

1959

## 1959-1961 Southern Illinois University Bulletin (College of Liberal Arts and Sciences)

Southern Illinois University Carbondale

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*Southern Illinois University Bulletin*



1959 · 1961

*College of Liberal Arts and Sciences*

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Vol. 1, No. 9



# College of Liberal Arts and Sciences

*Announcements for 1959-1961*



SOUTHERN ILLINOIS UNIVERSITY BULLETIN  
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Southern Illinois University  
Carbondale, Illinois

# 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.

## Board of Trustees

	TERM EXPIRES
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Assistant Dean John W. Voigt, Ph.D. (Nebraska)	1950
Chief Academic Adviser Amos Black, Ph.D. (Cornell)	1948
Registrar and Director of Admissions Robert A. McGrath, Ph.D. (Iowa)	1949

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# *University Calendar, 1959-1960*

## SUMMER SESSION

Session Begins	Monday, June 22
Independence Day Holiday	Friday, July 3
Final Examinations	Wednesday–Thursday, August 12–13
Commencement	Friday, August 14

## FALL QUARTER

New Student Week	Friday–Tuesday, September 18–22
Quarter Begins	Wednesday, September 23
Thanksgiving Recess	Wednesday, 12 noon–Monday, 8 A.M. November 25–30
Final Examinations	Monday–Saturday, December 14–19

## WINTER QUARTER

Quarter Begins	Monday, January 4
Final Examinations	Monday–Saturday, March 14–19

## SPRING QUARTER

Quarter Begins	Monday, March 28
Memorial Day Holiday	Monday, May 30
Final Examinations	Wednesday–Tuesday, June 8–14
Commencement	Wednesday, June 15

Summer Session classes will begin Tuesday, June 23. During a quarter, 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.

# *University Calendar, 1960-1961*

## SUMMER SESSION

Session Begins	Monday, June 20
Independence Day Holiday	Monday, July 4
Final Examinations	Wednesday–Thursday, August 10–11
Commencement	Friday, August 12

## FALL QUARTER

New Student Week	Friday–Tuesday, September 16–20
Quarter Begins	Wednesday, September 21
Thanksgiving Recess	Wednesday, 12 noon–Monday, 8 A.M. November 23–28
Final Examinations	Monday–Saturday, December 12–17

## WINTER QUARTER

Quarter Begins	Tuesday, January 3
Final Examinations	Monday–Saturday, March 13–18

## SPRING QUARTER

Quarter Begins	Monday, March 27
Memorial Day Holiday	Tuesday, May 30
Final Examinations	Wednesday–Tuesday, June 7–13
Commencement	Wednesday, June 14

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LANGUAGE AND PHILOSOPHY

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Deutsche Sibel - Otto Bohnen

ANATOMY OF THE NERVOUS SYSTEM — LARSELL

611.8  
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APPLETON CENTURY CROFTS

FORMS & FUNCTIONS OF 20TH CENTURY ARCHITECTURE

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HAMLIN  
COLUMBIA

724.91  
H223F  
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KLINE

Mathematics IN WESTERN Culture

OXFORD

510.9  
K65m  
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THE COLUMBIA ENCYCLOPEDIA



SECOND EDITION

R031  
C726  
1950

COLUMBIA UNIVERSITY PRESS

Modern Europe in World Perspective

1914 to the Present

Anderson  
940.5  
A546m

Rinehart

# The University

This bulletin covers in detail questions concerning the College of Liberal Arts and Sciences. It does not cover all questions concerning Southern Illinois University. For complete information about the University the prospective student should write the General Publications Office for a copy of the General Information Bulletin.

## HISTORY

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 action of the legislature led to establishment of the College of Liberal Arts and Sciences, offering the Bachelor of Arts degree.

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 the list, and in 1956 the Master of Music, the Master of Education, and the Doctor of Philosophy degrees.

## CAMPUS

The main campus of Southern Illinois University is located in Carbondale, in Jackson County. The region is noted for its large peach and

apple orchards, which in blossomtime attract many tourists. Giant City, a state park, is a popular resort to the south of Carbondale, and Crab Orchard Lake, with swimming, boating, and fishing facilities, lies four miles to the east.

The Carbondale campus is at present undergoing extensive expansion. It now comprises more than twenty-three hundred acres, and more tracts of land are to be added. Thirty-six permanent buildings form the nucleus of the University's physical plant. Other permanent buildings are under construction.

## UNIVERSITY 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 regular 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 all the departments of the University. In addition to the courses which run the full eight weeks, there are a number of workshops and short courses covering a shorter period of time.

## UNIVERSITY REGULATIONS

The University and its various instructional units reserve the right to change the rules regulating admission, instruction, and graduation; 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 matriculated in the University. The University also reserves the right to withdraw courses and to change fees.

# College of Liberal Arts and Sciences

## HISTORY

After the legislative action in 1943, which changed Southern into a university, a College of Liberal Arts and Sciences was established. The official University Bulletin for 1943-44 gives requirements for the College of Arts and Sciences with sixteen departments.

The college has continued to strengthen its program until at the present time its departments number seventeen in addition to several special study areas such as Asian studies and Russian studies.

## OBJECTIVES

The College of Liberal Arts and Sciences provides for specialized education in the fields of instruction covered by its departments. The college also is a service instructional unit for other colleges, schools, and institutes contributing both to the specialized and general education of their students.

A liberal arts education attempts to develop individuals with minds which are capable of seeking and evaluating; which are adaptable and independent.

## FACILITIES

Owing to its geological history and location the Southern Illinois area is richly endowed floristically and faunistically, so that the area is out-

standing for studies in the biological and earth sciences. A group of three greenhouses and headhouse and a herbarium of about 30,000 specimens are added special facilities for the biological sciences.

The antiquity of the land and its early occupancy by people make the area an excellent place for the study of archaic cultures. The more recent past is also rich historically.

Available for use by the physical and natural sciences and also other departments of the University is an electron microscope. Electronic computing machines are available in the Computing Center, and their uses and operation are taught in some mathematics courses.

## PROGRAMS OF STUDY

### *PRE-PROFESSIONAL PROGRAMS*

Students planning to take pre-dental, pre-legal, pre-medical, pre-medical technology, pre-occupational therapy, pre-pharmaceutical, pre-physical therapy, pre-public health, pre-theological, or pre-veterinary courses should register in the College of Liberal Arts and Sciences.

Pre-professional students may obtain, subject to certain conditions, a bachelor's degree after three years' work (144 quarter-hours) in Southern and one or more years' work in a professional school. During their three years of residence at Southern they need to have completed all requirements other than elective hours for the bachelor's degree which they are seeking. In some cases the completion of major and minor requirements is possible by their taking certain courses at the professional school, but this is permitted only upon the prior approval of the appropriate department chairman. Also, there needs to be completion of at least one year of professional work with acceptable grades in a Class A medical school, a Class A dental school, a Class A veterinary school, or an approved law school. In all cases, all University graduation requirements must be met. It is advisable for a student interested in this program to make his decision to seek a bachelor's degree before entering the professional school so that any questions may be clarified at an early date.

PRE-MEDICAL, PRE-DENTAL, PRE-VETERINARY, PRE-PHARMACY,  
AND PRE-OCCUPATIONAL THERAPY

Professor Harold M. Kaplan is the chairman of a medical advisory committee established to advise all students planning to enter medical school or dental school or to train themselves for careers in related fields.

All such students should plan their curricula very carefully. They will all need at least two years' work in chemistry, including some qualitative and some organic chemistry, and one year of biology (zoology). Since they are not expecting to receive degrees from Southern, they will not necessarily be held to all the requirements for the bachelor's degree at this University; they must, on the other hand, keep constantly in mind the requirements for admission and the later required courses in the special schools which they wish to attend. Each student should write for the catalog of the professional school he plans to enter.

#### PRE-LEGAL STUDY

Since law touches practically every human interest, a good general college background is strongly recommended. But as a rule, the pre-legal student is expected to choose a field of concentration in the social studies such as government, economics, history, sociology, psychology, or possibly philosophy.

Law schools normally require three years of pre-legal college study, and usually prefer four years of study and completion of requirements for the Bachelor of Arts degree. If the proper arrangements are made in advance, it is possible to secure the Bachelor of Arts degree at Southern Illinois University by completing three years of pre-legal study and one year of successful work in an accredited law school. All university graduation requirements must be met, and ordinarily the student should plan to major in government. Three years of study in law school lead to the LL.B. degree. Admission requirements include adequate pre-legal grades, and sometimes the passing of a law school admission test which is offered annually over the nation.

The skills most needed in law are (1) an excellent command of the English language, written (English Department) and spoken (Speech Department); (2) precision in thought (logic and other courses in the Department of Philosophy, and courses in mathematics and the sciences); (3) some ability in the use of figures (a knowledge of accounting is regarded as very important); and (4) ease in understanding Latin phrases (Latin or French, in high school or college, is helpful).

The subject matter of particular value would include (1) government (national, state and local, and constitution principles); (2) history (American and English, to secure the background for understanding legal institutions and principles); (3) economics; (4) psychology; (5) sociology; (6) anthropology; (7) philosophy, including ethics; and (8) geography.

In addition to private practice, lawyers are needed in many areas such as business, labor, government, politics, and international relations.



Students with special interests should choose electives in those fields, in addition to obtaining as broad a background as possible.

#### PRE-PUBLIC HEALTH

The health science curriculum is a pre-professional course designed to meet the current demand for trained personnel in the public health fields. Planned specifically for those students interested in public health sanitation and public health laboratory work, the curriculum crosses departmental boundaries to give one a good basic background in the sciences and social studies. Students with good academic records in this program should have no difficulty in securing admission to a school of public health for graduate work.

The curriculum is sufficiently broad to accommodate students who are interested in pre-medical or pre-dental careers. Sufficient electives are provided so that minors can be worked out in chemistry or zoology.

#### PRE-THEOLOGICAL

Any student who plans to enter a graduate theological seminary should consult his clergyman or his major professor at the earliest possible date. He should obtain a catalog of the seminary he plans to enter and prepare himself to meet its specific entrance requirements. The American Association of Theological Schools, which is the accrediting agency accepted by most theological schools, suggests a broad, basic education with an emphasis upon ability to think, speak, and write clearly and correctly. No undergraduate major in religion is offered at Southern Illinois University but the American Association of Theological Schools believes that such undergraduate specialization is not usually desirable. Students, however, may present a minor in religion. Among suitable majors leading to the required bachelor's degree are philosophy, history, and sociology.

The American Association of Theological Schools regards the following as a minimum list of fields of study that a student should have before beginning study in a seminary. The work in these fields should be evaluated on the basis of his mastery of these fields rather than in terms of semester hours or credits. That this recommendation may help the student faced with the practical problem of selecting courses, however, it is suggested that he take approximately three-fourths of his college work in the following specific areas:<sup>1</sup>

English. Literature, Composition, Speech, and related studies (English 390, Journalism 393, Radio-Television 161, Speech 102, 103) . . . at least six semesters.

<sup>1</sup>Courses offered at Southern Illinois University which should be useful in supplying this background are in parentheses.

History. Ancient, modern European, and American. (History 210, 304, 416) . . . at least three semesters.

Philosophy. Orientation in history, content and method (Philosophy 301, 320, 340, 360, 381, 382, 383) . . . at least three semesters.

Natural sciences. Preferably physics, chemistry, and biology (Physics 101, 102; Chemistry 111, 112; Botany 101; Zoology 100) . . . at least two semesters.

Social studies. Psychology, sociology, economics, political science, anthropology, education (Psychology 301, 305, 401; Sociology 102, 241, 320, 351, 380, 484; Economics 310, 450; Government 370, 441; Education 355) . . . at least six semesters including at least one semester of Psychology.

Foreign languages. One or more of the following: Latin, Greek, Hebrew, German, French (Greek 101, 102, 103) . . . at least four semesters.

Religion. The pre-seminary student may well seek counsel of the seminary of his choice in order to use the resources of his college most profitably. Attention is also called to religion courses offered for credit by the off-campus foundations and to the courses in Philosophy of Religion, Sociology of Religion, and World Religion offered on campus.

### ADDITIONAL AREAS OF INSTRUCTION

In addition to the pre-professional and special area programs previously outlined, the following majors or minors are available. Specific information about each can be found under the departmental writeups appearing later in this bulletin.

Anthropology	Latin American Studies
Art <sup>1</sup>	Mathematics
Asian Studies <sup>2</sup>	Microbiology
Botany	Music <sup>1</sup>
Chemistry	Philosophy
Economics <sup>1</sup>	Physics
English	Physiology
Foreign Languages	Psychology
Geography	Religion <sup>2</sup>
Geology	Russian Studies <sup>2</sup>
Government	Sociology
Health Sciences	Speech <sup>1</sup>
History	Zoology
Home Economics	

<sup>1</sup> Liberal Arts, not professional majors

<sup>2</sup> Minors only

## PUBLIC AFFAIRS RESEARCH BUREAU

First organized as a Local Government Center in 1951, the Public Affairs Research Bureau was approved as an agency of the College of Liberal Arts and Sciences by the Board of Trustees effective July 1, 1958.

The bureau concerns itself with making available certain findings of its staff to various agencies such as public schools, municipalities, business organizations, state and federal government and others in a position to apply these findings in the public interest.

## DEPARTMENTAL CLUBS AND PROFESSIONAL FRATERNITIES

Several academic departments have clubs or other interest groups to allow majors in special areas to become better acquainted with one another and with faculty members and to investigate further their special interests. The following departments have clubs: anthropology, botany, chemistry, English, foreign language (Spanish and German), government (International Relations Club, Young Democrats Club, Young Republicans Club), geology, history, philosophy, and psychology. The following departments have national honors societies: mathematics (Pi Mu Epsilon), government (Pi Sigma Alpha), geography (Gamma Theta Upsilon). The chemistry department has a student affiliate of the American Chemical Society.

In the college there is a Liberal Arts Honors Society, and students of the college qualifying scholastically are eligible for membership in Phi Kappa Phi.

## STUDENT ACTIVITIES

The College of Liberal Arts and Sciences encourages a broad student activity program with opportunities for all students to participate. The many organizations augment the student's educational experiences by assisting him in learning how to plan and carry out responsibilities, how to work with others, how to make wise use of leisure time, and how to develop leadership.

The Student Activities Office assists all campus groups in planning,

conducting, and evaluating their activities and programs. Additional information may be obtained about organizations and various activities from the student handbook, *Your Life, Southern Style* or from the Office of Student Affairs.

A complete listing of activities may be found in the General Information Bulletin.

## ADMISSION

The College of Liberal Arts and Sciences grants the Bachelor of Arts degree. Candidates for admission to the College should have included in their high school program four units of English, three to four units of mathematics with a minimum of one and one-half units of algebra and one unit of plane geometry, one unit of physics or chemistry, and two units of a foreign language with Latin preferred if available.

Students enrolled in the College of Liberal Arts and Sciences may meet the state requirements for a limited high school teaching certificate by using as their electives certain prescribed courses in the College of Education.

Inquiries concerning admission to the College of Liberal Arts and Sciences should be addressed to the University's Admissions Office. Application for admission may be made any time during the year. Applications should be initiated at least thirty days in advance of the desired entrance date to permit necessary processing to be completed. High school seniors should apply at the beginning of the last semester of their senior year.

It should be remembered that for full and complete details concerning admission, tuition, fees, housing, financial assistance, and student employment opportunities, the prospective student should address the General Publications Office for a copy of the General Information Bulletin.

## TUITION AND FEES

At the present time legal residents of Illinois registered for more than eight credit hours pay a total of \$61.50 per quarter. This includes \$42.00 tuition, a \$5.00 book rental fee, a \$5.00 student union building fund fee, and a \$9.50 student activity fee. Out-of-state students pay an additional

\$50.00 tuition, or a total of \$111.50. Students registered for eight hours or fewer pay one-half tuition, one-half book rental fee, and full student union building fund fee, and have the option of paying the student activity fee.

## ADVISEMENT

To insure that an undergraduate student is properly advised concerning the course of study which will fulfill the general University requirements and prepare him for his chosen career, academic advisement has been made the special responsibility of a selected group from the teaching faculty. The College of Liberal Arts and Sciences has a chief academic adviser and a number of assistant advisers.

## REQUIREMENTS FOR THE BACHELOR'S DEGREE

Each candidate for the degree must complete a minimum of 192 hours of credit in approved courses. At least 64 must be in senior college courses, of which 48 must be earned at Southern, 16 of which may be earned in extension from Southern. Each student must have a "C" average, and grades not lower than "C" in subjects aggregating at least three-fourths of the work. A "C" average is required in the major subject. These averages are required for the credit made at Southern as well as for the total record.

The following requirements should be met by degree candidates of all colleges and schools within the first two years of attendance.

REQUIREMENTS	HOURS	COURSES
Social Studies	20	Economics 205, Geography 100, Government 101, History 101, 102, 103, Sociology 101 (work in four of the five departments)
Humanities	18	
English	(9)	English 101, 102, 103
English	(6)	English 205, 206, 209, 211, 212
Art or Music	(3)	Art 120, Music 100
Biological Sciences	9	
Health Education	(4)	Health Education 100
Botany or Zoology	(5)	Botany 101, 202, Zoology 100
Mathematics and		

(Continued on next page)

REQUIREMENTS	HOURS	COURSES
Physical Sciences	12	Chemistry, physics, and mathematics (work must be completed in two departments)
Practical Arts and Crafts	3	Agriculture, business administration, home economics, industrial education (not required if the student has had any of this work in high school)
Physical Education	6	Activity courses
Air Science and Tactics	6	(Men only)

In addition to the above general bachelor degree requirements required of all University students, a graduate of the College of Liberal Arts and Sciences must have the following:

1. Four hours in philosophy or psychology.
2. A reading knowledge of a foreign language. This ordinarily requires nine hours of university study or its equivalent.
3. Proficiency in English as demonstrated by examination at the end of the junior year.
4. A major of at least forty-two hours and a minor of at least twenty-four hours in the departments of instruction in the college. Some departments require more.



# Instructional Units

## ANTHROPOLOGY

Professor John Charles Kelley, Ph.D. (Harvard)	1950
Professor Walter W. Taylor, Ph.D. (Harvard), Chairman	1958
Associate Professor Charles Henry Lange, Ph.D. (New Mexico)	1955
Assistant Professor Melvin Leo Fowler, Ph.D. (Chicago)	1959
Assistant Professor Charles Raymond Kaut, Ph.D. (Chicago)	1959
Assistant Professor Carroll L. Riley, Ph.D. (New Mexico)	1955

The areas of specialization are those of archaeology, ethnology, and social anthropology. Faculty members of the department have had personal field experience in North, South, and Central America, Europe, and the Philippine Islands. The area of most intense and unique specialization is that of northern Mexico, in which the department has more specialists and more field experience than any other anthropological organization. Studies of Southern Illinois, which is rich in anthropological and archaeological materials, are carried on continuously.

In addition to the general degree and the College of Liberal Arts and Sciences requirements, a major in anthropology requires a minimum of forty-eight hours of anthropology including 201, 203 or 205, 207, 301, 401, 403 or 405, plus a minimum of sixteen other hours of 300-level courses and eight other hours in 400-level courses. Majors are also expected to be familiar with the contents of a list of basic anthropological publications. In addition, an anthropology major requires successful completion of four hours of course work in each of the following areas: geography or geology, philosophy, psychology, sociology, and zoology. A list of recommended courses in these areas may be secured from the departmental office or any departmental faculty member.

A minor in anthropology requires a minimum of twenty-four hours including either (a) 110, 207, 301, and 403, or (b) 410, 314 or 324 or 334 or 354, 301 and 403.



*COURSE DESCRIPTIONS*

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level are for both undergraduate and graduate students. Those on the 500 level are for graduate students only.

- 110-5. **INTRODUCTION TO ANTHROPOLOGY.** Anthropology as a science and a profession. Survey of human origins, prehistory, world ethnography. The significance of anthropology in the world today.
- 201-4. **MAN'S PLACE IN NATURE.** Man as a biological being, his relationships to other living things, human origins and development, the concept of race and races of mankind, human genetics and normal human variation.
- 203-4. **PEOPLES AND CULTURES OF THE OLD WORLD.** The varieties of people and customs in Asia, Africa, Europe, and the Pacific Islands. The biological and cultural history of man in the Old World from the earliest known times to the present day.
- 205-4. **PEOPLES AND CULTURES OF THE NEW WORLD.** The varieties of people and customs in the New World from the Arctic to Tierra Del Fuego. The biological and cultural history of the American Indian and the Eskimo from the earliest known times to the present day.
- 207-4. **MAN AND CULTURE.** The nature of culture and cultural process. The interrelationships between culture and man as an individual and as a group, with emphasis on the cultural point of view as an aid in understanding human actions and reactions in the world of today.
- 301-4. **THE ORIGINS OF CIVILIZATION.** The conditions that produced the early high cultures of both Old and New Worlds. A study of the complex environmental and cultural factors that led to the rise and fall of early civilizations.
- 312-4. **ARCHAEOLOGY OF NORTH AMERICA.** A survey of prehistoric Indian cultures from the earliest known times to the present, as revealed by the archaeological record.
- 314-4. **INDIANS OF NORTH AMERICA.** A survey of North American Indian cultures as they have existed within historic times.
- 316-4. **PEOPLES AND CULTURES OF SOUTHERN ILLINOIS.** A survey of the prehistoric and historic Indian cultures of the Mississippi Valley.
- 318-4. **PEOPLES AND CULTURES OF THE AMERICAN SOUTHWEST.** A survey of Indian peoples and cultures, past and present, of the southwestern states.
- 322-4. **ARCHAEOLOGY OF MESO-AMERICA.** A survey of the native peoples of Mexico and Central America, their history, development, and contribution to modern Mestizo culture.
- 324-4. **INDIANS OF MESO-AMERICA.** A survey of the native peoples of Mexico and Central America, their history, development, and contribution to modern Mestizo culture.
- 332-4. **ARCHAEOLOGY OF SOUTH AMERICA.** A survey of the prehistoric cultures of Mexico and Central America.

