics are part of the sociology curriculum but are offered in the Department of Mathematics.  
Mathematics 410-4, 411-4, 412-4. Statistical analysis I, II, III.

### *GENERAL COURSES*

- 591-2 to 6. **INDIVIDUAL RESEARCH.** Supervised research projects. Open only to graduate students with a major in sociology. Prerequisite: consent of instructor and chairman of department. Credit according to achievement.
- 596-2 to 6. **READINGS IN SOCIOLOGY.** Supervised readings in selected subjects. Prerequisite: consent of instructor and chairman of department.
- 599-2 to 9. **THESIS.** Before a thesis can be submitted, all departmental requirements, including language and comprehensive examinations, must be satisfied. Minimum of 5 hours counted toward a master's degree.

### *RELATED FIELDS*

#### **SOCIAL WORK**

- 481-4. **PROCESSES IN SOCIAL WORK.** Theory, rationale, and practice of casework, group work, social welfare organization, and the roles of supervision, administration, and research in relation to each. Case material study and discussion with field observation and practice. Prerequisite: 380 or consent of instructor.
- 482-3. **SOCIAL WORK IN SELECTED AGENCIES.** Study of representative literature on casework in family, psychiatric, medical, school, military, child welfare, and correctional settings, and others. Case material study and discussion with field observation and practice. Prerequisite: 481.

#### **REHABILITATION**

- 480-2. **HISTORY AND LEGAL ASPECTS OF REHABILITATION.** A survey of historical and legal developments in rehabilitation agencies, with particular emphasis on current theories and trends. Open only to students in the Rehabilitation Institute.
- 580-3. **SUPERVISED EXPERIENCE IN REHABILITATION COUNSELING.**

Supervised counseling experience in social work or welfare agencies. Open only to students in the Rehabilitation Institute. Prerequisites: 480, 481, 482.

581-3 to 9. FIELD WORK IN REHABILITATION. Supervised field work in social work or welfare agencies. Block or concurrent placement. Open only to students in the Rehabilitation Institute.

585-1 to 3. SEMINAR IN REHABILITATION COUNSELING. A continuing survey of recent developments and trends in the organizational structure, functions, and team interaction of specialists devoted to rehabilitation of the handicapped. Selected problems or the role of the rehabilitation counselor in multiple settings. Prerequisite: consent of instructor. Maximum credit of 6 hours.

## COUNSELING

484-3. SURVEY COURSE IN MARRIAGE COUNSELING. Survey and analysis of the field of marriage counseling; assessment of current practices and techniques in terms of contemporary sociological theory. Prerequisites: 241 and consent of instructor.

## COMMUNITY DEVELOPMENT

486-1 to 5. INDEPENDENT STUDY IN COMMUNITY DEVELOPMENT. Individual study and projects designed to fit the needs of each student. Prerequisite: consent of instructor.

487-4. COMMUNITY DEVELOPMENT I. The concepts of community development and analysis of the social-psychological forces and processes involved in citizen study, planning and action directed toward the fuller development of communities in a democratic society. Laboratory period for field trips. Prerequisite: 4 hours of sociology or equivalent.

488-3. COMMUNITY DEVELOPMENT II. Principles and procedures applicable to social problem solving in the context of a community development program. Laboratory period for field trips. Prerequisite: Sociology 487.

586-3. THE CHANGE AGENT IN PLANNED CHANGE. (Same as Secondary Education 586.) An intensive diagnosis of the dynamics involved in planned change in a social system—using actual situations for study—and the consultant's relationship to this process. Prerequisite: 333 or consent of instructor.

## SPECIAL EDUCATION

406-4. TECHNIQUES AND INTERPRETATION OF HEARING TESTING. See Speech Correction 406 for course description.

410-4. PROBLEMS AND CHARACTERISTICS OF THE MENTALLY RETARDED. Objectives, curriculum, methods, and materials of instruction for slow learners. Emphasis upon the principles of learning as they can be applied to this group. Observations. Prerequisite: Guidance 305 or Psychology 301 or 303.



