

1971

1971-1972 Southern Illinois University Bulletin Carbondale Campus (Undergraduate Catalog)

Southern Illinois University Carbondale

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Southern
Illinois
University
Bulletin

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1971/1972
Undergraduate Catalog
Carbondale

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This Issue

of the *Southern Illinois University Bulletin* covers in detail questions concerning the undergraduate program and applies to the Carbondale Campus. It supersedes Volume 12, Number 9.

THE FOLLOWING issues of the *Southern Illinois University Bulletin* may be obtained free from University Graphics and Publications, Southern Illinois University, Carbondale, Illinois 62901.

Graduate Catalog

Schedule of Classes. Please specify quarter (fall, winter, spring, or summer).

Undergraduate Catalog. The catalog is available for examination in high school guidance offices and libraries throughout Illinois and in some other states. Copies will be furnished free to educational institutions upon request and to new students upon matriculation. The catalog may be purchased at the University Bookstore for \$1; mail orders should be sent to University Graphics and Publications and must include remittance payable to Southern Illinois University.

Vocational-Technical Institute Catalog.

This publication is not a contract or offer to contract. The Board of Trustees, University executive officers, and their agents reserve the right to change information contained herein without notice when circumstances warrant such action.

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1971 / 1972
Undergraduate Catalog
Carbondale

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University Calendar

<i>SUMMER, 1971</i>	Quarter Begins	Monday, June 21 *
	Independence Day Holiday	Monday, July 5
	Final Examinations	Monday-Friday, August 30-September 3
	Commencement	Friday, September 3
<i>FALL, 1971</i>	New Student Days	Sunday-Tuesday, September 19-21
	Quarter Begins	Tuesday, September 21 *
	Thanksgiving Vacation	Tuesday, 10 P.M.-Monday, 8 A.M., November 23-29
	Final Examinations	Saturday-Friday, December 11-17
<i>WINTER, 1972</i>	Quarter Begins	Monday, January 3 *
	Washington's Birthday Holiday	Monday, February 21
	Final Examinations	Saturday-Friday, March 11-17
<i>SPRING, 1972</i>	Quarter Begins	Monday, March 27 *
	Memorial Day Holiday	Monday, May 29
	Final Examinations	Saturday-Friday, June 3-9
	Commencement	Friday, June 9
<i>SUMMER, 1972</i>	Quarter Begins	Monday, June 19 *
	Independence Day Holiday	Tuesday, July 4
	Final Examinations	Monday-Friday, August 28-September 1
	Commencement	Friday, September 1
<i>FALL, 1972</i>	New Student Days	Sunday-Tuesday, September 17-19
	Quarter Begins	Tuesday, September 19 *
	Thanksgiving Vacation	Tuesday, 10 P.M.-Monday, 8 A.M., November 21-27
	Final Examinations	Saturday-Friday, December 9-15

* Classes begin with the evening classes after 5:30 P.M.

1 / The University and the Campus Organization

THE UNIVERSITY IN PERSPECTIVE

The year 1969 began the five-year long celebration of the centennial of Southern Illinois University, which was chartered in 1869, and which initiated instruction in 1874. Since that time the University has sought to meet the educational needs of the times for the people whom it serves as a public institution. Consistent with the character of the University, the centennial celebration will stress the hopes and goals of the future in each of the major academic areas, rather than dwelling on the real accomplishments in the past history of Southern Illinois University.

Although the student population has increased to the point that Southern Illinois University was recently rated twentieth in the nation in enrollment of full-time resident students and twenty-third largest in total enrollment, the formation of schools, colleges, divisions, and departments within the University permits focus on the special interests of individual students. The University comprises the faculty and facilities to offer general and professional training ranging from two-year associate degree programs to doctoral programs.

Though Southern Illinois University is a single system, it has two major campuses, Southern Illinois University at Carbondale, with its Vocational-Technical Institute and Little Grassy Facilities, and Southern Illinois University at Edwardsville which offers degrees at Alton, East Saint Louis, and Edwardsville.

The University has maintained extensive overseas operations in many parts of the world, and it continues to develop its international education dimensions.

The University is fully accredited by the North Central Association of Colleges and Secondary Schools. The University and its various academic components carry the following accreditation on the baccalaureate and higher levels: North Central Association, National Council for Accreditation of Teacher Education, American Association of Collegiate Schools of Business, American Chemical Association, American Council on Education for Journalism, American Dietetics Association, American Psychological Association, American Speech and Hearing Association by American Board of Examiners in Speech and Hearing, Board of Vocational Education of the State of Illinois, National Association of Schools of Music, United States Office of Education, and State Board of Vocational Education for Vocational Home Economics.

Southern Illinois University at Carbondale

Immediately south of the city of Carbondale, the University campus, comprising more than four thousand acres, has developed a three-hun-

dred acre portion with woods and a lake as a site for its academic buildings and residence halls. The buildings are located in wooded tracts along two circular shaped campus drives, named for Lincoln and Douglas. Features that are located near the center of the campus complex are a wooded tract, preserved in the tradition of the native forests of Southern Illinois, and several buildings surrounding the site which formed the original campus almost a century ago. Among the recent additions to the campus skyline are the high-rise residence halls, the Morris Library with more than a million volumes, a multi-media classroom building, and the dome shaped S.I.U. Arena, seating more than 10,000 people for academic and recreational events.

The city of Carbondale is 100 miles southeast of Saint Louis, Missouri, in Jackson County, the western border of which is the Mississippi River. Immediately south of Carbondale begins some of the most rugged, picturesque terrain in Illinois. Sixty miles to the south is the historic confluence of the Ohio and Mississippi rivers, the two forming the border of the southern tip of Little Egypt, the fourteen southernmost counties in Illinois. The region immediately surrounding Carbondale is noted for its large peach and apple orchards. Within ten miles of the campus there are two state parks and four lakes. The largest of the lakes is Crab Orchard Lake, four miles east of Carbondale. It has a shoreline of 125 miles, and it is frequented by students for swimming, water skiing, boating, fishing, picnicking, camping, and hunting. Within the confines of the campus itself is the University's own Lake-on-the-Campus with facilities for swimming, boating, fishing, and picnicking.

The campus is undergoing extensive expansion. Approximately seventy large permanent buildings and several hundred small temporary buildings now comprise the campus. Additional buildings now under construction or recently completed include:

Life Science Building	Humanities Building
General Classroom Building	Advanced Physical Science
Physical Science Building	University Center Addition
Communications Building—Stage II	Recreation Complex

Residence Units: University Park, Evergreen Terrace

A campus for the Vocational-Technical Institute is located ten miles east of Carbondale, and includes classrooms, library, and shop facilities for its academic program, in addition to residence halls. The part of its program related to aircraft technology is located adjacent to the Southern Illinois Airport. Several of its temporary buildings are to be replaced by buildings representing the first stage of a master plan for the campus.

The Little Grassy Lake Facility consists of nine square miles of land adjacent to Little Grassy Lake and approximately seventy permanent structures. Although the programs conducted at Little Grassy are primarily devoted to instruction and training in recreation and outdoor education, many units of the University utilize its facilities in various ways.

Publications

From time to time reference is made in this catalog to other publications of the University. A list of these is in this catalog preceding the table of contents. For additional information write to the dean or director of the program or to University Graphics and Publications.

ACADEMIC AND RELATED UNITS

General Studies Division

JOHN W. VOIGT, *Dean*

Man's Physical Environment and Biological Inheritance; Man's Social Inheritance and Social Responsibilities; Man's Insights and Appreciations; Organization and Communication of Ideas; Health and Physical Development

Except for students entering the Vocational-Technical Institute, freshmen, transfer students who have fewer than 48 quarter hours of acceptable transfer credit, and those who present 48 to 90 hours of credit and who are undecided in their educational goals, are placed in the General Studies Division. While in the division a student experiences contact with several areas of knowledge which can assist him in the thoughtful selection of a professional goal. If he knows his goal, he may work on the professional area concurrently with the courses of the General Studies curriculum.

The General Studies curriculum provides the wider social and cultural understanding increasingly necessary for successful participation as citizens in modern society and a broad base upon which a specialization can be built.

The General Studies curriculum, which is unique in several respects, involves the student during advancing stages of academic endeavor. The objective is to furnish a carefully prepared mix of mutually complementary generalized and specialized courses.

General Studies Division does not award degrees. The General Studies curriculum is a component of all baccalaureate programs in Southern Illinois University. Upon completion of a sufficient part of his General Studies requirements, a student transfers into the college or school of his major concentration.

Offices of the dean and of the academic advisers for students in General Studies are located on the ground floor of the south wing of Woody Hall.

School of Agriculture

WENDELL E. KEEPPER, *Dean*

Agricultural Industries; Animal Industries; Forestry; Plant Industries

The School of Agriculture provides opportunity for the students to prepare themselves professionally through concentrating on study of agricultural and forest production and services and industries closely related thereto. Through teaching of formal courses, conducting research of significance to agriculture and forestry of the area, and providing consultation and service to the people of Southern Illinois in all phases of agriculture, forestry, and related occupations, the School of Agriculture strives to encourage better use of rural resources for the general welfare.

More than eighty-five percent of Southern Illinois University's graduates in agriculture have entered such major employment areas as agricultural business, advanced professional training for research and teach-

ing, agricultural education, and government services. About ten percent have gone into farming. Most forestry graduates have taken governmental or industrial positions. Graduates receive the Bachelor of Science degree.

The Agriculture Building houses the offices, classrooms, and laboratories of the school.

School of Business

CHARLES HINDERSMAN, Dean

*Accounting; Economics; Finance; Management; Marketing;
Secretarial & Business Education*

The School of Business aims to prepare students to perform successfully in business and other organizations functioning within a changing social, economic, and political environment. Study provides the student with fundamental principles and practices of organizational behavior and allows the mastering of knowledge and skills for effective management. The curriculum provides a broad base for understanding business while simultaneously allowing in-depth study within an area of concentration. Students find that the professional education they receive in the school is desired by business, governmental units, and other public institutions. The advanced curriculum, computer terminals, and extern programs provide students not only with a meaningful education but with a means of relating that education to organizations and commerce.

The School of Business is located in the General Classroom Building.

College of Communications and Fine Arts

C. HORTON TALLEY, Dean

School of Art

School of Journalism

School of Music

*Cinema & Photography; Radio-Television; Speech; Speech
Pathology & Audiology; Theater*

The College of Communications and Fine Arts was formed in 1970 from the School of Communications and the School of Fine Arts. The schools and departments of this conglomerate provide students opportunity to study the mass communication media and the fine arts and to develop creative and professional skill in these fields.

Faculty of the college are engaged in research into mass communications and provide consulting and other services to area schools, newspapers, and radio and television stations. A number of special events are presented each year, including lectures by noted artists, musical ensembles, dance recitals, dramatic presentations, and art exhibitions.

University Galleries, a campus-wide activity for the showing of student and faculty work as well as traveling exhibitions is under the jurisdiction of the college.

Administrative offices of the college are located in the Communications Building, which includes the newest theater on campus and broadcasting facilities.

College of Education

ELMER J. CLARK, *Dean*

Conservation and Outdoor Education; Educational Administration & Foundations; Elementary Education; Guidance & Educational Psychology; Health Education; Higher Education; Instructional Materials; Physical Education for Men; Physical Education for Women; Recreation; Secondary Education; Special Education; Student Teaching

Preparation of teachers of all subjects taught in the public schools from kindergarten through high school is the special function of the College of Education. In its graduate offerings, however, it broadens its efforts to include professional work for prospective college teachers and several specializations in school administration and supervision. For most undergraduate students preparing to teach in high schools, the subject-matter courses will be taken in the other colleges and schools of the University, and the professional preparation for teaching, including the student teaching, will be taken in the College of Education.

Graduates of the College of Education receive the Bachelor of Science or the Bachelor of Music Education degree.

The College of Education, housed in the Wham Education building, is the oldest unit of the University, which was originally chartered as Southern Illinois Normal University.

School of Home Economics

THOMAS M. BROOKS, *Dean*

Child & Family; Clothing & Textiles; Family Economics & Management; Food & Nutrition; Home Economics Education; Interior Design

The general objectives of the school, as established by the Home Economics faculty, are: (1) to prepare men and women as professionals (generalists and specialists) in selected home economics areas of service; (2) to assist home economics majors (and non-majors who elect courses in the school) in their personal development and in their preparation for establishing homes and families; (3) to provide services at the regional, national, and international levels which promote the aim of home economics. The aim is to strengthen individual and family life through the application of relevant arts and sciences in the interaction of people with their near environment in a setting of continuous social and technological change. In addition to programs planned for students concentrating in home economics, a number of courses are offered to give men and women not concentrating in Home Economics an opportunity to study in areas related to home and family living.

Administrative and advisement offices, classrooms, and laboratories for the school are in the Home Economics building.

College of Liberal Arts and Sciences

ROGER E. BEYLER, *Dean*

Anthropology; Botany; Chemistry; Computer Science; English;

Foreign Languages; Geography; Geology; Government; History; Linguistics; Mathematics; Microbiology; Philosophy; Physics and Astronomy; Physiology; Psychology; Sociology; Zoology

The College of Liberal Arts and Sciences provides (1) training in basic subject matter courses of General Studies; (2) opportunity for concentration in a wide and varied selection of areas; (3) electives not available in other instructional units of the University; (4) extension and adult education offered through the appropriate divisions; (5) graduate-level instruction for students pursuing higher degrees than the baccalaureate; (6) preprofessional training needed for admission to such specialized schools as law, medicine, and dentistry.

The diversified offerings of the College of Liberal Arts and Sciences are designed to help the student achieve a balanced personality, an awareness of the cultures of the past, an appreciation of his fellow man, and a fundamental understanding of the ever-changing physical, social, and political environment in which he lives. A student in the college may prepare for teaching at the secondary level by including in his studies certain professional courses offered by the College of Education. The Bachelor of Arts or Bachelor of Science degree is granted to a student who fulfills requirements for graduation from the College of Liberal Arts and Sciences. The courses of study outlined by the departments determines the degree awarded.

Administrative offices of the college are in the General Classroom Building; advisement offices are on the second floor of Woody Hall.

School of Medicine

RICHARD H. MOY, *Dean*

Southern Illinois University School of Medicine was established in 1970 in response to a need in Illinois for increased opportunities for education in the health fields and the more encompassing need for improvements in the health care delivery system. To have the broadest impact possible on health care in central and southern Illinois, the school will be deeply engaged in training men and women who will become physicians; it will emphasize continuing education; and it will be a center of health care planning and expertise for the solution of problems of health care delivery on area-wide and regional bases.

The first class of approximately twenty-five students will be admitted beginning in the autumn of 1971 for instruction beginning at Carbondale in July 1972. Preference will be given to applicants from central and southern Illinois who intend to practice medicine in the state. Inquiries on admissions should be addressed to Committee on Admissions, Southern Illinois University School of Medicine, 715 East Carpenter Street, Springfield, Illinois 67202.

The curriculum will run twelve months a year for three years; the first year program will be conducted on the campus of Southern Illinois University at Carbondale; it will have primarily a laboratory or pre-clinical orientation, but with significant clinical input from the beginning. The second year at Springfield will be about equally divided between laboratory and clinic; and the third year, also at Springfield, will be almost exclusively clinical.

Available facilities include the extensive and well-equipped laboratories of Southern Illinois University at Carbondale; the public and private

clinical facilities of Carbondale; and St. John's Hospital and Memorial Hospital in Springfield, each of about 700 beds. A new medical school building in Springfield is scheduled for completion in 1973 in time for the first class transferring from Carbondale.

School of Engineering and Technology

THOMAS B. JEFFERSON, *Dean*

The School of Engineering and Technology provides instruction in broad areas of technology. Through instruction, research, and consultative services, it serves Southern Illinois and has a growing responsibility in broader areas.

The courses of study in the School of Technology are designed to provide instruction and to stimulate research in all areas of technology. These courses of study serve to eliminate the barriers and to bridge the gaps between scientists, engineers, and technologists—between theories and their applications—between the creative and practical aspects, in the basic areas of science, engineering, and industry. Its course offerings provide:

1. Basic subject matter for development of the scientific and technological method and philosophy.
2. Preprofessional and professional training in the field of engineering leading to the Bachelor of Science degree.
3. Extension and adult education courses offered through the appropriate divisions of the University.
4. Graduate-level instruction for students pursuing higher degrees.