- 334-4. INDIANS OF SOUTH AMERICA. A survey of the Indians of South America and the West Indies, their interrelationships and contributions to the modern life of South American nations.
- 352-4. PREHISTORY OF THE OLD WORLD. A survey of the origins and development of Paleolithic and Neolithic cultures in Europe, Africa, the Near East, and Asia.
- 354-4. PEOPLES AND CULTURES OF EUROPE. A survey of the traditional and contemporary cultures of the continent. Population movements and diffusion of ideas as background for the complex ethnic scene.
- 360-4. ANTHROPOLOGY OF RUSSIAN ASIA. A survey of the peoples and cultures, past and present, of northern and central Asia.
- 365-4. ANTHROPOLOGY OF SOUTHERN ASIA. A survey of the races and cultures of India, Pakistan, Ceylon, and Southeast Asia including the Indonesian Islands. Special emphasis on the civilizations, past and present, of the sub-continent of India.
- 370-4. ANTHROPOLOGY OF OCEANIA. A survey of the races and cultures of Australia and the Pacific Islands, from New Guinea to eastern Polynesia.
- 375-4. ANTHROPOLOGY OF AFRICA. A survey of the peoples and cultures of Africa, both Negro and White, from the earliest known times to the present day.
- 390-4 to 8. FIELD METHODS AND TECHNIQUES IN ANTHROPOLOGY. Lectures, discussions, and actual field experience. This work may be taken in social anthropology, ethnography, or archaeology.
- 401-4. HISTORY OF ANTHROPOLOGICAL THOUGHT. A brief history of the growth of anthropology up to about 1850, followed by an intensive survey of the changing concepts and ideas in anthropology during the past hundred years.
- 403-4. ANTHROPOLOGY AND MODERN LIFE. The uses of anthropology in the present-day world. How the anthropologist aids the administrator, business man, government official, and other specialists.
- 405-4. THE BUILDING OF CULTURES. The factors involved in the growth, change, and disruption of specific cultural patterns. The theory of innovation and culture change.
- 410-4. PRINCIPLES OF ANTHROPOLOGY. Survey of the various fields of anthropology for upper-division and graduate students, with emphasis on cultural theory and the "anthropological point of view."
- 412A, B, C-2 to 12. ARCHAEOLOGICAL CULTURES OF ABORIGINAL AMERICA. Intensive study of archaeological cultures. Subject matter and focus will vary.
- 414A, B, C-2 to 12. ETHNOLOGICAL CULTURES OF ABORIGINAL AMERICA. Intensive study of ethnological cultures. Subject matter and focus will vary.
- 431-4. THEORY AND METHOD IN ARCHAEOLOGY. The conceptual scheme of prehistoric research and the methods which implement it in actual practice.
- 433-4. FIELD AND RESEARCH METHODS IN CULTURAL ANTHROPOLOGY. Survey of the 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.
- 445-2 to 8. SOUTH AMERICAN STUDY TOUR. See Foreign Languages 445 for course description.
- 451-4. SOCIAL ANTHROPOLOGY. Theory and method in community study; functional analysis, cultural themes and values in both primitive and modern cultures.
- 453-4. PRIMITIVE RELIGIONS. The origins of religion and a survey of religions past and present, with emphasis on the beliefs of primitive peoples.
- 455-4. PRIMITIVE CULTURES AND EDUCATION. How primitive peoples teach and pass on specific cultural patterns. Our own methods and goals in helping primitive peoples adapt themselves to modern culture.
- 461-4. PRIMITIVE ARTS AND CRAFTS. The development of man as a tool-using and art-loving animal. The artistic and manufacturing traditions of modern primitive peoples.
- 463-4. MUSEUM ADMINISTRATION AND TECHNIQUES. Lectures and practical experience in the preparation of specimens and exhibits. Problems in museum management.
- 465-4. RESEARCH TECHNIQUES AND AIDS FOR THE ARCHAEOLOGIST. An intensive survey of technical aids and research practices useful in the field and in the laboratory.
- 481-4. SEMINAR IN ANTHROPOLOGY. The topic and instructor of this seminar will vary from year to year.
- 483-2 to 8. RESEARCH IN ANTHROPOLOGY. Guided research on anthropological problems.
- 485-2 to 8. READINGS IN ANTHROPOLOGY. Guided readings designed to cover special topics and to fill gaps in the student's basic anthropological reading.
- 487-4. CURRENT ANTHROPOLOGICAL LITERATURE. Guided readings and reports, organized as a seminar, upon topics current in the most recent anthropological publications.
- 490-4 to 8. ADVANCED FIELD WORK IN ANTHROPOLOGY. Guided preparation for field work and actual field experience in any of the several branches of anthropology.

Courses on the 500 level are for graduate students only.

- 501-4. PRO-SEMINAR IN ANTHROPOLOGY. Anthropology as an academic and research discipline. A survey of the personnel and source materials of the profession, professional standards, values, and ethics.
- 581-4 to 8. GRADUATE SEMINAR IN ANTHROPOLOGY. The topic and instructor will vary.
- 582-2 to 8. ADVANCED PROBLEMS IN ARCHAEOLOGY. A research course designed to provide intensive study of archaeological topics.
- 584-2 to 8. ADVANCED PROBLEMS IN CULTURAL ANTHROPOLOGY. A research course designed to provide intensive study of topics pertaining to ethnology, linguistics, or social anthropology.
- 585-2 to 8. ADVANCED READINGS IN ANTHROPOLOGY. Guided readings for the advanced student.
- 590-4 to 8. GRADUATE FIELD WORK IN ANTHROPOLOGY. Preparation

for the field and actual field work, the design and prosecution of original research leading to publication and/or the writing of the thesis for a graduate degree.

599-2 to 9. THESIS.

## ART

### *SUGGESTED CURRICULUM IN THE COLLEGE OF LIBERAL ARTS AND SCIENCES*

While the Department of Art is in the School of Fine Arts, it offers the Bachelor of Arts major in art history within the curriculum of the College of Liberal Arts and Sciences. Forty-two hours of art history are required for the major (a minor in art history consists of twenty-four hours).

In addition to the general degree and the College of Liberal Arts and Sciences requirements, a major in art history must include the following courses: 225, 226, 227, and thirty-three hours from 301, 309, 345, 348, 356, 369, 446, 449, 471, 475, 482, and one quarter of 100.

The art history major is urged to take at least four credit hours in other studio courses. One year of a foreign language is required; and an additional year in a second language is recommended. Likewise recommended are six or more hours in philosophy, in courses numbered 200 or above, and at least twelve hours of courses in history. A minor is required. For a description of courses consult the School of Fine Arts Bulletin.

## ASIAN STUDIES

Within the College of Liberal Arts and Sciences, a student may minor in Asian Studies. To qualify for this minor, a student must present a minimum of thirty hours; the thirty hours are to be chosen from at least three departments from a list of offerings approved by the Committee on Asian Studies.

It is recommended that students interested in the minor in Asian Studies include Anthropology 110 and Geography 100 in the courses required for General Education Requirements in the Social Studies.

In the future, the minor in Asian Studies may be expanded to include work in the languages of South and/or Southeast Asia.

A leaflet describing the program is available from Dr. D. L. Spencer, Chairman, Committee on Asian Studies, Southern Illinois University, Carbondale, Illinois.

## BOTANY

Professor Ladislao v. Olah, Ph.D. (Stephen Tisza, Hungary)	1959
Professor Walter B. Welch, Ph.D. (Chicago), Chairman	1938
Associate Professor Margaret Kaeiser, Ph.D. (Illinois)	1947
Associate Professor Leo Kaplan, Ph.D. (Harvard)	1950
Associate Professor John W. Voigt, Ph.D. (Nebraska)	1950
Assistant Professor Albert J. Hendricks, Jr., Ph.D. (Nebraska)	1955
Assistant Professor William M. Marberry, A.M. (Illinois)	1939
Assistant Professor Robert H. Mohlenbrock, Ph.D. (Washington University)	1957
Assistant Professor S. Lane Wilson, Ph.D. (Illinois)	1955
—————	
Visiting Professor Julian A. Steyermark, Ph.D. (Washington University)	1957-58
Lecturer Alice Petersen, A.M. (Hunter College)	1959-60
Lecturer Marvin John Rensing, M.S. (Southern Illinois)	1957-59

In addition to the general degree and the College of Liberal Arts and Sciences requirements, required courses constituting a major in botany are as follows: A minimum of nine courses including 101 or 102, 202, 203, 310, and 320. Additional courses recommended for a major in botany: Zoology 100, 101, 105; Microbiology 100 or 301; Chemistry 110, 230, 240, 310; Mathematics 106 or 111, 210.

Prospective majors are urged to consult with a departmental counselor.

Required courses constituting a minor in botany: A minimum of five courses including 101 or 102, 202, and 203.

## COURSE DESCRIPTIONS

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level are for both undergraduate and graduate students. Those on the 500 level are for graduate students only.

- 101-5. GENERAL BOTANY. An introductory study of the morphology, anatomy, and physiology of the seed plants including vegetative and sexual reproduction; identification and recognition of common trees by leaf and stem characteristics. Laboratory and field studies.
- 102-5. GENERAL BOTANY. An introductory study of the morphology, anatomy, and physiology of the seed plants including vegetative and

sexual reproduction; identification of plants will not include classification of trees. Laboratory.

- 131-5. FIELD BIOLOGY. A course for those who are planning to teach in the rural and elementary schools; methods for the identification of various types of plants and animals; location of source material suitable for teaching nature study. Laboratory and field work. Cost to student about \$5.00.
- 202-5. GENERAL BOTANY. A study of representative plants of the great plant groups; classification; evolution of the plant kingdom. Laboratory, and one all-day (required) field trip. Student cost about \$5.00. Prerequisite: 101 or 102.
- 203-5. TAXONOMY OF LOCAL SEED PLANTS. A study of the characteristics of plants at the family, generic, and specific levels, with special reference to prominent families of flowering plants in southern Illinois. Also included will be collecting techniques and instruction in the use of botanical keys. Field work. Student cost about \$5.00. Prerequisite: 101 or 102.
- 308-5. TAXONOMY OF CULTIVATED PLANTS. A study of the classification of woody and herbaceous cultivated plants, both exotic and native. Three all-day field trips. Cost to the student about \$6.00. Prerequisite: 101 or 102, 103.
- 310-5. PLANT ANATOMY. An introduction to cell division, development, and maturation of the structures of the vascular plants. Laboratory. Prerequisite: 101 or 102, 202.
- 311-5. GENERAL BACTERIOLOGY. (Same as Microbiology 301.) Primarily a course for advanced students in other biological and physical sciences. An advanced treatment of cytology, theories and techniques of staining, physiology, enrichment cultures, and classification of microorganisms and their agricultural, industrial, and medical relationships. Not open to students who have had microbiology 100 or 201. 3 hours lecture. 4 hours laboratory. Prerequisite: one term botany or zoology and organic chemistry.
- 315-4. PLANT GENETICS. A general course involving principles of evolution and genetics of plants. Prerequisite: minor in Agriculture, Botany, or Zoology.
- 320-5. ELEMENTS OF PLANTS PHYSIOLOGY. A study of the functions of plants and their relation to the various organs. Laboratory. Prerequisite: Botany 101 or 102, and 202, or Plant Industries 209 or 264. Desirable antecedent, organic chemistry.
- 321-3. ELEMENTARY BOTANICAL MICROTÉCHNIQUE. Methods in preservation and preparation of plant materials, both non-vascular and vascular. Prerequisite: one year of Botany.
- 340-5. PLANT ECOLOGY. A general course, consisting of studies on the ecology of individual plants and plant communities. Field and laboratory. Cost to the student about \$7.00. Prerequisite: 101 or 102, 202, 203.
- 350-4. PLANTS IN RELATION TO MAN. A study of the basic relationships of plants to the life of man; the history, geography, crop ecology, production, consumption, and uses of plants and plant products of economic importance.

- 355-5. PLANT PATHOLOGY. (Same as Microbiology 355 or Plant Industries 355.) A study of plant diseases caused by fungi, bacteria, and viruses. Special attention given diseases of southern Illinois plants. Laboratory and field trips. Prerequisite: 101 or 102, 202, 301, or approval of the instructor.
- 390-2 to 4. READINGS IN BOTANY. A course of individually assigned readings in classical botanical literature; both oral and written reports required; open only to undergraduate students. Prerequisite: a major or minor in Botany and approval of instructor.
- 391-2 to 5. SPECIAL PROBLEMS IN BOTANY. Individual laboratory or field work under supervised direction. Both written and oral discussions required; open only to undergraduate students. Prerequisite: major or minor in Botany; approval of department.
- 403-3. HISTORY AND PRINCIPLES OF PLANT TAXONOMY. Important concepts in plant classification through the ages, and study of the Code of Nomenclature. Consideration of the functions of genetics, evolution, morphogenesis, and ecology in modern taxonomy. Prerequisite: 203 or approval of the instructor.
- 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.
- 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, approximate cost \$5.00. 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. 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.
- 470A-3. METHODS IN BIOLOGY. (Same as Zoology 470A.) Methods, objectives, types of courses. Laboratory and field trips. Prerequisite: major in botany or zoology.
- 470B-3. RESEARCH FOR BIOLOGY TEACHERS. (Same as Zoology 470B-3, Physiology 470B-3.) An experience in research in the biological sciences. To be assigned by the chairmen of various departments. To be completed in one term or one year.
- 480-4. CLASSIC PRINCIPLES OF BOTANY. Theories, principles, and developments in the various divisions of the plant sciences. Prerequisites: 101 or 102, 131, or 350, or consent of instructor.

Courses on the 500 level are for graduate students only.

- 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. ADVANCED TAXONOMY. Methods for delimitation and diagnosis of plant populations. Plants, both native and cultivated, may be studied at any level in the taxonomic structure. Prerequisite: 403 or consent of instructor.
- 510-5. BIO-ECOLOGY. (Same as Zoology 510.) Composition and development of biotic communities, and the relationships of plants and animals to their environment. Prerequisite: approval of department. Laboratory and field trips, approximate cost \$10-\$20.
- 520-5. PHYSIOLOGY OF THE FUNGI. Environmental and nutritional factors involved in the growth, reproduction, and metabolism of the fungi. Prerequisite: consent of instructor.
522. ADVANCED HISTOLOGICAL TECHNIQUE. Preparation and presentation of research materials. Laboratory work only. Prerequisite: approval of department. Credit on work completed.
- 525-5. CYTOLOGY. Microscopical study of protoplasm, including mitosis and meiosis; discussions of cytological behavior. Laboratory. Prerequisite: consent of instructor.
- 533-3 to 4. PHYSIOLOGY OF GROWTH. External and internal factors as they affect development and growth of plants, photoperiodism, and the role of growth-promoting substances. 1 hour to be arranged. Prerequisite: 320 or consent of instructor.
- 540-5. ECOLOGY OF FORESTS AND ARABLE LANDS. Ecology of forests



- and arable lands; studies in secondary succession. Field trips, approximate cost \$10. Prerequisite: 340 or equivalent.
- 551-4. THE NATURAL VEGETATION OF THE CENTRAL MISSISSIPPI BASIN. Floristic studies of the vegetation which occurs in the central basin of the Mississippi River. Prerequisite: 451 or consent of instructor.
- 570-2 to 5. READINGS.
- 580-1 to 4. SEMINAR. To be taken by all graduate students. Course will be modified to meet the needs of the students enrolled.
- 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: approval of department. Students to register for not fewer than 3 hours per quarter nor 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. Before applying for the full 9 hours, students should check the total hours in 591 and 599, which cannot exceed 15 hours to be applied toward the master's degree.

## CHEMISTRY

Professor Talbert Ward Abbott, Ph.D. (Illinois)	1928
Professor Roger E. Beyler, Ph.D. (Illinois)	1959
Professor Elbert H. Hadley, Ph.D. (Duke)	1947
Professor J. W. Neckers, Ph.D. (Illinois), Chairman	1927
Professor Robert A. Scott, Ph.D. (Illinois)	1923
Professor Kenneth Van Lente, Ph.D. (Michigan)	1931
Associate Professor Robert E. Van Atta, Ph.D. (Pennsylvania State)	1954
Assistant Professor Wilbur N. Moulton, Ph.D. (Minnesota)	1956
Assistant Professor Boris Musulin, Ph.D. (Northwestern)	1956
Assistant Professor Douglas E. Sellers, Ph.D. (Kansas State)	1958
Assistant Professor Russell F. Trimble, Jr., Ph.D. (Massachusetts Institute of Technology)	1954
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Adjunct Professor Eugene Miller, Ph.D. (Delaware)	1959
Lecturer Charles K. Evans, M.A. (Southern Illinois)	1956-60

The following minimum requirements for chemistry majors will be initiated with the class of 1961 and subsequent classes, and wherever possible for preceding classes in addition to the general degree and College of Liberal Arts and Sciences requirements.

For the Bachelor of Arts degree and meeting American Chemical Society requirements: A minimum of sixty-seven hours including: 111, 112, 113; 221; 341, 342, 343; 331; 375; 461, 462, 463; 411; 432, 433, 446; 490 (total of 64 hours); plus at least one course from the following group: 412, 447, 451-452, 471.

For the Bachelor of Arts degree in the College of Liberal Arts and Sciences: A minimum of forty-eight hours including: 111, 112, 113; 221, 305 and 306, or 341, 342, 343; 331, 375, 460, or 461, 462, and 463; 432; 490; plus, if necessary, courses selected from the following list to total forty-eight hours: 350, 411, 412, 433, 446, 447, 451-452, 471.

For the Bachelor of Science in Education degree in the College of Education: A minimum of thirty-six hours including: 111, 112, 113; 221, 305 and 306, or 341, 342, 343; 331; 375; 460; plus, if necessary, courses selected from the following list to total thirty-six hours: 350, 411, 412, 432, 433, 446, 447, 451-452, 471, 490.

A student majoring in chemistry must maintain a 3.0 average in chemistry courses for admission to any chemistry courses beyond the freshman level.

A minimum of twenty-four hours of chemistry is required for a minor including 111, 112, and at least one course from each of two of the following fields: analytical chemistry, biological chemistry, organic chemistry. Some chemistry course sequences constituting acceptable minors are: 111, 112, 113 plus one of the following sequences: 235 and 240; or 221, 305, 306; or 221, 240, 350; or 230, 240, 350; or 305, 306, 350; or 235, 305, 306; or 235, 305, 306, 350. Another acceptable sequence is 111, 112, 230, 305, 306, 350.

A student desiring to graduate with a Bachelor of Arts degree with a major in chemistry as approved by the American Chemical Society should contact the chemistry department for a recommended curriculum outline covering his four years of study.

## COURSE DESCRIPTIONS

(Chemistry service courses for non-chemistry majors are listed immediately after the 500-level courses.)

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level are for both undergraduate and graduate students. Those on the 500 level are for graduate students only.

111-5, 112-5. CHEMICAL PRINCIPLES AND INORGANIC CHEMISTRY. Required for engineering students and all students requiring more than one year of chemistry. 3 lecture, 1 quiz, and 4 laboratory hours per week. High school chemistry is not a prerequisite.

- 113-5. INORGANIC AND QUALITATIVE ANALYSIS. 2 lecture, 1 quiz, and 6 laboratory hours per week. Prerequisite: 112.
- 221-3. QUALITATIVE ANALYSIS. 2 lecture and 3 laboratory hours per week. Prerequisite: 113 and knowledge of logarithms.
- 235-5. GENERAL QUANTITATIVE ANALYSIS. A course particularly for pre-professional students. 3 lecture and 6 laboratory hours per week. Prerequisite: 113 and knowledge of logarithms.
- 305-4. ORGANIC CHEMISTRY. A course for chemistry minors and pre-professional students. 3 lecture and 3 laboratory hours per week. Prerequisite: 112.
- 306-4. ORGANIC CHEMISTRY. 2 lecture and 6 laboratory hours per week. Prerequisite: 305.
- 331-3. INTRODUCTORY QUANTITATIVE ANALYSIS. 2 lecture and 3 laboratory hours per week. Prerequisite: 221.
- 341-4. ORGANIC CHEMISTRY. 3 lecture and 3 laboratory hours per week. Prerequisite: 113.
- 342-5, 343-5. ORGANIC CHEMISTRY. 3 lecture and 6 laboratory hours per week. Prerequisite: 341.
- 375-0 to 1. SENIOR SEMINAR. Required for Senior Chemistry majors.
- 401-3. GENERAL AND INORGANIC CHEMISTRY—REFRESHER. Prerequisite: 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 will be included. 3 lectures and 2 optional laboratory periods per week. Prerequisite: 1 year of college chemistry.
- 404-3. ORGANIC CHEMISTRY—REFRESHER. Prerequisite: one year of college chemistry or equivalent. Not to be counted toward chemistry major or minor.
- 408-4. MODERN CHEMISTRY. A review of chemical principles, including chemical bonds and equilibrium, and some organic compounds. Prerequisite: 1 year of chemistry. Not open to majors or minors in chemistry.
- 409-5. MODERN CHEMISTRY. A continuation of 408. Includes chemical bonding and reactions, with some descriptive inorganic chemistry. Prerequisite: 1 year of chemistry. Not open to majors or minors in chemistry.
- 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: 331, 306 or 343.
- 412-4. INORGANIC PREPARATIONS. A study of several important types of inorganic syntheses. 1 lecture and 6 laboratory hours per week. Prerequisites: 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: 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.
- 446-4. QUALITATIVE ORGANIC CHEMISTRY. 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 ANALYSIS. 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, 235 or 331.
- 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. 4 lecture and 3 laboratory hours per week. Prerequisites: 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 (may be taken concurrently), 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. A course 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 as well as an introduction to nomenclature. 2 lecture hours per week. Prerequisites: 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.

Courses on the 500 level are for graduate students only.

- 511-3. ADVANCED INORGANIC CHEMISTRY. A theoretical and empirical treatment of chemical bonding and molecular structure. Lecture. Prerequisite: 460 or 461.
- 512-3. ADVANCED INORGANIC CHEMISTRY. A systematic consideration of

- the chemistry of the elements, including special topics such as non-aqueous solvent systems, inorganic stereochemistry, and silicon analogues of organic compounds. 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. Two credits only to students presenting credit in 432. Prerequisite: 460 or registration in 462.
- 533-3. INDUSTRIAL ANALYTICAL METHODS. Theory of analytical procedures and techniques, current industrial applications. Lecture. Prerequisite: 532.
- 541-3. ADVANCED ORGANIC CHEMISTRY. A survey of the important classes of organic compounds. Lecture. Prerequisite: 343.
- 542-3. ADVANCED ORGANIC CHEMISTRY. Descriptive and theoretical organic chemistry. Lecture. Prerequisite: 541.
- 543-3. ADVANCED ORGANIC CHEMISTRY. A continuation of 542. Lecture. Prerequisite: 542.
- 551-3, 552-3, 553-3. ADVANCED BIOCHEMISTRY. Content and prerequisites to be determined.
- 561-3. CHEMICAL THERMODYNAMICS. Basic methods and theories as applied to chemical problems. Lecture. Prerequisite: 463.
- 562-3. ATOMIC AND MOLECULAR STRUCTURE. A survey of basic principles in atomic spectroscopy, quantum chemistry, and statistical thermodynamics. Lecture. Prerequisites: 511, 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. Will include 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.

#### CHEMISTRY SERVICE COURSES

- 101-4. GENERAL CHEMISTRY. A survey course for students who wish only to satisfy the general education requirements in physical science. A terminal course and not for chemistry majors and minors or for agriculture, home economics, pre-medical, pre-engineering, and other students who require more than one term of chemistry. Composition and states of matter, valence, formulas and equations, solutions and elec-

trolytes; water, oxygen, carbon, sodium, and iron. Lecture and laboratory.  
102-4. GENERAL CHEMISTRY. A continuation of 101.

The following series of service courses is offered for the benefit of non-chemistry majors who require a condensed knowledge of various branches of chemistry for application in their major fields.