- 411-4. EDUCATION OF THE PARTIALLY SIGHTED AND BLIND. A study of the objectives, curriculum, methods, and techniques of instruction of classes for the partially sighted. Special emphasis on sight conservation in the regular classroom, special equipment, and observation of sight-saving classes. Prerequisites: Guidance 305, Psychology 301 or 303.
- 412-4. EDUCATION OF GIFTED CHILDREN. Designed to help teachers in the identification of and programming for gifted and talented children. Prerequisite: Guidance 305 or Psychology 301 or 303.
- 413-4. DIRECTED OBSERVATION OF EXCEPTIONAL CHILDREN. Taken concurrently with a problem course in a specific area which provides student observation and participation in individual work with exceptional children. Prerequisite: consent of instructor.
- 414-4. THE EXCEPTIONAL CHILD. Physical, mental, emotional, and social traits of all types of exceptional children. Effects of handicaps in learning situations. Methods of differentiation and techniques for rehabilitation. Individual case studies used; observations and field trips. Prerequisites: Guidance 305, Psychology 301 or 303.
- 415-4. EDUCATION OF THE DEAF AND HARD OF HEARING. Methods of teaching reading and developing language sense in the deaf and hard of hearing. Tactile, visual, and kinesthetic experiences; hearing aids and other special equipment presented in terms of their educational application. Observations. Prerequisites: Guidance 305, Psychology 301 or 303, Speech 105 and 212, or equivalent.
- 416-4. EDUCATION OF ORTHOPEDIC CHILDREN. Objectives, curriculum, methods, and techniques of instruction of classes for orthopedic children. Emphasis given to program organization, special types of equipment, and observation of classes for the orthopedic. Prerequisite: same as 410.
- 417-4. THE ATYPICAL CHILD AND SOCIAL AGENCIES. A survey of social agencies contributing to the welfare and care of exceptional children. Emphasis given to services rendered and to methods of contact and cost. Visits made to agencies and institutions: specialists invited to appear before the class. Prerequisites: Guidance 305 or Psychology 301 or 303, and Sociology 101.
- 418-4. WORKSHOP IN SPECIAL EDUCATION. Designed to promote better understanding of the psychological and educational problems of atypical children. Specialists used as consultants. Open to seniors and graduate students majoring in education, guidance, or special education. Prerequisite: Guidance 305 or Psychology 301 or 303.
- 419-4. COMMUNICATION PROBLEMS OF THE DEAF AND HARD OF HEARING. (Same as Speech Correction 419.) Objectives and techniques for the teaching of lip reading, speech conservation, and auditory training. Prerequisite: 406 or consent of instructor.
- 420-4. METHODS AND MATERIALS FOR TEACHING EXCEPTIONAL CHILDREN. Offered in conjunction with practice teaching, dealing with methods and materials needed in teaching specific types of exceptional children.
- 428-4. SPEECH CORRECTION FOR THE CLASSROOM TEACHER. (Same as Speech Correction 428.)
- 481-4. SEMINAR.
- 501-4. SPECIAL RESEARCH PROBLEM. For majors and minors in the areas of special education. Choosing and conducting research activities. The

student to select a topic for research and present it, upon completion, to the staff. Prerequisite: consent of staff.

- 513-4. ORGANIZATION, ADMINISTRATION, AND SUPERVISION OF SPECIAL CLASSES. Emphasis upon the functions, underlying principles, and cautions to be observed in the organization and administration of special classes. The selection and training of teachers, problems of supervision, special equipment, transportation, co-operating agencies, and legal aspects of the program. Prerequisites: Guidance 305, Psychology 301 or 303.
- 570-2. SEMINAR: VOCATIONAL GUIDANCE OF THE HANDICAPPED. Examination of vocational problems of the handicapped. Vocations open to handicapped; requisites for success. Advanced majors only.
- 571-2, 572-2. SPECIAL PROBLEMS OF THE HANDICAPPED. Program development and training of handicapped individuals with special emphasis on the socio-psychological aspects of disability.
- 573-3 to 4. PSYCHODIAGNOSTICS FOR SPECIAL POPULATIONS. (Same as Psychology 546.)
- 574-1 to 12. SUPERVISED EXPERIENCE IN REHABILITATION. Provides for experience both on and off campus in counseling, interviewing, case study, and placement of rehabilitation clients under adequate supervision.
- 577-4 to 12. PRACTICUM IN SPECIAL EDUCATION. Practical experience in working with atypical children. A minimum of 8 to 12 hours per week in the classroom with atypical children who exemplify this area of specialization. Special research project.
- 596-5 to 9. INDEPENDENT INVESTIGATION. A field study required of each student working for the sixth-year professional certificate. The work should be done in the setting of a school system where the student is employed or where full co-operation is extended. The study will involve selecting of the problem, survey of pertinent literature, recording of results, and appropriate interpretations and summarizations.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