All offices and facilities of the School of Engineering and Technology are centered in the Technology complex by the Lake-on-the-Campus.

Vocational-Technical Institute

ARDEN L. PRATT, *Dean*

The Vocational-Technical Institute provides for high school graduates two-year college-level terminal courses of study for training technicians. These courses of study are designed to prepare men and women for employment at the semi-professional and technical level in industry, the allied health occupations, and business. The institute awards the Associate in Art, Associate in Business, and Associate in Technology degrees.

The Vocational-Technical Institute is located approximately ten miles east of Carbondale and has its own classrooms, laboratories, library, offices, cafeteria, and residence halls.

Extension Services and Adult Education

RAYMOND H. DEY, *Dean*

Extension and Adult Education is an all-University agency. Its major function is to impart knowledge to persons not in regular attendance at the University. This is done in three ways: (1) the Extension college credit class program, (2) the Adult Education non-credit class program, and (3) the Educational Conference program.

Extension classes, which offer college credit and are identical to similar classes offered on the campus, are scheduled in the various communities

in the geographical area served by the Carbondale campus, or are offered by radio or television for Southern Illinois residents, where there is a need for them. Classes are also scheduled in foreign countries when there are definite advantages to having them offered there.

The Adult Education program consists of non-credit courses in various vocational, technical, and general education fields designed to provide a wide variety of educational opportunities for adults.

Most Adult Education courses range in length from 8 to 12 weeks, and meet for from 2 to 3 hours weekly. Certain special courses are offered for 16 to 24 weeks. These courses are varied to meet the interests and needs of the adults served. The Adult Education courses are taught by regular staff members obtained from the various divisions and schools of the University, as well as carefully selected specialists from the ranks of business, industry, and the professions.

The Educational Conference program is conducted on the campus of the University or in various off-campus cities and towns if this will make the conference more accessible to those persons most interested. Conferences are given for not only local groups of persons but increasingly for state and national organizational groups.

Additional information may be obtained from the office of the dean of Extension and Adult Education located at 315 West Grand, Southern Illinois University at Carbondale.

The Library

Morris Library contains approximately 1,150,000 volumes and 8,000 current periodicals, plus collections of textbooks, newspapers, maps, films, framed art works, and phonograph records. With the exception of volumes in the rare book room, all books are arranged on open shelves available for browsing.

Recognizing the importance of libraries in a college education, the University has given special attention to both quantity and quality of library development. More than 130,000 volumes were added to the library during the past year, placing Southern Illinois University high in growth among the nation's libraries. Reference librarians throughout the library are available to assist in locating materials. A handbook on library use is available from the library. Those wishing further instruction may enroll in a course on library research methods.

Morris Library houses four subject libraries (Education, Humanities, Science, and Social Studies), a Reserve Reading Room, the Learning Resources Service, and the Textbook Rental Service. Microtext reading equipment is available in each subject library; hi-fidelity phonograph listening equipment is provided in the Humanities library. A central card catalog of the entire collection is located on the first floor; books may be borrowed from a central circulation desk using an automated charging system. An inexpensive photocopying service is available to students at the circulation desk.

Special libraries are also provided for the University Laboratory School, the Vocational-Technical Institute, and the Little Grass Facilities. A new Undergraduate Library Reading Room is planned for mid-1970.

Within the library system the Learning Resources Service makes films and other audio-visual materials available to students as individuals and in small groups in much the same way as books are available through the reserve system. There are about 3,000 film showings per week on this

basis. The service supports the full range of instructional activity with the design, making, and use of graphics and audio-visual aids.

A facility of the Learning Resources Service is the central Self-Instruction Center, described under *Student Services* in this chapter. There are also self-instruction mini-centers placed at convenient locations over the campus.

University Museum

The purpose, policy, and responsibility of the University Museum are education and interpretation through the acquisition, preservation, study, research, exhibition, and circulation of archaeological, artistic, ethnological, historical, and scientific objects and specimens.

The University Museum is classified as a unit auxiliary to education and functions as a comprehensive entity within the University framework, crosscutting the boundaries of the orthodox disciplines or joining them in cooperative effort. Within the overall concept of its educational goals, the University Museum also functions as a sponsor and agent for interdisciplinary research in various geographic areas. In addition to administrative officers, the University Museum offers the services of the curatorships of collections, exhibits, geology, Mesoamerican archaeology, and North American archaeology. The archaeology, geology resource, and Mayan Laboratories are integral operational units of the University Museum. The fine arts, Illinois history, and at least a portion of the pure sciences are also given attention in various ways. Student and community involvement, particularly in the exhibits program is maintained.

Owing to the destruction of the exhibit halls through fire, the current exhibits program is carried out through utilization of modular, "mini-exhibits" located in various buildings about the Carbondale campus. Administrative Offices of the University Museum currently are located on Bernadean Lane.

SPECIAL INSTITUTES AND PROGRAMS

Aerospace Studies—Air Force ROTC

COL. C. R. CARLSON, *Adjunct Professor Aerospace Studies*

Aerospace Studies offers a two-year and a four-year program leading to a commission in the United States Air Force. Both programs are open to women. The four-year program is divided into the General Military Course (GMC), covering the freshman and sophomore years, and the Professional Officer Course (POC), covering the last two years. Students qualify to enter the two-year program at the POC level by attending a six-week field training course during the preceding summer.

The GMC prepares the student for the POC and provides him with an education for space age citizenship of long range value whether he remains a civilian or becomes an officer in the U.S. Air Force. The courses of the POC are designed to provide the basic knowledge, understandings, and experiences which are required to become an effective junior officer in the modern air force. The student learns about the wide range of USAF career specialties open and has an opportunity to request duty in those fields where he is qualified. Those qualified as pilots, who do not already fly, receive 36½ hours of flying training plus ground school instruction during their final year before graduation.

Freshman and sophomore students enrolled in the four-year program are eligible to compete for full scholarships for their remaining years at the university. In addition to full tuition and fees, the scholarship provides a monthly tax-free subsistence allowance.

In addition to the courses offered for academic credit, Aerospace Studies sponsors related extracurricular activities. The Arnold Air Society, a national honorary service organization, is open to selected AFROTC cadets. Membership in the Angel Flight, an auxiliary of the Arnold Air Society, is open to selected undergraduate women. Angel Flight assists with community and campus service-oriented projects. The wives of married cadets are eligible for the Cadet Ladies Club which prepares wives and fiancées for participation in military family life.

Further information may be obtained from Aerospace Studies, 807 South University Avenue.

Black American Studies

WALTER G. ROBINSON JR. *Director*

The Black American Studies program is designed to foster an awareness and understanding of contemporary developments respecting black Americans by virtue of new historical and cultural perspectives. The program acts as a clearing house for the collection and effective dissemination of information about Black America and for collation of opinions, critical evaluations, and assessments of the need for new curricular material.

A reference center in the former Doyle dormitory is stocked with books, journals, and other documents, by, about, and significant to black Americans. Recordings of speeches and music by famous black Americans are provided in the program's media room.

Center for Management Development

R. RALPH BEDWELL, *Director*

The primary objective of the Center for Management Development is to serve the continuing educational needs of individuals from business, education, and government in the primary service area of Southern Illinois and beyond through the offering of noncredit management development programs, small business development programs, and programs for academicians.

Inquiries should be addressed to the director, Center for Management Development.

Community Development Institute

RICHARD M. THOMAS, *Director*

The Community Development Institute has been established for students seeking training in work with individuals and groups striving to develop a more satisfactory life within the community setting. The institute's purposes also include training of adults concerned with improving their community leadership, and cooperating with academic units of the University and other agencies in research undertakings to investigate community processes and social change. Research findings from these undertakings become invaluable to the communities in their development. A

secondary concentration in Community Development is available. Offices of the institute are in Anthony Hall.

Intercultural Studies

PAUL MORRILL, *Director*

Intercultural studies includes General Studies courses designed to prepare freshmen and sophomores for area studies programs in African Studies, Inter-American Studies, Asian Studies, or Russian and East European Studies. Intercultural studies or any of the specific area studies may be the student's field of primary or secondary interest. The Latin American Institute offers a primary or secondary concentration in inter-American Studies while a secondary concentration is provided in African, Asian, or Russian and East European studies. Intercultural studies assists a student in developing an individually designed area studies study program, which may be obtained through the University's special concentration program. This program permits a student to receive approval to follow a specially designed program rather than those usually followed by students. Intercultural studies may be combined also with a concentration in other fields.

Special courses or sections are offered in anthropology, geography, economics, government, history, philosophy, and the humanities with reference to the foreign areas listed above. Outside of the framework of courses, the program staff helps students plan foreign study and travel and individual self-instruction programs in areas not covered by regular University offerings.

For further information write to Intercultural Studies.

Labor Institute

JOHN M. McDERMOTT, *Director*

The function of the Labor Institute is to promote harmony and cooperation between labor and management by encouraging the training of students and others interested in labor and industrial relations and to provide advice on the technical aspects of labor and industrial relations to labor, to industry, and to the public. Location of the institute is 805 South Elizabeth Street.

Latin American Institute

A. W. BORK, *Director*

In order to provide a special course of study for the student interested in Latin America, the Latin American Institute offers an undergraduate concentration in inter-American studies leading to the Bachelor of Arts degree in the College of Liberal Arts and Sciences. The institute is located in the International Center in Woody Hall.

President's Scholar Program

ALLAN L. LANGE, *Director*

The President's Scholar Program is designed to enable academically talented students to profit from an association with each other; to achieve maximum flexibility within the framework of the general University cur-

riculum; and to take fullest advantage of the talents and resources in the University.

A council of President's Scholars works with a faculty committee and the program staff to further the purposes of the program and to initiate and develop special courses and activities of interest. The staff assists the scholars individually and in groups to obtain the best curricular and extra-curricular conditions for excellent and rewarding academic work. The program has no set format or curriculum; it is intended to provide opportunities for the individually styled education particularly appropriate to superior students.

Test scores and high school standing provide the basis for inviting entering freshmen to participate in the program. Invitations to other students result from high academic performance at Southern Illinois University. Participants retain the prerogatives of President's Scholars throughout their undergraduate years as long as they meet minimum standards of academic performance and fulfill other limited conditions. Participation in the President's Scholar Program is inscribed in the student's official record.

Inquiries about the program should be addressed to the director, President's Scholar Program.

STUDENT SERVICES

Southern Illinois University recognizes the importance of providing students every opportunity to benefit in the fullest manner from their college experiences and is concerned with an integrated approach to student needs and problems. Students may learn more about these services throughout the University by reading publications such as the Handbook for Students or the Handbook for Married and Graduate Students or publications describing specific services as listed elsewhere in this catalog. It is the student's responsibility to seek these services and to use these facilities according to his needs.

Bus Transportation

Both intracampus and intercampus bus service is available to students. A free intercampus bus service operates daily between Carbondale and the Vocational-Technical Institute. In cooperation with a private company, the University provides a daily intracampus bus service.

Center for English as a Second Language

The Center for English as a Second Language is staffed by especially trained members of the University faculty and designed to teach English to students from other countries who intend to study in American colleges and universities. The program is open, however, to anyone wanting to learn English.

Cooperative Clinical Services

The Cooperative Clinical Services Center is a coordinated center of professional services on the campus. These services are not only available to students, but to children, adolescents, and adults not affiliated with the University.

Counseling and Testing Center

Counseling services for students offered by the center range from discussions with students concerning educational or vocational plans to working with students who have personal, social, or emotional problems.

The center personnel also administer tests ranging from preadmission tests to graduate school examinations. Preprofessional examinations and other types of aptitude interest and proficiency examinations are also given to students.

Dean of Students Office

The Dean of Students coordinates the student services offered by the units under his jurisdiction—the Counseling and Testing Center, the Housing Business Services Office, and the Student Activities Office.

The Dean of Students Office is decentralized with each major living area on campus having its own Assistant Dean of Students. For those students not living in University residence halls there is an Assistant Dean of Students for Commuter, Married, and Graduate Students and an Assistant Dean for Off-Campus Single Students. The Area Deans, the nomenclature attached to this group of administrators, work closely with other areas of the Dean of Students Office and with other services and faculty in planning and implementing an integrated program of activities and services for students.

The Dean of Students also works closely with student government in the development of policies concerning students and the student code. All students should be cognizant of University requirements and regulations which can be found in the Handbook for Students.

Financial Assistance

The University has an excellent program administered by the Student Work and Financial Assistance Office whereby a student may combine student work with financial assistance to defray a large part of his educational expenses. Student job diversity extends from unskilled entry jobs to those jobs requiring college training. Employment opportunities for students exist in every unit of the University. In addition to student work, scholarships, grants, loans, and other aids are available to assist academically capable, financially needy students.

Information regarding employment opportunities for the non-student spouse is available at the Commuter, Married, and Graduate Students office.

Handicapped Student Services

This office coordinates special services on the campus for handicapped students and works with the Vocational Rehabilitation Association and the Illinois Division of Vocational Rehabilitation and other agencies concerned with grants and other assistance to the handicapped.

Health Service

Facilities of the Health Service include an outpatient clinic, infirmary, pharmacy, laboratory, X-ray facilities, and an emergency vehicle service.

Students who pay the full activity fee are entitled to all benefits provided by the Health Service except drugs, which the student may purchase at cost.

The University sponsors a voluntary hospital insurance program for all students who pay activity fees.

Housing

Description and Regulations

Because of the relationship between the student's living environment and his progress towards attainment of his educational goals, the University provides some on-campus housing for its students and seeks continually to influence both the availability and quality of off-campus housing. The basic student housing policy for single undergraduate students is as follows:

Single undergraduate students not residing with their parents or guardians will be permitted to reside only in those accommodations which have been and which continue to be classified as Accepted Living Centers. The administration vigorously encourages that all accommodations used by graduate students and married undergraduates meet the same minimal standards.

Housing Business Services

Applications and contracts for all University facilities, including family housing, are handled by this office. In addition, this office is also responsible for all fiscal matters and maintenance aspects of University housing.

Housing Information Office

Information concerning the price and availability of both on- and off-campus housing is available to students through this office.

The office keeps listings of inspections and classifications of off-campus rental facilities and information about University residence halls.

Married Student Housing

University housing for married students includes furnished one-bedroom, two-bedroom, and three-bedroom apartments, a trailer court, and two bedroom and three-bedroom apartments equipped only with electric ranges and refrigerators. Inquiries regarding these units should be addressed to the Housing Business Services Office.

The Office of Commuter, Married, and Graduate Students provides listing of private rental facilities which are rented only to married and graduate students.

Off-Campus Housing for Single Students

In order for living accommodations to be classified as Accepted Living Centers, facilities must meet certain safety, sanitation, health, recreation and supervisory standards. Owners of off-campus housing facilities use the University's contract form for student rental housing. The Off-Campus Student's Office provides a listing of private rental facilities.

University Housing for Single Students

Applications for University housing for students for any academic year may be filed after September 1 of the preceding year. Assignments of

space and contracts for housing are offered on the basis of the date of admission to the University and are available from the Housing Business Services Office.

Students enrolled in the Aviation Technology program of the Vocational-Technical Institute should request housing on the campus. Although it is a VTI program, most students enrolled in Aviation Technology will have no classes on the VTI campus and the airport is more accessible from Carbondale.

Information and Scheduling Center

This office coordinates services that provide general information and referral, general scheduling of University premises and facilities, campus tours, and the reception of parents, guests, and visitors to the Carbondale campus. It serves as an outlet for the distribution of event calendars, maps, general informational publications; as a center for special campus programs such as the annual fund drives, the issuance of courtesy cards, and the publication of the annual University facts brochure.

International Student Services

This office attends to the special needs of students from abroad by assisting them with matters of immigration, passport problems, contacts with sponsors, foundations, agencies, governments, and matters of financial and personal urgency.

Office of Admissions and Records

This office performs a number of student services while engaged in its major functions of admitting and registering students and maintaining their academic records. The admissions office issues form I-20's for international students and early release letters for servicemen who are seeking to enter school but find that the starting date precedes the end of duty date. The office also serves as the University's reporting agent for students who need to report their University attendance to some outside agency. Examples of this type of activity include Selective Service and Social Security. Other types of reporting for students include the issuance of transcripts and the sending of letters attesting to completion of graduation requirements when a student has done so some time ahead of the date when he is to be officially graduated.