- 110-4. GENERAL AND INORGANIC CHEMISTRY. A survey course not open to engineering students or to students requiring more than four terms of chemistry. A brief introduction to the structure of the atom and chemical bonding; acids, bases, salts, and pH; and a study of the properties and reactions of some of the more common elements. 3 lecture and 3 laboratory hours per week.
- 230-4. GENERAL ANALYTICAL CHEMISTRY. A survey course in chemical analysis not open to chemistry majors. A brief introduction to various analytical methods. Qualitative and quantitative measurements, including gravimetry, volumimetry, colorimetry, and other techniques. 2 lecture and 6 laboratory hours per week. Prerequisite: 110 or 112.
- 240-4. ORGANIC CHEMISTRY. A survey course in organic chemistry not open to chemistry majors. A brief introduction to aliphatic and aromatic compounds with emphasis on those of biological importance. 3 lecture and 3 laboratory hours per week. Prerequisite: 110 or 112.
- 350-4. BIOLOGICAL CHEMISTRY. A brief introduction to metabolism, nutrition, and the chemistry of the important biological processes in plants and animals. 3 lecture and 3 laboratory hours per week. Prerequisite: 240 or 306 or 343.

## ECONOMICS

The Department of Economics, located in the School of Business, offers a major or minor in the College of Liberal Arts and Sciences. This bulletin gives curriculum details for the economics major or minor in this college. A listing of economics courses may be found in the School of Business Bulletin.

Students majoring in economics are to select a field of specialization from one of the following: 1. general economics, 2. international trade, 3. labor, 4. public finance, 5. economic theory.

Required courses constituting a major in economics with a specialization in fields listed below:

1. General economics: Economics 205, 206, 307, 310, 315, 317, 328, 330, 418, 440, 450, 470, 481; Accounting 250; Mathematics 106c and 111.

2. International trade: Economics 205, 206, 307, 310, 315, 317, 328, 416, 418, 429, 460, 470, 481; Accounting 250; Government 370 and 375; Mathematics 106c and 111.

3. Labor: Economics 205, 206, 307, 310, 315, 317, 330, 411, 436, 470;

Psychology 201, 315; Sociology 101, 338; Accounting 250; Mathematics 106c and 111.

4. Public finance: Economics 205, 206, 307, 310, 315, 317, 328, 330, 331, 340, 416, 432, 440, 451, 470; Accounting 250; Government 360; Mathematics 106c and 111.

5. Economic theory: Economics 205, 206, 307, 315, 317, 328, 330, 416, 429, 440, 450, 451, 465, 470; Accounting 250; Mathematics 106c and 111.

It is recommended that a student select his electives from the social studies and/or mathematics.

Required courses constituting a minor in economics are: Economics 205, 206, 307, 315, 317, and 310 or 328 or 330; Accounting 250.

## ENGLISH

Professor James G. Benziger, Ph.D. (Princeton)	1950
Professor E. C. Coleman, Ph.D. (Illinois)	1946
Professor Robert D. Faner, Ph.D. (Pennsylvania)	1930
Professor Jesse W. Harris, Ph.D. (Illinois)	1939
Professor Harry T. Moore, Ph.D. (Boston)	1957
Professor W. B. Schneider, Ph.D. (Chicago), Chairman	1936
Professor Charles D. Tenney, Ph.D. (Oregon)	1931
Professor Georgia Gantt Winn, Ph.D. (Pittsburgh)	1947
Associate Professor Frances M. Barbour, M.A. (Washington University)	1925
Associate Professor Edith S. Krappe, Ph.D. (Pennsylvania)	1929
Associate Professor William E. Simeone, Ph.D. (Pennsylvania)	1950
Associate Professor E. Earle Stibitz, Ph.D. (Michigan)	1952
Assistant Professor Julia M. Barber, A.M. (Illinois), Emerita (1957)	1936
Assistant Professor Charles S. Blinderman, Ph.D. (Indiana)	1956
Assistant Professor Winifred Burns, A.M. (Illinois)	1939
Assistant Professor G. C. Camp, Ph.D. (Illinois)	1947
Assistant Professor Daniel Cook, Ph.D. (California)	1957
Assistant Professor Elizabeth A. Cox, A.M. (Kansas), Emerita (1949)	1920
Assistant Professor Fred K. Lingle, A.M. (Illinois)	1948
Assistant Professor Robert B. Partlow, Jr., Ph.D. (Harvard)	1957
Assistant Professor Walter F. Staton, Jr., Ph.D. (Pennsylvania)	1955
Assistant Professor Frederick I. Tietze, Ph.D. (Wisconsin)	1957-58
Assistant Professor Howard W. Webb, Jr., Ph.D. (Iowa)	1956
Instructor Martha M. Clark, M.A. (Southern Illinois)	1953

Instructor Charles T. Crowe, M.A. (Southern Illinois)	1958
Instructor Diana L. Dodd, M.A. (Southern Illinois)	1955
Instructor Betty Lou H. Mitchell, M.A. (Southern Illinois)	1949
Instructor Edna Travis, M.S. in Education (Southern Illinois)	1948
Instructor William Joseph Vogt, M.A. (Southern Illinois)	1956-59
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Visiting Professor Thomas W. Baldwin, Ph.D. (Princeton)	1958-60
Lecturer Leon Bennett, M.A. (Southern Illinois)	1959-60
Lecturer Evelyn Tripp Berdahl, M.A. (Chicago)	1958-60
Lecturer Thomas E. Cassidy, M.A. (Notre Dame)	1958-60
Lecturer Mary D. Cohen, M.A. (Southern Illinois)	1959-60
Lecturer William Howard Cohen, M.A. (Florida)	1956-60
Lecturer Joanne R. Fields, M.A. (Southern Illinois)	1956-60
Lecturer Roger D. Forseth, Ph.D. (Northwestern)	1957-60
Lecturer Frances Tapella Huff, M.A. (Southern Illinois)	1954-60
Lecturer Bettie Shull Hughes, M.A. (Missouri)	1958-60
Lecturer Charlotte A. Koomjohn, M.A. (Miami University)	1956-60
Lecturer John Joseph Leonard, M.A. (Iowa)	1959-60
Lecturer Carl Lutes, M.A. (Columbia; Southern Illinois)	1959-60
Lecturer Charlotte McLeod, M.A. (Southern Illinois)	1959-60
Lecturer John Joseph McCall, Ph.D. (Florida State)	1957-60
Lecturer Emerson R. Marks, Ph.D. (New York)	1956-57
Lecturer Paul Marx, M.F.A. (Iowa)	1957-60
Lecturer Peter John Notaras, M.Ed. (Illinois)	1957-60
Lecturer James Harris Olander, M.A. (Wisconsin)	1959-60
Lecturer Richard Wayne Peck, M.A. (Southern Illinois)	1959-60
Lecturer Roy Glenwood Pickett, Ph.D. (Iowa)	1957-60
Lecturer Raymond S. Rainbow, Jr., A.M. (Chicago)	1949-60
Lecturer Mary C. Simon, M.A. (Illinois)	1959-60
Lecturer Elizabeth Anne West, B.Ed. (Southern Illinois)	1958-60
Lecturer Muriel West, Ph.D. (Arkansas)	1957-60
Lecturer Michael W. Boatman, M.A. (Montreal)	1956-58
Lecturer Robert W. Clarke, M.A. (Southern Illinois)	1957-58
Lecturer Lucille S. Cobb, Ph.D. (Washington University)	1957-58
Lecturer Sandra Anne Hollander, M.A. (Chicago)	1958-59
Lecturer Eugene J. Kasper, M.A. (Chicago)	1957-58
Lecturer Barbara Lubotsky, M.A. (Chicago)	1957-58
Lecturer Daniel L. McDonald, M.S. (Wisconsin)	1957-59
Lecturer Irene McDonald, M.A. (Wisconsin)	1958-59
Lecturer Mary Louise Pitlick, M.A. (Marquette)	1957-59
Lecturer Peter B. Walsh, M.A. (Iowa State)	1956-59



Lecturer C. Clarkson White, M.A. (Southern Illinois)	1956-59
Lecturer Richard R. Wright, M.A. (Southern Illinois)	1956-58
Lecturer Gregory Ziegelmaier, M.A. (Wisconsin)	1958-60
Lecturer Lewis J. Hilliard, M.A. (Southern Illinois)	1959-60

The English major is forty-eight hours. Fifteen of these are represented by 101, 102, 103, and by two courses from the 200 series. The major should have 205 from this series, and elect at least one other. The major should also complete as soon as possible the general degree requirements and the College of Liberal Arts and Sciences requirements.

In the junior year the major should have the three-quarter sequence, 302, 316, 317; American Literature 309, and English 300. The latter is a prerequisite to student teaching for English majors and minors. The remaining junior-senior courses should be chosen so that they include at least one course in each of the seven groups listed here:

Poetry: 320, 321, 330, 370, 405.

Drama: 360, 361, 362, 365, 366, 463, 464.

Fiction: 308, 335, 354, 355, 356, 457, 458.

The Elizabethan age: 360, 365, 366, 424.

The seventeenth-eighteenth century period: 314, 315, 354, 361, 370.

The nineteenth century: 320, 321, 308, 326, 355, 431.

The twentieth century: 330, 335, 356, 405, 406, 408, 463, 464.

This minimum major should be supplemented in various ways by adding: period surveys like 314, 315; advanced composition 390, 392, 492, 493; language studies 301, 400, 403; criticism 407, 467, 468, 469; teaching English 485; membership in the English Club; and supplementary reading. It is required that the major have at least one year of foreign language, preferably German or French. Two years would be more meaningful.

The major should consult the department chairman as soon as he knows that he will major in English, and should thereafter have his advance registration approved by the chairman each quarter. Deviations from the generally prescribed major requirements should not be made without prior approval.

The English minor is twenty-four hours, prescribed as follows: from freshman work, 2 hours; from sophomore work, 6 hours; 300; 309; 302 and 316, or 316 and 317.

### COURSE DESCRIPTIONS

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level are for both undergraduate and graduate students. Those on the 500 level are for graduate students only.

- 101-3. 102-3, 103-3. COMPOSITION. Expository writing, with emphasis upon the sentence, organization, and the research paper. Prerequisite: 101 to 102, 102 to 103.
- 105-3 to 6. ENGLISH AS A FOREIGN LANGUAGE. Open to foreign students only. Maximum of 3 hours to be earned per quarter; graduate students receive no credit.
- 205-3. INTRODUCTION TO POETRY. Emphasis on technique, type, and period.
- 206-3. INTRODUCTION TO DRAMA. The form, artistry, and ideas of various plays from most of the notable literary periods. Approximately twenty plays read.
- 209-3. INTRODUCTION TO WORLD LITERATURE. A reading of masterpieces of European literature of various periods to the Renaissance.
- 211-3. INTRODUCTION TO FICTION. An examination of the novel; designed to acquaint the student with the important aspects of artistic excellence in this form.
- 212-3. INTRODUCTION TO MODERN LITERATURE. Principal forms, ideas, and writers of the literature of America and England in the twentieth century. Especially recommended to majors in other fields than English.
- 300-4. PRINCIPLES OF ENGLISH GRAMMAR. Required of majors and minors in English. Majors and minors other than in English should take English 391. Credit not allowed for both courses.
- 301-3. INTRODUCTION TO SEMANTICS. The nature of language, the emotional and intellectual content; breaking down linguistic naivete, and developing a consciousness of the motives in the use of language.
- 302-4. ENGLISH LITERATURE TO 1550. Required of English majors.
- 308-4. AMERICAN NOVEL. Emphasis on Cooper, Hawthorne, Melville, Twain, James, Dreiser, and Crane.
- 309-4. A SURVEY OF AMERICAN LITERATURE TO 1860.
- 310-4. A SURVEY OF AMERICAN LITERATURE SINCE 1860.
- 312-3. FOLKLORE. A study of the types of folklore, and wide reading in the field. Students expected to collect and classify examples from local lore.
- 314-4. SEVENTEENTH-CENTURY LITERATURE.
- 315-4. EIGHTEENTH-CENTURY LITERATURE.
- 316-4. ENGLISH LITERATURE, 1550 to 1750. Required of majors.
- 317-4. ENGLISH LITERATURE AFTER 1750. Required of majors.
- 320-4. ENGLISH ROMANTIC POETRY, 1780 to 1830.
- 321-4. VICTORIAN POETRY, 1830 to 1880.
- 326-4. NINETEENTH-CENTURY PROSE. English non-fiction prose of the last century.
- 330-4. MODERN BRITISH POETRY.
- 335-4. THE SHORT STORY.
- 354-4. DEVELOPMENT OF THE ENGLISH NOVEL. From Defoe through Scott.
- 355-4. THE VICTORIAN NOVEL.
- 356-4. THE NOVEL SINCE 1900. Novelists of various nations. Recommended for students not majoring in English.
- 360-4. ENGLISH DRAMA TO 1642.

- 361-4. RESTORATION AND EIGHTEENTH-CENTURY DRAMA.
- 362-4. THE DEVELOPMENT OF TRAGIC DRAMA FROM AESCHYLUS TO THE PRESENT TIME. Principal tragic dramas and the shifting conceptions of tragic form and matter in the various ages.
- 365-4. SHAKESPEARE. The chief comedies and histories.
- 366-4. SHAKESPEARE. The chief tragedies.
- 369-4. HISTORY OF LITERARY CRITICISM. The ideas and techniques of criticism, from Aristotle to the end of the nineteenth century.
- 370-4. MILTON.
- 377-4. COMPARATIVE LITERATURE, TWENTIETH CENTURY. Fiction, poetry, and drama, chiefly from the literatures of continental Europe.
- 378-4. COMPARATIVE LITERATURE TO THE RENAISSANCE. Readings from translations of Homer, Aeschylus, Sophocles, Euripides, Aristophanes, Plato, Vergil, Terence, Dante, and others.
- 379-4. COMPARATIVE LITERATURE FROM THE RENAISSANCE TO 1900. Readings in translations from Rabelais, Cervantes, Voltaire, Rousseau, Goethe, Heine, Turgenev, Dostoyevsky, and others.
- 390-3. ADVANCED COMPOSITION. Expository writing.
- 391-3. USAGE IN SPOKEN AND WRITTEN ENGLISH. The essentials of grammar and the "common decencies." Prerequisite to student teaching, except for English majors and minors, who take 300.
- 392-3. PROFESSIONAL WRITING I. Introductory course for undergraduates. Prerequisite to 492, but credit for the course does not constitute automatic admission to 492. Prerequisite: consent of instructor.
- 400-4. STRUCTURAL LINGUISTICS. An analysis of the structure of modern English, to supplement the student's traditional approach to grammar with a knowledge of the contemporary structural approach to language.
- 402-4. CHAUCER.
- 403-4. THE ENGLISH LANGUAGE. A history. Knowledge of German a desirable preparation for the course.
- 405-4. MODERN AMERICAN POETRY. The important poets since Whitman.
- 406-4. AMERICAN DRAMA. The rise of the theater in America, with reading of plays, chiefly modern.
- 407-4. LITERARY CRITICISM IN THE UNITED STATES.
- 408-4. INTELLECTUAL BACKGROUND OF AMERICAN LITERATURE. The relationship of basic ideas in America to American literature. Prerequisite: 309 or 310.
- 424-4. ENGLISH RENAISSANCE. Non-dramatic literature.
- 431-4. THE EIGHTEEN-NINETIES. Studies of English authors of the 1890's.
- 457-4. CONTEMPORARY BRITISH FICTION. Outstanding figures, influences, and trends in the British novel and short story since 1914.
- 458-4. CONTEMPORARY AMERICAN FICTION. Trends and techniques in the American novel and short story since 1914.
- 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.
- 467-4. STUDIES IN PROSE STYLE. Analysis of the methods and devices used by prose writers to obtain aesthetic and emotional effects.
- 468-4. AESTHETICS OF LITERATURE. The basic principles of literary composition and appreciation, in the light of recent aesthetic theory.

- 469-4. MODERN CRITICISM. Recent critics and critical attitudes, and practice in writing criticism.
- 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 competent 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 competent 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.
- 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.

Courses on the 500 level are for graduate students only.

- 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, 502, 503, 504, 505-4 to 8. INDIVIDUAL AMERICAN WRITERS. Each course the intensive study of an American author selected for that term.
- 506-4. OLD ENGLISH GRAMMAR. Old English grammar and readings. Credit for this course allowed only if the student also takes 516.
- 507-3. MEDIEVAL ROMANCES IN ENGLISH.
- 508-4. THE RISE OF REALISM IN AMERICAN FICTION. Extensive reading in American literature after the Civil War.
- 510-4. SEMINAR. Chaucer: *Troilus and Criseyde* and the minor poems.
- 511-4. SEMINAR IN MIDDLE ENGLISH LITERATURE.
- 512-4. PROBLEMS IN MIDDLE ENGLISH LITERATURE. Piers Plowman, Wycliff's tracts, Chaucerian and other works of the fourteenth century. Prerequisite: 403, History 322.
- 514-4. PROBLEMS IN SEVENTEENTH-CENTURY LITERATURE.
- 515-4. DR. JOHNSON AND HIS CIRCLE. Personalities, critical attitudes, philosophies, politics, manners and customs, the development of Romanticism.
- 516-4. BEOWULF. Prerequisite: 506.
- 517-4. THE METAPHYSICAL POETS. Donne, Herbert, Crashaw, Vaughan, and Traherne; their place in English poetry, their similarity to twentieth-century poets.
- 520-4. THE ENGLISH ROMANTIC MOVEMENT.
- 521, 522, 523, 524, 525-4 to 8. INDIVIDUAL ENGLISH WRITERS. Each course the intensive study of an English author selected for that term.
- 526-4 to 8. STUDIES IN THE VICTORIAN ESSAY. Non-fiction prose of mid-nineteenth-century England.

- 540-4. THE ESSAY. The development of the essay from Sir Francis Bacon to the present.
- 545-4. THE EPIC. Epic poetry and its influence.
- 554-4. EIGHTEENTH-CENTURY ENGLISH NOVELS. The origins of the novel and its relation to other types of literature; the development of the novel through the eighteenth century; the early novel as an art form and a social instrument.
- 555, 557-4. STUDIES IN THE VICTORIAN NOVEL. Reading, research, and reports. The first course to extend to about 1860; the second, to 1900.
- 560-4. ELIZABETHAN DRAMA.
- 561-4. THE RESTORATION AND EIGHTEENTH-CENTURY DRAMA. English drama from the Restoration to 1800.
- 562-4. THE DEVELOPMENT OF THE TRAGIC DRAMA FROM AESCHYLUS TO THE PRESENT TIME.
- 566-4. SHAKESPEARE. A review of the works of Shakespeare, extensive work in the Shakespeare scholarship.
- 577-4. NATURALISM IN THE NOVEL AND THE DRAMA. Philosophical and literary naturalism, from the late nineteenth century to the present.
- 580-4. TRADITIONAL THEMES IN LITERATURE. Persistent themes and legends in literature—King Arthur, Faust, Utopia, and the like.
- 599-2 to 9. THESIS.

## FOREIGN LANGUAGES

Professor Albert William Bork, Doctor en Letras (National University of Mexico)	1958
Professor Boyd G. Carter, Ph.D. (Illinois)	1959
Professor J. Cary Davis, Ph.D. (Chicago)	1930
Professor Hellmut A. Hartwig, Ph.D. (Illinois)	1948
Professor Vera L. Peacock, Ph.D. (Cornell), Chairman	1930
Associate Professor Mary Eileen Barry, Ph.D. (Chicago)	1946
Associate Professor Madeleine M. Smith, Ph.D. (Yale)	1929
Assistant Professor Helmut Liedloff, Ph.D. (Phillips University, Marburg, Germany)	1959
Assistant Professor A. K. Neufeld, A.M. (Kansas)	1945
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Lecturer Mildred A. Cohen, M.A. (Chicago)	1958-59
Lecturer Nelvin W. Heisner, M.A. (Southern Illinois)	1959-60

For a major in a language, a student in the College of Education must complete thirty-six hours exclusive of 101, 102, and 103; a student in the College of Liberal Arts and Sciences, forty-two hours, exclusive of 101, 102, and 103, in addition to general degree requirements. A forty-eight hour major is available in either college. At least one English and one

history course numbered 300 or above should supplement the language major. A minor consists of twenty-four hours of the language, exclusive of 101, 102, and 103.

Students taking work in any 101, 102, and 103 language series should note that 101 and 102 will not be counted as electives toward graduation unless 103 is also completed.

Reference is made here to two scholarships made available to students of this University by the Benjamin Franklin School, located in Lima, Peru. These scholarships pay tuition and fees for nine months at San Marcos University; room and board in the Benjamin Franklin School; opportunity to earn spending money during free time; and assistance in learning Spanish as a foreign language. Applicants will need to finance their own round trip transportation and participate in the English program of student teaching in the Benjamin Franklin School. Interested applicants should consult Professor J. Cary Davis of the Foreign Languages Department.

### *COURSE DESCRIPTIONS*

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level are for both undergraduate and graduate students. Those on the 500 level are for graduate students only.

#### GENERAL COURSES

- 140-2. LATIN AND GREEK ELEMENT IN ENGLISH I. Presentation in English contexts of Greek and Latin roots basic in modern technical and scientific vocabulary. No knowledge of the ancient languages required.
- 240-2. LATIN AND GREEK ELEMENT IN ENGLISH II. Similar to 140 but more advanced and introducing medical terms.
- 380-2. BASIC FOREIGN TERMS OF HOME ECONOMICS. A study of the pronunciation, derivation, and use of foreign terms commonly used in all departments of the School of Home Economics.
- 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 COURSES

- 101-3, 102-3, 103-3. ELEMENTARY COURSE. 101 open to students who have had no previous work in French. Prerequisite for 102: 101 or one year of high school French.
- 101c-1, 102c-1, 103c-1. FRENCH CONVERSATION. Courses in conversation and oral drill taken with 101, 102, 103 by students who wish additional oral training: elected only by students enrolled in the corresponding beginning sections.
- 151-3, 152-3, 153-3. INTERMEDIATE COMPOSITION AND READING. Grammar; composition, oral practice; rapid reading of modern authors. Prerequisite: 103 or two years of high school French.
- 220-2 to 6. FRENCH CONVERSATION. Conversation based largely on topics of current interest chosen from French newspapers and reviews.
- 301-3. THE FRENCH NOVEL OF THE EIGHTEENTH AND NINETEENTH CENTURIES. Lectures, collateral reading, and reports.
- 302-3. SEVENTEENTH AND EIGHTEENTH CENTURY DRAMA. Intensive study of Corneille, Racine, Moliere, Lesage, Voltaire, Marivaux, and Beaumarchais. Outside reading of minor dramatists.
- 303-3. FRENCH LYRIC POETRY. French versification; Romantic, Parnassian, and Symbolist schools; contemporary poets.
- 304-3. FRENCH CONTEMPORARY NOVEL. Study of the novel from 1889 to the present, with emphasis on the symbolistic, regional, psychological, and sociological novels. Detailed study of Proust or Gide.
- 305-3. FRENCH CONTEMPORARY DRAMA. Study of French drama from Dumas fils to the present, with emphasis on the *pièce à thèse*, the *théâtre libre*, symbolistic drama, and the drama of modern social problems.
- 311-4, 312-4, 313-4. SURVEY OF FRENCH LITERATURE. A study of the important currents of French literature from the beginning to the present time. One hour each week devoted to French composition. This series should follow immediately after 153. Prerequisite: 153.
- 340-2. FRENCH LITERATURE OF THE SIXTEENTH CENTURY. Rabelais, Montaigne, the memoir writers, Marot, the Pleiade, and d'Aubigny.
- 351-4. ADVANCED COMPOSITION. Rapid grammar review, study of idiomatic construction; weekly themes. Course conducted in French.
- 352-5. FRENCH CONVERSATION AND PHONETICS. A thorough study of the phonetic alphabet and the formation of French sounds. Course conducted in French.
- 353-4. ADVANCED COMPOSITION AND CONVERSATION. Oral and written composition of a practical nature for advanced students; intensive study of idiomatic expressions and current usage.
- 440-2. FRENCH POETRY OF THE RENAISSANCE. Development of French poetry from 1550 to 1600.