## SPEECH

### GENERAL SPEECH

- 408-4. PSYCHOLOGY OF SPEECH. Nature and development of speech, its basic psychology, and the part speech plays in personality development.
- 440-4. ADVANCED PHONETICS. Phonetic theory. Materials and methods of linguistic geography. Prerequisite: 200.
- 449-4. GENERAL SEMANTICS. Means of changing implications so that language, in spoken or written form, describes the life facts.
- 520-3. PHILOSOPHICAL FOUNDATIONS OF SPEECH. A special course reviewing the philosophy of speech for graduate and advanced students. Designed to take advantage of the knowledge and background of distinguished visiting professors.
- 530-1 to 4. RESEARCH PROBLEMS IN SPEECH. Individual work upon selected problems for research.
- 532-4. AREAS AND TECHNIQUES OF RESEARCH IN SPEECH. Study and

analysis of outstanding works in the various areas of research. Lectures on research techniques and study possibilities in the field.

- 599-2 to 9. *THESIS*. Minimum of 5 hours to be counted toward a master's degree.  
 600-3 to 48. *DISSERTATION*. Minimum of 36 hours to be earned for the Ph.D. degree.

### *ORAL INTERPRETATION*

- 423-4. *ORAL INTERPRETATION OF POETRY*. The reading of poetry and the interpretation of the thought and emotional content of the poetry to the audience. Prerequisites: 103, 223.  
 424-4. *ORAL INTERPRETATION OF DRAMATIC LITERATURE*. Reading, selecting, cutting, and presenting various types of dramatic literature. Each student gives a final recital program of readings. Prerequisites: 103, 223.  
 434-4. *LECTURE AND LECTURE-RECITAL*. Study of professional work on the public platform which is climaxed by a lecture or recital of a professional nature. Prerequisite: 12 hours of public speaking, interpretation, or theater.  
 523-3. *SEMINAR: PROBLEMS IN INTERPRETATION*. An investigation of the more advanced problems in oral interpretation, such as creation of atmosphere, use of restraint, impersonation, and impressionism. Prerequisites: 18 hours in interpretation and theater and consent of instructor.  
 530-1 to 4. *RESEARCH PROBLEMS IN SPEECH*. Individual work upon selected problems for research.  
 599-2 to 9. *THESIS*. Minimum of 5 hours to be counted toward a master's degree.

### *RHETORIC AND PUBLIC ADDRESS*

- 407-4. *HISTORY OF AMERICAN PUBLIC ADDRESS I*. Critical studies of American speakers; selected speakers and speeches which reflect the dominant social and political ideas in American history. A lecture, reading, and discussion course.  
 413-4. *HISTORY OF AMERICAN PUBLIC ADDRESS II*. A continuation of 407; may be taken independently.  
 417-4. *CONTEMPORARY PUBLIC ADDRESS*. A critical study of speakers and speeches selected to present the characteristic ideas of leading social and political developments in national and international affairs since 1918. A lecture, reading, and discussion course.  
 418-4. *BRITISH PUBLIC ADDRESS*. Critical study of British speakers to c. 1920. Selection of material will be governed both by men and the issues that moved men throughout British history.  
 425-3. *TECHNIQUES OF DISCUSSION LEADERSHIP*. Studies in the field of group discussion designed to clarify the functions and concepts of the leader in democratic society.  
 500-4. *SURVEY OF CLASSICAL RHETORIC*. Ancient rhetoricians and orators from Corax to Augustine, with special emphasis upon the works of Aristotle and Cicero. Lectures and special studies.  
 504-3. *MEDIEVAL RHETORICAL THEORY*. An examination of the trends