National Service Information

National service information officer is available in the Office of the Dean of Students to supply factual, up-to-date information about Selective Service and opportunities in such national service programs as the Peace Corps, Teacher Corps, and VISTA.

Placement Service

This office assists students, graduates, and others who have been attending the University who desire to find employment. It also serves employers by helping them locate personnel. Services are free to candidates seeking positions, as well as to employers.

Reading Center

The Reading Center maintains a College Reading Service section provide services for all students who desire to increase their speed and comprehension skills or need general assistance with reading or studying skills.

Self-Instruction Center

The Learning Resources Service maintains a Self-Instruction Center assist students who wish to (1) extend their studies beyond regular course work, (2) explore subject matter in which they have an interest, (3) have help preparing for proficiency exams, final exams, or prerequisite exams, (4) review previously covered material, or (5) have help in subjects in which they are having difficulty.

The center, on the main floor of Morris Library, contains programmed instructional material prepared by university faculty and by commercial suppliers, tapes, films, slides, film-strips, and all equipment necessary for using them. Latest addition to the center is a push-button access information retrieval system.

Stenographic Service

The Stenographic Service offers secretarial, duplicating, and binding services to students. Students are charged for materials and labor.

Student Activities

The staff members of the Student Activities Office are available to all campus groups and individuals in planning, conducting, and evaluating activities and programs. Besides honorary organizations which stimulate and recognize academic achievements, other groups and organizations exist to meet the educational, religious, social, recreational, political, and other special interests of the student. Participation in any group or organization is open to all students.

In addition, this office cooperates with the Student Government Activities Council in sponsoring and planning all University events such as Homecoming and Parents' Day and other cultural and social programs. The office is also responsible for the intramural and recreational programs on the campus.

The Office of Student Relations

The assistant to the chancellor for student relations in the Office of Student Relations coordinates the following units under his jurisdiction: Community Relations, Student Discipline, Student Governance, and Student Records.

The Community Relations section in the Office of Student Relations attempts to develop programs and activities to build, enhance, and maintain good relations between students in the University community and persons, agencies, and groups in the Carbondale community. The specific aim is to bring the town and University students closer together in a relationship of mutual understanding and respect.

The Student Discipline section of the Office of Student Relations works as a coordinating facility for the University's centralized disciplinary procedure. This Section has a two-fold function: 1) maintain order within the campus community, and 2) bring about a positive learning experience for those individuals subject to disciplinary process for violating the regulations of the University. The section is supported by the student records section in its maintenance of personal files.

The student governance section acts in an advisory capacity to the student government to assist in the implementation of policies concerning student welfare, student rights and responsibility, and fiscal operations.

University Center

The University Center provides facilities for dances, banquets, receptions, gallery exhibitions, and meetings. In the building, there are lounges, a cafeteria, a television lounge, bowling lanes, pool and billiard tables, Ping-Pong tables, card and study tables, a snack bar, locker storage, vending machines, and the University Book Store.



2 / Academic Requirements and Procedures

Admission Policies, Requirements, and Procedures

IN ORDER TO attend classes at Southern Illinois University, one must gain official admission to the University and must complete the enrollment process, which includes advisement, registration and payment of fees. Applications for admission to the University are accepted any time during the calendar year but should be initiated in ample time to permit the necessary work of processing to be completed.

Admission of Freshmen

To be eligible for admission a person must be either a graduate of a recognized high school (graduates of non-recognized high schools may be admitted by the Director of Admissions by examination), or must have passed the General Educational Development Test. A person seeking admission through the latter procedure will be considered only after his high school class would have graduated.

In-state high school graduates who rank in the upper half of their graduating class based upon class rank or by score on the University entrance examination are eligible for admission to any quarter. Graduates who rank in the lower half of their graduating class are admissible to the summer quarter on a conditional basis.

Out-of-state high school graduates who rank in the upper forty percent of their graduating class based upon class rank or by score on the University entrance examination are eligible for admission to any quarter. Out-of-state high school graduates who rank in the upper half of their graduating class, but not the upper forty percent, are admissible to the summer quarter on a conditional basis.

Both in-state and out-of-state students admitted to a summer quarter on a conditional basis can qualify for fall quarter attendance by carrying a minimum academic load of eight quarter hours and completing them with at least a C average. Otherwise, the next earliest time that they might enter will be the following summer and under the same conditions.

University entrance examination scores must be furnished by students prior to their being admitted to the University. Currently the ACT (American College Testing Program) is the required test.

All admissions granted students while in high school are subject to the completion of high school work and maintenance of rank upon which the admission was made.

A student entering the University as a freshman is enrolled in the General Studies Division unless he is being admitted to the Vocational-Technical Institute.

Admission of Transfer Students

For academic purposes an undergraduate applicant for admission to Southern Illinois University is considered to be a new freshman provided he presents fewer than twelve quarter hours of graded work for transfer consideration, otherwise he is considered to be a transfer student.

Students applying as undergraduate transfer students from four-year institutions are admissible to any quarter provided they had a 3.00 grade point average at the institution of last attendance. Students who do not have a 3.00 grade point average at the institution of last attendance but are eligible to continue at that institution will be considered for admission on probation for summer, winter and spring quarters. Those who are not eligible to continue at their last institution will be considered for admission on probation for the summer and spring quarters provided there has been an interruption of schooling of at least two quarters duration and there is tangible evidence that additional education can be successfully completed by the student.

In the event a student has attended more than one institution, the institution of last attendance is considered to be the one last attended on a full-time basis for at least one quarter or semester. Twelve hours are considered as full-time for this purpose.

Students applying for admission from two-year institutions are subject to the same conditions specified above for transfer from four-year institutions. However, a student who did not meet the University's admission requirements to enter as a freshman from high school during the regular year and who elected to enter a two-year institution will not be considered for admission as a transfer student until he has completed one year of attendance at the two-year institution as a full-time student. This means an academic year or 36 quarter or 24 semester hours. Also, students who have graduated with an associate degree in a baccalaureate-oriented program from a two-year institution may enter Southern Illinois University any quarter without regard to their average provided they have not taken additional college-parallel work since their graduation. If they have, the admission will be considered from the same standpoint as a student transferring from a four-year institution.

Students applying for admission to the University to pursue baccalaureate programs from programs not so oriented will be considered for admission as follows: (1) students from regionally accredited institutions will be considered on the basis of their conformity to the University normal transfer admission standards, and (2) students who have completed a two-year or equivalent program with a *C* average in an institution which has not been accredited by a regional accrediting association will be admitted if the institution is (a) one falling within the normal purview of a regional accrediting association or (b) one recognized by an accrediting body which itself is recognized by the National Commission on Accrediting or the U. S. Office of Education. Students who have attended institutions as outlined in (2) above and who have not completed two year programs or equivalent or who have less than a *C* average are considered for admission as entering freshmen.

Transfer students who have been suspended for any reason other than academic failure must be cleared by the Office of Student Relations before admission will be granted by the Director of Admissions.

Transfer credit from baccalaureate programs is evaluated for acceptance

towards University and General Studies requirements by the Office of Admissions and Records after the admission decision has been made. The evaluation toward satisfaction of specific curriculum requirements is done by the department or agency directing the specific curriculum. General principles governing the acceptance of transfer work are as follows:

1. All transfer work is entered on the student's official record of academic work maintained in the Office of Admissions and Records and continues to be applied to the student's total academic record.

2. Credit transferred on or after June 1, 1967, from an accredited two-year institution is limited only by the provision that the student must earn at Southern Illinois University or at any other approved four-year institution at least 96 quarter hours required for a degree, except that the student must meet the residence requirements for a degree from the University. These requirements can be found elsewhere in this catalog. Conditions governing the acceptance of credit from four-year higher educational institutions also apply to acceptance of credit from two-year institutions.

Further information on the application of transfer work towards satisfying General Studies and graduation requirements may be found elsewhere in this catalog.

Transfer credit evaluation from educational programs not baccalaureate oriented and to be applied to baccalaureate programs will be subject to the general conditions listed above and to the additional following points:

1. Credit presented by students who have completed associate or equivalent programs with a *C* or better average in regionally accredited institutions will be evaluated. Applicable credit will be posted to the students' educational record cards without condition.

2. Credit presented from regionally accredited institutions when the students have not completed associate or equivalent programs, or who have less than a *C* average, will be evaluated so that the students may receive advice regarding registration and remaining requirements, but the credit will not be posted to the students' educational record cards until they have established a *C* average in their first 36 calculated quarter hours at the University.

3. Credit presented from institutions not regionally accredited but which fall within the normal purview of regional accrediting associations or from institutions recognized by accrediting bodies recognized by the National Commission on Accrediting or the U. S. Office of Education will be evaluated as in point 2 above provided the student has completed a two-year program or its equivalent. Otherwise no credit will be considered for transfer.

Transfer students from baccalaureate programs presenting fewer than 64 quarter hours of acceptable work will be enrolled in the General Studies Division as will those with 64 to 90 hours whose areas of concentration are not yet determined. Others will be enrolled in the appropriate upper division academic unit in keeping with their expressed educational objective. Transfer students admitted to V.T.I. will be enrolled in that academic unit.

Transfer students from non-baccalaureate programs will ordinarily be placed in the upper division unit in which they plan to continue their studies.

Admission of International Students

In general, international students must meet the same academic standards for admission as those required of native students. As there is considerable variation between educational systems throughout the world, precise comparative standards are not always available. Therefore, international students are selected upon the basis of the excellence of their former academic work, personal recommendations of former teachers and colleagues, the judgment of the University as to whether it has academic programs of benefit to the student, and the student's financial arrangement for his support during the normal period of time required to reach the objectives of his study. Undergraduates who have had previous schooling in the United States are required to submit scores from the American College Testing Program examinations if they have accumulated less than one full year of college credit.

International students interested in making application to the Carbondale Campus of Southern Illinois University should address their inquiries to the Admissions Office. At that time they will receive a copy of the *Information for Prospective International Students* booklet which outlines in greater detail information about the University and admissions procedures of particular interest to international students.

Admission of Former Students

A former student of Southern Illinois University not in attendance on a campus of the University at the close of the quarter preceding application for admission must apply to the Admissions Office for re-entrance prior to registration.

A former student who is not in good standing must clear his status before the Admissions Office will prepare his registration permit. It is advisable for such student to initiate re-entrance clearance with the Admissions Office early so that all inquiries may be answered and so that the applicant can find time to complete any requirements that may be imposed upon him. (See Scholastic Probation and Suspension System elsewhere in this bulletin for further information.)

Applying for Admission

High school students are urged to initiate the admission application process during the seventh semester in high school. Transfer students should initiate the process during the last semester or quarter of attendance at the previous school if they plan to transfer without interruption. Students who delay their admission processing until near the start of the quarter which they wish to enter may find that they are unable to do so because all necessary documents required before the admission decision will be made have not been received. It is particularly important for transfer students to initiate the admission application process well before the starting date of the quarter. Otherwise delay in getting started, payment of a late registration fee, undesirable class schedules, or inability to attend the desired quarter may result. Documents required in the admission process are listed later in this chapter.

The admission process is started by writing the Admissions Office, Southern Illinois University, Carbondale, Illinois 62901, indicating a desire to apply and requesting admission materials. The materials that are sent contain the application and related forms that need to be com-

pleted along with procedural instructions. Information is also included relative to housing and financial assistance.

Documents Required for Admission

Among the items required by the University before admission decision is made are the following:

1. The completed application form from the student.
2. Transcripts of previous educational experience. For the high school student the request is for two copies of the high school transcript. For the transfer student the request is for an official transcript from each institution previously attended sent directly to this University from the previously attended school. In addition, transfer students presenting fewer than 42 quarter hours (28 semester hours) of completed work must provide to the University a copy of their high school transcript.
3. University entrance examination scores. All students applying for admission directly from high school and all transfer students who have completed fewer than 42 quarter hours (28 semester hours) must have their official ACT scores sent to the University from the American College Testing Program, Box 451, Iowa City, Iowa 52240.
4. Personal Data Form. This form must be received from the institution of last attendance before a transfer student will be admitted.
5. Physical examination form. Each new student admitted as a full-time undergraduate student is requested to have a physical examination performed by a private physician recorded on the form provided by the University. This must be done prior to registration in the University. The completed form is to be sent directly to the University Health Service. In case of a religious belief which is in conflict with the plan, special arrangements may be made with the director of the University Health Service.

Applications for housing and financial assistance are separate from the admission process and directions relating thereto are contained in the brochures on these subjects which the students receive when they request admission materials.

Orientation, Advisement, Registration

Through a carefully designed system of orientation, academic advisement, and registration the University attempts to assure entering students an efficient and effective introduction to the University prior to the time they start class attendance. A more extensive program is provided for those students entering during the fall quarter while abbreviated activities are in operation for the other quarters.

For many years the University has used an advance registration system through which all continuing students and most new students are expected to be academically advised and registered for a quarter well before its actual start. The advance registration period for fall quarters ordinarily runs from the middle of April through the end of May and then from the early part of July to the latter part of August.

During the July-August period three days each week are set aside for new freshman and transfer student orientation, advisement, and registration. Students are invited to have their parents accompany them so that they too may obtain a better understanding of the University and its

operation than might otherwise be the case. The orientation program on these days is of necessity an introductory type in which questions about admission, housing, financial assistance, etc., can be answered. Later, at the start of the fall quarter new students participate in three days of orientation activities during which time they receive a well rounded introduction to university life.

Starting in May and extending through June the University's Admissions Office contacts new students admitted to arrange appointment dates for them to come to the campus. Through this process only the number of students that can be efficiently handled are involved each day. Students who cannot come to the campus during the summer or who delay applying for admission beyond the advance registration period may register at the start of the fall quarter but are required to come to campus a few days before those who have registered during the summer period. New students who have not been advised and registered by the time the student orientation period starts at the beginning of the fall quarter are considered to be late registrants and are subject to a late fee payment.

Similar procedures are followed at the start of each of the other quarters. Admitted students are kept informed of orientation, advisement, registration procedures, and the times when they occur by the Admissions Office in cooperation with the Student Activities Office. The latter office is the University's administrative agency that assists the large number of volunteer students who actually operate the New Student Days activities at the start of each quarter.

Academic Advisement

Academic advisement is administered by the academic units. Each unit employs a selected group of trained advisers devoting part-time directly to this function. They operate under the supervision of a chief adviser who is responsible to the dean of the academic unit.

The University accepts the importance of the academic advisement function. Insistence on receipt of transcripts and ACT scores prior to admission serves not only to determine admission but later provides suitable educational information to the advisers upon which decisions can be made relative to the proper courses to advise the students to take. On the basis of this information the advisers can make intelligent decisions relative to students who should receive advanced standing in courses or who should be urged to take proficiency examinations in courses about which they appear to be already well informed.

Registration

Registration for any session of the University is contingent upon being eligible for registration. Thus an advance registration, including the payment of tuition and fees, is considered to be invalid if the student is later declared to be ineligible to register due to scholastic reasons. The enrollee may also be considered ineligible to register because of financial or disciplinary reasons if this is certified to the registrar by the appropriate University office.

Detailed information about the dates and procedures for advisement and registration appears in each quarter's Schedule of Classes, which is available from Central Publications.

There are several basic principles governing registration for classes as follows:

1. Students are officially registered only for those courses which appear

- on their schedule of classes. Changes therefrom can be made only through the processing of an official program change.
2. Registration ends at the close of the first week of school. This includes the registration into new courses or the changing of sections through the program change process.
 3. A student may not drop a course merely by stopping attendance. To do so results in an ABS grade. A course may be dropped through the program change route through the first four weeks without a letter grade being assigned. Thereafter, a passing or failing grade will be assigned in keeping with the student's status at the time of withdrawal.
 4. There is a terminal date near the end of each quarter after which program changes or withdrawal from school are not permitted except under exceptional conditions. This date is usually two weeks before final examinations begin. The specific date appears in each quarter's Schedule of Classes.