Courses on the 500 level are for graduate students only.

- 500-2. SEMINAR IN CONTEMPORARY FRENCH LITERATURE. Intensive

- study of the "Roman fleuve" as exemplified in the works of Duhamel, Martin du Gard, and Romain.
- 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. Molière, 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.

#### GERMAN COURSES

- 101-3, 102-3, 103-3. ELEMENTARY COURSE. 101 open to students who have had no previous work in German. Prerequisite for 102: 101 or one year of high school German.
- 101c-1, 102c-1, 103c-1. GERMAN CONVERSATION. Courses in conversation and oral drill taken with 101, 102, 103, by students who wish additional oral training; elected only by students enrolled in the corresponding beginning sections.
- 151-3, 152-3, 153-3. INTERMEDIATE COURSE. Grammar review and expansion; reading in modern prose; conversation and composition. Two periods a week devoted to literature; and one to grammar and composition. Prerequisite: 103 or two years of high school German.
- 220-2 to 6. ADVANCED GERMAN CONVERSATION. Conversation based on topics of current interest. Extensive use of German newspapers, periodicals, and records. Prerequisite: permission of instructor.
- 251-4. SCIENTIFIC GERMAN. Study of vocabulary and sentence construction as found in German scientific writings. Prerequisite: 152 or equivalent.
- 301-4, 302-4. SURVEY OF GERMAN LITERATURE TO 1800. The historical development of German literature; lectures; reading of representative authors.
- 303-4. GERMAN "NOVELLE" IN THE NINETEENTH CENTURY. A study of representative work from 1800 to 1900, with emphasis on the literary movements of that time.
- 304-5. ADVANCED COMPOSITION AND CONVERSATION. Based on the history of German civilization. Required for prospective teachers of German.
- 311-4, 312-4. INTRODUCTION TO GERMAN CLASSICAL LITERATURE. Lessing, Goethe, Schiller. Reading and discussion of representative works.
- 313-4. GERMAN DRAMA IN THE NINETEENTH CENTURY. Kleist, Grillparzer, Hebbel. Reading and discussion of representative works.
- 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 van Strassburg, Hartmann von Aue, and the lyric poetry of Walther von der Vogelweide. Lectures, reports.

Courses on the 500 level are for graduate students only.

- 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 quarter (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. Lectures, outside readings, reports. 2 hours each quarter.

#### GREEK COURSES

- 101-4, 102-4, 103-4. ELEMENTARY COURSE. Grammar emphasized in the first quarter, and reading of an actual text begun in the second. The text selected, usually the New Testament.
- 151-4, 152-4, 153-4. INTERMEDIATE COURSE. Grammar review and composition. Readings from Plato. Prerequisite: 103.
- 301-4. INTRODUCTION TO GREEK HISTORY. Reading and discussion of selections from the histories of Herodotus and Thucydides.
- 302-4. PLATO. Reading and discussion of the *Republic*.
- 303-4. ARISTOTLE. Reading and discussion of the *Ethics*.
- 311-4, 312-4. INTRODUCTION TO HOMER. Reading and interpretation of selections from the *Iliad* and the *Odyssey*.
- 313-4. INTRODUCTION TO GREEK TRAGEDY. Reading of at least two plays from the works of Aeschylus, Sophocles, and Euripides.
- 320-3. SURVEY OF GREEK LITERATURE. Discussion of Greek literary

works and their influence on later literature. No knowledge of Greek required.

330-3. CLASSICAL MYTHOLOGY. Study of the classical myths and their literary value. No knowledge of Greek or Latin required.

#### LATIN COURSES

101-3, 102-3, 103-3. ELEMENTARY COURSE. 101 open to students who have had no previous work in Latin. Prerequisite for 102: 101 or one year of high school Latin.

151-4. INTERMEDIATE COMPOSITION. Useful for teachers and a convenient review for students. Prerequisite: 103 or two years of high school Latin.

152-4. CICERO'S ESSAYS. De Senectute and part of De Amicitia. Prerequisite: 103 or two years high school Latin.

153-4. LIVY. Books I and XXI. Prerequisite: 103 or two years of high school Latin.

226-4. OVID'S METAMORPHOSES.

301-4. CICERO'S LETTERS. Emphasis laid upon the history of the times and the personality of Cicero.

302-4. VERGIL'S ECLOGUES AND GEORGICS. Hexameter carefully studied. Vergil's spirit and contribution to Rome considered.

303-4. TACITUS. The Agricola and Germania.

304-2. PRIVATE LIFE OF THE ROMANS. Comprising a personal study of the average family; housing, food, and clothing; marriage, education, amusements, slaves, and freedom; means of livelihood; death and burial. Open to all students whether they have had Latin or not.

311-4. PHORMIO OF TERENCE. Prerequisite: 153 or equivalent.

312-4. HORACE'S ODES AND EPODES. Prerequisite: 153 or equivalent.

313-4. LETTERS OF PLINY. Prerequisite: 153 or equivalent.

320-3. LATIN LITERATURE IN TRANSLATION. Discussion of Latin literary works and their influence on later literature. No knowledge of Latin required.

335-4. VERGIL'S AENEID. Books VII-XII.

342-4. ADVANCED COMPOSITION. A careful study based on classic prose-writers.

#### PORTUGUESE COURSES

100-5. INTRODUCTORY COURSE. Especially for Spanish majors and minors. Prerequisite: Spanish 153 or consent of instructor.

All five hours will count toward a Spanish major of forty-two hours or more. Three hours will count toward a Spanish minor, or a major of less than forty-two hours.

#### ROMANCE PHILOLOGY COURSES

410-4. ROMANCE PHILOLOGY I. A survey of the phonology, morphology, and syntax changes in Romance languages in general; special attention to developments in French and Spanish for majors in these fields. This course may be counted toward either a French or Spanish major.

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.

#### RUSSIAN COURSES

- 101-3, 102-3, 103-3. ELEMENTARY COURSE. Pronunciation; reading of elementary texts; oral practice; composition.
- 101c-1, 102c-1, 103c-1. RUSSIAN CONVERSATION. Courses in conversation and oral drill, taken by students of 101, 102, 103 for additional practice; elected only by students enrolled in the corresponding beginning sections.
- 151-3, 152-3, 153-3. INTERMEDIATE COURSE. Reading of classical and modern narrative prose; oral practice and sight reading; advanced composition. Prerequisite: 103.
- 220-2 to 6. RUSSIAN CONVERSATION. Advanced conversation based on topics of current interest. Prerequisite: 103.
- 251-4. SCIENTIFIC RUSSIAN. Study of vocabulary and sentence constructions as found in Russian readings on popular sciences. Prerequisite: 103.
- 301-4, 302-4. THE RUSSIAN NOVEL IN THE NINETEENTH CENTURY.
- 311-4, 312-4. INTRODUCTION TO RUSSIAN CLASSICAL LITERATURE. Short stories of Gogol, Pushkin, Turgenev, Tolstoy, etc.
- 313-4. RUSSIAN DRAMA IN THE NINETEENTH CENTURY. Griboyedov, Gogol, Pushkin, and minor dramatists.

#### SPANISH COURSES

- 101-3, 102-3, 103-3. ELEMENTARY COURSE. 101 open to students who have had no previous work in Spanish. Prerequisite for 102: 101 or one year of high school Spanish.
- 101c-1, 102c-1, 103c-1. SPANISH CONVERSATION. Courses in conversation and oral drill to be taken with 101, 102, or 103, by students who wish additional oral training; elected only by students enrolled in the corresponding beginning sections.
- 151-3, 152-3, 153-3. INTERMEDIATE COMPOSITION AND READING. Grammar review, composition, oral practice, rapid reading of modern authors. Prerequisite: 103 or two years of high school Spanish.
- 220-2 to 6. SPANISH CONVERSATION. Conversation based on topics of current interest. Extensive use of records for comparison and imitation.
- 301-3. SPANISH NOVEL OF THE NINETEENTH AND TWENTIETH CENTURIES. Study of representative novels and authors from the Regionalists to the present time.
- 302-3. SPANISH DRAMA OF THE EIGHTEENTH AND NINETEENTH CENTURIES. Reading of selected plays of the chief dramatists from Moratin to the generation of 1898.
- 311-4, 312-4, 313-4. SURVEY OF SPANISH LITERATURE. A survey, continuing to the present day. Lectures and reading of representative authors. Composition one day a week. This series should follow immediately after 153.
- 315-3. ARTE Y CULTURA. Conducted in Spanish. Informal class discussion of reports of students on present day topics relating to the life and interests

- of Latin America and Spain; extensive use of films. Prerequisite: 220 or consent of instructor.
- 316-3. CIVILIZACION ESPANOLA. A study of the cultural patterns and heritage of the Spanish people from earliest times to the present. Prerequisite: 315 or consent of instructor.
- 333-3. SPANISH AMERICAN LITERATURE. Survey of Spanish literature in America from the conquest to modern times. Required of Spanish majors.
- 340-3. THE GOLDEN AGE. Extensive individual reading of the plays of Lope de Vega, Calderon, Tirso, Ruiz de Alarcon, and others, with class reports and intensive study of some one dramatist.
- 345-4. CERVANTES. Study of the life of the author and the Quijote with reference to style and source of materials. Comparative reports on the novelas and other works.
- 351-3. ADVANCED COMPOSITION. Daily themes based on Spanish models, with free composition once a week. Class discussions.
- 360-8. STUDY-TOUR OF MEXICO. Two weeks of lectures and intensive conversational drill on campus; four weeks in Mexico. Series of lectures by Mexican teachers during residence in Mexico City and on excursions in the country. Final week on campus for completion of individual projects and reports. Prerequisite: advanced standing in 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.

Courses on the 500 level are for graduate students only.

- 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* studies 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.

## GEOGRAPHY

Professor Floyd F. Cunningham, Ph.D. (Clark)	1947
Professor Robert A. Harper, Ph.D. (Chicago), Chairman	1950
Professor Wilbur Zelinsky, Ph.D. (California)	1959
Associate Professor Flemin W. Cox, A.M. (Illinois), Emeritus (1945)	1929
Associate Professor Annemarie Krause, Ph.D. (Chicago)	1930
Associate Professor Marjorie Shank, A.M. (Clark)	1923
Assistant Professor Ronald M. Beveridge, Ph.D. (Illinois)	1956
Assistant Professor Frank Thomas, Ph.D. (Northwestern)	1959
Assistant Professor Joseph Velikonja, Ph.D. (State University, Rome, Italy)	1959
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University Professor Charles C. Colby, Ph.D. (Chicago)	1951-52; 1953-54; 1957-60
Visiting Professor Robert G. Buzzard, Ph.D. (Clark)	1957-59
Visiting Professor John A. Morrison, Ph.D. (Chicago)	1957-58
Lecturer John Hopkins, M.A. (Minnesota)	1955-59
Lecturer Else A. Schmidt, (Leipzig)	1957-58
Lecturer Theodore Schmudde, M.S. (Wisconsin)	1959
Lecturer Howard Stafford, Jr., M.A. (Iowa)	1959-60
Lecturer Franklin R. Stern, M.A. (Syracuse)	1956-60
Lecturer Patrick J. Tyson, M.A. (Michigan)	1958-60

A student may take his work in the field of geography in either the College of Education or the College of Liberal Arts and Sciences, depending upon his objective:

1. In the College of Education, for preparation to teach geography in the elementary or secondary schools, or (with further preparation) in the junior college; or as a part of preparation to teach either social science or physical science in the elementary or secondary schools.
2. In the College of Liberal Arts and Sciences, for a thorough knowledge of geography, in preparation for civil service appointment as geographer, or for demands of private organizations requiring the services of geographers.

In the College of Liberal Arts and Sciences, the student majoring in geography needs to present a minor in another field. Forty-two hours of

geography are required for a major; twenty-four hours are required for a minor.

In the College of Education, forty-eight hours of geography are required for a major if the student offers only one minor; only forty-two hours are required for a major if he offers two minors. Twenty-four hours are required for a minor.

One year of foreign language is required of all geography majors.

Persons who expect to teach in the elementary school are urged to take at least a minor in geography which must include Geography 100 and 101.

Those expecting to teach high school commercial or economic geography with a minimum preparation must have twelve hours of college geography. Students should meet this requirement by taking 100, 210, 324, and 405.

Those expecting to teach high school physical geography with a minimum preparation must have eighteen hours in college physical geography. Students should meet this requirement by taking 101, 212, 310, and any other physical geography subjects.

Geography courses are classified by subject area. These are:

1. Physical: 101, 212, 310, 311, 312, 324, 416, 417, 424, 430.
2. Social: 100, 210, 211, 319, 324, 345, 402, 404, 405, 410, 425.
3. State, Regional, or Continental: 313, 314, 315, 316, 318, 321, 402, 412, 420, 450.
4. Educational: 341, 342, 460.

### *SUGGESTED CURRICULUM IN THE COLLEGE OF LIBERAL ARTS AND SCIENCES*

In addition to the general degree requirements and the College of Liberal Arts and Sciences requirements, the required courses constituting a major in geography are 100, 101, 210, 212, 310, 312, 314. Additional courses recommended for a major in geography are 324, 416.

Recommended electives are Agricultural Industries 114, 303, 306, 310; Animal Industries 486; Anthropology 110, 201, 203, 205, 207, 354, 360, 365, 375; Botany 101, 202, 340, 350, 450; Economics 205, 317, 328, 418, 429, 460, 561; Forestry 104, 360, 361, 370; Geology 100, 220, 221, 320, 431; Marketing 330, 341; Plant Industries 301, 306; Zoology 100, 310.

### *SUGGESTED CURRICULUM IN THE COLLEGE OF EDUCATION*

In addition to the general degree requirements and the College of

Education requirements, the required courses constituting a major in geography are 100, 101, 210, 212, 310, 312, 314, 324. Additional courses recommended for a major in geography are 341, 342, 416.

Recommended electives are Agricultural Industries 114, 303, 306, 310; Animal Industries 486; Anthropology 110, 201, 203, 205, 207, 354, 360, 365, 375; Botany 101, 202, 340, 350, 450; Economics 205, 317, 328, 418, 429, 460; Forestry 104, 360, 361, 370; Geology 100, 220, 221, 320, 431; Marketing 330, 341; Plant Industries 301, 306; Zoology 100, 310.

### COURSE DESCRIPTIONS

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level are for both undergraduate and graduate students. Those on the 500 level are for graduate students only.

- 100-5. GEOGRAPHY OF MAN. A world regional survey in which significant differences from place to place are observed and analyzed. Basic factors of population distribution are core of the course. Tracing of development of man's working connections with the land and its resources. Satisfies social studies requirement for the bachelor's degree in all colleges of the University.
- 101-5. PHYSICAL GEOGRAPHY. A study of the earth's physical surface, the areal differences and relationships of its landforms, water resources, soils, and natural vegetation, and economic minerals. World distribution patterns of physical elements, their relationships to each other, and their importance to man. Special attention given to Southern Illinois. Meets needs of prospective teachers of nature study, natural, social, and general sciences. One major field trip. Prerequisite: 100.
- 210-4. ECONOMIC GEOGRAPHY. A study of the economic production types or occupations such as grazing, farming, fishing, lumbering, mining, manufacturing, and transportation. Prerequisite: 100.
- 211-5. ECONOMIC GEOGRAPHY. Designed to show the relationship between physical environment and economic life of people. Emphasis on economic-geographic factors of world distribution of resources, methods of production and transportation of the important commodities of industry and commerce. Open only to students majoring in business administration and economics.
- 212-3. MAP READING AND INTERPRETATION. Properties of maps, their uses and sources. Maps as means of expression in scientific investigation. Units on the use and interpretation of maps, map symbols, and map projections. Laboratory.
- 310-4. METEOROLOGY. Study of weather, the factors and conditions influencing it, its importance to man. Emphasis placed upon agriculture, aviation, business, industry, and everyday understanding of weather. Most recent findings in weather science studies. Of value to persons interested in weather bureau service. Prerequisite: 100.
- 311-4. GEOGRAPHY OF SOILS. The nature, source, and origin of soil material;

- soil development and soil use. Geographic distribution and significance of soil as an element of the environment. Prerequisite: 100, 101, or permission of instructor.
- 312-4. REGIONAL CLIMATOLOGY. Principles of climatology; physical bases for the differentiation of climatic types; description and interpretation of climatic regions. Prerequisite: 100 or permission of instructor.
- 313-3. GEOGRAPHY OF ILLINOIS. Acquaints the student with the regional concepts of our state, the distribution of climate, vegetation, soil, landforms, and mineral resources; interrelates agriculture, manufacturing, industry, and population distribution, interpreted within a regional framework. Prerequisite: 100.
- 314-4. GEOGRAPHY OF ANGLO-AMERICA. A systematic regional treatment of North America, north of Mexico. An introduction to regional study of geography. Prerequisite: 100 or permission of instructor.
- 315-4. GEOGRAPHY OF EUROPE. An intensive study of regions, with stress on their description, interpretation, and utilization. Emphasis on interdependence of political units. Prerequisite: 100 or permission of instructor.
- 316-4. GEOGRAPHY OF SOUTH AMERICA. A study of the regions and resources of the South American countries as they relate to national and international problems. Prerequisite: 100 or permission of instructor.
- 318-4. GEOGRAPHY OF ASIA. Study of the countries of Asia, except the Asiatic portion of the U.S.S.R., emphasizing the relationship between the problems of the population and the resource base. Prerequisite: 100 or permission of instructor.
- 319-4. HISTORICAL GEOGRAPHY OF THE UNITED STATES. Study of elements of the geographic environment that have been important in the discovery, exploration, settlement, and development of the United States. Prerequisite: 100 or permission of the instructor.
- 321-2. GEOGRAPHY OF AUSTRALIA. A study of the only continent which lies far beyond the periphery of the land hemisphere; its unusual climatic and economic conditions; its importance in the British Empire; and its vital place in the economic and political life of the Pacific. Prerequisite: 100 or permission of instructor.
- 324-4. RESTORATION AND CONSERVATION OF NATURAL RESOURCES. Survey of major resources of United States with stress on problems of conservation and restoration. Emphasis on water, mineral, forest, grass, soil, wildlife, scenic, and recreational resources. Field trips. Prerequisite: 100 or permission of instructor.
- 341-4. TEACHING OF GEOGRAPHY IN THE ELEMENTARY SCHOOL. Presentation and evaluation of methods of teaching geography in the elementary grades. Emphasis upon geographic literature, illustrative materials, and teaching devices suitable to particular age levels. Prerequisite: 100.
- 342-4. TEACHING OF GEOGRAPHY IN THE JUNIOR AND SENIOR HIGH SCHOOLS. Presentation and evaluation of methods of teaching geography in the junior and senior high schools. Emphasis upon geographic literature, illustrative materials, and teaching devices suitable to particular age levels. Prerequisite: 100.
- 345-4. POLITICAL GEOGRAPHY. An examination of the world political pattern that is superimposed on the physical earth. Particular attention to



- world powers and "trouble spots." Prerequisite: 100 or permission of instructor.
- 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 the instructor.
- 404-4. ADVANCED ECONOMIC GEOGRAPHY I—AGRICULTURAL. A functional study of the bases, interrelationships, and geographic distribution of agricultural production. Prerequisites: 100, 101, 210, or consent of instructor.
- 405-4. ADVANCED ECONOMIC GEOGRAPHY II—INDUSTRIAL. A functional study of the bases, interrelationships, and geographic distribution of industries. Prerequisites: 100, 101, 210, or consent of instructor.
- 406-4. TRADE AND 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.
- 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.
- 440-2 to 4. READINGS IN GEOGRAPHY. Supervised readings in selected sub-

- jects. Hours and credit to be arranged. Prerequisites: 100, 101, 210, and advanced standing.
- 445-2 to 8. SOUTH AMERICAN STUDY TOUR. See Foreign Languages 445 for course description.
- 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: Geography 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 Geography 100 and 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.
- 500-4. FIELD METHODS. 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. LIBRARY RESEARCH AND THESIS WRITING. 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 all disciplines.
- 520-2 to 4. SEMINAR IN PHYSICAL GEOGRAPHY.
- 521-2 to 4. SEMINAR IN ECONOMIC GEOGRAPHY.
- 522-2 to 12. SEMINAR IN REGIONAL GEOGRAPHY.
- 523-2 to 4. SEMINAR IN CARTOGRAPHY.
- 530-2 to 10. INDEPENDENT STUDIES IN GEOGRAPHY.
- 599-3 to 9. THESIS.

## GEOLOGY

Associate Professor Fred Donald Bloss, Ph.D. (Chicago)	1957
Associate Professor Stanley E. Harris, Jr., Ph.D. (Iowa), Chairman	1949
Associate Professor David Nicol, Ph.D. (Stanford)	1958
Assistant Professor Dewey Harold Amos, Ph.D. (Illinois)	1955
Assistant Professor Frank James Bell, M.S. (Nebraska)	1957
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Visiting Professor W. David Evans, Ph.D. (London)	1958-59
Lecturer Ulrich Lehmann, (Göttingen, München)	1957-58

The Bachelor of Arts degree in geology is granted by the College of Liberal Arts and Sciences. A major requires a minimum of fifty hours in geology. A minor, which is twenty-four hours, is to be determined by consultation with the department's major adviser.

In addition to the general degree requirements and the College of Liberal Arts and Sciences requirements, courses constituting a major in geology are as follows: 220, 221, 302, 405, and 431. An additional sixteen hours are to be selected from the following courses: 310, 311, 312, 315, 425, 426, 427. The geology major is also required to take Mathematics 111, 112, 113; Chemistry 111, 112, 113; Physics 206; and a foreign language selected from German, Russian, or French. It is recommended that students majoring in geology should minor in chemistry, mathematics, physics, or zoology. A minor in some other area should be approved by the department.

An understanding of geology requires a knowledge of the basic sciences. Thus a year's sequence of chemistry and mathematics and at least one term of physics and biology are considered a minimum; additional work in one or more of these fields will be necessary to support specialties such as mineralogy, petrology, economic geology, geophysics, and paleontology. A summer field course in geology should be taken between the junior and senior years. Preparations for a professional career usually require graduate work.

### *COURSE DESCRIPTIONS*

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level are for both undergraduate and graduate students. Those on the 500 level are for graduate students only.