- in rhetorical theory between A.D. 100 and 1600 designed to facilitate understanding of the transition from classical to modern theory.
- 505-4. MODERN RHETORICAL THEORY. An analysis of selected theories of public address from the seventeenth century to the present, with a view of discovering the methods and objectives of modern rhetoricians and relating them to society and its problems during the period.
- 508-4. SEMINAR: STUDIES IN DISCUSSION. Studies in group thinking and group action with a view to improving discussion and conference techniques.
- 510-4. SEMINAR: PERSUASION AND SOCIAL CONTROL. Studies covering the uses and applications of persuasion in the various fields of social activity. The mass media will be examined as they apply to such areas as politics, business, religion, and education.
- 524-3. SEMINAR: PROBLEMS IN RHETORIC AND PUBLIC ADDRESS. Individual problems in the theories and methods in various fields of public speaking; a survey of the areas and methods of graduate research in public speaking. Prerequisite: 12 hours of public address.
- 530-1 to 4. RESEARCH PROBLEMS IN SPEECH. Individual work upon selected problems for research.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

### *SPEECH EDUCATION*

- 402-4. DIRECTING. Selection of plays, casting, and methods of rehearsal. Development of characterization, control of tempo, and similar problems studied. Students to direct or to aid in directing one-act plays and major productions.
- 410-4. CREATIVE DRAMATICS. Principles of creative dramatics. Methods of developing original dramatizations with kindergarten-primary school children. The course will be developed through study, observation, and practice. Prerequisites: senior or graduate standing with either a kindergarten-primary, speech, or theater major.
- 427-4. THE FORENSIC PROGRAM. Coaching and organizational methods for extracurricular and curricular forensic programs in school and college.
- 511-3. TEACHING THE COLLEGE SPEECH COURSE. Problems, methods, and materials in the teaching of speech in college with primary emphasis on the basic course. Examination of textbooks, courses of study, curriculum making, measurement, and relationship to other fields.
- 525-4. SEMINAR IN SPEECH EDUCATION. Problems of philosophy and methods of teaching speech in the elementary and secondary schools. Prerequisite: 306 or consent of instructor.
- 530-1 to 4. RESEARCH PROBLEMS IN SPEECH. Individual work upon selected problems for research.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.

### *SPEECH CORRECTION*

- 400-1 to 4. INDEPENDENT STUDY IN SPEECH CORRECTION AND



- AUDIOLOGY. Activities involved shall be investigative, creative, or clinical in character. Must be arranged in advance with instructor. May be repeated up to six hours of credit.
- 405A, B, C—0 to 4. PRACTICUM IN SPEECH AND HEARING THERAPY. Clinical and school procedures in speech correction and audiology. One hour of class per week, and two hours of clinical activity or work on clinically related projects for each hour of credit. 405A (fall) emphasizes therapeutic procedures. 405B (winter) emphasizes diagnostic techniques. 405C (spring, summer) emphasizes the utilization of forms and the preparation of reports. Student may have up to twelve hours total credit in this course. Need not be taken in sequence, but A, B, or C cannot be repeated.
- 406—4. TECHNIQUES AND INTERPRETATION OF HEARING TESTS. Principles and techniques of testing the hearing and interpreting those tests in terms of the individual's needs.
- 409—4. RESEARCH TECHNIQUES IN SPEECH SCIENCE. A presentation of the research techniques used in speech science with particular emphasis on equipment, experimental design, and study of significant research contributions to the field. Open to advanced students in speech or those with consent of the instructor.
- 412—4. CEREBRAL PALSY. An investigation of the etiology, problems, and therapy of cerebral palsy. Prerequisite: 212 or consent of instructor.
- 414—4. ANATOMY AND PHYSIOLOGY OF SPEECH AND HEARING MECHANISMS. (Same as Physiology 414.)
- 415—4. APHASIA. An investigation of the etiology, problems, and therapy of aphasia. Prerequisite: 412 or consent of instructor.
- 416—4. HEARING. Designed to acquaint the student with the theories and facts concerned with the functions of the hearing mechanism.
- 419—4. COMMUNICATION PROBLEMS OF THE DEAF AND HARD OF HEARING. (Same as Special Education 419.) Objectives and techniques for the teaching of lip reading, speech conservation, and auditory training. Prerequisite: 406 or consent of instructor.
- 420—4. ADVANCED CLINICAL AUDIOMETRY. Principles and procedures for advanced audiometric testing. Prerequisite: 406.
- 428—4. SPEECH CORRECTION FOR THE CLASSROOM TEACHER. (Same as Special Education 428.) Etiology and therapy of common speech defects. Open to in-service teachers, seniors, and graduate students in education.
- 429—4. SPEECH CORRECTION FOR ALLIED PROFESSIONS. Etiology of speech and hearing defects, resources available for those with such defects. Designed for majors in counseling. Prerequisite: consent of instructor.
- 515—1 to 4. READINGS IN SPEECH PATHOLOGY. Supervised and directed readings in specific areas of speech pathology and audiology.
- 516—1 to 4. SEMINAR IN RESIDUAL HEARING. Special problems of auditory training, speech reading, hearing aids, and programming for aural rehabilitation.
- 520—1 to 4. SEMINAR IN HEARING. Special hearing problems of interest to the advanced student. Special projects and field work.
- 521—1 to 4. SEMINAR IN ARTICULATION AND DELAYED SPEECH. Special problems of language development and articulation.