Withdrawal from the University

A student who finds it necessary to withdraw from the University after school has started and he is on campus should contact the Registrar's Office in person to initiate the withdrawal process. If he is unable to come to campus he may write the Office of Student Services asking that it process a withdrawal for him.

A student who advance registers, including the paying of fees, and who then finds that he cannot attend school must process an official withdrawal the same as do those who withdraw after school starts. In this case the process is the same as outlined in the paragraph above. A student who advance registers but does not clear his fees by the announced deadline date is automatically cancelled.

Refer to the section *Payment and Refunding of Fees* later in this chapter for information about the refunding of tuition and fees when withdrawing from the University. Refer to that section, also, relative to special considerations extended to a student withdrawing from school for extended military service.

Tuition and Fees

The types and amounts of tuition and fees charged students are established by the Board of Trustees and are subject to change whenever conditions make changes necessary. Listed below are the tuition and fees assessed a student per quarter effective fall 1971:

	Not more than 5 hrs.	More than 5, less than 11	11 or more
Tuition Fee—Illinois Resident .	\$ 48.00	\$ 95.00	\$143.00
Tuition Fee—Out of State			
Resident	(143.00)	(286.00)	(429.00)
Student Welfare and Recreation			
Building Trust Fund Fee	5.00	10.00	15.00
Athletic Fee	3.00	6.50	10.00
Book Rental Fee	3.00	6.00	8.00
Student Activity Fee	3.50	7.00	10.50
University Center Fee	5.00	5.00	5.00
Total—Illinois Resident	\$ 67.50	\$129.50	\$191.50
Total—Out of State Resident ..	(162.50)	(320.50)	(477.50)

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

1. A late registration fee, which is \$2.00 for the first day and which increases \$1.00 each day to a maximum of \$5.00 when a student registers after the regular registration period has ended.

2. A \$2.00 program change charge whenever a student changes his program from the one for which he originally registered, unless the change is made for the convenience of the University.

3. A graduation fee of \$17.00.

Students holding valid state scholarships are exempt from the above tuition and fees to the extent provided by the terms of the specific scholarship held. An Illinois State Scholarship may cover all tuition and fees (excluding late fees or program change fees) or the scholarship may be a partial award. Also, honorary scholarships, which have no monetary value, may be awarded. An Illinois State Teacher Education Scholarship, an Illinois Military Scholarship, an Illinois General Assembly Scholarship, or an Illinois County Scholarship exempts the student from the paying of tuition, the student activity fee, and the graduation fee.

The student activity fee includes the fees for limited hospitalization, entertainment, athletics, student publications, and other privileges.

Faculty members and university civil service employees taking courses are not charged tuition and activity fees. However, they pay all other appropriate fees. A civil service employee claiming this fee remission must receive approval of his department head and Director of the Personnel Office prior to enrolling for courses.

Extension course fees are \$6.00 per hour plus a \$1.05 book rental fee per course. The book rental fee is charged undergraduate students only.

Adult education course fees are computed on the basis of approximately sixty cents per contact hour.

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

A student registering for courses on an audit basis pays the same tuition and fees as though he were registering for the courses for credit.

A student is entitled to a free transcript of his university record each time he has added academically to his record through work taken at this University, provided he has fulfilled all his financial obligations to the University. There is a charge of \$1.00 for each additional transcript.

PAYMENT AND REFUNDING OF FEES

Fees are payable quarterly during the academic year. A student who registers in advance receives a fee statement and may pay either by mail or in person at the Bursar's Office, by the deadline date, in accordance with instructions accompanying the fee statement. Otherwise his advance registration is cancelled and he must register again later. A student who registers at the start of a quarter must pay fees at the time of registration.

A refund of fees will be made to a student who officially withdraws from school within the first two weeks of the quarter. If the student withdraws in person, he will receive an immediate cash refund. If he withdraws by mail, he will receive a refund by check in approximately four weeks after the withdrawal has been received by the Registrar's Office. No refunding of fees is made for a withdrawal occurring after the first

two weeks, except as described in the next paragraph. The specific deadline dates for each quarter appears in that quarter's Schedule of Classes.

Special consideration is extended to individuals who leave school for extended military service (6 months or longer). A person will be refunded full tuition and fees paid if he enters military service during the first four weeks of school. If the student withdraws during the fifth through eighth week of school, he will be refunded half of the paid tuition and fees, and he will receive one-half credit without letter grades for the courses in which he was receiving a passing grade at the time of withdrawal. When the withdrawal occurs after the eighth week, the student will receive no refund, but will receive both grades and credit hours for the courses in which he is enrolled. In all instances, a copy of the military orders or a letter from the commanding officer is required for verification of impending military service. To be eligible for these benefits the student must remain in school to within ten days of his military reporting date.

A student who processes a program change which places him in a different tuition and fee category than the one for which he originally registered will be billed additional tuition and fees when appropriate. If the change places him in a smaller tuition and fee category and if he has processed the program change within the first two weeks of the quarter, he should make application for a refund at the Registrar's Office after the fourth week of the quarter. Mail requests for a refund will be honored.

Grading System

Grades are expressed in letters as follows:

	GRADE POINTS PER HOUR
A, Excellent	5
B, Good	4
C, Satisfactory (this is intended to be the average grade)	3
D, Poor, but passing	2
E, Failure	1
P, Pass. Hours earned apply towards graduation but do not affect student grade point average. Used only in Pass-Fail system. See Special Grading System this catalog.	
F, Fail. Hours do not apply towards graduation and do not affect student grade point average. Used only in Pass-Fail system. See Special Grading System this catalog.	
W, Authorized withdrawal with no basis for evaluation established. Work may not be completed. Approved grading symbol only on graduate level except for unusual circumstances where an academic unit dean recommends a change in grade from ABS to W for an undergraduate student.	
WP, Authorized withdrawal with passing grade.	
WE, Authorized withdrawal with failing grade. Counts same as an E for grade average purposes.	
WF, Withdrawal with failing grade. Does not affect student's grade point averages. Authorized grade only for students taking courses on Pass-Fail basis. See Special Grading System this catalog.	

- INC, Incomplete. Has permission of instructor to be completed.
- DEF, Deferred. Used only for graduate courses of an individual, continuing nature such as thesis or research.
- PR, Work in progress. Grade is not included in grade point average. Final grade will be assigned at conclusion of instructional period.
- ABS, Unauthorized withdrawal. Counts same as an *E* for grade average purposes.
- S, Satisfactory. Used for noncredit courses except Spring Quarter, 1970, when it was used to indicate satisfactory completion of credit courses as well. Effective Fall, 1970, the *S* and *U* grades were used for the grading of thesis and dissertation credit on the graduate level.
- U, Unsatisfactory. Used for noncredit courses except Spring Quarter, 1970, when it was used for credit courses as well.
- CR, Credit. No letter grade assigned.
- AU, Audit. No grade or credit earned.

A grade given at the end of a course is final and may not be raised by additional work.

The grades of *A*, *B*, *C*, *D*, *E*, *WE*, and *ABS* are included in determining student grade point averages.

Authorized course withdrawals made through the program change process do not receive grades when made during the first four weeks of a quarter. Thereafter, authorized withdrawals receive *WP* for withdrawal with a passing grade, *WE* for withdrawal with a failing grade, or *W* (for graduate students only) when no basis for evaluation has been established. The grade of *WF* is used in lieu of *WE* when a student withdraws from a course for which he registered on the Pass-Fail system.

A *DEF* grade for course work of an individual nature such as research, thesis, or dissertation is changed to a completed grade when the project has been completed.

The grades of *S* and *U* are used to indicate satisfactory or unsatisfactory completion of a noncredit course.

A student registering for a course on an *audit* basis receives no letter grade and no credit. An auditor's registration card must be marked accordingly, and he pays the same fees as though he were registering for credit. He is expected to attend regularly and is to determine from the instructor the amount of work expected of him. If an auditing student does not attend regularly, the instructor may determine that the student should not have the audited course placed on his record card maintained in the Registrar's Office. A student registering for a course for audit or credit may change to a credit status or vice versa through the official program change method during the first four weeks of a quarter. Thereafter the change may not be made.

The official record of a student's academic work is maintained in the Registrar's Office.

Unauthorized course withdrawals which are made through failure of

the students to continue in attendance receive a grade of *ABS*. An *ABS* grade for a student may be changed to a *W* in unusual circumstances upon the recommendation of the head of the student's primary academic unit.

An *INC* grade may be changed to a completed grade within a time period to be designated by the instructor, not to exceed one year from the close of the quarter in which the course was taken; otherwise it remains as *INC* and is not included in grade point computation.

Prior to the 1971 Summer Quarter courses in which *D*'s or *E*'s were received could be repeated and the last grade was used in computing the student's grade point average. The repeating of a course does not remove the previous grade from the student's official academic record card. Effective with the 1971 Summer Quarter all earned grades carrying grade point values are considered when computing a student's grade point average, including each earned grade in a repeated course.

Special Grading System

Effective with the 1968 fall quarter the various undergraduate academic units at their discretion permitted their students to take a limited amount of course work on a Pass-Fail basis rather than on the regular letter grade basis.

The purpose of the Pass-Fail grading system is to encourage students to broaden their education by undertaking intellectual exploration in elective courses outside their area of specialization without having to engage in grade competition with students specializing in those courses. The present Pass-Fail grading system is governed by the following conditions:

1. A student with a 3.25 overall grade point average may participate in the College of Liberal Arts and Sciences' program with the permission of his academic unit or in his own academic unit's program if and when established.
2. A student may apply a maximum of 16 quarter hours of Pass credit towards graduation with no more than 8 quarter hours in any one department.
3. The Pass-Fail option is applicable only for elective courses in a student's program. He may not use it for courses satisfying General Studies, concentration requirements. Should he later change his concentration, work previously taken on a Pass-Fail basis may, with concurrence of the department, be used in fulfillment of the requirements in the newly selected concentration.
4. Pass-Fail courses on the 300 and 400 level count towards satisfying the 64 quarter hours requirement in senior college courses.
5. Hours earned in Pass work will be added to a student's total hours passed but will have no effect on his grade point average. Unsuccessful completion of a course taken on the Pass-Fail basis will result in a *F* grade being recorded on the student's academic record card but will have no effect on his grade point average.
6. A student may change his course registration status from a Pass-Fail to a regular grading point and vice-versa during the first four weeks of a quarter only.
7. Each academic unit participating in the Pass-Fail system has a list of courses in which registration is permitted on a Pass-Fail basis.

Scholastic Standing

The matter of scholastic standing is quite often of importance to a student both while in school and later when he presents a transcript of his educational record in support of his application for employment or additional schooling.

At the end of each quarter of his attendance a grade report is prepared for each student showing, in addition to the grades earned that quarter, what his scholastic standing is and what his grade point average is for the quarter, and for his over-all record. It is important that a student understands the University's system for computing grade point averages and the various grade point average requirements.

The University computes a student's grade point average in two ways: (1) for his work taken at Southern, and (2) for his total work. These two averages will be the same for the student who has taken collegiate work only at Southern but the transfer student will have two grade point averages with one being his Southern only average and the other being his overall grade point average which covers his total collegiate level work.

The significance of the above should be clearly understood by the transfer student when studying the general baccalaureate degree requirements. A 3.00 (C) average is required for both the work taken at the University and for the overall collegiate work. This same 3.00 (C) average requirement prevails for the student's area of concentration in that he must have that average both for the work which he takes in his concentration at Southern and for the total work taken in the concentration. In addition, a transfer student may be placed on scholastic probation or may be scholastically suspended either for the record he has accumulated at the University or for his overall record.

In computing a student's grade point average all grades of A, B, C, D, E, WE, and ABS are included in determining the number of *calculated* hours. Corresponding grading symbols from other institutions are included in the same way. Each hour of these grades (1 hour of A is worth 5 grade points) is given its numerical grade points, and the total number of calculated hours is then divided into the total number of grade points to determine the student's grade point average.

Effective with the 1971 Summer Quarter all earned grades carrying grade point values are considered when computing a student's grade point average, including each earned grade in a repeated course that is taken during the 1971 Summer Quarter and thereafter. When computing averages through the 1971 Spring Quarter the policy contained in the 1970-1971 Undergraduate Catalog will be followed.

Class Standing

Southern Illinois University requires a student to earn 192 quarter hours of acceptable credit in order to receive a baccalaureate degree. For academic classification purposes a freshman is a student who has completed fewer than 42 hours; a sophomore, from 42 through 89; a junior, from 90 through 137; and a senior, 138 or more.

University Recognition of High Scholastic Achievement

In recognition of high scholarship, a Scholastic Honors Day convocation is held each spring. A candidate for a bachelor's degree in June or August

who has maintained a grade point average of 4.25 or more for all of his work through the winter quarter of his senior year receives special honor. Each junior having a 4.25 grade point average and each sophomore and freshman having a 4.50 grade point average is also honored at the convocation. Except in the case of a graduating senior, a student must be attending full time to be eligible. A transfer student must have earned the average indicated for work at Southern Illinois University only, as well as for the total record.

Graduating students with scholastic averages of 4.90 or higher receive University highest honors; those with 4.75–4.89 averages receive University high honors; and those with 4.50–4.74 graduate with University honors. This is recorded on the commencement program, on the student's academic record card, and on his diploma.

Successful participation in all-campus honors programs which requires maintenance of appropriate minimal scholastic standards, such as the President's Scholars, receives recognition by notation on the student's academic record and on the diploma. Honors courses, individual honors work, and honors curricula, all designed to serve students with high scholastic potential, are offered by the School of Home Economics and by departments in the School of Agriculture and the College of Liberal Arts and Sciences. A departmental or unit honors program consists of no fewer than 9 nor more than 21 quarter hours in research or independent study which is counted toward the student concentration. Some honors programs require a comprehensive examination at the end of the junior year and again at the end of the senior year. Grades may be deferred at the end of the first and second quarters, but not from one school year to the next.

A variety of professional, departmental, and fraternal honorary organizations offer recognition and membership based upon scholastic achievement. Election or selection to most honoraries is noted at the Honors Day Convocation.

Scholastic Program Flexibility for the Student

Through various methods the University permits a student to develop flexibility in his college education so that he might follow a pattern different from that pursued by other students. The student who must interrupt his attendance on campus may find it possible to continue his educational training through extension or correspondence work.

Special Concentration

An individual student with academic needs not met in any of the existing concentrations within the University may arrange a program of courses more suited to his special requirements. See the description of the Special Concentration in Chapter 3.

High School Advanced Placement Program

Through the High School Advanced Placement Program a high school student who is qualified through registration in an advanced placement course in his high school or through other special educational experience may apply for advanced placement and college credit through the Advanced Placement Program of the College Entrance Examination Board, 5 Riverside Drive, New York, New York 10027. To receive credit, a

person must earn the grade of 3, 4, or 5. Any interested high school student should write to the University's Admissions Office to learn the current listing of courses for which credit may be earned through this program.

Ordinarily, the maximum credit granted through advanced placement examinations is 16 hours. It is nonresident credit, does not carry a grade and is not used in computing the student's average grade. Credit granted at another accredited college or university under this plan is transferable to this University up to a maximum of 16 hours. A student may appeal to his academic dean to be granted more than 16 hours.

General Studies Advanced Standing Program

Through the general studies advanced standing system it is possible for a student presenting a combination of high ACT scores and high school course achievement to be eligible for advanced standing consideration. While credit is not granted for the courses in which the student receive advanced standing it does permit the student to take more advanced work in the same General Studies area or to move on to elective work of his own choosing. Other alternatives for flexibility are described in the section on General Studies requirements in this catalog.

College Level Examination Program

Through the General Examination of the College Level Examination Program, a student may apply for credit which will substitute for general studies courses. With a score of 480 or higher on the appropriate examination, a student may possibly receive nine quarter hours of credit in each of the five fields of mathematics, English composition, literature and fine arts, social studies and history, and biological and physical sciences. Ordinarily the test results should be submitted from the Educational Testing Service or from the United States Armed Forces Institute. A student who has taken the test should check with the Office of Admission and Records to learn what credit may be given.

Proficiency Examinations

Through its proficiency examination program the University recognizes the importance of providing encouragement for academically talented students. Such students are permitted to make application to demonstrate the mastery of certain courses through proficiency examinations. Application forms are available at the departmental offices.