100-4. PRINCIPLES OF GEOLOGY. A study of earth materials, geologic pro-

- cesses, and earth history. Stress upon the common rocks and minerals, erosional and depositional processes, volcanism, and formation of mountains; development of life forms, and the changing face of the earth; application to understanding the landscape, the search for oil and mineral resources, engineering construction. Laboratory.
- 220-5. PHYSICAL GEOLOGY. A study of the principal minerals and rocks of the earth's crust, emphasizing origin and identification; the physical processes active in producing the surface features of the earth. Laboratory and field trips required.
- 221-5. HISTORICAL GEOLOGY. Presenting in chronological order the procession of physical and biotic changes through which the earth has passed. Includes the physical history and evolution of life forms as evidenced by fossil records. Laboratory. Prerequisite: 100 or permission of instructor, elementary course in zoology or botany recommended.
- 302-4. STRUCTURAL GEOLOGY. A study of the forces involved in the deformation of the earth's crust, with special emphasis on the recognition, interpretation, and illustration of the resultant geologic structures. Laboratory. Prerequisite: 220, 221.
- 310-4. MINERALOGY I. The study of morphological crystallography including crystal symmetry, Hermann-Mauguin symbolism for the crystal classes, and solution of problems by means of the stereographic projection. Prerequisite: Trigonometry.
- 311-4, 312-4. DETERMINATIVE MINERALOGY. The study of the non-silicate and silicate minerals including the influence of crystal chemistry upon their physical and chemical properties. Laboratory practice in chemical determination and sight identification. Prerequisite: Chemistry 111, Corequisite: Chemistry 112.
- 315-4. PETROLOGY. A study of the characteristics and classification of rocks, their origin and geologic distribution. Laboratory. Prerequisite: 220.
- 320-4. ECONOMIC GEOLOGY. Study of the world's larger mining districts and the economics and political importance of their geological resources.
- 350-9. FIELD GEOLOGY. A field mapping course including problems in stratigraphy, structure, paleontology, physiography, and economic geology. Requires a written geologic report. Consult departmental office for dates, cost, and equipment needed. Prerequisite: 302.
- 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 by the immersion method and by thin section. Laboratory. Prerequisites: 310, Physics 208.
- 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.

Courses to be taken in sequence.

429-3. GEOLOGY OF COAL. Nature and manner of occurrence; methods of exploration and extraction; geologic and geographic distribution. Prerequisite: 100 or consent of instructor.

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; to explain the surface features in a landscape; and to interpret the human drama related thereto. 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.

Courses on the 500 level are for graduate students only.

510-4, 511-4, 512-4. 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 and air photos, construction of stratigraphic sections, facies maps, and faunal analysis. Field trip and written report required. 3 lectures, 1 laboratory. Prerequisites: 302, 325, 326.

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.

540-1 to 9. ADVANCED STUDIES.

541-1 to 9. RESEARCH.

599-3 to 9. THESIS.

## GOVERNMENT

Professor Orville Alexander, Ph.D. (Iowa), Chairman	1938
Professor Frank L. Klingberg, Ph.D. (Chicago)	1946
Professor Robert A. McGrath, Ph.D. (Iowa)	1949
Professor Ward M. Morton, Ph.D. (Texas)	1949
Professor Felix Anthony Nigro, Ph.D. (Wisconsin)	1957
Professor Willis G. Swartz, Ph.D. (Iowa)	1930
Professor Max Wesley Turner, Ph.D. (Iowa)	1947
Associate Professor Horace B. Jacobini, Ph.D. (Kansas)	1957
Associate Professor I. Marc Karson, Ph.D. (London School of Economics and Political Science)	1956
Associate Professor David T. Kenney, Ph.D. (Illinois)	1951
Associate Professor Randall H. Nelson, Ph.D. (Michigan)	1955
Associate Professor John S. Rendleman, J.D. (Illinois)	1951
Associate Professor Marian E. Ridgeway, Ph.D. (Illinois)	1952
Associate Professor William O. Winter, Ph.D. (Michigan)	1950
Assistant Professor Irving Howards, Ph.D. (Wisconsin)	1957
Assistant Professor Egon Kamarasy, D.Pol. (Budapest)	1959
Assistant Professor M. M. Sappenfield, Ph.D. (Illinois)	1954
Assistant Professor John Julius Wuest, Jr., Ph.D. (Southern California)	1956
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Visiting Professor Francis Robert Auman, Ph.D. (Iowa)	1957-58
Visiting Professor Clarence A. Berdahl, Ph.D. (Illinois)	1958-60
Visiting Professor Milton J. T. Shieh, M.A. (Minnesota)	1959-60
Lecturer Brijen K. Gupta, Ph.D. (Chicago)	1958-60
Lecturer David Frier, M.A. (Southern Illinois)	1957-60
Lecturer Manfred Landecker, M.A. (Johns Hopkins)	1959-60

An undergraduate major for a student in the College of Education consists of thirty-six hours, and forty-two hours for a student in the College of Liberal Arts and Sciences. Twenty-four hours are required for a minor in both colleges. A major or minor is recommended for persons planning to teach civics or government courses, and for those planning to qualify for the study of law or for public service. Students majoring in government are urged to take as much work as possible in other social science departments, with at least one minor in a related field. Students planning to take graduate work in government beyond the master's degree should acquire a reading knowledge of both French and German.

### *SUGGESTED CURRICULUM IN THE COLLEGE OF EDUCATION*

In addition to the general degree and College of Education requirements, recommended courses constituting a major in government are 101, 231, 232, 233, 243, 305, 315, 330, 360, 370, 371, 379, 380, 385, 420, 466, 467, 472, 495, 496.

### *SUGGESTED CURRICULA IN THE COLLEGE OF LIBERAL ARTS AND SCIENCES*

In addition to the general degree and College of Liberal Arts and Sciences requirements, recommended courses constituting a major in Government are 101, 231, 232, 233, 305, 360, 370, 380, 390, 391, 392, 420, 471, 472, 495, 496.

Recommended courses constituting a major in government with specialization in international affairs: 101, 231, 232, 233, 243, 363, 370, 371, 385, 390, 391, 392, 453, 456, 457, 458, 459, 460, 471, 472, 475, 480.

Recommended courses constituting a major in government with specialization in public administration: 101, 231, 232, 305, 315, 340, 360, 410, 420, 434, 435, 436, 438, 440, 461, 462, 463, 464, 466, 467, 468, 469, 470, 495, 496.

### *COURSE DESCRIPTIONS*

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level are for both undergraduate and graduate students. Those on the 500 level are for graduate students only.

- 101-5. PROBLEMS OF AMERICAN DEMOCRACY. A general survey of government including national and state constitutional principles as required by Illinois law. Meets the social science and American Government requirements. When offered in extension this course carries only four hours credit.
- 231-5. AMERICAN NATIONAL GOVERNMENT. A survey covering the structure, functions, and principles of national government. Also meets social science and American Government requirements.
- 232-5. STATE AND LOCAL GOVERNMENT. A survey of the structure and functions of American state and local government. Prerequisite 231.
- 233-5. INTRODUCTION TO COMPARATIVE GOVERNMENT. A survey of the principles and techniques of comparative government and their application to the political institutions of modern states. Prerequisite: 101 or 231.
- 243-3. INTRODUCTION TO AMERICAN FOREIGN POLICY. An introduc-

- tory course dealing with the significance of foreign policy to American citizens. Prerequisite: 101.
- 300-4. AMERICAN GOVERNMENT. An advanced course to satisfy the American Government requirements of the College of Education. Deals with the structure and functions of national, state, and local government. Not open to those who have had 101 or 231.
- 305-5. DEVELOPMENT OF THE AMERICAN CONSTITUTION. The evolution of the United States constitutional system. Recommended for pre-law students. Prerequisite: 101 or 231.
- 315-3. ADMINISTRATION OF JUSTICE. The organization and work of the American judicial system. Recommended for pre-law students. Prerequisite: 101 or 232.
- 321-1-6. READINGS IN GOVERNMENT. Consent of instructor required.
- 330-2. ILLINOIS GOVERNMENT. The development and functioning of government in Illinois. Prerequisite: 101 or 231.
- 340-3. THE LEGISLATIVE PROCESS. A study of the principles, organization, and work of American legislative bodies. Prerequisite: 101 or 231.
- 360-5. PUBLIC ADMINISTRATION. Principles and problems of administration on the national, state, and local level. Prerequisite: 101 or 231.
- 361-3. PROBLEMS IN PUBLIC ADMINISTRATION AND POLICY FORMATION. A study of various problems in public administration and policy, primarily as they appear in actual case situations. This course is designed for those who do not intend to concentrate in public administration. Prerequisite: 360.
- 363-3. UNITED STATES-LATIN AMERICAN RELATIONS. A study of the governmental relations between the United States and the various nations of Latin America. Prerequisite: 231 or 233.
- 370-4. INTERNATIONAL RELATIONS. A study of world politics—the causes of international conflict and the conditions of peace. Prerequisite: 101.
- 371-4. PROBLEMS OF AMERICAN FOREIGN POLICY. An analysis of selected problems in the field of American Foreign Policy. Prerequisite: 231 or 243.
- 379-3. POLITICAL PARTIES. A study of the historical development of American political parties. Prerequisite: 101 or 231.
- 380-3. POLITICAL PARTIES. The development and work of American political parties. Prerequisite: 101 or 231.
- 385-3. CONTEMPORARY POLITICAL "ISMS." An advanced survey of recent political systems: Socialism, Communism, Pluralism, Fascism, Nationalism. Prerequisite: 101 or 231.
- 390-3. COMPARATIVE GOVERNMENT. A comparative study of the political systems of Great Britain, the French Fifth Republic, Switzerland and a selected Scandinavian State. Prerequisite: 233.
- 391-3. COMPARATIVE GOVERNMENT. A comparative study of the political systems of the Soviet Union, the West German Republic, Italy, and at least one other European state. Prerequisite: 233.
- 392-3. COMPARATIVE GOVERNMENT (LATIN AMERICAN). A comparative study of the political systems of Latin American republics, with special attention given to Mexico and Argentina. Prerequisite: 101 or 231.
- 398-4. JURISPRUDENCE. (Origin and Development of Legal Institutions). Techniques of law (classification, rights, and duties). Legal personality,



- public law and private law, criminal law, juristic acts. Property, possession and procedure. Prerequisite: 231.
- 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.
- 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: 101 or 231.
- 435-3. 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, 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.
- 440-4. PUBLIC PERSONNEL MANAGEMENT. A survey of the methods and functions of modern public personnel administration. Prerequisite: 360.
- 441-4. PHILOSOPHY OF GOVERNMENT. 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. See Foreign Languages 445 for course description.
- 453-3. SOVIET GOVERNMENT AND POLITICS. An intensive study and research exercise in the government and politics of the Soviet Union. Prerequisite: 391 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.
- 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 460.) 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: 233.
- 458-4. GOVERNMENT AND POLITICS OF SOUTHEAST ASIA. Burma, Thailand, Malaya, Indochina, Indonesia, Philippines. Prerequisite: 233.
- 459-4. GOVERNMENT AND POLITICS OF THE FAR EAST. China, Japan, Korea, Formosa. Prerequisite: 233.
- 460-4. GOVERNMENT AND POLITICS OF SOUTH ASIA. India, Pakistan, Ceylon. Prerequisite: 233.
- 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.
- 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.
- 480-4. THE PACIFIC AND THE FAR EAST. Political and strategic problems in this area. Prerequisite: 370 or History 370.
- 484-3. 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.
- 485-3. 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. A 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 391.
- 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 or 395.
- 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, footnotes, use of law library facilities, and government documents.

Courses on the 500 level are for graduate students only.

- 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. Current problems in the field of American government. Consent of instructor required.
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. Prerequisites: 390, 391, 392, or consent of instructor.
516. SEMINAR IN MUNICIPAL ADMINISTRATION. Prerequisite: 467 or consent of instructor.
517. SEMINAR IN PROBLEMS IN POLITICAL THEORY.
520. SEMINAR IN AMERICAN FOREIGN POLICY.
- 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.
- 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. To be required of all graduate assistants who are given teaching assignments, and strongly 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.
- 600-1 to 48. DISSERTATION.

## HEALTH SCIENCES

Students in the College of Liberal Arts and Sciences may major in health science. This program is interdepartmental. Professor Willard M. Gersbacher of the Department of Zoology is the co-ordinator for this program.

In addition to the general degree and the College of Liberal Arts and Sciences requirements, the required courses constituting a major in health science are Health Education 300, 325, 355, 356; Microbiology 301; Chem-

istry 111, 112, 305; Mathematics 106, 107 or 111, 112, and 220; Physiology 209, or 315; Zoology 100, 102, 103; Psychology 201, 305, 307, 432; Sociology 101, 335, 336; Government 101, 232, 360, 466.

Recommended electives for specialization in sanitation: Agricultural Industries 303; Animal Industries 231; Anthropology 110 or 207; Applied Science 101; Physics 101, 102 or 206, 207, 208; Microbiology 422, 423; Zoology 306 or 316, 310, 406; Government 466.

Recommended electives for specialization in public health laboratory: Botany 101; Chemistry 235, 306, 451, 452; Government 466; Microbiology 403, 422, 423, 425; Physiology 317, 433; Zoology 306 or 316.

## HISTORY

University Professor E. G. Lentz, M.A. (Illinois), Emeritus (1950)	1914
Professor George W. Adams, Ph.D. (Harvard), Chairman	1958
Professor Harold E. Briggs, Ph.D. (Iowa)	1945
Professor Clinton H. Gardiner, Ph.D. (Michigan)	1957
Associate Professor Harry Ammon, Ph.D. (Virginia)	1950
Associate Professor George L. Cherry, Ph.D. (Northwestern)	1947
Associate Professor Ping-Chia Kuo, Ph.D. (Harvard)	1959
Associate Professor William A. Pitkin, Ph.D. (Texas)	1945
Associate Professor John I. Wright, A.M. (Chicago)	1925
Assistant Professor Henry Charles Boren, Ph.D. (Illinois)	1955
Assistant Professor Charles J. Pardee, A.M. (Chicago), Emeritus (1951)	1929
Assistant Professor Guenther Rothenberg, Ph.D. (Illinois)	1958
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Lecturer Frederick E. Goos, M.A. (Southern Illinois)	1958-59
Lecturer Gene D. Lewis, Ph.D. (Illinois)	1957-58
Lecturer Nedra C. Reames, M.A. (Southern Illinois)	1957-58
Lecturer Herbert H. Rosenthal, Ph.D. (Harvard)	1955-58

Students who intend to make history their major field should consult with the representative of the department at the time of registration. Forty-two hours are required for a major in history in the College of Liberal Arts and Sciences. Thirty-six hours are required for a major in the College of Education. For a major in history, at least half of the work in history must be on the 300 and 400 levels, and care should be taken to distribute the work in the fields of American and European history. Twenty-four hours are required for a minor in history, and must include

101, 102, 103, 201, and 202. Students wishing to use a history minor in the College of Education should take twelve hours each in the European and American fields.

Two quarters of history 101, 102, 103 will meet the general education requirement except in the College of Education. Five hours of United States history are required for graduation in the College of Education. History 201 or 202 will meet this requirement.

A year of work in a foreign language is required of history majors.

In addition to the general degree and the College of Liberal Arts and Sciences requirements, the required courses constituting a major in history are 101, 102, 103, 201, 202, 452, plus electives to equal required total.

Recommended electives: Work in the other social studies and in other appropriate fields, including philosophy.

### *COURSE DESCRIPTIONS*

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level are for both undergraduate and graduate students. Those on the 500 level are for graduate students only.

- 101-3, 102-3, 103-3. *SURVEY OF WORLD CIVILIZATION*. Courses designed primarily for freshmen, as a survey of the development and evolution of civilization; the foundation for further courses in the field of history. One term devoted to each of the periods: ancient, medieval, and modern. Required of all history majors.
- 201-5. *HISTORY OF THE UNITED STATES TO 1865*. Courses 201 and 202 designed to provide a general survey of the political, social, and economic development of the United States. Course 201 includes national and state constitutional principles as required by Illinois law. Prerequisite: sophomore standing.
- 202-5. *HISTORY OF THE UNITED STATES SINCE 1865*. A continuation of 201. Either 201 or 202 to count toward graduation requirements in the College of Education.
- 210-4, 211-4, 212-4. *HISTORY OF EUROPE, 476 TO PRESENT*. A comprehensive study of the principal social, economic, political, and cultural developments from the fall of Rome to the present time. 210: 476-1400; 211: 1400-1815; 212: since 1815. Prerequisite: freshman survey.
- 304-3. *HISTORY OF THE ANCIENT NEAR EAST*. A review of the political, economic, and religious history of Africa and Southwestern Asia from about 3000 B.C. to the time of Christ. Prerequisite: freshman survey.
- 305-3. *HISTORY OF GREECE*. A careful study of the cradle of civilization. In addition to the political and economic development of the Greeks, a consideration of their higher cultural development, as in philosophy, education, religion, art, and architecture.
- 306-3. *HISTORY OF ROME, 509 B.C. to A.D. 500*. The political, economic, and social history of Rome, with particular emphasis upon Roman law, as well as upon the Roman development of Greek culture. The Roman world as a fertile soil for the spread of Christianity stressed.

- 308-3. HISTORY OF ILLINOIS. The history of the state from 1818 to the present. Recommended for history majors and those who expect to teach in elementary schools. Prerequisite: 201 and 202.
- 322-4, 323-4, 324-4. SURVEY OF ENGLISH HISTORY. An introductory study of the institutional and cultural development of the English people from the earliest times to the present day. 322: Celtic Britain to 1603; 323: 1603-1815; 324: since 1815. Prerequisite: freshman survey.
- 330-3. MIDDLE PERIOD OF AMERICAN HISTORY, 1789-1860. A study of the conflicting sectional and nationalistic forces which characterize the period. Stress upon the economic and political forces leading to the Civil War. Prerequisites: 201 and 202.
- 352-3. COLONIAL LATIN AMERICA. With a preliminary view of the major Indian cultures and the era of discovery and exploration, this survey emphasizes the political, economic, social, and cultural aspects of Latin-American life through the wars of independence.
- 353-3. INDEPENDENT LATIN AMERICA. A survey of historical patterns and problems in the national life of twenty American countries, from independence to the present.
- 354-3. LATIN AMERICA IN WORLD AFFAIRS. A survey of the international role of Latin America with emphasis on the economic, diplomatic, and military record from the Treaty of Tordesillas to membership in the United Nations.
- 370-3. THE FAR EAST TO 1912. History of China, Japan, Central Asia, and the East Indies, with major emphasis on the social, political, and economic institutions of the area as they developed from earliest times. Prerequisite: freshman survey.
- 371-3. THE FAR EAST SINCE 1912. History of China, Japan, Central Asia, and the East Indies, with major emphasis on internal development of the area and on the interaction of these areas with the western world. Prerequisite: 370.
- 372-4. THE HISTORY OF RUSSIA. A survey of Russian history from earliest times to the present. Social, economic, and political conditions under the Czars and the Soviets. Prerequisite: proper background.
- 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. HISTORY OF THE SOUTH TO 1860. 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. HISTORY OF THE SOUTH SINCE 1860. 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. INTELLECTUAL HISTORY OF THE UNITED STATES. Study of various types of economic, social, and political thought that have influenced the development of the nation. Prerequisites: 201, 202.
- 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. PROTESTANT 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 and the background and development of the revolutionary movement with some attention to 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.
- 428-4. AGE OF JACKSON. Origins, background, and development of that phase of American democracy associated with the Jacksonian era. The political, social, and economic history of the years 1824-1844 will be considered in detail. 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. Prerequisite: 201, 202.
- 440-3. HISTORY OF 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. HISTORY OF AMERICAN DIPLOMACY SINCE 1898. A continuation of 440.
- 442-3, 443-3, 444-3. HISTORY OF THE WEST. Courses for intensive study of the influence of the frontier on the main trends in United States history. One or all courses to be taken. Prerequisites: 201, 202.
- 445-2 to 8. SOUTH AMERICAN STUDY TOUR. See Foreign Languages 445 for course description.
- 449-4. EUROPE AND HER EXPANSION, 1870-1914. Age of Imperialism,



- alliances, and modern navies. Competition for natural resources and world markets. Prerequisites: 103, 212, or proper background.
- 450-5. THE WORLD SINCE 1914. Brief review of causes and results of World War I. Emphasis upon the League of Nations, war debts, disarmament, causes of World War II, Korean conflict, and United Nations.
- 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.
- 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. THE END OF THE ROMAN 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. THE EARLY CHRISTIAN ERA. 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 AND CULTURE. 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.

Courses on the 500 level are for graduate students only.

- 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. Con-

- sists 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 the field of 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.
- 599-3 to 9. **THESIS.**

## LATIN AMERICAN STUDIES

Students in the College of Liberal Arts and Sciences may secure a major in Latin American studies leading to the Bachelor of Arts degree. This program is interdepartmental in nature under the direction of the Latin American Institute.

The Latin American studies major plans to prepare students (1) to participate intelligently and effectively in business or governmental activities in Latin America or dealing with Latin America or (2) to enable students to choose a field of specialization for advanced academic work.

A more detailed description of the program, including the course requirements, may be found in the General Information Bulletin.

## MATHEMATICS

Professor Amos Black, Ph.D. (Cornell)	1948
Professor Wilbur C. McDaniel, Ph.D. (Wisconsin), Chairman	1939
Professor Abraham M. Mark, Ph.D. (Cornell)	1950
Associate Professor Elbert Fulkerson, M.A. (Illinois)	1932
Associate Professor Marian Moore, Ph.D. (Purdue)	1955
Associate Professor Dilla Hall, Ph.D. (St. Louis)	1924
Associate Professor Louis D. Rodabaugh, Ph.D. (Ohio State)	1947
Assistant Professor James R. Boen, Ph.D. (Illinois)	1959
Assistant Professor Morton Roy Kenner, Ph.D. (Columbia)	1951
Assistant Professor Michael Skalsky, D.N.Sc. (Göttingen)	1957
Assistant Professor Joseph C. Wilson, Ph.D. (Louisiana State)	1957
Assistant Professor Alice K. Wright, M.A. (Illinois), Emerita (1958)	1925
Instructor Imogene C. Beckemeyer, M.A. (Southern Illinois)	1950
Instructor Joseph H. Crenshaw, M.S. (Illinois)	1958
Instructor James L. Slechticky, M.S. (Washington)	1958
Instructor Larry L. Wimp, M.A. (Missouri)	1954
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Visiting Professor Albert A. Bennett, Ph.D. (Princeton)	1958-59
Lecturer Zamir Bavel, M.A. (Southern Illinois)	1955-60
Lecturer John Samuel Brown, M.S. (Illinois)	1957-60
Lecturer Audrey W. Douthit, M.A. (Pennsylvania State)	1959-60
Lecturer Donald F. Totten, M.A. (Southern Illinois)	1958-59
Assistant Instructor Elsa Ford, B.A. (Lawrence)	1955-60
Assistant Instructor Allan Jones, B.A. (Southern Illinois)	1957-59

Students who take mathematics to satisfy part of the general requirement for a bachelor's degree may choose among several courses, depending upon their competence in mathematics and their interests. Mathematics 111 is recommended for students who have good competence in the material normally included in one and one-half years of high school algebra and one year of plane geometry. Students who demonstrate superior competence in the topics of high school mathematics may be allowed to start their university mathematics in courses 112 or 113. Students who do not have satisfactory competence in high school algebra and plane geometry should take mathematics 106. Special sections of mathematics 106 are designed for business majors and for students who are planning to take Mathematics

111. Only one of the 106 courses will be counted for credit and no credit will be given if 106 is taken after 111. Students who take 111 after 106 receive eight hours credit for the two courses.