- 522-1 to 4. SEMINAR IN ORGANIC SPEECH PROBLEMS. Special problems in cerebral palsy, cleft palate, and aphasia. Special projects and field work.
- 528-1 to 4. SEMINAR IN THE INTERPERSONAL RELATIONSHIPS IN SPEECH AND HEARING. Problems faced by speech therapist in variety of interpersonal relationship situations such as testing, interviewing, parent-teacher conferences, etc.
- 529A, B-1 to 4. SEMINAR IN STUTTERING BEHAVIOR. A: Emphasis on theoretical analysis. B: Emphasis on diagnostic and therapeutic procedures.
- 530-1 to 4. RESEARCH PROBLEMS IN SPEECH CORRECTION. Individual work upon selected problems for research.
- 531-1 to 4. SEMINAR IN EXPERIMENTAL PHONETICS. An investigation into the experimental approaches for the study of the phenomena of speech.
- 533-1 to 4. SEMINAR IN SPEECH SCIENCE. Special problems in voice science, and acoustic perception.
- 534-1 to 4. SEMINAR IN INSTRUMENTATION. Familiarity with instruments, their uses, capabilities, and limitations, as they apply to the study of speech and hearing.
- 536-1 to 4. SEMINAR IN ADMINISTRATION OF SPEECH AND HEARING PROGRAMS. A study of program settings, organizational procedures, and professional interrelationships in adult speech and hearing therapy. Field trips to rehabilitation centers and related agencies.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a master's degree.
- 600-3 to 48. DISSERTATION. Minimum of 36 hours to be earned for the Ph.D. degree.

## THEATER

- 402A-4. PLAY DIRECTING. Selection of plays, casting, and methods of rehearsal. Development of characterization, control of tempo, and other techniques in the direction of plays.
- 402B-4. PLAY DIRECTING. A continuation of 402A.
- 403-4. AESTHETICS OF THE DRAMA AND THE THEATER. Principles and practice of modern dramatic production in the light of modern aesthetic theory. A course attempting to formulate an aesthetic judgment of the theater.
- 404-4. THEATER MANAGEMENT. Theater operational procedure, including both fundamental structuring and house management. The former aspect includes administration, purchasing, and accounting practices, ticket sales, publicity, promotion, and public relations. The latter aspect covers the management of box-office and ushering.
- 405A-4. THE SCENIC IMAGINATION. A study of the purely creative side of stage production. It includes an analysis of the script and its meaning for an audience; a poetic evaluation of the setting, costumes, and lighting; and the blocking out of the stage action.
- 405B-4. THE SCENIC IMAGINATION. Theater research and documentation; an approach to sketches and models; a review of the historic forms of