The following general rules govern the proficiency examinations for undergraduate credit.

1. A student who believes he is qualified to take a proficiency examination should check with the department offering the course to determine his eligibility to do so; students scoring in the top ten percent of ACT are particularly encouraged to avail themselves of this opportunity.

2. Credit not to exceed 48 hours, including credit through the College Entrance Examination Board, Advanced Placement Program, may be earned through proficiency examinations. Credit will be nonresident.

3. Upon passing a proficiency examination in a course with a grade of A or B a student is granted course credit with grades and grade points appropriately recorded. His record will show the name of the course, the hours of credit granted, the grade earned, and a notation "credit granted by proficiency examination." The grade earned will count in the student's

grade point average. Passing with a grade of *C* results in the student earning credit. His record will show the name of the course, the hours of credit granted, and a notation, "credit granted by proficiency examination." The grade earned will not be recorded and will not count in the student's grade point average. A grade of *D* or *E* on a proficiency examination results in no penalty to the student. He will not receive credit and his record will show nothing regarding the proficiency examination. However, the proficiency examination grade report form will be filed in the student's folder for reference purposes.

4. A student may not take a proficiency examination for the same course more than one time. Neither may he take a proficiency examination in a course in which he has previously received a grade.

5. No credit granted by proficiency examinations will be recorded until the student has earned at least 14 hours of credit of *C* grade or above in residence at Southern Illinois University.

Extension and Correspondence Credit

The University accepts credit earned through extension or correspondence programs towards the bachelor's degree. A maximum of 96 quarter hours may be so earned. Of the total, not more than 48 quarter hours may be taken in correspondence work.

Southern Illinois University does offer a sizeable number of courses through its Extension Services. It does not operate a correspondence program. Correspondence work is accepted when taken from institutions which are regionally accredited if the grade is of *C* quality or better.

The University offers extension courses throughout Southern Illinois whenever (1) it is apparent that there is a need and potential enrollment to justify scheduling a class, (2) it is possible to obtain a faculty member to host the class, and (3) adequate laboratory and library facilities are available.

Three quarter-hour extension classes meet weekly for a period of twelve weeks, each meeting being two and one-half hours in length unless otherwise stated. Four quarter-hour extension classes meet weekly for twelve weeks with four extra meetings being arranged for by the instructor and the group. The 500-level courses meet for a total of twelve weeks with no extra meetings.

Registration in extension courses is permitted during the first and second class meetings. Students must have their social security numbers with them and a university identification number (if previously registered at Southern Illinois University) in order to register. Students are billed for tuition and fees after their registration information has been processed.

Tuition is \$6.00 per quarter hour of credit, and undergraduates must pay an additional \$1.05 textbook rental fee for each course taken by extension. Graduate students must purchase their books or make other arrangements. The instructor may require the purchase of additional books or other material. Scholarships issued by the State of Illinois, except the Illinois Military Scholarships are not usable for extension courses. Therefore, holders of such scholarships must pay tuition and, if they are undergraduate, the book rental fee unless they are enrolled full-time on campus, either Carbondale or Edwardsville. Illinois State Military Scholarships holders do not pay tuition for extension courses but must, if they are undergraduate, pay the textbook rental fee. Students attempting to waive tuition and textbook rental fee through other types

of grants or waivers must provide verification of entitlement along with their registration materials or they need to indicate status and show that a record of their entitlement is on file in the Registrar's Office before the waiver can be permitted.

A person may enroll for extension work on an audit basis provided facilities are available. He must receive permission of the instructor to do so and he must pay the same tuition and fees as though he were registering for credit.

Credit for Military Experience

Students who have served one year or more of active duty and who have received an honorable discharge may receive 3 hours of aerospace credit, 3 hours of physical education credit, and 3 hours of health education credit. Service of six months to one year may result in 3 hours of freshman aerospace credit; less than six months of active service does not allow any college credit. Credits previously earned in college in these areas may result in reduced credit granted from that stated above.

Credit will be accepted for USAFI courses within the limitations enforced for extension and correspondence work. No credit is allowed for college-level G.E.D. tests. In evaluating credit possibilities based upon formal service-school training programs, the recommendations of the American Council on Education as set forth in the U.S. Government bulletin, *Guide to the Evaluation of Educational Experiences in the Armed Forces*, are followed.

In order to receive credit for military service a veteran must present a copy of his discharge or separation papers to the Registrar's Office.

Scholastic Probation and Suspension System

A student is expected to make satisfactory progress toward a degree certificate, or other approved objective in order to be eligible to continue attendance in the University. A student making a 3.000 average for a quarter is eligible to continue in attendance for the subsequent quarter.

To ensure that a student makes satisfactory progress towards his educational objective he is required to maintain both a 3.000 average on a quarter-to-quarter basis, and a progressively improving grade point average as he accumulates specified numbers of hours to his record. Otherwise, he will be placed in categories other than Good Standing and may be required to discontinue attendance at the University for a period of time. The provisions relative to scholastic good standing, probation, and suspension effective with the 1970 fall quarter are outlined below.

A student who is on Good Standing will be placed on Good Standing-Scholastic Warning at the end of any quarter in which he fails to make a 3.000 term average, and he has:

- a. Fewer than 90 hours calculated and a grade point average below 3.000.
- b. 90 but fewer than 138 hours calculated and a grade point average below 3.100.
- c. 138 or more calculated hours and a grade point average below 3.150.

A student on Good Standing-Scholastic Warning who fails to earn a 3.000 average for a quarter is placed on Scholastic Probation. A student who does earn a 3.000 or better quarter average will remain on Good Standing.

standing-Scholastic Warning until his grade point average meets the minimal requirements specified in a, b, or c, above.

A student on Scholastic Probation who fails to earn a 3.000 average or his next quarter of attendance is placed on Scholastic Suspension, and may be subject to suspension from the University for scholastic reasons. An exception to this rule shall prevail for those students in categories b and c above whose over-all grade averages have not fallen below the 3.000 average. They will remain on Scholastic Probation until their averages rise above the minimal levels specified, in which case they will move to Good Standing. If their averages fall below 3.000 they will be placed on Scholastic Suspension. A student on Scholastic Probation will remain on Scholastic Probation so long as he continues to earn 3.000 or better quarter averages until such time as his over-all average moves above the minimal requirement as specified in a, b, or c, above, in which case he moves to Good Standing.

A transfer student is subject to the above averages as applied to his academic record earned only at this University and to his over-all academic record.

A student placed on scholastic suspension may seek reinstatement after a minimum of two quarters interruption but must furnish tangible evidence that additional education can be successfully undertaken.

A transfer student is subject to the above averages as applied to his academic record earned only at this University and to his over-all academic record.

While on Scholastic Probation a student is subject to certain conditions that do not prevail when he is in Good Standing. These are as follows:

- a. He may not enroll for more than 14 hours per quarter unless approved to do so by the dean of his academic unit.
- b. He may not participate in extracurricular activities or hold a major office unless special permission is granted. Petitions for permission to do so are filed with the coordinator of the Student Activities Center.
- c. Other limitations may be established by the appropriate officials of the campus of the University which the student attends or by the academic unit within which the student is enrolled.

Graduation Procedures

The academic requirements for the various baccalaureate degrees are listed in Chapter 3. Presented here are the procedures that a student expecting to graduate must follow.

Every degree candidate *should* signify his intention to graduate by making application for graduation no later than the first week of his last quarter in attendance before the desired graduation date. Therefore, a person desiring to graduate in the June commencement who will be in school during the spring quarter should make application for graduation during the first week of the spring quarter. If he finishes his work during the preceding winter quarter, he should apply during the first week of the winter quarter. Similar arrangements should be followed by students completing their work during the fall quarter. The application forms are available in the Office of Admissions and Records.

Every candidate for a degree *must* file written application with the Office of Admissions and Records not less than five weeks before the date which the degree is to be granted. The application process includes the

clearance of the graduation fee at the Bursar's Office prior to its filing with the Office of Admissions and Records. He must order his cap and gown through the University Bookstore and should register with the Placement Service.

In addition to completing the steps for application for graduation, the student is responsible for determining that he is meeting all graduation requirements and that he has no outstanding financial obligation to the University. To assure that a student is meeting the academic requirements, each academic unit provides a graduation check-up service through its academic advisement process, through which the satisfying of academic requirements can be verified. Even though the University does provide an academic check on graduating students, this is done primarily to be sure that it is graduating students who have met the requirements. The advising of the individual student as to his progress is a service provided him and does not relieve the student of his responsibility to make certain that he is meeting the requirements. Each student should check with his academic adviser as to the procedures he should follow in this matter as he approaches graduation.

Graduation exercises are held each year at the end of the spring and summer quarters. A student must attend commencement to graduate, unless he has obtained permission to be graduated *in absentia*. A student can request the latter either through the Office of Admissions and Records or his dean.

The diploma is mailed to a student shortly after the commencement date. A student who has not satisfied all academic requirements will not be graduated even though he participates in the commencement exercises. Also, a student who has a financial obligation to the University will not receive his diploma or be entitled to transcripts until that obligation is satisfied.

The University has a Graduation Appeals Committee whose function it is to hear a student's petition to be permitted to graduate even though he has not satisfied all University graduation requirements. The committee hears only those cases involving University requirement. Appeal relative to a concentration or academic unit requirement is through the appropriate administrative official.

Ordinarily, the Graduation Appeals Committee will give consideration to an appeal only if there is tangible evidence that the matter at issue is of an unusual nature and that it has resulted due to conditions beyond control of the student. Appeal is initiated through the Office of Admissions and Records.

Related Academic Information

Unit of Credit

Southern Illinois University operates on the quarter system. Therefore references to hours of credit mean quarter hours rather than semester hours. One quarter hour of credit is equivalent to two-thirds of a semester hour. One quarter hour of credit represents the work done by a student in a lecture course attended fifty minutes per week for one quarter, and, in the case of laboratory and activity courses, the stated additional time.

Academic Load

The normal academic load for a student is 16 hours. The maximum is 18 hours.

A student with a 4.25 grade point average or above for the preceding quarter may be allowed by the head of his academic unit to take as many as 21 hours. In no case may a student carry, or be credited with, more than 21 hours in any quarter. This 21 hour restriction applies in all cases regardless of whether a student would desire to take more hours at the University only or through a combination of institutions.

A student on scholastic probation may not take more than 14 hours without approval of the head of his academic unit. A student employed full-time may not register for more than 8 hours.

The question of what constitutes full-time attendance is one that is often asked but for which there is no single over-all answer. For enrollment reporting purposes, 12 or more quarter hours distinguishes between full- and part-time attendance. However, a number of situations call for different hourly classifications. For example, a student registered for 11 hours pays full tuition and fees. Also, a student attending the University under a scholarship, loan, or other type of program requiring full-time enrollment should check with the office administering the program to make certain that he is meeting the requirements of his specific program. For example, Public Law 358 (the new GI Bill) requires 12 hours on the undergraduate level for full time, 9 to 11 is considered three-quarter load, and 6 to 8 hours, half load. A student concerned with Selective Service on the undergraduate level needs to carry 12 hours to be considered full time. However, for Selective Service purposes, a student must also be making satisfactory progress. Therefore, he needs to accumulate 48 passing hours each year. Because of this, he must consider 12 hours as only a minimum load for full-time purposes with 16 hours per quarter as the average load he must maintain throughout the year. Further information on Public Law 358 is available at the Student Work and Financial Assistance Office and on Selective Service at the Office of Admissions and Records.

Student Residency Regulations

Regulations defining the residence of students for purposes of registration in Southern Illinois University are as follows:

1. Evidence showing the residence of every applicant for admission to the University must be submitted to the Registrar at the time of application for admission, and resident or nonresident fees shall be assessed on the basis of evidence appearing in the Registrar's records.

2. In all cases where the records indicate that the student's home is outside the state of Illinois, the nonresident fee shall be assessed. A student who takes exception to the ruling may file a claim for a refund, but this must be submitted to the Registrar within 10 days of the opening date of the quarter for which the charge was made.

3. In the case of a student who is a minor, the residence of the parent, or if the student has no parent, the guardian of this person, shall govern unless there is proven to have been complete emancipation of the minor from his parents or guardian and he has established residence in the state of Illinois.

4. Any student, adult or minor, whose parents have established a bona fide residence in the state of Illinois will be regarded as a resident for registration purposes; except that an adult student who has established a residence on his own account outside of the state must conform to the terms set forth in regulation 6 to be classified as a resident.

5. A wife is classified as a resident for registration purposes if her hus-

band is a bona fide resident of the state of Illinois preceding and at the time of her registration.

6. An adult student, whose parents are deceased or whose parents reside outside the state, to be considered a resident of Illinois for purposes of registration must be a bona fide resident of the state for three months preceding the beginning of any quarter for which he registers at the University and must present evidence that he is self-sustaining and not under parental control.

7. An adult alien who holds valid immigration papers and is in the United States under an immigrant-type visa may qualify as a resident of the state for purposes of registration in the University if he has lived within the state for at least a period of twelve months next preceding the beginning of any quarter for which he registers at the University, subject to the provisions of rules 4 and 6.

8. Several factors will be considered in the determination of each individual case. Among the factors to be considered will be (a) location of draft board registration, (b) voting address, if any, (c) the degree of self-support of the student, (d) location of summer or vacation employment.

9. All cases of appeal shall first be referred to the Legal Counsel of the University. An appeal from the Legal Counsel shall be in accordance with University statutes.

Note: In the above regulations an adult student is considered to be a male at least 21 years of age or a female at least 18 years of age.

3 / Academic Programs

DEGREES OFFERED

SOUTHERN ILLINOIS UNIVERSITY grants the following degrees.

Associate

Associate in Art
Associate in Business
Associate in Technology

Advanced

Master of Arts
Master of Business
Administration
Master of Fine Arts
Master of Music
Master of Music Education
Master of Science
Master of Science in Education
Doctor of Philosophy

Baccalaureate

Bachelor of Arts
Bachelor of Science
Bachelor of Music
Bachelor of Music Education

In addition to the above degrees, Southern Illinois University offers undergraduate courses in preprofessional areas and a graduate program leading to a sixth year specialist certificate in education.

For information concerning master's degrees or the Doctor of Philosophy degree, refer to the Graduate School Catalog or direct inquiries to the dean, Graduate School, Southern Illinois University, Carbondale, Illinois 62901.

DEGREE REQUIREMENTS

Associate Degree

Each candidate for an associate degree must complete a minimum of 96 hours of credit in approved courses. Each student must maintain a C average. The degree granting unit for the associate degree is the Division of Technical and Adult Education. For information concerning this degree refer to the Vocational-Technical Institute Catalog.

Baccalaureate Degree

Every bachelor's degree candidate must meet the University's requirements and the requirements of his academic unit. The specific requirements in General Studies and in each college and school are listed later.

Each candidate for the degree must complete a minimum of 192 hours of credit in approved courses. The General Studies requirements total 67 hours although there are methods available to reduce the number as listed in this chapter under General Studies. Each student must have an overall average, and a C average in the area of concentration.¹ These averages are required for credit made at this University as well as for the total record.

To receive a bachelor's degree from Southern Illinois University a student must either present a total of three years work (144 hours) earned at Southern Illinois University or complete the last year in residence. The last year shall be considered as 48 quarter hours. Twelve of the 48 may be earned in extension at Southern Illinois University.

A student who desires a second bachelor's degree must complete 8 hours in addition to those required for the first degree and must fulfill the requirements for the second degree. Of these 8 hours, a minimum of 6 must be taken in residence at the University, and a maximum of 6 may be acquired in extension and correspondence courses. If a student received his first bachelor's degree from another university, 48 hours in residence are required to fulfill the requirement for the second bachelor's degree.

The state of Illinois requires that American patriotism and the principles of representative government, as enunciated in the American Declaration of Independence, the Constitution of the United States of America and the Constitution of the State of Illinois, and the proper use and display of the American flag shall be taught in all public schools and other educational institutions which are maintained in whole or in part by public funds, and that no student shall receive a certificate of graduation without passing a satisfactory examination upon such subjects. Courses currently offering this instruction are GSB 211B and 300A; Government 231, 232, 305, and 330; History 330 and 400.