Students in the College of Liberal Arts and Sciences or the College of Education may take majors or minors in mathematics.

### *SUGGESTED CURRICULUM IN THE COLLEGE OF LIBERAL ARTS AND SCIENCES*

In addition to the general degree and the College of Liberal Arts and Sciences requirements, the Department of Mathematics has the following requirements for its major: 111, 112, 113, 251, 252, 253 (a student need not take any of these courses in which he can demonstrate competence); at least fifteen hours in mathematics courses numbered 300 or above; Physics 206 or 211. The selection of mathematics electives should be discussed with representatives of the department. Majors who are working to receive a teaching certificate are required to take 311, 320, 321, 335, and 336.

Department of Mathematics minor requirements: 111, 112, 113, 251, or demonstrated competence; and at least five hours in mathematics courses beyond 251. Students who are working for a teaching certificate in mathematics will need eleven hours beyond 251, including Mathematics 320.

### *SUGGESTED CURRICULUM IN THE COLLEGE OF EDUCATION*

In addition to the general degree and the College of Education requirements, the Department of Mathematics major requirements are 111, 112, 113, 251, 252 (a student need not take any of these courses in which he can demonstrate competence); at least nineteen hours in mathematics courses beyond 252 including 311, 320, 321, and 336; Physics 206 or 211; a reading knowledge of a foreign language. The selection of mathematics electives should be discussed with a representative of the department.

Department of Mathematics minor requirements: 111, 112, 113, 251, or demonstrated competence; and at least eleven hours in mathematics courses beyond 251, including 320.

### *COURSE DESCRIPTIONS*

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level are for both undergraduate and graduate students. Those on the 500 level are for graduate students only.

- 100-0. ELEMENTARY MATHEMATICS. Remedial and review work in elementary mathematics, including arithmetic and beginning algebra.
- 106-4. GENERAL MATHEMATICS I: A course designed particularly for students who take mathematics to satisfy a graduation requirement. Does not count toward a major or minor in mathematics. Regular sections, designated in class schedules as 106a, include a careful study of the real number system in order to provide a better understanding of arithmetic and elementary algebra. Sections for business majors, designated in class schedules as 106b, cover topics from intermediate algebra and business application. Sections designated as 106c cover a regular course in intermediate algebra. Prerequisite: two semesters of high school mathematics and satisfactory score on placement test, or Mathematics 100.
- 107-4. GENERAL MATHEMATICS II. Continuation of 106. Does not count on a major or minor in mathematics. Regular sections, designated in class schedules as 107a, cover certain topics from algebra and geometry. Sections for business majors, designated in class schedules as 107b, cover elementary mathematics of finance. Prerequisite: 106.
- 111, 112, 113-5. ELEMENTARY ANALYSIS I, II, III. Beginning sequence for mathematics majors and minors, pre-engineering students, etc. Students who have especially good high school training in algebra and trigonometry and who have exceptional scores on placement test may take 112 or 113 as a first course. Includes topics selected from the following: sets, logic, study of real number system, college algebra, trigonometry, analytic geometry, elementary differential and integral calculus. Prerequisite: three semesters of high school algebra and satisfactory score on placement test, or 106.
- 210-4. THE TEACHING OF ELEMENTARY MATHEMATICS. A professional treatment of the subject matter of arithmetic methods and a study of trends and current literature on the teaching of arithmetic. For elementary education majors only. Prerequisite: 106.
- 220-4. ELEMENTARY STATISTICS. A basic introduction to the simpler problems of statistical inference. Descriptive statistics, probability distributions, estimation of parameters and tests of significance, regression and correlation. Does not count toward a major or minor in mathematics. Prerequisite: 106 or 111, or consent of instructor.
- 251, 252, 253-4. CALCULUS I, II, III. Continuation of 113. Includes differential and integral calculus, applications, introduction to solid analytic geometry, infinite series. Prerequisite: 113.
- 305, 306-3. DIFFERENTIAL EQUATIONS I, II. Classical methods of solving ordinary differential equations including Laplace transform techniques. Prerequisite: 253.
- 311-3. THE TEACHING OF SECONDARY MATHEMATICS. A study of the nature and objectives of the secondary mathematics curriculum. Particular attention is given to the means of introducing new ideas into the high school program. For students preparing to be certified teachers of secondary mathematics. Prerequisite: 320.
- 313-4. SOLID ANALYTIC GEOMETRY. Prerequisite: 113.
- 320, 321-3. FUNDAMENTAL CONCEPTS OF ALGEBRA I, II. Introduction to abstract algebraic structures, including groups, rings, and fields. Attention is given to classical theory of numbers and polynomials. The

second course is devoted to a study of matrices, including an investigation of simultaneous linear systems. Prerequisite: 251.

324-3. VECTOR ANALYSIS. Prerequisite: 253.

335, 336-3. CONCEPTS OF GEOMETRY I, II. An elementary introduction to various geometric systems to acquaint the student with the interrelationship between geometries of current interest. Topics include axiom systems, introduction to synthetic projective and analytic projective, projective definition of co-ordinate systems, affine geometry, Euclidean geometry, and non-Euclidean geometry. Prerequisite: 252 or consent of instructor.

395-2 to 8. READINGS IN MATHEMATICS. Supervised reading in selected subjects. Prerequisite: twelve hours of 300 or 400 level mathematics, "B" average in mathematics, and consent of chairman of department.

408-3. BOUNDARY VALUE PROBLEMS. Characteristic functions, orthogonal functions, self-adjoint equations, Sturm's theorem, and certain partial differential equations of physics. Prerequisite: 306.

410-3, 411-3, 412-3. 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.

415-4. 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. Prerequisite: 252.

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. SYNTHETIC PROJECTIVE GEOMETRY OF THE PLANE. Introduction to the fundamental concepts of projective geometry, including study of conics and polar systems of conics. Prerequisite: 113.

431-4. ANALYTIC PROJECTIVE GEOMETRY OF THE PLANE. Introduction to homogeneous co-ordinates; cross-ratio, harmonic sets, duality, projectives, involutions, and conics, using algebraic methods. Prerequisite: 20 hours of college mathematics, including 113.

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.

452-3, 453-3, 454-3. ADVANCED CALCULUS. A precise presentation of the fundamental concepts of analysis, i.e., limits, continuity, differentiation, and integration. Major topics include partial differentiation, vector analysis, Riemann-Stieltjes Integrals, infinite series, and improper integrals. Prerequisite: 253.

- 455-3. 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.
- 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.
- 470-3 to 6. SPECIAL TOPICS FOR PHYSICAL SCIENCE STUDENTS. Selected topics needed in physics and other physical sciences. Prerequisite: 305.
- 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.

Courses on the 500 level are for graduate students only.

- 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 and consent of instructor.
- 520-1 to 4. MODERN ALGEBRA I. Intended to display some of the richness of algebra when other possible mathematical systems are considered in addition to the traditional one based upon ordinary systems of algebra. Uniqueness of factorization, rational numbers and fields, polynomials, complex numbers, and theory of permutation groups.
- 521-1 to 4. MODERN ALGEBRA II. A continuation of 520. Additional group theory, vector spaces, matrices, algebraic number fields.
- 530-3 to 6. POINT SETS AND TOPOLOGY. General properties of sets. Topology of plane sets. Closed sets and open sets in metric spaces, homeomorphism and continuous mappings, separation theorems, connectivity properties.
- 535-4. ALGEBRAIC PLANE CURVES. A study of algebraic plane curves of order higher than two, including an introduction to the history and methods of algebraic geometry. Lectures, assigned readings, and exercises. Prerequisite: 253.
- 541-2 to 4. PROBABILITY FOR TEACHERS. 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, trigometric, exponential and logarithmic functions using contemporary notion of function. Prerequisite: consent of department chairman.
- 543-2 to 4. NON-EUCLIDEAN GEOMETRY FOR TEACHERS. Designed to show the similarities and differences of Euclidean and non-Euclidean geometries. Offered as part of the special graduate minor for secondary school teachers. Prerequisite: consent of instructor.
- 544-3. FUNDAMENTAL CONCEPTS OF CALCULUS. A careful study of the basic concepts of calculus. Offered as part of the special graduate minor for secondary school teachers. Prerequisite: consent of instructor.
- 550-1 to 5. SEMINAR IN THE TEACHING OF MATHEMATICS. Supervised study and preparation of reports on assigned topics in the field. Reports presented for class discussion. Prerequisite: consent of instructor.
- 555-4. INTRODUCTION TO COMPLEX VARIABLES. Prerequisite: 453.
- 590-1 to 5. SEMINAR. Prerequisite: consent of instructor.
- 595-2 to 10. SPECIAL PROJECTS. Individual projects, including a written report.
- 599-5 to 9. THESIS.

## MICROBIOLOGY

Professor Carl C. Lindegren, Ph.D.

(California Institute of Technology), Chairman	1947
Associate Professor Maurice Ogur, Ph.D. (Columbia)	1953
Associate Professor Isaac L. Shechmeister, Ph.D. (California)	1957
Assistant Professor Dan O. McClary, Ph.D. (Washington)	1951

Undergraduate courses in microbiology may be taken as a major leading to the Bachelor of Arts degree. A student majoring in microbiology should complete the following courses in addition to the general university requirements for the bachelor's degree: Chemistry 111, 112, 113, 305, and 306; Zoology 100; and Botany 101. It is recommended that a student should also arrange his program in such a manner as to include a sequence of courses in Mathematics 111, 112, 113 and a sequence of courses in Physics 206, 207, 208.

A major in microbiology will consist of a minimum of 46 hours, and will include 100, 201; 403; 441, 442; 451, 452; 425, 426. The remaining hours are to be selected with the advice of the department and in addition to microbiology courses may include certain courses in botany, physiology, and zoology.

A minor in microbiology will consist of a minimum of 24 hours. Required courses are 100 and 201 and are to be supplemented by those chosen from 402, 441-442, 451-452 and 425-426.



Prospective majors are urged to consult with the departmental adviser for help in planning a curriculum.

### COURSE DESCRIPTIONS

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level are for both undergraduate and graduate students. Those on the 500 level are for graduate students only.

- 100-5. **PRINCIPLES OF MICROBIOLOGY.** Introduction to the fundamental aspects of biology, drawing for examples upon microbial forms. Consideration of morphology; principles of classification; growth and reproduction; heredity; ecology; effects of physical and chemical agents; organisms essential, beneficial and harmful to man; host-parasite interaction; principles of immunology and epidemiology. 3 hours lecture. 4 hours laboratory field trips.
- 201-5. **GENERAL MICROBIOLOGY.** Continuation of Microbiology 100. A more advanced consideration of morphology, heredity, and metabolism of microorganisms and their influence on man's environment; mechanisms of infection and immunity. 3 hours lecture. 4 hours laboratory. Prerequisite: Microbiology 100 or consent of the instructor.
- 301-5. **GENERAL MICROBIOLOGY FOR ADVANCED STUDENTS.** Primarily a course for advanced students in other biological and physical sciences. An advanced treatment of cytology, theories and techniques of staining, physiology, enrichment cultures, and classification of microorganisms and their agricultural, industrial, and medical relationships. Not open to students who have had microbiology 100 or 201. 3 hours lecture. 4 hours laboratory. Prerequisite: one term botany or zoology and organic chemistry.
- 325-3. **MICROBIOLOGY OF AIR, WATER, AND MILK.** Content, sampling, and control of microbial forms in air, water, and milk. Public health significance of polluted air, water, and milk. Consideration of certain air-borne, water-borne, and milk-borne infections. 3 hours lecture. Prerequisite: Microbiology 100 or equivalent.
- 326-2. **MICROBIOLOGY OF AIR, WATER, AND MILK.** Laboratory exercises and field trips to cover certain aspects of Microbiology 325. 4 hours laboratory. Prerequisite: Microbiology 325 (may be taken concurrently).
- 355-5. **PLANT PATHOLOGY.** (Same as Botany 355.) A study of plant diseases caused by fungi, bacteria, and viruses. Special attention to diseases of Southern Illinois plants. Laboratory and field trips. Prerequisite: approval of instructor.
- 401-2. **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.
- 441-3. 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 rickettsia diseases of animals. 3 hours lecture. Prerequisite: 403.
- 442-2. LABORATORY STUDIES IN VIROLOGY. Cultivation and titration of bacterial, plant and animal viruses; immunological reactions and serological identification; haemagglutination and interference phenomena. 4 hours laboratory. Prerequisite or corequisite: 441.
- 451-4. IMMUNOLOGY. Natural and acquired immunity; antigens, antibodies and antigen-antibody reactions; hypersensitivity; practical use of immunity and hypersensitivity. 4 hours lecture. Prerequisite: 403.
- 452-2. IMMUNOLOGY LABORATORY. Study of natural and acquired immunity: phagocytosis, antibody production, antigen-antibody reaction. Blood grouping and gel diffusion. Anaphylaxis. Titration of antisera, toxins, etc. in-vivo. 4 hours laboratory. Prerequisite or corequisite: 451.

Courses on the 500 level are for graduate students only.

- 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.
- 505-1. THE YEAST.
- 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.
- 527-2. SPECIAL TOPICS IN THE COMPARATIVE PHYSIOLOGY OF MICROORGANISMS. A review of recent research.
- 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.
- 552-1. SEMINAR IN BIOLOGICAL SCIENCES. Discussion of topics in biology of particular interest to high school biology teachers.
- 599-3 to 9. THESIS.
- 600-3 to 48. THE DISSERTATION FOR DOCTORAL CANDIDATES. Hours and credit to be arranged.

## MUSIC

The music major curriculum in the College of Liberal Arts and Sciences is designed for students who wish to specialize in music as part of their general cultural education. It is also designed to provide a background training for those who may plan to pursue advanced studies in such fields as music criticism, aesthetics, etc. Students in the program are required to take at least one year of French and German.

A music major in this college requires a minimum of sixty hours in music and must include 105, 106, 107 (twelve hours); 205, 206, 207 (twelve hours); 330, 331, 332 (twelve hours); applied music (twelve hours); electives in music (twelve hours).

This sixty hour requirement conforms to the accreditation requirement of forty semester hours for the Bachelor of Arts degree with a major in music which has been specified by the National Association of Schools of Music.

## PHILOSOPHY

Professor George E. Axtelle, D.Ed. (California)	1959
Professor Baker Brownell, A.M. (Harvard), Emeritus (1954)	1952
Professor Willis Moore, Ph.D. (California), Chairman	1955
Professor Charles D. Tenney, Ph.D. (Oregon)	1931
Associate Professor James A. Diefenbeck, Ph.D. (Harvard)	1950
Associate Professor William Henry Harris, Ph.D. (Boston)	1956
Associate Professor George K. Plochmann, Ph.D. (Chicago)	1949
Assistant Professor George T. McClure, Ph.D. (Ohio State)	1958
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Visiting Professor Henry N. Wieman, Ph.D. (Harvard)	1956-60
Lecturer Sarasvati Chennakesavan, Ph.D. (Madras University, India)	1958-60

The four hour requirement in either philosophy or psychology in the College of Liberal Arts and Sciences may be satisfied by taking any two of the elementary 100-level courses or any single 200- or 300-level course. Prerequisites apply only where specifically stated.

The courses 100, 120, 121, 140, 160, and 170 present an introduction to philosophic ideas, problems, and vocabulary. They may be taken without regard to whether the student plans to major or minor in philosophy.

The minor consists of twenty-four hours, of which four may be in 100-level courses. The department urges that minors include in their program the history of philosophy sequence 381, 382, and 383.

A major consists of forty-two hours of course work above the 100 level. The major program must include the history of philosophy sequence and such other courses as may be agreed upon in conference with the chairman of the department.

### *COURSE DESCRIPTIONS*

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level are for both undergraduate and graduate students. Those on the 500 level are for graduate students only.

100-2. SCIENCE AND THE NATURE OF THE WORLD. Introduction to scientific knowledge and its relation to philosophy. Topics drawn from many sciences presented without assuming any prior acquaintance with the sciences: infinity, cause, necessity, nature and the machine, perception, etc.

- 120-2. PRACTICAL LOGIC I. Introduction to accurate thinking, and the proper use of the resources of language, covering such topics as signs and symbols, definition, metaphor, fallacies, propaganda analysis, implication, and syllogism.
- 121-2. PRACTICAL LOGIC II. Popular but inadequate ways of gathering and summing up information in contrast with the more reliable procedures of common sense and science.
- 140-2. IDEAS OF GOOD AND EVIL. Elementary exploration of human purposes in terms of the good, faith and knowledge, human destiny and progress, freedom, democracy.
- 160-2. THE MEANING OF ART. Significance of the arts, developed by considering selected works from architecture, painting, literature, and music.
- 170-3. VALUES IN THE MODERN WORLD. A critical examination of basic moral, religious, aesthetic, and intellectual values of western civilization as these are expressed in selected works of art, music, literature, and philosophy. Attention will be given to alternative value systems and other forces which challenge these values today.
- 200-4. TYPES OF PHILOSOPHY. Study of realism, idealism, and materialism.
- 300-4. ELEMENTARY METAPHYSICS. Presentation of answers to the most general problems of existence. An attempt to unify all scientific approaches to reality through the laying down of common principles.
- 301-4. PHILOSOPHY OF RELIGION. An analysis of problems in the psychology, metaphysics, and social effects of religion. Among topics discussed are the nature of mystical experience, the existence of God, and problems of suffering, prayer, and immortality.
- 302-4. WORLD RELIGIONS. An historical and comparative study of the principal religions of the world. Particular attention is given to such non-Christian faiths as Hinduism, Buddhism, and Islam.
- 303-4. ORIENTAL PHILOSOPHY. An examination of the historical backgrounds and contemporary expressions of the great traditions in Indian, Chinese, and Japanese thought. The Vedanta and Zen Buddhism will receive particular attention.
- 305-4. PHILOSOPHY OF SCIENCE. A nontechnical discussion of philosophic problems as they emerge from the various sciences, with readings from works addressed to the lay public.
- 320-4. GENERAL LOGIC. Terms, propositions, and reasoning. Logic as an instrument for the solution of problems in natural and social sciences.
- 340-4. ELEMENTARY ETHICS AND POLITICS. Problems of right and wrong for the individual and society.
- 355-4. PHILOSOPHY OF EDUCATION. Survey of theories of education and their relationships to educational policies and practices, as elucidated by the great teachers. Satisfies the education requirement, Education 355.
- 360-4. PHILOSOPHY OF ART. The significance of art as a human activity, its nature and standards as seen in the problems of criticism, and the relation of art to other forms of knowledge.
- 381-4. GREEK AND EARLY CHRISTIAN PHILOSOPHY. Presocratics, Plato, Aristotle, and the early Christians.
- 382-4. MEDIEVAL AND EARLY MODERN PHILOSOPHY. Problems of medieval philosophy and their restatement in the seventeenth and eighteenth centuries. Aquinas, Descartes, Locke, and others.

- 383-4. RECENT PHILOSOPHY. Kant, Hegel, and such figures as Schopenhauer, Mill, and Bergson.
- 386-4. AMERICAN PHILOSOPHY. A survey of American philosophic thought from colonial days to the present, with emphasis on such recent thinkers as Peirce, James, Royce, Dewey, and Santayana.
- 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.
- 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.
- 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.
- 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.

Courses on the 500 level are for graduate students only.

- 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. GENERAL GRADUATE SEMINAR.
- 590-2 to 12. GENERAL GRADUATE SEMINAR. Courses designed for students having special interests in the history of philosophy and the original systematic development of philosophic ideas. Subjects, meetings, and procedures to be arranged at the first meeting of each course. Prerequisite: consent of instructor. Hours to be arranged.
- 591-1 to 5. READINGS IN PHILOSOPHY. Supervised readings for qualified students. Consent of instructor required.
- 599-2 to 9. THESIS.

## PHYSICS AND ASTRONOMY

Professor Martin Joseph Arvin, Ph.D. (Illinois)	1949
Professor Charles J. Brasefield, Ph.D. (Princeton), Chairman	1954
Professor Walter G. Waddy, Ph.D. (Michigan)	1956-57
Professor Richard Elvis Watson, Ph.D. (Illinois)	1940-42; 1958
Professor Otis B. Young, Ph.D. (Illinois)	1929
Associate Professor Charles Wilson Malich, Ph.D. (Rice)	1958-59
Assistant Professor Reginald Deering, Ph.D. (Yale)	1957-58
Assistant Professor John A. Eisele, Ph.D. (Ohio State)	1959
Assistant Professor Van Olin Nicolai, Ph.D. (Illinois)	1957-59
Assistant Professor Charlotte Zimmerschied, M.A. (Minnesota)	1927
Instructor Jason J. Collins, M.S. (Southern Illinois)	1955
Instructor Robert C. Etherton, M.S. (Southern Illinois)	1955
Instructor James L. Harbison, M.S. (Illinois)	1957

Undergraduate courses in physics may be taken as a major by students in the College of Liberal Arts and Sciences and in the College of Education.

In addition to the general degree requirements and the requirements for the college in which the student is enrolled the required courses constituting a major in physics are 211, 212, 213, (or 206, 207, 208 with consent of department), 301, 302, 305, 306, 314, and three of the following: 303, 310, 405, 414; Mathematics 111, 112, 113, 251, 252, 253, 305, 306.

Additional courses recommended for a major in physics: Chemistry 111, 112, 113; German 101, 102, 103.

Recommended electives for a major in physics: Mechanical Drawing, Machine Shop.

Suggested courses for a minor in physics for a student who is taking calculus: 211, 212, 213 and two of the following: 305, 306, 314, 310 303.

Suggested courses for a minor in physics for a student who does not plan to take calculus: 206, 207, 208 and two of the following: 310, 312, 325.

## *COURSE DESCRIPTIONS*

Courses on the 100, 200, and 300 level are for undergraduate students. Those on the 400 level are for both undergraduate and graduate students. Those on the 500 level are for graduate students only.