- staging, with emphasis on the modern styles from naturalism to epic theater.
- 411-4. **PLAYWRITING.** The writing of a full-length play forms the basis of the course. Individual conferences supplement the class discussion and analysis of student writing. Prerequisites: Theater 311 and consent of instructor.
- 412-4. **STAGE DESIGN.** The design of settings for the stage and other dramatic media. Prerequisite: 207.
- 432-4. **STAGE LIGHTING.** Instruments and control equipment; principles and techniques of lighting dramatic productions.
- 438-4. **CONTEMPORARY DEVELOPMENTS IN THE THEATER.** Critical study of theory and practice in acting, directing, production, and architecture in the modern theater. The rise and development of the film, radio, and television as dramatic media.
- 502-4. **ADVANCED DIRECTING.** Study of and practice in the techniques of directing period plays, verse plays, music dramas, arena productions, and other types and styles of plays presenting special directing problems.
- 503-4. **ADVANCED TECHNICAL PROBLEMS.** Solutions for problems presented by certain types of plays and modes of production. Study of drawing problems in the planning of floor plans, pictorial views, working drawings, and elevations.
- 509-4. **THE HIGH SCHOOL THEATER AND ITS PRODUCTION PROBLEMS.** Consideration of stages, machinery, equipment, light controls and instruments, production techniques, and analysis of basic needs of high school theater.
- 518-4. **THEATER AUDIENCE.** A course attempting to determine (1) the relations between the drama, *mise-en-scène*, and theater audience; and (2) the psychological nature of the spectator's experience in the theater.
- 519-2 to 12. **THEATER PRACTICUM.** Practical experience in acting, directing, and associated theater work on campus, on area tours, and in summer stock.
- 526-3. **SEMINAR IN THEATER ARTS.** Special problems of interest to the advanced student.
- 530-1 to 4. **RESEARCH PROBLEMS IN THEATER.** Individual work upon selected problems for research.
- 599-2 to 9. **THESIS.** Minimum of 5 hours to be counted toward a master's degree.

## ZOOLOGY

- 401-5. **GENETICS.** (Same as Microbiology 402.) Principles of inheritance, including genetic mechanisms, mutation, and selection. Prerequisite: 12 quarter hours of biological science and consent of instructor.
- 402-4. **NATURAL HISTORY OF INVERTEBRATE ANIMALS.** Observation, identification, and life histories. Designed for teachers. Not for students specializing in invertebrate zoology. Prerequisite: one year of zoology.
- 403-4. **NATURAL HISTORY OF VERTEBRATE ANIMALS.** Observation, identification, and life histories. Designed for teachers. Not for students specializing in vertebrate zoology. Prerequisite: one year of zoology.

- 404-4 to 8. ZOOLOGY FIELD STUDIES. A trip of four to eight weeks to acquaint students with animals in various environments and/or with methods of field study, collection, and preservation. Arrangements made spring quarter. Cost per individual will be approximately \$25 per week. (Only 4 hours may be used for credit.) Prerequisite: consent of department.
- 405-4. ADVANCED INVERTEBRATE ZOOLOGY. Anatomy and natural history of representative types, with an introduction to the taxonomy of the various phyla. Prerequisite: one year of zoology.
- 406-4. PROTOZOOLOGY. (Same as Microbiology 406.) Taxonomy, cytology, reproduction, and physiology of unicellular animals. Laboratory methods of culturing and studying. Prerequisite: one year of zoology.
- 407-5. PARASITOLOGY. (Same as Microbiology 490.) Principles, collection, identification, morphology, life histories, and control measures. Prerequisite: one year of zoology.
- 408-4. HERPETOLOGY. Taxonomic groups, identification, and natural history of amphibians and reptiles. Prerequisite: one year of zoology.
- 410-4. VERTEBRATE PALEONTOLOGY. History of vertebrate animals in terms of their morphological change, geological succession, and ecological relationships. Prerequisite: one year of zoology.
- 412-4. ADVANCED ENTOMOLOGY. Morphology, physiology, systematics, and distribution of insects. Prerequisite: one basic course in entomology.
- 441-4. ADVANCED VERTEBRATE EMBRYOLOGY. Principles of development and organization of vertebrate animals during embryogenesis, with emphasis on mammalian forms. Prerequisite: 300.
- 459-4. GAME BIRDS. Natural history and management. Prerequisite: one year of zoology.
- 461-4. MAMMALOLOGY. Taxonomic groups, identification, and natural history of mammals. Prerequisite: one year of zoology.
- 463-4. GAME MANAGEMENT. General survey of management techniques. Prerequisites: one year of biological science, consent of instructor.
- 464-4. GAME MAMMALS. Natural history and management. Prerequisite: one year of zoology.
- 465-4. ICHTHYOLOGY. Taxonomic groups, identification, and natural history of fishes. Prerequisite: one year of zoology.
- 466-4. FISH MANAGEMENT. Sampling, dynamics, and manipulation of fish populations, age and growth of fishes, and habitat improvement. Prerequisites: one year of biological science, consent of instructor.
- 470-4. METHODS IN BIOLOGY. (Same as Botany 470.)
- 501-4. ANIMAL BIOLOGY FOR HIGH SCHOOL TEACHERS OF BIOLOGY. Designed to add new interpretations and evaluations to the in-service teacher's previous training in animal biology. Principles illustrated by laboratory and field work will be re-emphasized in the context of modern concepts of biology. Two lectures and two laboratory periods or field trips per week. Prerequisite: one year of biology.
- 502-2. RECENT DEVELOPMENTS IN BIOLOGICAL SCIENCES. A series of lectures based upon recent research, designed to acquaint the in-service teacher with advances and changes in concepts. Prerequisite: one year of biological science.
- 510-4. BIO-ECOLOGY. Composition and development of biotic communities,