Students preparing to teach must satisfy the certification requirements of the state in which they plan to teach. Illinois requirements are described in the Elementary Education and Secondary Education concentration sections in the next chapter.

Preprofessional Programs

Preprofessional students may, subject to certain conditions, obtain a bachelor's degree after three years' work (144 quarter hours) at Southern Illinois University and one or more years' work in a professional school. During their three years of residence at Southern Illinois University 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 concentration requirements is possible by their taking certain courses at the professional school, but this is permitted only upon the prior approval of the appropriate divisional head. 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, an approved law school, an accredited physical therapy or medical technology school, a hospital plan approved by the University or an accredited school of osteopathy. 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.

General Studies

The General Studies curriculum is divided into five major areas which are listed below with the numbers of hours required.

¹ The areas of concentration are described in the next chapter.

Area A Man's Physical Environment and Biological Inheritance ..	16
Area B Man's Social Inheritance and Social Responsibilities	16
Area C Man's Insights and Appreciations	16
Area D Organization and Communication of Ideas	14
Area E Health and Physical Development	5

Within each of Areas A, B, and C students must complete work in a minimum of three fields. Within Area D the following are required: 6 hours of English composition; 3 hours of speech or other oral or written communications as offered in Area D; and 5 hours of college algebra.

These requirements may be met by any combination of the following, subject to the rules and limitations appropriate to each means:

- (a) Completion of appropriate General Studies courses (listed at the beginning of the next Chapter) with a passing grade;
- (b) Completion of departmental courses approved as substitutes for General Studies courses;
- (c) Transfer credit for courses evaluated as equivalent to courses from (a) or (b);
- (d) Proficiency credit by examination for General Studies courses or approved substitutes; and
- (e) Advanced standing granted on the basis of ACT subject scores and previous record, or examination.

General Studies offers courses at the 100, 200, and 300 levels. A student may enter a given level when he determines his readiness. Integrated sequences and combinations of related courses are encouraged.

The student who has selected his area of concentration at the time he takes the General Studies courses is assisted in determining the proper courses to take by consulting the curriculum guides which he may obtain from his academic adviser.

Some upper division academic units have specific requirements for demonstration of competence in composition. A student may determine which units have this requirement by referring to college and school requirements listed later in this chapter.

Flexibility in Meeting General Studies Requirements

Considerable latitude is permitted the student in meeting General Studies course requirements. The University believes in a strong, well rounded general education program but does not accept the idea that every student must take the same courses or program in meeting the objective. Alternate routes are, therefore, provided within the General Studies framework.

Accommodations to differences in student background, interest, and aspirations include (1) *Substitution* of departmental courses for the required General Studies courses; (2) *Self advisement* exists for those students capable of and desiring to do this phase of registration for themselves; (3) In the *accommodation to adults* who were previously deprived of college opportunities because of economic or other circumstances, *special advisement and curricular considerations* have been made to get back on the college track.

Enrichment features include the following: (1) *An Honors Program* (President's Scholars); (2) *The Intercultural Studies Program* provides courses with a cross-cultural emphasis; (3) *Black American Studies*; (4) *Exotic Languages*.

Remedial Programs include: (1) *Mathematics* (non-credit) exists for

students with insufficient mathematics training in high school; (2) A *writing clinic* exists for providing corrective assistance to students in English Composition; (3) An *experimental program for disadvantaged students* or underachievers is in operation.

Acceleration features include the following: (1) *Proficiency Examinations* are given in most General Studies courses with many of those at first level being given at fixed dates and on a mass scale so as to be of maximum convenience to the student in making registration adjustments. (2) *Advanced standing* recognizes the student's high school contribution to his general education; (3) A *Learning Resources Center* is both an acceleration and an enrichment. Students may review or prepare for proficiency examinations, make up work missed, or sharpen their skills through self study.

The Transfer Student and General Studies

A transfer student who expects to graduate from Southern Illinois University must meet the General Studies requirements. He should experience little difficulty in doing so.

Additional information concerning admission of a transfer student and the evaluation of transfer credit can be found in the sections of this catalog pertaining to those specific subjects.

School of Agriculture

The School of Agriculture offers the following concentrations leading to the Bachelor of Science degree.

Agricultural Education	Science
Agricultural Industries	Forestry
Agricultural Business	Forest Resource
Agricultural Economics	Management
Agricultural Mechanization	Outdoor Recreation Resource
Agriculture, General	Management
International Agriculture	Plant Industries
Animal Industries	Business
Business	General
Production	Science

As precollege preparation of high school students for study of agriculture and forestry, it is recommended that the following be included: four units of English, two to four units of mathematics (algebra, geometry, advanced mathematics); two to three units of science (biology, chemistry, physics); and two to three units of social studies. Remaining units might well include agriculture.

For transfer students wishing to pursue a concentration in one of the agricultural or forestry areas, courses taken prior to entering Southern Illinois University should include a distribution in the physical and biological sciences, social sciences, and humanities. In addition a course in speech and appropriate sequences in English composition and college algebra should be included.

A student planning to take preprofessional courses in veterinary science or dairy technology should register in the School of Agriculture when eligible.

The School of Agriculture has no school-wide requirements other than the University requirements.

School of Business

The School of Business offers the following concentrations leading to the Bachelor of Science degree.

Accounting	Behavioral Science—
Economics	Personnel Management
Finance	Management Science—
Financial Management	Management Systems
Financial Institutions	Marketing
Management	Secretarial Studies

Secondary concentrations are not available in business areas. A student in the school may prepare for teaching at the secondary level by including in his studies certain professional courses offered by the College of Education.

Pre-College Preparation. High school and preparatory school students who are planning to enroll in the School of Business are advised to follow a college preparatory program which includes three (preferably four) units of both English and mathematics. It is also suggested that a substantial portion of the remainder of their study programs include courses in basic academic subject areas such as foreign languages, humanities, the sciences and social studies.

General Studies Requirements for Business Students. Students who intend to enter the School of Business must take Mathematics 111a and 111b to satisfy the first-level Area D requirement. In addition, GSD 110 should be taken prior to entering the School of Business. GSB 201b and GSB 201c are also required courses in School of Business programs.

Requirements normally taken by students during the sophomore year include Mathematics 150a, Economics 214, 215 and Accounting 251–8 and 261. These courses are initiated while one is enrolled in General Studies.

Professional Business Core. The professional business core, required of all School of Business students consist of GSB 201b and 201c, GSD 110, Accounting 251–8, 261, Economics 214, 215, 308 or 408, Finance 320, 371 or 473, Management 340, 481, and Marketing 301.

Special Degree Requirements. Students who desire a degree from the School of Business must satisfy, in addition to University degree requirements, the following:

1. Competency in English as demonstrated by having completed GSD 101, 102 and GSC 103, or their equivalents, with a grade of C or higher in each of the latter two courses.
2. Competency in business and economics as demonstrated by an overall grade point of 3.00 C or better in all college and university business and economics courses taken, and in addition, all courses taken at Southern Illinois University that are included in the professional business core and the area concentration requirements.

College of Communications and Fine Arts

The College of Communications and Fine Arts offers the following concentrations leading to the Bachelor of Science degree.

Journalism	Radio-Television
Photography	Speech

Speech Pathology and Audiology Theater

In these communications fields a C average in GSD 101, 102, and GSC 103 or an approved equivalent is required.

The Bachelor of Arts degree is offered for a concentration in the School of Art. The Bachelor of Music degree is offered for a concentration in the School of Music.

There are specific requirements for admission to the concentrations in the School of Art. Students considering enrolling in the school should make appointments with the chief academic adviser to determine eligibility for the Studio and Studio Crafts specializations for the designated concentration.

The specific requirements for the various concentrations are listed in the next chapter.

College of Education

The College of Education offers the following programs leading to the Bachelor of Science Degree.

Agricultural Education

Art

Biological Sciences

Botany

Business Teacher Education

Chemistry

Early Childhood Education

Economics

Elementary Education

English

French

General Science

Geography

German

Government

Greek

History

Home Economics

Health Education

Journalism

Language Arts

Latin

Mathematics

Music

Physical Education

Physics

Recreation and Outdoor Education

Russian

Secondary Education ¹

Social Studies

Spanish

Special Education

Speech

Speech Pathology and Audiology

Technical and Industrial Education

Theater

Zoology

The College of Education also grants the Bachelor of Music Education degree.

Supervised student teaching is conducted in cooperating public schools. The College of Education requires 16 hours of student teaching for the Bachelor of Science degree.

Students who wish to become principals or supervisors in the public schools take graduate work in the Department of Educational Administration and Foundations. The department's major emphasis is on graduate work, but it also participates in providing background for elementary and high school teachers.

Students preparing to teach in the public schools of Illinois should be informed that requirements for the Standard Elementary School Certificate are listed under Elementary Education; those for the Standard High School Certificate are listed under Secondary Education; those for the Standard Special Certificate are listed following high school certification.

Students planning to teach on the early childhood and elementary levels register in the College of Education. Most students planning to teach

on the high school level also register in this college. However, it is possible for a student to be registered in one of the other colleges or schools and meet the state requirements for a Standard High School Certificate by using as his electives certain prescribed courses in the College of Education. This is also true in the case of those seeking to qualify for a Standard Special Certificate.

Students qualifying for teaching certificates in Illinois should also know that no certificate issued after July 1, 1953, will be renewed for the first time unless the person holding the certificate passes an examination to the satisfaction of the certificating authority upon the provisions and principles of the Constitution of the United States and of the state of Illinois.

Teacher Education Program

Goverance and Administration

The teacher education program is viewed as an all-university function guided by the Teacher Education Council and administered by the dean of the College of Education. The Teacher Education Council is composed of faculty and students from throughout the university and is empowered to set the policy for all programs.

Programs

Southern Illinois University is fully accredited by the National Council for Accreditation in Teacher Education (NCATE) and by the State Teacher Certification Board, Springfield, Illinois. It offers programs in elementary education, early childhood education, special education, and secondary education.

The four programs in special education are:

- Education of Mentally Retarded
- Education of Maladjusted
- Education of the Acoustically Handicapped
- Speech Pathology and Audiology

The secondary education teaching concentrations are as follows:

Agricultural Education	History
Art Education	Home Economics
Biological Science	Journalism
Botany	Mathematics
Business Teacher Education	Music
Chemistry	Physical Education—Men
Economics	Physical Education—Women
English	Physics
English Language Arts	Social Studies
Foreign Languages	Speech
General Science	Industrial Arts Teaching
Geography	Technical Teaching
Government	Trades and Industries Teaching
Health Education	Zoology

Goals

The goals for each program in teacher education deal with the total

This is not a concentration. Persons planning to teach in secondary schools should refer to this section for a listing of concentrations and secondary concentrations.

development of the individual prospective teacher. The coursework and experiences are concerned with general personal characteristics, the learning environment, teaching abilities, and professional development.

The specific goals under each major category are as follows:

General Characteristics

Cooperation
Dependability
Enthusiasm
Initiative
Poise
Appearance
Voice

Control of Learning Environment

Classroom Control
Handling of Routine Procedures
Care of Physical Facilities and Equipment
Attention to Pupil Health and Safety

Teaching Abilities

Assessment of Entering Behavior
Specification of Appropriate Goals
Knowledge of Subject Matter
Planning, Preparation and Use of Varied Materials
Provision for Individual Differences
Positive Classroom Climate (Motivation, et al.)
Use of Varied Instructional Procedures
Communication Skills
Evaluation Techniques

Professional Development

Attitude Toward Students
Ability in Self-Criticism
Rapport with Fellow Professionals
Promise of Professional Growth

Unconditional Admission

A student may apply for admission to a teacher education program with a minimum of 64 quarter hours of academic work. To be eligible for unconditional admission a student with from 64 to 102 quarter hours must have a cumulative grade point average of at least 3.00 on a 5.00 scale. A student applying for admission with 103 to 143 quarter hours must have at least a 3.10 cumulative grade point average. A student with more than 143 quarter hours at the time of application for admission must have at least a 3.20 cumulative grade point average. To apply for a student teaching assignment, a student must have been admitted to a teacher education program. Before beginning a student teaching assignment, the student must have at least a 3.25 grade point average.

Provisional Admission

A student may seek provisional admission to a teacher education program under the following conditions:

1. If he has 103 to 143 quarter hours of credit with a cumulative grade point average between 3.00 and 3.09 provided the grade point average in his teaching specialization is at least 3.20.
2. If he has more than 143 quarter hours of credit with a cumulative grade point average between 3.10 and 3.19 provided the grade point average in his teaching specialization is at least 3.30.

3. For a student planning to teach at the secondary level, the teaching specialization will include the subject matter concentration plus all education courses.

Procedure for Admission to a Teacher Education Program

Any student who expects to complete a program of teacher education at Southern Illinois University must be officially admitted to a teacher education program.

Application forms must be completed by the student and then given to (1) his academic adviser, (2) the chairman of the department of his major teaching area for secondary and special education students only, (3) either the chairman of the Department of Elementary Education or Secondary Education, and (4) the Student Personnel Services Director, College of Education, for the review and recommendation for approval or disapproval. The forms must then be returned to the student personnel services director for the official record of approved students in teacher education programs. This entire transaction must take place prior to entrance into the professional sequence of education coursework. The professional education coursework starts with Guidance 305, educational psychology.

When a student decides on the teacher education program of his choice, he may make application according to the regulations stated herein. Formal application for admission to a teacher education program must be made through the student personnel services director, College of Education and approval must be granted prior to entrance into professional education coursework.

Application forms for admission to a teacher education program at Southern Illinois University at Carbondale may be secured at the office of the student personnel services director, College of Education, Wham Education Building, Room 102F.

Certification

When the student is nearing completion of his teacher education program (usually during the last quarter) he can secure appropriate forms for entitlement to certification for the state of Illinois from the dean's office of the College of Education, Wham Education Building, Room 115. Upon completion of the appropriate application forms by the student, the dean's office staff will process the forms with the State Teacher Certification Board and entitlement cards will be sent to this office. When the student's program is completed, the office will send the cards to the student for his use in applying for certification through his future educational service region superintendent.

School of Home Economics

The School of Home Economics offers a concentration in home economics leading to the Bachelor of Science degree. Within this concentration, a specialization may be chosen from the following.

Apparel Design	Extension
Clothing and Textiles	Family Services Consultant
Merchandising	Foods in Business
Consumer Services in Business	Food and Nutrition Science
Dietetics	Institution Management

Interior Design
Pre-School Program

Teaching Vocational Homemaking

The specific requirements for each of these specializations appear in the next chapter. They include ten hours of core courses required of all students, i.e., Child and Family 227 and 237; Family Economics and Management 341.

College of Liberal Arts and Sciences

The College of Liberal Arts and Sciences offers the following concentrations leading to the Bachelor of Arts or Bachelor of Science degree:

Anthropology	Russian	Philosophy
Art ¹	Spanish	Physics
Biological Sciences ¹	Geography	Physiology
Botany	Geology	Psychology
Chemistry	Government	Social Welfare
Economics ¹	Health Science	Sociology
English	History	Speech ¹
Foreign Languages	Inter-American Studies ¹	Theater ¹
French	Mathematics	Zoology
German	Microbiology	
Latin	Music ¹	

College Requirements Prior to Fall 1968

Students who began their collegiate training prior to Fall 1968 must satisfy the following requirements to receive a degree from the College of Liberal Arts and Sciences:

1. Competency in English as demonstrated by having completed courses GSD 101, 102, and GSC 103, or their equivalents, with grade average C or better.

2. Successful completion of one year of a foreign language as demonstrated by one of the following: (a) passing a 9-hour 100-level sequence in one language; (b) completing two years in one language in high school with no grade lower than C and achieving a satisfactory score on a standardized test in that language; or (c) completing three years in one language in high school with no grade lower than C. Tests administered during advisement of new students will determine whether proficiency credit is allowable.

3. Successful completion of requirements in an area of concentration.

College Requirements Effective Fall 1968

Students who began their collegiate training Fall 1968 or thereafter at Southern Illinois University or at any accredited institution must satisfy the following requirements to receive a degree from the College of Liberal Arts and Sciences.

1. Competency in English as demonstrated by having completed GSD 103 with a grade of C or better. Transfer students should consult the I & S advisement office regarding this requirement.