### PHYSICS COURSES

- 101-4, 102-4. SURVEY COURSE IN PHYSICS. Mechanics, light, and sound covered in 101; heat and electricity in 102. For students whose chief interests are not in the physical sciences (101 and 102 are not credited toward a major or minor in physics). Pre-engineers and physics majors to take 211, 212, and 213. Other science majors, including pre-medical students, should take 206, 207, and 208.
- 206-5. COLLEGE PHYSICS (MECHANICS AND SOUND). The general physics course covered in 206, 207, and 208 is designed to meet pre-medical requirements in physics and the needs of all students majoring in one of the sciences, except physics. Prerequisite: Mathematics 111, 112 (or 112 concurrently).
- 207-5. COLLEGE PHYSICS (ELECTRICITY AND MAGNETISM). A continuation of 206. Prerequisite: 206.
- 208-5. COLLEGE PHYSICS (HEAT AND LIGHT). A continuation of 206 and 207. Prerequisite: 206.
- 211-5. UNIVERSITY PHYSICS (MECHANICS AND SOUND). Physics 211, 212, and 213 together constitute a thorough course in basic physics for physics majors and pre-engineers. Prerequisite: Mathematics 251 (or concurrent enrollment).
- 212-5. UNIVERSITY PHYSICS (ELECTRICITY AND MAGNETISM). A continuation of 211. Prerequisite: 211 and Mathematics 252 (or concurrent enrollment in Mathematics 252).
- 213-5. UNIVERSITY PHYSICS (HEAT AND LIGHT). A continuation of 211 and 212. Prerequisite: 211 and Mathematics 252 (or concurrent enrollment in Mathematics 252).
- 301-3, 302-3. MECHANICS. An intensive study of advanced mechanics, using vector notation. Emphasis on kinematics and particle dynamics. Prerequisite: 206 or 211; and Mathematics 253 (or concurrent enrollment in Mathematics 253).
- 303-5. HEAT. A study of the methods of temperature measurement; theory and measurement of specific heats, thermal expansion and heat transfer; radiation laws; phase changes; and an introduction to thermodynamics. Prerequisite: 208 or 213, and Mathematics 253.
- 305-5, 306-5. INTRODUCTION TO ELECTRIC THEORY I, II. A two-



- quarter course covering electrostatic fields in vacuum and in matter, electromagnetic fields and electromagnetic induction, linear circuits with direct currents and with alternating currents; and electromagnetic radiation. Prerequisite: 207 or 212 and Mathematics 253.
- 308-5. SOUND. Theory of vibrations and sources of sound, transmission, reception, and measurement of sound energy. Prerequisite: 206 or 211 and Mathematics 251.
- 310-5. LIGHT. A study of light propagation and optical instruments; interference, diffraction and polarization of light. Prerequisite: 208 or 213.
- 312-5. RADIO. A study of radio receivers and transmitters. Prerequisite: 207 or 212.
- 314-5. INTRODUCTION TO MODERN PHYSICS. A general survey of atomic physics including elementary atomic structure, thermionics, the photoelectric effect, gas discharges, optical spectra, x-rays, mass spectra, and introduction into nuclear physics. Prerequisite: 207 and 208 (or 212 and 213) and Mathematics 253 (or concurrent enrollment in Mathematics 253).
- 316-5. HISTORY OF PHYSICS. A study of the development of physical concepts and theories, and of contemporary physical research. Designed particularly for students planning to teach.
- 325-5. ATMOSPHERIC PHYSICS. A study of the fundamental physical processes in the atmosphere; the important role of water vapor; thermodynamic processes; radiation equilibrium; the general equations of motion; the growth of cyclic circulations; optical and electrical phenomena. Prerequisite: 208 or 213, or consent of instructor.
- 326-3. GEOPHYSICS. A survey of some of the principal applications of physics in the development of the earth-sciences; explanations of the origin of the earth; investigation and explanation of the shape and gross structure of the earth; determination of the age of the earth and some its constituents. Prerequisite: 206 or 211, or consent of instructor.
- 327-3. ATMOSPHERIC ELECTRICITY AND GEOMAGNETISM. A description of the more important phenomena of atmospheric electricity and geomagnetism, how these are measured and present theories regarding the origin of the basic phenomena in these fields. Prerequisite: 207 or 212, or consent of instructor.
- 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.
- 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.
- 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.
- 440-3. INTRODUCTION TO QUANTUM MECHANICS. Eigenvalue problems and eigenfunctions, operators, state functions, use of Schrödinger's equation to solve simple harmonic oscillator and other problems, matrix mechanics and relation to Schrödinger's equation, time-dependent states and time-dependent Schrödinger equation, effect of electron spin, and Pauli exclusion principle. Prerequisite: Mathematics 470 or consent of instructor.

Courses on the 500 level are for graduate students only.

- 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 305, 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 305, 306.
- 508-5. ADVANCED ELECTRICAL THEORY II. Prerequisite: 507.
- 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 5. RESEARCH IN PHYSICS (THESIS). 1-5 hours each term. The total in this group not to exceed 9 hours. Prerequisite or corequisite: 501.

#### ASTRONOMY COURSES

- 201-4, 202-4. INTRODUCTION TO ASTRONOMY. These two terms together constitute a single complete course. Four recitations a week, together with frequent evening observations with and without telescope.
- 301-4, 302-4. ASTRONOMY. A more advanced course, similar to 201 and 202, for senior college students.

## PHYSIOLOGY

Professor Francis R. Hunter, Ph.D. (Princeton)	1956-57
Professor H. M. Kaplan, Ph.D. (Harvard), Chairman	1949
Associate Professor Frank J. Finamore, Ph.D. (Florida State)	1955
Associate Professor George Hiram Gass, Ph.D. (Ohio State)	1959
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Adjunct Professor Eli L. Borkon, Ph.D., M.D. (Chicago)	1954

A major in physiology requires a minimum of forty-two hours, and a minor twenty-four hours. Prospective majors should consult with the departmental chairman for a suggested curriculum. A background of basic courses in physics, chemistry, and mathematics is required. Elementary courses in either zoology or botany are recommended.

### COURSE DESCRIPTIONS

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level may be taken by undergraduate and graduate students. Those on the 500 level are for graduate students only.

- 209-5. INTRODUCTION TO PHYSIOLOGY. A survey of the functions of the human body. Designed for students in various fields desiring a basic but comprehensive knowledge of human physiology. Physiology majors should not take this course. Three hours lecture and four hours laboratory per week.
- 300-4. HUMAN ANATOMY. Lectures, demonstrations, and periodic observation of the prosected body. Lectures confined to bones, joints, muscles, and nerves. Primarily for majors in physical education. Four hours lecture per week.  
One section called 300N is reserved for nursing students. All bodily systems are reviewed. A three-hour laboratory is substituted for one of the lectures.
- 315, 316, 317-5. ADVANCED COLLEGE PHYSIOLOGY. The lectures emphasize mammalian and human physiology whereas the laboratory involves function throughout the vertebrate classes. (Course 315, Blood, Circulation, and Respiration; Course 316, Digestion, Excretion, Endocrines; Course 317, Nervous System, Sense Organs). These courses are necessary for majors and for students requiring a strong background knowledge particularly of mammalian function. Three hours lecture and four hours laboratory per week.
- 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 sciences. 3 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.
- 470B-3. RESEARCH FOR BIOLOGY TEACHERS. Laboratory experience in research methods for teachers of biology and general science.
- Courses on the 500 level are for graduate students only.
- 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) Biophysics. 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. Offered as three consecutive courses. 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 are emphasized, and opportunity given to learn how to handle radioactive materials in the laboratory. 2 hours lecture, 2 hours laboratory. Prerequisite: 430 or equivalent, general physics, biochemistry or equivalent.
- 590-5 to 20. **METHODS AND PROBLEMS IN RESEARCH.** Selected research problems in various aspects of biologic science. Prerequisite: consent of instructor.
- 599-3 to 9. **THESIS.**

## PSYCHOLOGY

Professor Noble H. Kelley, Ph.D. (Iowa), Chairman	1951
Professor William C. Westberg, Ph.D. (Pennsylvania State)	1952
Associate Professor Israel Goldiamond, Ph.D. (Chicago)	1955
Associate Professor Jack W. Graham, Ph.D. (Purdue)	1951
Associate Professor Leslie F. Malpass, Ph.D. (Syracuse)	1952
Associate Professor John G. Martire, Ph.D. (Michigan)	1956
Associate Professor Richard S. Melton, Ph.D. (Minnesota)	1957
Associate Professor Hobert Glenn Osburn, Ph.D. (Michigan)	1957
Associate Professor Robert A. Schaef, Ph.D. (Pittsburgh)	1958
Associate Professor Guy A. Renzaglia, Ph.D. (Minnesota)	1955
Associate Professor Forrest B. Tyler, Ph.D. (Ohio State)	1952
Assistant Professor Neil Alan Carrier, Ph.D. (Michigan)	1957
Assistant Professor Ernest J. Doleys, Jr., Ph.D. (Missouri)	1959
Assistant Professor Janet Rafferty, Ph.D. (Ohio State)	1955
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Adjunct Professor Robert Carl Steck, M.D. (Illinois)	1956
Lecturer John J. McCarty, M.S. (Southern Illinois)	1955-59
Lecturer Howard N. Sloane, Jr., M.S. (Pennsylvania State)	1959-60

The Department of Psychology offers a major and a minor sequence for the Bachelor of Arts degree in the College of Liberal Arts and Sciences. A major sequence requires a minimum of forty-two hours; a minor sequence a minimum of twenty-four hours.

The department offers two major sequences: one, for students planning to enter a graduate department of psychology; and a second, for students planning to terminate the study of psychology at the baccalaureate level.

Required courses for students in both majors are 201, 301, 305, 307, 310; Mathematics 220; Physiology 209. In addition, students planning graduate study in psychology will take 311 or 312; one course selected from 404, 406, or 407; and either 431 or 440. Students in the other sequence will take 440 and may elect 431 or 432. Additional elective courses may be selected from the course offerings.

For further information and advisement, consult the Department of Psychology.

### *COURSE DESCRIPTIONS*

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level may be taken by undergraduate and graduate students. Those on the 500 level are for graduate students only.

- 201-4. **INTRODUCTORY PSYCHOLOGY.** Introduction to the psychological study of man and his behavior. Prerequisite: sophomore standing.
- 301-2-4. **CHILD PSYCHOLOGY.** The total integrated psychological development of the child, with special consideration given to the influence of interpersonal relations in the home and school. Prerequisite: 201.
- 303-3. **ADOLESCENT PSYCHOLOGY.** An understanding of development through the adolescent years; its relationship to development in childhood, and the special problems of adjustment in this period. Prerequisite: 201.
- 304-4. **PSYCHOLOGY OF MATURITY AND OLD AGE.** Consideration of the psychological problems of the adjustment of adults, including problems of later life and old age. Prerequisite: 201.
- 305-4. **PERSONALITY DYNAMICS.** An intensive study of the nature of the human personality, its development, its deeper motivations, the emergence of patterns, and the methods of personality change. Prerequisite: 201.
- 307-4. **SOCIAL PSYCHOLOGY.** Introduction to the psychological approach to the field of Social Psychology. Prerequisite: 201.
- 310-4. **RESEARCH METHODS IN PSYCHOLOGY.** Major research methods used by psychologists. Differential methods; naturalistic observation and other field procedures; clinical methods. Appropriate use of methods,

- laboratory experience with them, and nature of results these methods yield. Lecture and laboratory. Prerequisite: 201.
- 311-4. EXPERIMENTAL PSYCHOLOGY I. Course 311 and 312 are a sequence in which laboratory experience is presented as an introduction to the experimental analysis of behavior, using experimental control. Lecture and laboratory. Prerequisite: 201.
- 312-4. EXPERIMENTAL PSYCHOLOGY II. Continuation of 311. Lecture and laboratory. Prerequisite: 201.
- 320-4. INTRODUCTION TO INDUSTRIAL PSYCHOLOGY. Study of the functions of psychology as a science and as a profession in contemporary business and industry. Prerequisite: 201.
- 321-4. PSYCHOLOGICAL TESTS AND MEASUREMENTS. Principles of psychological measurement, including errors of measurement, techniques for assessing reliability, validity and multi-variate prediction problems. Lecture and laboratory. Prerequisite: 201.
- 322-4. PERSONNEL APPRAISAL AND PERFORMANCE EVALUATION. Evaluation of work performance, techniques for personnel appraisal, selection and placement methods. Lecture and laboratory. Prerequisite: 201.
- 323-4. PSYCHOLOGY OF EMPLOYEE RELATIONS. Job satisfaction and morale, psychological aspects of labor relations, interviewing methods, human relations training. Lecture and laboratory. Prerequisite: 201.

### *RESEARCH METHODOLOGY AND ADVANCED GENERAL*

- 401-4, 402-4, 403-4. PROSEMINAR IN GENERAL PSYCHOLOGY I, II, III. Basic conceptual and methodological problems in the study of behavior. Sequence deals with systems and history, scientific methods in psychology, psychological measurement, individual differences, comparative psychology, genetic and neural processes, sensory processes, perception, learning, thinking and reasoning, developmental psychology, social processes, and personality. To be taken in sequence. Prerequisite: consent of instructor. Open to graduate students in other departments by arrangement with department chairman.
- 420-3. 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. Lecture and laboratory.

Courses on the 500 level are for graduate students only.

- 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. Experimental and clinical inference. 522 an application of standard methods to the design, analysis and interpretation of psychological experiments. To be taken in sequence.
- 523-1 to 4. 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.** Application of complex experimental designs and multivariate procedures. Introduction to factor analysis and discriminatory analysis. Prerequisite: 522.
- 597-2. **HISTORY AND SYSTEMS.** History of psychology, with emphasis on major systematic positions and theoretical issues.

## *PROFESSIONAL PSYCHOLOGY*

### CLINICAL, COUNSELING, AND SCHOOL PSYCHOLOGY

#### *Personality*

- 431-4. **PSYCHOPATHOLOGY.** Nature and etiology of psychopathology, with consideration of current methods of treatment. Observations in a state mental hospital setting. Prerequisite: consent of instructor.
- 432-4. **MENTAL HYGIENE.** An integration of psychological knowledge and principles concerning factors and conditions in the personal life that tend to facilitate or to deter mental health. Mental health viewed as living creatively in an atmosphere of satisfactory interpersonal relations. Prerequisite: 305 or consent of instructor.
- 433-2, 434-2. **PERSONALITY DEVELOPMENT AND MENTAL HEALTH I, II.** Seminar on the basic factors in psychological development and their implications for mental health and psychopathology. 434 a continuation of 433. May be taken separately. Prerequisite: consent of instructor.
- 440-5. **PERSONALITY THEORY AND DYNAMICS.** Advanced course for senior students. Systematic view of theoretical contributions of major psychologists to basic understanding of dynamics of human personality. Prerequisite: psychology major or consent of instructor.
- 440A-4. **PERSONALITY THEORY AND DYNAMICS.** Similar to 440. For non-majors with senior or graduate standing.

Courses on the 500 level are for graduate students only.

- 530-4, 531-2. **PERSONALITY THEORY AND DYNAMICS I, II.** Systematic presentation and critical analysis of major formulations of personality structure. 531 a continuation of 530. Must be taken in sequence. Prerequisite: consent of instructor.
- 532-2 to 4. **EXPERIMENTAL APPROACHES TO PERSONALITY.** Presentation of pertinent research data in personality and critical evaluation of the methodology. Prerequisite: 530 or equivalent.
- 534-2. **ADVANCED PSYCHOANALYTIC THEORY.** Intensive study and critique of psychoanalytic theory and its contemporary variations. Prerequisite: consent of instructor.

#### *Counseling and Psychotherapy*

- 437-3. **FUNDAMENTALS OF COUNSELING.** Lecture and demonstration. Introduction to the common assumptions, dimensions, and communicative skills underlying psychological counseling. Observation utilized to supplement didactic discussion. Prerequisite: consent of instructor.
- 438-4. **PSYCHOLOGICAL CONSIDERATIONS IN TREATMENT.** For advanced undergraduates and graduate students entering professions in which they will be directly concerned with corrective or remedial serv-



ice. Basic psychological principles and considerations relevant to planning and conducting such treatment; potentialities and limitations of individual and group treatment; environmental manipulation.

Courses on the 500 level are for graduate students only.

- 537-4, 538-4. COUNSELING AND PSYCHOTHERAPY I, II. Systematic presentation of major approaches to counseling and psychotherapy. Critical evaluation of both theory and practice. 538 a continuation of 537 and covers psychotherapeutic theory and practice. Includes material on treatment of children and groups. Consideration of research findings and problems. Must be taken in sequence. Prerequisite: consent of instructor.

*Psychodiagnostics*

- 541-4, 542-2, 543-4, 544-4, 545-1 to 4. PSYCHODIAGNOSTICS I, II, III, IV, V. Lecture and practicum. 541 covers nature, theory, function, and clinical use of individual intelligence tests. Use of age scales and point scales, tests of deterioration, and other clinical instruments. 542 a continuation of 541. 543 covers basic theory and assumptions underlying projective techniques. Use of Rorschach method, Thematic Apperception Test, and other projective devices as measures of personality and as tools for clinical diagnosis and research. 544 a continuation of 543. 545 covers lecture and case conference. Actual case presentations. Emphasis on the integration of psychological test data as they are used for disposition and treatment purposes. Courses to be taken in sequence. Prerequisite for 541: 520 or equivalent.
- 546-3 to 4. PSYCHODIAGNOSTICS FOR SPECIAL POPULATIONS. Lecture and laboratory. Tests used in diagnostics and measurement of special populations such as retarded, blind, deaf, brain injured, and the like. Prerequisite: consent of instructor.

*Professional Aspects*

- 598-2. ETHICAL AND PROFESSIONAL PROBLEMS IN PSYCHOLOGY. Problems in the professional practice of psychology. 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.

INDUSTRIAL PSYCHOLOGY

- 479-4. SOCIAL PSYCHOLOGICAL ASPECTS OF INDUSTRIAL CONFLICT. Effects of industrialization on motivations and values of workers, industrial managers, labor leaders. Consideration of industrial conflict in terms of social and psychological differences between these groups.

Courses on the 500 level are for graduate students only.

- 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: 572 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. Prerequisites: 511, 524, 572.

## *GENERAL PSYCHOLOGY*

### **CHILD AND DEVELOPMENTAL**

451-4. **PSYCHOLOGICAL DEVELOPMENT.** The process of individual development and maturation through adolescence. Relations to the general field of psychology.

Courses on the 500 level are for graduate students only.

552-2 to 4. **EXPERIMENTAL CHILD PSYCHOLOGY.** Research topics and methodological problems specific to children. Emphasis on the child as an experimental subject. Prerequisite: 451.

554-2. **THEORETICAL APPROACHES TO THE STUDY OF THE CHILD.** Consideration given to data from various theories, including cross-cultural studies. Prerequisite: consent of instructor.

556-2 to 4. **PSYCHOLOGICAL TREATMENT OF THE CHILD.** Lecture and laboratory. Investigation of personality and behavior problems. Etiological factors and methods of treatment. Prerequisite: 451 or equivalent.

### **SOCIAL PSYCHOLOGY**

461-4, 462-2. **ADVANCED SOCIAL PSYCHOLOGY I, II.** 461 covers general principles of social psychology with major emphasis on development and functioning of social motives, social influences on behavior, language, and thought, and an introduction to small group behavior. 462 covers opinion and attitude formation, propaganda, ethnocentrism and prejudice, and national character. 461 a prerequisite for 462.

465-4. **GROUP DYNAMICS AND INDIVIDUAL BEHAVIOR.** A study of the interpersonal and intrapersonal variables affecting the organization of individuals into working units called groups; the impact of such units upon individuals taking membership in them; and the impact of individuals upon such units. One-fourth to one-third of the class time will be spent in related laboratory situations. Prerequisite: 201.

Courses on the 500 level are for graduate students only.

561-2. **OPINIONS AND ATTITUDES.** Survey of the techniques and problems applicable to collection of opinion and attitude data. Introduction to interview methods, questionnaire development, types of sampling and scaling techniques. Prerequisite: 461 or equivalent.

- 562-2 to 4. OBSERVATIONAL TECHNIQUES AND CONTENT ANALYSIS. Lecture and laboratory. Techniques of observation of social behavior, categorization and analysis of social behavior, documentary and other recorded materials. Prerequisite: 561.
- 564-2 to 4. DYNAMICS OF GROUPS. Lecture and laboratory. Basic problems in the study of small group behavior. Group structure and functioning, communication and influence patterns, group cohesiveness. Prerequisite: 461.
- 565-2 to 4. SMALL GROUP MODELS. Use of mathematical and other systematic methods in the study of small group processes. Prerequisite: 461.
- 567-2. SOCIAL ROLE THEORY. The social act, interpersonal relations, and the emergence of social roles. Prerequisite: consent of instructor.
- 568-2. SUGGESTIBILITY AND SOCIAL INFLUENCE. Study of experimental data and methodology dealing with suggestion and hypnosis. Prerequisite: consent of instructor.

#### PSYCHOLOGICAL MEASUREMENT

- 423-1 to 4. INTRODUCTION TO GROUP TESTS. Construction, standardization, validation, and interpretation of group tests of aptitude, interest, and personality.
- 424-2. PSYCHOPHYSICAL METHODS. Lecture and laboratory. Survey of the major psychophysical methods, and their applications.

Courses on the 500 level are for graduate students only.

- 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.
- 526-2. DISCRIMINANT ANALYSIS. Linear discrimination functions, the generalized distance function, maximum likelihood methods, applications to selection, classification, and diagnosis. Prerequisite: 524.
- 527-2. SCALE ANALYSIS. Types of scales, major scaling methods, multidimensional scaling, applications to attitude measurement. Prerequisite: 524.
- 528-2. FACTOR ANALYSIS. Survey of factor analytic techniques with emphasis on the centroid method, practice in factoring, rotation, and interpretation of a factor structure. Prerequisite: 524.

#### LEARNING AND CONDITIONING

- 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 I. Survey of the major learning theories emerging from the psychological laboratory.

Courses on the 500 level are for graduate students only.

- 507-2. THEORIES OF LEARNING II. Systematic analysis of a particular learning framework as an experimental approach to behavior. Consideration given alternately to various important theories.
- 508-2 to 4. BEHAVIOR THEORY. Current problems and extensions in learning theories. Prerequisite: consent of instructor.

**PERCEPTION**

404-4. PERCEPTION I. Introductory survey of the basic data, research methods, and theoretical approaches to perception.

Courses on the 500 level are for graduate students only.

504-2. PERCEPTION II. Advanced survey of the theories, data, and research methods of perception with theoretical and applied implications.

**SENSORY, PHYSIOLOGICAL, AND COMPARATIVE**

511-2. VISION. Nature of the visual stimulus, problems related to its psychological specification, and variables relevant to the visual sensation.

512-2. SENSORY PROCESSES. Psychological specialization of stimuli, and variables relevant to sensation.

514-4. PHYSIOLOGICAL PSYCHOLOGY. General principles of physiological psychology.

515-2. PSYCHOSOMATICS. Emotional processes, relationships between psychological and physiological variables.

**ADVANCED SEMINARS**

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.

**INDIVIDUAL WORK AND PRACTICUM TRAINING****THESIS AND DISSERTATION**

599-1 to 9. MASTER'S THESIS.

600-1 to 45. DOCTORAL DISSERTATION.

**PROJECTS AND READINGS**

490-1 to 8. INDEPENDENT PROJECTS. Independent readings and projects in psychology. Prerequisite: consent of instructor and chairman of department. Credit according to achievement.

Courses on the 500 level are for graduate students only.

590-1 to 16. READINGS IN PSYCHOLOGY. Readings in the following areas of psychology under staff supervision: A. General Psychology, B. Experimental Psychology, C. Research Design and Methodology, D. Personality, E. Clinical Psychology, F. Counseling Psychology, G. Social Psychology, H. Industrial Psychology, J. Child Psychology, K. School-Community Mental Health Psychology.

**RESEARCH**

591-1 to 36. **RESEARCH IN PSYCHOLOGY.** Research under staff supervision in the following areas of psychology: A. General Psychology, B. Experimental Psychology, C. Methodology, D. Personality, E. Clinical Psychology, F. Counseling Psychology, G. Social Psychology, H. Industrial Psychology, J. Child Psychology, K. School-Community Mental Health Psychology.