- and the relationships of plants and animals to their environment. Cost of field trips may be \$10-\$25 per student. Prerequisite: consent of instructor.
- 511-4. LIMNOLOGY. Principles exemplified by the lakes and streams of Southern Illinois. Cost of field trips may be \$10-\$25 per student. Prerequisite: consent of instructor.
- 512-3. ANIMAL GEOGRAPHY. Principles of the distribution of the animals of the world. Prerequisite: consent of instructor.
- 513-3. ADVANCED ORNITHOLOGY. Taxonomic groups, structure, and behavior of birds. Prerequisite: consent of instructor.
- 525-5. CYTOLOGY. (Same as Botany 525.) Microscopic study of protoplasm, including mitosis and meiosis; discussions of cytological behavior. Prerequisite: consent of instructor.
- 540-3. FACTORS IN ANIMAL REPRODUCTION. Genetic and physiological factors in determination, differentiation, and modification of sex in animals. Prerequisite: consent of instructor.
- 560-3. ADVANCED GAME MANAGEMENT. Principles of maintenance and improvement of game resources. Prerequisite: consent of instructor.
- 566-3. FISH CULTURE. Propagation of game, bait, and ornamental species, hatchery-construction and operation, diagnosis and treatment of disease, and nutrition. Prerequisite: consent of instructor.
- 579-4. ANIMAL BEHAVIOR. The biological basis for the actions and responses of animals.
- 580-4. ADVANCED SYSTEMATICS. The implication of systematics, including the theory and dynamics of classification, speciation, population genetics, and evolution. Prerequisite: consent of instructor.
- 581-3. READINGS IN CURRENT ZOOLOGICAL LITERATURE. Library techniques, sources of literature, and current literature. Prerequisite: graduate status in a biological science.
- 582A, B, C-1/2. GRADUATE ZOOLOGY SEMINAR. Credit may not be used by majors in zoology.
- 583A, B, C-1. THE TEACHING OF ZOOLOGY IN COLLEGE. Methods and practices, objectives, comparative courses. Designed as part of the apprenticeship program for preparation of college teachers. Prerequisite: graduate status in a biological science.
- 584A-1, B-1, C-1. PROTOZOOLOGY SEMINAR. Advanced discussions of trends and problems in protozoology. Prerequisite: 406 or consent of instructor.
- 596-3 to 12. SPECIAL RESEARCH IN ZOOLOGY. Investigations in zoology other than those for theses. Only 3 hours may be credited toward a degree. Prerequisite: consent of instructor.
- 599-2 to 9. THESIS. Minimum of 5 hours to be counted toward a Master's degree.
- 600-3 to 48. RESEARCH AND DISSERTATION. At least 36 hours must be credited toward the doctoral degree. Prerequisite: consent of instructor.

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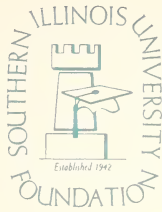
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