2. Successful completion of two years of a foreign language and one year of mathematics or two years of mathematics and one year of foreign language, as demonstrated by the following:

¹ These are liberal arts concentrations, not professional concentrations.

Foreign Language—The one year foreign language requirement can be met as outlined in 2 above. The two year requirement can be satisfied by (a) passing a 9-hour 200-level sequence in one language; or (b) completing three years of one language in high school with no grade less than C and achieving a satisfactory score on a standardized test in that language; or (c) completing four years in one language in high school with no grade below C. Credit may be earned by passing proficiency tests which are scheduled at various times during the year.

A student whose native language is not English may use the native language to satisfy part or all of the foreign language requirements (General Studies and Liberal Arts and Sciences) at SIU. If the language is taught at SIU, academic credit may be earned. No credit is possible if the language is not taught at SIU. For particulars, the student should consult LA&S advisement.

Mathematics—The one year mathematics requirement can be met by (a) passing Mathematics 111–10; (b) passing other freshman level mathematics courses as approved by the Mathematics Department; or (c) completing three years of high school mathematics with no grade less than C and achieving a satisfactory score on the University's Mathematics Placement Test. The two year requirement can be satisfied by (a) passing Mathematics 150–10; or (b) passing a sequence of mathematics courses, including calculus, as approved by the Mathematics Department.

Students should consult with the department of their concentration to determine whether they should elect two years of mathematics or two years of foreign language to satisfy the requirement of the College.

3. Successful completion of requirements in an approved area of concentration.

PREPROFESSIONAL COURSES

A student planning to take preprofessional courses in any of the following areas should, after completing General Studies, register in the College of Liberal Arts and Sciences. A course of study called preprofessional does not lead to a degree at Southern Illinois University (refer to section on preprofessional programs mentioned earlier in this chapter):

Dentistry	(3 or 4 years)	Pharmacy	(1 to 4 years)
Law	(3 or 4 years)	Physical Therapy	(2 or 3 years)
Medical Technology	(2 or 3 years)	Public Health	(3 or 4 years)
Medicine	(3 or 4 years)	Theology	(2 to 4 years)
Occupational Therapy	(2 or 3 years)	Veterinary Science	(3 or 4 years)

School of Engineering and Technology

The School of Engineering and Technology offers the following concentrations leading to the Bachelor of Science degree.

Engineering	Industrial Technology
Engineering Technology	Technical and Industrial Education

Specific requirements are listed for the various concentrations offered by the school in the next chapter.

There are no school-wide requirements for a degree other than the University requirements.



4 / Curricula and Courses

THE FIELDS OF STUDY in which Southern Illinois University at Carbondale offers course work follow in alphabetical order rather than by college or school. Unless otherwise noted, a curriculum leading to a bachelor's degree is offered in each field.

Accounting	Economics	Mathematics
Administration of Justice	Elementary Education	Microbiology
African Studies ¹	Engineering	Music
Agricultural Education	English	Philosophy
Agricultural Industries	European and Russian Studies ¹	Photography ³
Agriculture, General	Family Economics and Management ²	Physical Education
Animal Industries	Finance	Physics
Anthropology	Food and Nutrition ²	Physiology
Applied Science ²	Foreign Languages ²	Plant Industries
Art	Forestry	Psychology
Asian Studies ¹	French ⁴	Radio-Television
Biological Sciences ¹	General Science	Recreation and Outdoor Education
Biology ²	Geography	Religious Studies ¹
Black American Studies ¹	Geology	Russian ⁴
Botany	German ⁴	Secretarial Studies
Business Teacher Education	Government	Social Welfare
Chemistry	Health Education	Social Studies
Child and Family ²	Health Science	Sociology
Cinema and Photography	History	Spanish ⁴
Community Development ¹	Home Economics	Special Concentration
Clothing and Textiles ¹	Home Economics Education ²	Special Education
Computer Science ²	Instructional Materials ¹	Speech
Conservation and Outdoor Education ²	Inter-American Studies	Speech Pathology and Audiology
Design	Interior Design ²	Technical and Industrial Education
Driver and Safety Education ^{1 5}	Journalism	Technology, Engineering
Early Childhood Education	Language Arts	Technology, Industrial Theater
Earth Science ¹	Latin ⁴	Zoology
	Linguistics ¹	
	Management	
	Marketing	

¹ Secondary concentration only.

² No concentration offered at undergraduate level.

³ Described under Cinema and Photography.

⁴ Described under Foreign Languages.

⁵ Described under Health Education.

Fields of study for students seeking two-year associate degrees are included in the Vocational-Technical Institute Catalog.

Abbreviations Used in this Chapter

Three-digit numerals are used to identify specific courses. The first numeral of the three indicates the level of that course. A letter following an identification number indicates a *part* of a course (*a* means first part, *b* means second part, etc.). A numeral separated from the identification number by a dash indicates the number of hours required in the course. For example, Forestry 365-10 indicates a third-level course of 10 hours in the Department of Forestry, and Forestry 365a,b indicates the first two parts of the course.

The five areas of General Studies are referred to as GSA, GSB, GSC, GSD, and GSE. The three-digit numerals following these abbreviations function similarly to those noted above. Numerals 1, 2, or 3 following one of these abbreviations and separated by a dash indicate the level requirement in that area. For example, GSA-3 indicates the third-level requirement in General Studies Area A.

Numerals in parentheses in columns of figures pertain to quarter hours which satisfy more than one requirement. They are in parentheses to avoid their being added into the total of the column, which would be duplication of hours required. For example, under Agricultural Industries below, GSB 314 satisfies part of the General Studies requirements and contributes 3 hours toward the 83 hours required. It also satisfies one of the requirements for concentration in agricultural industries but does not contribute to the printed total of 109 hours.

Course Descriptions

The first entry for each course is a three-digit numeral which, together with the subject area, serves to identify the course. The first digit indicates that the course is for freshmen, sophomores, juniors, seniors and graduate students, or graduate students only, depending on whether the digit is 1, 2, 3, 4, or 5, respectively.

Following the identification number are a dash and another numeral which indicates the maximum credit allowed for the course. The maximum may be variable, such as Art 393-4 to 12. Some courses do not terminate at the end of one quarter, as evidenced by two or more numerals in parentheses indicating the credit allowed for each quarter of participation in the course, such as GSA 101-8 (4,4).

Next is the title, followed by a description of the course. If certain requirements must be satisfied before enrollment in a course, they are listed as prerequisites.

Not all of the courses described here are offered every quarter or even every year. To determine when and where a course is to be offered, consult the Schedule of Classes obtainable from University Graphics and Publications, Southern Illinois University, Carbondale, Illinois 62901. When requesting a schedule, please specify *quarter*.

NOTE: AFTER THIS CATALOG WAS PREPARED THE UNIVERSITY ADOPTED EXTENSIVE CHANGES IN THE GENERAL STUDIES REQUIREMENTS. THESE REVISIONS ARE STATED IN CHAPTER 3. HOWEVER, IT IS NOT POSSIBLE TO CHANGE ALL THE REFERENCES TO FORMER REQUIREMENTS IN THE DETAILED CURRICULUM STATE-

MENTS OF CHAPTER 4. USERS OF THIS CATALOG ARE CAUTIONED TO REFER TO THE APPROPRIATE SECTION OF CHAPTER 3 TO DETERMINE THE GENERAL STUDIES COMPONENTS OF THE CURRICULUM. THE ELECTIVES TOTAL HAS ALSO BEEN DELETED FROM THE REQUIREMENTS CHART SO THAT THE CORRECT NUMBER OF ELECTIVE HOURS AVAILABLE MAY BE CALCULATED IN ACCORDANCE OF THE NEW REQUIREMENTS.

Man's Physical Environment and Biological Inheritance (GSA)

101-8 (4,4) Introduction to Physical Science. The aim of this course given jointly by the departments of Chemistry and Physics, is to introduce the student to a few of the basic concepts underlying the contemporary scientific view of nature, such as the properties of energy, and behavior of matter.

102-8 (4,4) Space Science. Fundamental concepts and laws of the physical sciences as applied to space environment. The solar system, our galaxy, and the universe beyond. Lectures supplemented by occasional hours of individual or supervised evening observation.

105-8 (4,4) Molecular Basis of Matter and Life. Nature of the physical world and the contributions of the physical sciences toward man's understanding of the world. Relationship of matter and energy and their control for the benefit of society.

110-8 (4,4) The Earth and Its Environment. A study of the Earth, its major domains, and its space environment: student investigation of earth substances, processes and utilization of energy. An investigative approach is used for study of the observational and measurement techniques used by the earth scientist. Lecture, laboratory, and individual study.

201-8 (4,4) Introductory Biology. Lecture and laboratory on the fundamentals of biological science: the cell and protoplasm, development, inheritance, structure and function of animals and plants, evolution and ecology. Must be taken in a,b, sequence. Prerequisite: GSA first level.

210-8 (4,4) Introductory Environmental Biology. Life and its environmental relationships. Morphological and ecological diversity of organisms is emphasized, including the dynamics of living communities, their variation in space and time, and the influence of genetics on these processes. May be taken in either sequence. Prerequisite: GSA first level.

299-8 (4,4) Experimental Course—Survival of Man. Interdisciplinary study of the problems of man's relationship with the world. Emphasis on the inter-related scientific, technological, sociological, moral, and ethical questions important to survival.

301-4 Principles of Physiology. A comprehensive introductory analysis of the functional machinery of the human body.

302-3 Psychophysiological Foundations of Behavior. A study of the behavioral characteristics of living organisms, especially those of mammals and man.

303-3 Ferns, Trees, and Wild Flowers: The Pleasure of Recognition. Field studies of local plants.

312-3 Conservation of Natural Resources. A study of man's use and misuse of natural environment.

313-3 Evolution. Principles and processes of the evolution of living things, including man. Prerequisite: one year of biology.

314-3 Man's Genetic Heritage. Principles of heredity as related to man, with emphasis on the effects of environment on his biological inheritance.

315-3 History of Biology. The inter-relationships between the development of biological knowledge and the history of mankind.

321-3 Introduction to Paleontology. A study of the record of fossil plants and animals and the application of biological and geological principles to the development of theories regarding their origin, evolution, distribution, and extinction.

322-3 Introduction to Rocks and Minerals. The course is specifically designed to acquaint the nonprofessional with the origin, distribution, character, and value of the common minerals and rocks in the earth's crust.

330-3 Weather. A study of weather elements basic to understanding the various atmospheric happenings, with application to agriculture, industry, recreational resources, etc. Students may take only 330 or 331 for General Studies credit.

331-3 Climate. Description and interpretation of climatic regions and their influence on human activity. Students may take only 330 or 331 for General Studies Credit.

335A-3 Environmental Pollution, Chemical Aspects. Consideration of the processes involved in the formation of pollutants, their action on the environment, and the means of controlling pollution. Prerequisite: 101b, 201a,b, or 210a,b.

335b-3 Environmental Pollution, Ecological Aspects. Importance of excessive population burden discussed and control measures suggested. Problems in pollution abatement considered and possible solutions evaluated. Recommendations for community and individual action presented. Prerequisite: junior standing.

336-3 Nutritional Ecology of Man. Interaction between man and his environment. Emphasis on nutritional implications of our social, biological, and physical surroundings.

340-3 Ecology. A consideration of ecological principles with emphasis upon examples relating to vegetation.

345-3 Economic Botany. The study of man's dependence upon plants, domestication, production, consumption, crop ecology, possible new uses of plants.

346-3 Meat in Man's World. Relationship between man and meat animal technology. Emphasis on retail consumer yield and effect on natural resources and man's health and well-being. Not open to animal industries majors. Prerequisite: complete requirements in GSA 200.

358-6 (3,3) Analysis of Physical Systems. Quantitative applications of the principles of classical and modern physics with emphasis on the application of the laws of heat, wave motion, quantum theory, and atomic physics. Prerequisites: GSA first level, Mathematics 111a,b. Not open to students who have taken college or university physics.

361-3 Physics of Music and Acoustics. Nature, propagation, sources and receptors of sound; acoustic phenomena; physics of musical instruments; mathematics of music; ears and hearing; physiology and psychology; transmission, storage, and reproduction.

363-6 (3,3) Philosophy of Science. (a) The logic of scientific explanation illustrated by analysis of physical concepts and theories. (b) The logic of explanation in the biological and behavioral sciences and their implications for the individual and society. May be taken in a,b or b,a sequences, but a,b is preferable.

Man's Social Inheritance and Social Responsibilities (GSB)

100-8 (4,4) The Western Tradition in World Context. A survey of the patterns of the Western tradition within the framework of world history. (a) Ancient times to the seventeenth century. (b) The seventeenth century to the present. Attention is given to the techniques of historical interpretation and to student discussion of man's diverse and often contradictory response to major problems. Must be taken in sequence.

102-8 (4,4) Man and His World. Anthropology: the nature of man; his behavior as the only culture-bearing animal. Geography: description of the content and spatial patterns of the contemporary world.

109-4 Introduction to Black America. Contributions of Blacks to American civilization. Historical and present-day perspectives. Lectures, guest lecturers, small discussion sections, sensitivity laboratory methods, and extensive use of audio-visual and other new provocative materials.

201-8 (4,4) Behavior and Society. An examination of the variables related to the acquisition of human behavior and social interaction in human institutions.

210-2 to 4 Intercultural Seminar. Multi-disciplinary approach to study of (a) Africa, (b) Europe, (c) Latin America, (d) Moslem World, (e) Far East. Seminar and experiment in international living. Seminar comprised of one lecture from the Departments of Economics, Government, Anthropology, History, Geography, Philosophy, Sociology, Agriculture, and Technical and Industrial Education.

211-8 (4,4) Political Economy. The functioning of the economy, the theory, organization, and operation of government, and the making of public policy in the economic sphere.

299-8 (4,4) Experimental Course—Survival of Man. Interdisciplinary study of the problems of man's relationship with the world. Emphasis on the inter-related scientific, technological, sociological, moral, and ethical questions important to survival.

300-9 (3,3,3) History of the United States. A general survey of the political, social, and economic development of the United States. (a) 1492 to 1815, (b) 1815 to 1900, (c) 1900 to the present.

302-3 Law: Civil Rights. The law protecting the civil liberties and rights of people.

303-4 International Relations. A study of world politics. The cause of international conflict and the conditions of peace.

304-3 Law: History and Philosophy. A study of the evolution and development of law beginning with the ancient and archaic periods. Greek law, Roman law, and English and American law. In addition, the historical development of legal philosophy is reviewed.

306-3 Child Development. Interdisciplinary study of the changes that take place in a child as he passes from birth to maturity. Not open to students with credit in Child and Family 237.

310-1 to 6 (1 to 2 each of 3 quarters) Current Events. Contemporary events in the modern world and their treatment in the newspaper and periodical press. May not be counted toward the journalism concentration. Only 3 hours of credit may apply to GSB requirements.

311-3 Economic Development of the United States. Emphasizes the underlying trends and forces of change that have led to our present economic structure, level of performance, and our present world position. Prerequisite: 101b, or 211a,b, or 215.

312-3 Comparative Economic Systems. A comparative study of the goals, structure, and operation of the major economic systems, such as capitalism, socialism, communism, and fascism. Emphasis upon basic systems of organization and control, and upon mixed economies, rather than upon the traditional compartments within which economic systems are sometimes put. Prerequisite: 211a or 215.

314-3 Economic Analysis of the Agricultural Policies of the United States. Emphasis on the underlying economic bases of agricultural policies and the effects of such policies on farmers, middlemen, and consumers.

320-12 (3,3,3,3) Studies Abroad. (a,b) Modern Britain. History, economics, government, and sociology of contemporary Britain. Summer only. (c,d) Columbia. Anthropology, history, literature, and sociology. Summer only.

321-3 Socialization of the Individual. A study of the emergent social process in which the native capacities of the infant are shaped and developed through interaction with significant others during infancy and childhood.

325-3 Race and Minority Relations. An analytical study of the status of racial, ethnic, and religious minorities in the United States.

331-3 The American Educational Systems. A comprehensive study of the nature and purpose of education in the United States and of how our schools are organized, financed, and conducted.

340-3 Human Relations Between the Sexes. Explores concepts and issues including development of sexuality, selection of a life partner, premarital sex experience, modern morality and the development of sexual mores, marriage, family planning, reproduction, varieties of sexual expression, and sex education.