**PRACTICUM TRAINING**

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, G. Social Psychology, H. Industrial Psychology, J. Child Psychology, K. School-Community Mental Health Psychology, L. Teaching of Psychology, M. Rehabilitation, N. Rehabilitation Counseling.

**RELIGION**

The educated citizen will have some knowledge of the cultural traditions contributing to our Western civilization. A great part of our heritage is directly related to the treasure of knowledge and practices of our religious traditions. Through the religious foundations, credit courses in religion provide an opportunity for every student to enjoy a fuller educational experience.

Students may present a minor in religion to satisfy the minor requirement for a degree in the College of Liberal Arts and Sciences. This minor consists of thirty quarter-hours: fifteen hours earned in courses selected from the following list (Group A) offered by the academic departments of the college; and (Group B) fifteen hours earned in courses offered by the various religious foundations. In the second group of fifteen hours, courses must be taken in at least two foundations.

Group A courses include English 209, 370, 378, 379 (only four hours may be applied toward the minor in 378 and 379); History 306, 416; Philosophy 200, 301, 340, 382; Psychology 305, 307; Sociology 333, 335, 336, 340. Descriptions for these courses may be found under the various departments.

Courses offered by the religious foundations may be secured from the foundations or from the College of Liberal Arts and Sciences.

## RUSSIAN STUDIES

A minor may be earned in Russian studies which consists of a minimum of thirty hours, twelve of which must be in the Russian language (101, 102, 103, 101C, 102C, and 103C). The remaining eighteen hours may be taken from the following courses: Anthropology 354, 360; Economics 460; Geography 402; Government 453; History 372; coupled with readings or independent study in Anthropology 422; Economics 401; Geography 440; Government 421; History 410. However, only one readings course can be used in fulfillment of the thirty hours requirement and this should serve only to fill in a gap and not as a replacement for the other courses.

Students who desire a Russian studies minor are urged to take their language at the earliest possible date, and also to take History 102, English 209, and Government 391, where Russian history, literature, and government are given partial treatment. Those who take the first year language sequence in Russian should take additional courses such as Russian 201, 202, 203, 301, and 302, that treat various aspects of Russian literature.

Dr. John J. Wuest, department of government, is administrator and student adviser for the program.

## SOCIOLOGY

Professor Paul J. Campisi, Ph.D. (Chicago), Chairman	1959
Professor Joseph K. Johnson, Ph.D. (Washington)	1947
Professor Herman R. Lantz, Ph.D. (Ohio State)	1951
Professor Peter Andreas Munch, Ph.D. (Oslo)	1957
Professor William J. Tudor, Ph.D. (Iowa State)	1948
Associate Professor Melvin S. Brooks, Ph.D. (Wisconsin)	1956
Associate Professor A. J. Shafter, Ph.D. (Iowa State)	1957
Assistant Professor Louis Petroff, Ph.D. (Southern California)	1940
Assistant Professor Douglas Lloyd Rennie, Ph.D. (Yale)	1956
Assistant Professor Eloise C. Snyder, Ph.D. (Pennsylvania State)	1956
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Visiting Professor Donald R. Taft, Ph.D. (Columbia)	1958-60
Visiting Professor Walter T. Watson, Ph.D. (Chicago)	1956-57
Lecturer Harold Stanley Frum, Ph.D. (Indiana)	1956-58
Lecturer Louise Johnson, A.M. (Columbia)	1957-58

Lecturer Betty Ann Goldiamond, M.A. (Columbia)	1958-60
Assistant Instructor Donald L. Roper, B.A. (Southern Illinois)	1958-59

#### APPLIED SOCIOLOGY

Research Professor Richard W. Poston, B.A. (Montana)	1953
Assistant Professor Richard C. Franklin, D.Ed. (Columbia)	1956
Instructor Ronald Vander Wiel, Master of Social Work (Washington University)	1957

The Department of Sociology offers major and minor programs for students in both the College of Liberal Arts and Sciences and the College of Education.

A sociology major with a specialization in social work is also offered. This program is intended primarily for students who plan to enter a professional school of social work.

Requirements for a general sociology major: a minimum of four hours in psychology, social anthropology, and statistics; a minimum of forty-two hours in sociology including 101, 312, 321, 400, 407, 451, with the remaining hours to be taken in courses whose second digit in the course number is 0 through 7. A background course in zoology is also recommended.

Requirements for a major in sociology with a specialization in social work: a minimum of four hours in economics, psychology, social anthropology, and statistics; a minimum of eight hours in government in the area of American national, state, and local government; a minimum of forty-two hours in sociology including 101, 102, 321, 333, 340, 373, 380, 383, 481, and 482.

### COURSE DESCRIPTIONS

Courses in sociology are listed according to fields. The second digit in a course number indicates its field. As follows:

00-09	General Sociology
10-19	Methodology and Research Techniques
20-29	Social Psychology
30-39	Social Organization and Structure
40-49	Family
50-59	Sociology of Knowledge
70-79	Special Fields
80-89	Applied Fields

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level may be taken by undergraduate and graduate students. Those on the 500 level are for graduate students only.

*GENERAL SOCIOLOGY AND THEORY*

- 101-5. **INTRODUCTORY SOCIOLOGY.** Scientific study of human society and the various means by which individuals and groups adjust to each other and to their physical and social environment.
- 102 (202)-5. **SOCIAL PROBLEMS.** An analysis of selected contemporary social problems in their social and cultural setting such as crimes, suicide, mental illness, the vices, family disorganization, with emphasis upon their extent and significance.
- 305-4. **SOCIAL INSTITUTIONS.** Concepts of institutions; origins, development, and variability of institutions; institutional lag and change. Prerequisite: 101.
- 306 (331)-4. **SOCIAL CONTROL.** The means and principles of social controls; social institutions as factors in control; techniques of directing social action. Prerequisite: 101.
- 400 (460)-2. **CURRENT SOCIOLOGY.** Students read, report on, and evaluate content of leading sociological journals. Prerequisite: 8 hours of sociology.
- 406 (500)-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.
- 407-4. **INTEGRATED SOCIOLOGY.** Designed for senior students with a sociology major. 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.

Courses on the 500 level are for graduate students only.

- 501-4. **SEMINAR IN EUROPEAN SOCIOLOGY I: THE FOUNDERS.** The theoretical systems of European sociologists studied from the original writings. Prerequisite: 451 or consent of instructor.
- 502-4. **SEMINAR IN EUROPEAN SOCIOLOGY II: 1860-1910.** A continuation of 501. Prerequisite: 451 or consent of instructor.
- 503-4. **SEMINAR IN EUROPEAN SOCIOLOGY III: AFTER FIRST WORLD WAR.** A continuation of 501 and 502. Prerequisite: 451 or consent of instructor.
- 504 (550)-4. **SEMINAR IN AMERICAN SOCIOLOGY I: FOUNDATIONS.** A detailed study of the writings of outstanding American sociologists. Prerequisite: 15 hours of sociology or consent of instructor.
- 505 (551)-4. **SEMINAR IN AMERICAN SOCIOLOGY II: THE SECOND GENERATION.** A continuation of 504. Prerequisite: 15 hours of sociology or consent of instructor.
- 506-4. **SEMINAR IN AMERICAN SOCIOLOGY III: MAJOR TRENDS SINCE 1920.** A survey and analysis of the major sociological trends in America since 1920; detailed study of research contributions and theoretical developments. Prerequisite: 15 hours of sociology or consent of instructor.
- 507 (560)-4. **SOCIAL PROCESSES.** Analysis of social processes and social structures arising from them. Prerequisite: 15 hours of sociology or consent of instructor.



### *METHODOLOGY AND RESEARCH TECHNIQUES*

312-5. SOCIOLOGICAL RESEARCH. Part played by research in development of sociology as a science. Application of scientific method to social data. Types of research. Prerequisite: 101 and 4 hours of statistics.

Courses on the 500 level are for graduate students only.

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 (408)-3, 514 (409)-3. RESEARCH TECHNIQUES I, II. 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.

516 (410)-4. SEMINAR IN METHODOLOGY. Supervised research, with practical application of research principles. Prerequisites: 511, 513, 514.

### *SOCIAL PSYCHOLOGY*

320-4. RACE AND MINORITY GROUP RELATIONS. Racial and cultural contacts and conflicts, causes of prejudice; status and participation of minority groups; national and international aspects of minority problems. Prerequisite: 101.

321-4. SOCIALIZATION OF THE INDIVIDUAL. The process of socialization in infancy, childhood, and adolescence; development of habits, attitudes, sentiments; emergence of the self; integration of the individual and society. Prerequisite: 101.

322 (330)-3. PROPAGANDA AND PUBLIC OPINION. Techniques and characteristics of propaganda; methods of measuring public opinion. Prerequisite: 101.

424 (405)-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 (355)-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, or consent of instructor.

427 (381)-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, or consent of instructor.

521 (565)-4. SEMINAR IN SOCIAL PSYCHOLOGY. Survey of theoretical systems; progress toward integrated body of behavioral theory. Prerequisite: 426.

*SOCIAL ORGANIZATION AND STRUCTURE*

- 332 (520)-4. *SOCIAL ORGANIZATION*. An examination of the determinants of social organization; intensive analysis of institutional configurations, social stratification, and systems of social control; review of significant writing. Prerequisite: 101.
- 333 (375)-4. *COMMUNITY ORGANIZATION*. Factors involved in community organization; types, aims, and objectives; community diagnosis; individual case study of specific community. Prerequisite: 101.
- 335 (311)-4. *URBAN SOCIOLOGY*. The rise, development, structure, culture, planning and problems in early and modern cities. Prerequisite: 101.
- 336 (316)-4. *SOCIOLOGY OF RURAL LIFE*. The structure, functioning, and change of rural social life; study of informal groups, neighborhoods, and communities; social class and value orientation. Prerequisite: 101.
- 338 (325)-4. *INDUSTRIAL SOCIOLOGY*. Social organization and processes within the formal and informal structure of the industrial unit; research and experimental materials concerning social determinants of morale, status and role of the worker. Prerequisite: 101.
- 435 (319)-4. *SOCIAL STRATIFICATION*. A comparative study of social class systems, with emphasis on the American systems. Relationships of class position to behavior in areas such as family, religion, politics, etc. Prerequisite: 101.

Courses on the 500 level are for graduate students only.

- 533 (512)-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.

*FAMILY*

- 241 (203)-4. *MARRIAGE AND PARENTHOOD*. The social psychology of dating, courtship, and family relations; evaluation of research findings; problems of applying scientific principles to changing overt behavior. Prerequisite: 101.
- 340 (310)-4. *THE FAMILY*. The family in historic and contemporary society; evolution of the modern family; changes in family functions, structures, and roles. Prerequisite: 101.
- 445 (401)-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.

Courses on the 500 level are for graduate students only.

- 542 (515)-4. *SEMINAR ON THE FAMILY*. The family as a field of sociolog-

- ical 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.

### *SOCIOLOGY OF KNOWLEDGE*

- 351 (318)-4. SOCIOLOGY OF RELIGION. Function of religious institutions in society and their relationship to other major social institutions; role in social control and group solidarity. Prerequisite: 101.
- 450-4. SOCIAL THOUGHT I: BEFORE 1800. Ancient background of Western social thought; development of modern social thought. Prerequisite: general background in history.
- 451 (455)-4. SOCIAL THOUGHT II: THE SOCIOLOGICAL MOVEMENT. Rise and development of scientific social thought in Western society. Prerequisite: background in nineteenth-century history or literature.
- 452-4. SOCIAL THOUGHT III: TWENTIETH CENTURY. A survey of important trends in contemporary social thought.
- 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.

Courses on the 500 level are for graduate students only.

- 552-4. SEMINAR ON SOCIAL THOUGHT. A course of flexible contents, designed to allow a thorough study of particular aspects of social philosophy according to the student's interest and choice. Prerequisite: consent of instructor.
- 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.

### *SPECIAL FIELDS*

- 371 (314)-4. POPULATION AND MIGRATION. Quality and quantity of population, problems of growth, composition, distribution, differential

- fertility, international and internal migration, and control of numbers and quality. Prerequisite: 101 or equivalent in Economics, Geography or Government.
- 372 (315)-4. **CRIMINOLOGY.** The nature of crime; criminal statistics; causal factors; theories and procedures in prevention and treatment. Prerequisite: 101.
- 373 (301)-4. **JUVENILE DELINQUENCY.** Nature of juvenile delinquency; factors contributing to delinquent behavior; treatment and prevention. Prerequisite: 101.
- 374 (313)-3. **SOCIOLOGY OF EDUCATION.** Methods, principles, and data of sociology applied to the school situation; relation of the school to other institutions and groups; may be counted either as sociology or education. Prerequisite: 101.
- 471 (414)-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. Prerequisite: 312 and 371.

### *APPLIED FIELDS*

#### **SOCIAL WORK, REHABILITATION**

- 380 (235)-4. **INTRODUCTION TO SOCIAL WORK.** The historical development, philosophy, and theory forming the basis for the professional practice of social work; processes developed and the specialties within each of them; personal and educational requirements for the career opportunities available. Prerequisite: 101.
- 383 (337)-4. **INTRODUCTION TO INTERVIEWING.** Theory and practice of interviewing as a means of gaining information, and of understanding and imparting the same. Focus is on the interview as a tool in social work, but principles are generally applicable. Prerequisite: 101 or Psychology 201.
- 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.
- 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.
- 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.
- 486-1 to 5. **INDEPENDENT STUDY IN COMMUNITY DEVELOPMENT.**

Individual study and projects designed to fit the needs of each student.  
Prerequisite: consent of the instructor.

Courses on the 500 level are for graduate students only.

- 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.
- 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.

#### FAMILY COUNSELING

- 184 (103)-4. DATING, COURTSHIP, AND MARRIAGE. The problem of dating, courtship, and marriage in modern American society. Recommended for the single freshman student without social science background. Can not be used to fulfill general education requirements.
- 384 (402)-4. SOCIAL PROBLEMS OF LATER MATURITY AND OLD AGE. 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.
- 484 (403)-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 SERVICE

- 386-4. INTRODUCTION TO COMMUNITY DEVELOPMENT. A survey of the concepts and processes of co-ordinated citizen study, planning, and action directed toward the fuller development of communities in a democratic society. Prerequisite: 4 hours of sociology.
- 387-4. ORGANIZING A COMMUNITY DEVELOPMENT PROGRAM. Principles and procedures in the organization and activation of a community development program, with emphasis on the involvement of the

individual in a process of problem identification and solution directed toward total community improvement. Prerequisite: 333 and 386.

- 383-3. WORKSHOP IN INTER-GROUP RELATIONS. Designed to provide theoretical and practical understanding of cultural, social, and psychological factors associated with inter-group tensions. Participants concentrate their efforts on problem-solving activities related to their occupational, professional, or civic interests. Resource and consultative staff from the academic areas of education, psychology, sociology, and social work.
- 389 (369)-3. TECHNIQUES OF GROUP LEADERSHIP. Application of leadership principles; kinds of leadership; effective techniques of group control; factors in experimental group situations. Prerequisite: 101.
- 489 (469)-3. THEORY OF GROUP LEADERSHIP. Classification of leaders; theories of leadership; analysis of representative leaders. Prerequisites: 101, 306, 389.

### 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 (556)-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, the candidate must have passed a special examination in French, German, or statistics. Before the thesis can be submitted in final form, the candidate must have passed a comprehensive examination as described above.

### SPEECH

Although the Department of Speech is located in the School of Communications, students in the College of Liberal Arts and Sciences may major or minor in speech.

In addition to the general degree and the College of Liberal Arts and Sciences requirements, required courses constituting a major in speech are 101, 102, 103, 202, and additional courses to total forty-eight hours.

Required courses constituting a minor in speech: 101, 102, 103, 202, and additional courses to total twenty-four hours.

Course descriptions may be found in the School of Communications Bulletin.

## ZOOLOGY

Professor Harvey I. Fisher, Ph.D. (California), Chairman	1955
Professor Charles L. Foote, Ph.D. (Iowa)	1947
Professor Willard M. Gersbacher, Ph.D. (Illinois)	1929-30; 1936
Professor W. D. Klimstra, Ph.D. (Iowa State)	1949
Professor William M. Lewis, Ph.D. (Iowa State)	1949
Associate Professor Richard Blackwelder, Ph.D. (Stanford)	1958
Associate Professor Edwin C. Galbreath, Ph.D. (Kansas)	1957
Associate Professor Hilda A. Stein, M.S. (Illinois)	1925
Assistant Professor John C. Downey, Ph.D. (California)	1956
Assistant Professor George Garoian, Ph.D. (Illinois)	1956
Assistant Professor Howard J. Stains, Ph.D. (Kansas)	1955
Instructor Vernon W. Cole, M.S. (Michigan State)	1956
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Visiting Professor Richard R. Kudo, D.Ag.Sc. (Tokyo)	1958
Visiting Professor Walter P. Taylor, Ph.D. (California)	1957-58
Lecturer Edna Dudgeon, Ph.D. (Texas)	1955
Lecturer Richard W. Frederickson, M.A. (Kansas)	1956-58

A minimum of forty-eight hours of zoology is required for a major. Required courses in zoology are 100, 102, 103, 202, 300, 382A, 382B, 382C, 401, and one of the following courses, 303, 306, 335, 408, 461, 465. However, teachers in in-service training may substitute 402 or 403 in lieu of one of the latter courses.

A minimum of twenty-four hours of zoology is required for a minor, including Zoology 100, 102, 103 and at least nine additional hours. At least one course above the 100 level must have a laboratory.

Reading knowledge or three quarters of a foreign language (preferably French, German, or Russian) is required of all majors; six quarters of one such language are recommended.

Zoology majors are required to have three quarters of chemistry and two quarters of physics.

Recommendations for majors in zoology include organic chemistry; three quarters of physics; three quarters of botany; two quarters of mathematics; one quarter of physiology; and one quarter of microbiology.

Zoology majors or minors who expect to enter such professions as teaching, fish and wildlife management, dentistry, medicine, veterinary medicine, or allied fields should consult with the department concerning their programs.

*COURSE DESCRIPTIONS*

Courses on the 100, 200, and 300 levels are for undergraduate students. Those on the 400 level may be taken by undergraduate and graduate students. Those on the 500 level are for graduate students only.

- 100-5. **PRINCIPLES OF ANIMAL BIOLOGY.** Introduction to the major principles of biology, including classification, organization of matter into cells, tissues, organs, and organ systems, heredity, ecology, distribution, organic evolution, economic biology, and conservation. Laboratory work designed to illustrate the above principles. Course satisfies general education requirement in biological sciences.
- 102-5. **GENERAL INVERTEBRATE ZOOLOGY.** Studies of representatives of the various kinds of invertebrate animals. Relationships, structure, and natural history are emphasized. Prerequisite: 100.
- 103-5. **GENERAL VERTEBRATE ZOOLOGY.** Studies of representatives of the various kinds of vertebrate animals, with special emphasis on the amphibian type. Evolutionary development, structure, and natural history are emphasized. Prerequisite: 100.
- 202-5. **COMPARATIVE ANATOMY OF THE VERTEBRATES.** Comparative studies of the organ systems of vertebrate animals, with emphasis on the phylogeny and evolution of these organs. Prerequisites: 102, 103.
- 300-5. **VERTEBRATE EMBRYOLOGY.** Development of the individual with frog, chick, and pig as types. Prerequisite: 202.
- 303-4. **GENERAL ORNITHOLOGY.** Classification and recognition of birds and the study of their songs, nests, migratory habits, and other behavior. Prerequisite: 100 or approval of instructor.
- 306-4. **ENTOMOLOGY.** Principles of the structure, classification, and life histories of insects. Prerequisite: 102.
- 310-5. **ANIMAL ECOLOGY.** Habitats, relations, formations, and associations of animals. Cost of field trips may be \$10-\$25 per student. Prerequisites: 102, 103.
- 312-3. **CONSERVATION OF BIOLOGICAL RESOURCES.** A consideration of the preservation, restoration, and management of renewable resources. Prerequisite: one course in botany or zoology.
- 313-3. **EVOLUTION.** Principles and processes of the evolution of living things, including man. Prerequisite: one year of biology.
- 314-4. **HEREDITY AND EUGENICS.** Principles of heredity in relation to animals, including man. (Credit may not be used toward a major). Prerequisite: Zoology 100 or Botany 101.
- 316-4. **INSECT PESTS AND THEIR CONTROL.** Principal injurious insects and their allies; chemical and biological methods of control. (Credit may not be used toward a major in zoology.) Prerequisite: 100.
- 320-5. **VERTEBRATE HISTOLOGY.** Microscopic structure of organs and tissues with emphasis on the mammal. Prerequisite: 202.
- 321-5. **HISTOLOGICAL TECHNIQUE IN ZOOLOGY.** Methods of preparing material for microscopic study. Prerequisite: one year of biological sciences or approval of instructor.
- 322-2 to 5. **PROBLEMS IN ZOOLOGY.** Research on zoological problems. Pre-



- requisite: 4.25 grade-point average, senior standing, and approval of the department. (Credit may not be used toward a minor in zoology.)
- 335-5. FIELD ZOOLOGY. Taxonomy, natural history, and distribution of local animals. Cost of field trips may be \$10-\$25 per student. Prerequisites: 102, 103.
- 350-4. ECONOMIC ZOOLOGY. Animals in relation to public welfare. (Credit may not be used toward a major or minor in zoology).
- 380-4. HISTORY OF BIOLOGY. Biological sciences from the early Greek philosophers to the present time. Prerequisite: one year of biological sciences.
- 382A, B, C-1/2. ZOOLOGY SEMINAR FOR SENIORS. Required each term of seniors majoring in zoology. Prerequisite: one year of biological sciences.
- 401-5. GENETICS. (Same as Microbiology 402.) Principles of inheritance, including genetic mechanisms, mutation, and selection. Prerequisites: 12 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. An extended trip of four to eight weeks to study animals in various environments. Arrangements made spring term. Costs per individual will be approximately \$25 per week. (4 hours may be used for undergraduate credit and 4 hours for graduate credit.) Prerequisite: approval 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 and 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 and consent of instructor.
- 470A-3. METHODS IN BIOLOGY. (Same as Botany 470A.) Methods, objectives, types of courses. Laboratory and field trips to Southern Illinois high schools. Prerequisite: major in zoology or botany.
- 470B-3. RESEARCH FOR BIOLOGY TEACHERS. Laboratory experience in research methods for teachers of biology and general science.

Courses on the 500 level are for graduate students only.

- 501-4. ANIMAL BIOLOGY FOR HIGH SCHOOL TEACHERS OF BIOLOGY. Designed to add new interpretations and evaluations to the 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 teacher with advances and changes in concepts. Prerequisite: one year of biological science.
- 510-4. BIO-ECOLOGY. (Same as Botany 510.) 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.

- 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. Required of all graduate students. 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, B, 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. Prerequisite: consent of instructor.
- 599-2 to 9. THESIS. Only 9 hours may be credited toward the master's degree. Prerequisite: consent of instructor.
- 600-3 to 12. DOCTORAL RESEARCH AND DISSERTATION. Thirty-six hours must be credited toward the doctoral degree. Prerequisite: consent of instructor.

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