341-3 Marriage. An examination of marriage in various societies with an emphasis on the origins, changes, and present status of dating, courtship and marriage in the United States.

345-3 Introduction to American Foreign Policy. An investigation of the means by which American foreign policy is formulated and executed and an analysis of the most significant challenges confronting America abroad.

346-3 Consumer Choice and Behavior. Analysis and overview of consumer behavior, historical as well as present day, theories related to the choices. Prerequisite: 211a,b.

353-3 Economic Geography of Resource Management. Description and analysis of contemporary problems concerning the behavioral and technical aspects of management of land, water, air, and environment quality.

354-3 Industrial Economic Geography. Geographic resources relationship to the economic life of our nation, distribution of resources, industrial production, and the transportation of industrial products.

355-3 Geography of the United States. Discusses how man's culture has influenced utilization of resources in United States with attention given to physical environment. Primary focus on how aboriginal Americans utilized the landscape, how European colonizers made their imprint on the land, and how the present cultural landscape developed.

356-4 Geography of Subsaharan Africa. Analysis and explanation of emerg-

ing spatial patterns of socio-economic development in Africa as most meaningful to the geographer in assessing the continent's transition from traditional to modern political, social and economic systems.

361-3 Fundamentals of Decision Making. A study of factors and methods involved in selecting the most economical and feasible plan in industrial engineering ventures considering both the business and technical aspects involved. Prerequisite: GSD 108-6, or Mathematics 111-10, and junior standing.

369-3 The Contemporary Far East. Interpretative survey of the political, economic, social, and psychological problems of the Far East from World War II to the present.

377-3 to 4 Issues of Today. Interdisciplinary treatment of social problems of issues of current interest. Offered once or twice per year. May be repeated for a maximum of eight quarter hours provided registrations cover different topics. Prerequisite: 16 hours of GSB courses or equivalent.

380-6 (3,3) East Europe: Cultural Heritage and Present Institutions. (a) Cultural Heritage, (b) Present Institutions. An introduction to the European area east of the iron curtain with attention evenly divided among Russia, the Balkans, and Northern East Europe.

385-3 Contemporary Political Isms. An advanced survey of recent political systems: Nationalism, Socialism, Communism, Liberal Democracy, Christian Socialism, Fascism.

390-4 Introduction to Comparative Government. A comparative survey of the organization and operation of politics in contemporary states.

391-4 Introduction to Sub-Saharan African Government and Politics. For those with no background in African studies. Aspects of the politics and government of Sub-Saharan Africa relevant to an understanding of past and present domestic and foreign policies of the African states and territories. One-party systems of government, the role of the African military establishment, inter-African organizations and pan-Africanism, and the role of the African states in the United Nations.

392-4 Introduction to Latin American Government and Politics. A general introduction to Latin American government on the institutionalized political expression of Latin American civilization and culture. Does not require a reading knowledge of Spanish or Portuguese.

395-8 (4,4) Cultural Traditions of Indo-China. (Same as GSC 395.) Stages in the history of cultures of the Indo-Chinese peninsula. Aboriginal background; analysis of the influences of China and India upon political and social institutions, religion, language, literature, education, art, and music.

Man's Insights and Appreciations (GSC)

100-3 Music Understanding. Criteria for discriminative music listening as an asset to general culture. An examination of basic materials, techniques, and forms.

101-3 Art Appreciation. Study of significant achievements in art related to Western culture and contemporary life.

102-3 Problems of Moral Decision. An introduction to contemporary and perennial problems of personal and social morality, and to methods proposed for their resolution by great thinkers of past and present.

103-3 World Literature for Composition. Reading in English, literary masterpieces of the Western world, to increase the student's competence in reading imaginative literature, to acquaint him with the great ideas and values of the best literature, and to train him to deal with literary materials in his writing. Prerequisite: GSD 102 or appropriate ACT score.

110-9 (3,3,3) An Introduction to Western Humanities. A selection of great works expressing the aesthetic, moral, and religious values of Western man. Sets forth the critical vocabulary of six humanistic disciplines: art, music, philosophy, design, literature, and theater; provides some direct experience of each one; and calls attention to interrelations among the disciplines and between the humanities and other aspects of Western culture. Must be taken in a,b,c sequence.

200-4 The Oral Interpretation of Literature. Students participate in a dynamic analysis of literature stressing the creative role of the oral interpreter. Emphasis is on individual problems in understanding and communicating significant literary works.

201-3 Introduction to Drama. Not a history of the drama. The class will read about a dozen plays, modern and ancient, and consider how various dramatic

- conventions and devices are used to give form and meaning to human experience. Prerequisite: GSC 103 or equivalent.
- 202-3 Introduction to Poetry.** A variety of poems, from the simpler to the more complex, are read and discussed. Emphasis is upon enjoyment and upon heightened insight into human experience. Devices of artistic form, such as imagery and meter, are discussed as they are involved with the substance they express, human actions, feelings, and attitudes, including the poet's satisfaction in giving artistic form to his material. Prerequisite: GSC 103 or equivalent.
- 203-3 Drama and the Arts of the Theater.** The study of drama as a literary type: the relationship with the theater audience, the role of the theater in Western culture and its relation to other creative arts.
- 204-4 Meaning in the Visual Arts.** The relationship of the visual arts to the history of ideas and the other arts at important selected moments in Western Civilization studied from paintings, sculpture, architecture, documents, and literature of the time. Prerequisite: 101 or consent.
- 205-4 Man's Contemporary Environment.** Creative problem-solving used to familiarize students with the design process and its procedural logic.
- 206-4 Foundations of Music.** Further development of music listening skills. Emphasis on music in social, philosophical, and historical contexts. How cultural forces, past and present, have influenced the art of music, and how it has helped to shape cultural events. Prerequisite: 100 or consent.
- 207-3 Philosophy of the Beautiful.** A study of the structure and importance of the beautiful in nature, society, personality, and the arts.
- 208-4 Logic and Meaning.** A critical study of expressive, informative, and other modes of discourse, with emphasis on their roles in rational process.
- 209-4 Modern Literature: Form and Idea.** Designed to give the student an interest in and an understanding of the forms, themes, and values of modern American, British, and Continental literature. Prerequisite: GSC 103 or equivalent.
- 210-3 Introduction to Fiction.** A study of the chief techniques of fiction and of some of the acceptable criteria for judging fiction. Readings in some of the masterpieces among American and European short story and novel writers. Prerequisite: GSC 103 or equivalent.
- 211-9 (3,3,3) An Introduction to Oriental Humanities.** The literature, music, drama, visual art, and definitive cultural motifs of three great Asian traditions: (a) focuses on India; (b) on China; and (c) on Japan. May be taken in any order.
- 215-4 Types of Religion.** The major kinds of religious behavior and faith in the east and the west, in ancient and modern times, in social and individual forms, and in ecclesiastical and secular settings.
- 299-8 (4,4,) Experimental Course—Survival of Man.** Interdisciplinary study of the problems of man's relationship with the world. Emphasis on the inter-related scientific, technological, sociological, moral, and ethical questions important to survival.
- 305-3 Backgrounds of French Literary Thought.** Topics, currents, and themes in French literature and their relationship to contemporary man.
- 307-3 Early Islamic Culture and Civilization.** An historical study of Islamic heritage including religion, philosophy, literature and the arts.
- 310-3 Religious Foundations of Western Civilization.** Examination of the historical backgrounds and contemporary expressions of Jewish, Catholic, and Protestant thought.
- 311-3 Philosophies and Religions of India.** Historical and comparative study of Hindu, Jain, and early Buddhist thought and practice.
- 312-3 Philosophies and Religions of the Far East.** Historical study of the religious and secular thought of China and Japan; Confucianism, Taoism, and the varieties of Mayhayana Buddhism.
- 317-3 Recent American Literature.** Prerequisite: GSC 103 or equivalent.
- 318-3 Modern British Literature.** Contemporary British Fiction and Drama (Summer only—Oxford program abroad).
- 320-3 Greek Literature in Translation.** A study of the masterpieces of Greek literature in translation.
- 325-3 Black American Writers.** Poetry, drama, and fiction by black American writers. Prerequisite: 103 or equivalent.
- 330-3 Classical Mythology.** Study of the classical myths and their literary value.
- 331-3 Latin Literature in Translation.** Discussion of Latin literary works and their influence on later literature.
- 332-3 Classical Drama.** Study of selected plays in English translation from

Aeschylus, Menander, Plautus, Terence, and Seneca. Origins, development, and influence of Greek and Roman tragedy and comedy. Study of Aristotle's *Poetics*.

333-3 Introduction to Biblical Studies. Historical, literary, and theological analysis of biblical texts and related texts both ancient and modern.

340-3 Modern Art A: The Art of the 19th Century. The principal movements of the 19th century: neo-classicism, romanticism, realism, impressionism, and post-impressionism. The styles of David, Ingres, Delacroix, Corot, Courbet, Manet, Degas, Monet, Renoir, Seurat, Van Gogh, and Gauguin receive emphasis.

341-3 Modern Art B: Art of the Early 20th Century. A study of modern art as manifest in Fauvism, cubism, and expressionism. Emphasis on the artistic development of Cezanne, Matisse, Rouault, Picasso, Braque, Gris, Leger, Kirchner, and Kandinsky.

342-3 Modern Art C: Art of the Mid 20th Century. Abstraction, later German expressionism, the school of Paris, and surrealism. Special attention to the work of de Chirico, Klee, Beckman, Chagall, Kokoshka, Soutine, and late Matisse, Picasso, Braque, and Leger.

345-9 (3,3,3) Masterpieces of World Literature. A study of the representative works of the varying cultures and eras: (a) ancient, Greek and Roman worlds, (b) medieval, renaissance and eighteenth century, (c) Romantic, Victorian, and modern periods. Prerequisite: GSC 103 or equivalent.

348-3 Photography as Communication and Art. The development and significance of still photography, with emphasis on photography as an art and communications medium. Study of factors making for photographic excellence to provide a basis for evaluation and discrimination of photographic images. Not open to Cinema and Photography majors.

349-3 The Cinema. The cinema as a communicative and expressive medium. Study of film types. Showings of selected films. Not open to Cinema and Photography majors.

351-6 (3,3) Masterpieces of the Novel. A study of the representative continental, English, and American novels: (a) 18th and 19th centuries, (b) 20th century. Prerequisite: GSC 103 or equivalent.

354-6 (3,3) History of the Theater. A study of (a) primitive, Greek, medieval, and Italian Renaissance theater, (b) the theater since the Italian Renaissance.

363-6 (3,3) Philosophy of Science. (a) The logic of scientific explanation illustrated by analysis of physical concepts and theories. (b) The logic of explanation in the biological and behavioral sciences and their implications for the individual and society. May be taken in either a,b or b,a sequence, but a,b is preferable.

365-3 Shakespeare. The major works of William Shakespeare. Prerequisite: GSC 103 or equivalent.

370-3 American Folk Music. American folk music from its foreign heritage to its current manifestations. Either GSC 370 or GSC 371, but not both may be taken toward the third level, Area C requirement. Prerequisite: 100 or equivalent.

371-3 Evolution of Jazz. Stylistic characteristics of jazz at various stages of its evolution. Societies and cultures from which it evolved. Prerequisite: 100 or equivalent.

381-3 Greek Philosophy. The thought of the pre-Socratics, Plato, and Aristotle.

382-3 Graeco-Roman and Medieval Philosophies. Epicureanism, Stoicism, and medieval Christian thought.

383-3 Early Modern Philosophy. Bacon, Hobbes, Descartes, Leibniz, Spinoza, and the British empiricists in the context of the scientific and general social outlook of the period.

386-3 Early American Philosophy. From the colonial period to the Civil War.

387-3 Recent American Philosophy. Thought of Howison, Royce, Peirce, James, Dewey, and others.

395-8 (4,4) Cultural Traditions in Indo-China. (See GSB 395.)

Organization and Communication of Ideas (GSD)

101-3 English Composition. Basic rhetorical principles in expository writing.

102-3 English Composition. Basic rhetorical principles in expository writing. Prerequisite: GSD 101 or appropriate ACT score.

103-3 Oral Communication of Ideas. The basic principles and techniques of oral communication as applied to everyday speech activities.

106-0 Intermediate Algebra.

107-5 Basic College Mathematics. Elementary college algebra and mathematical concepts. For students who do not intend to study calculus or to take Mathematics 111b later. For students taking 107 and Mathematics 108 and 111b, credit in 107 is reduced to 3 hours. Prerequisite: one year of high school algebra or GSD 106.

109-3 Elements of Probability. Probability with some applications from statistics. Prerequisite: 107.

110-3 Economic and Business Statistics. Elementary statistical concepts, including the nature of statistical methods, sampling, probability, frequency distributions, estimations and hypothesis.

120-9 (3,3,3) Elementary Chinese. Emphasis on development of reading, writing, speaking, and listening skills.

123-9 (3,3,3) Elementary French. Emphasis on basic skills of listening, speaking, reading, and writing. No previous knowledge of French required. Must be taken in a,b,c sequence.

126-9 (3,3,3) Elementary German. Emphasis on basic skills of listening, speaking, reading, and writing. No previous knowledge of German required. Must be taken in a,b,c sequence.

130-9 (3,3,3) Elementary Classical Greek. (a) Grammar emphasized. (b,c) Reading of a text, usually the New Testament. Must be taken in a,b,c sequence.

133-9 (3,3,3) Elementary Latin. Open to students who have had no previous work in Latin. Must be taken in a,b,c sequence.

135-9 (3,3,3) Elementary Portuguese. Emphasis on basic skills of listening, speaking, reading, and writing. No previous knowledge of Portuguese required. Must be taken in a,b,c sequence.

136-9 (3,3,3) Elementary Russian. Emphasis on basic skills of listening, speaking, reading, and writing. No previous knowledge of Russian required. Must be taken in a,b,c sequence.

140-9 (3,3,3) Elementary Spanish. Emphasis on basic skills of listening, speaking, reading, and writing. No previous knowledge of Spanish required. Must be taken in a,b,c sequence.

144-9 (3,3,3) Elementary Italian. Emphasis on basic skills of listening, speaking, reading, and writing. No previous knowledge of Italian required. Must be taken in a,b,c sequence.

210-15 (5,5,5) Uncommon Languages. Introduction to phonology and morphology. Concentration on elementary conversational skills, and reading skills where applicable. Classroom work, laboratory, and drill. (d-f) Swahili. (g-i) Vietnamese. (j-l) Serbo-Croatian. (m-o) Persian.

Health and Physical Development (GSE)

Courses numbered 100-104 are for men; 110-114 are for women.

100-3 (1,1,1) Restricted Physical Education (Men).

101-5 (1,1,1,1,1) Swimming (Men). (a) Beginning swimming. (b) Intermediate swimming. (c) Diving. (d) Skin diving. (e) Scuba diving. Section d must be taken before section e. Prerequisite: consent of instructor.

102-1 Physical Fitness (Men).

103-3 (1,1,1) Dance (Men). (a) Square, (b) Folk, (c) Social.

104-(1 per activity) Individual and Team Activity. (Men). (a) Archery, (b) Badminton, (c) Basketball, (d) Bowling, (e) Golf, (f) Soccer, (h) Tennis, (i)

Notes pertaining to GSD 120 through 144:

1. Sections of conversation for 1 hour of credit are available with each of these languages, but on an elective basis.

2. Students having had high school French, German, Russian, or Spanish should see the Counseling and Testing Service for placement. Students with high school training in other languages should see the Department of Foreign Languages for placement.

3. Under the current reorganization of the General Studies program foreign languages are transferred to GSC.

Volleyball, (j) Softball, (k) Horseback riding, (m) Fencing, (n) Cross country, (q) Fly and bait casting, (r) Stunts and tumbling, (s) Gymnastics, (t) Touch football, (u) Wrestling, (w) Judo, (x) Handball.

105-1 Weight Control. For students who are overweight, to learn and practice the principles of weight control. Prerequisite: consent of instructor.

110-3 (1,1,1) Restricted Physical Education (Women).

111-4 (1,1,1,1) Swimming (Women). (a) Beginning swimming, (b) Intermediate swimming, (d) Skin diving, (e) Scuba diving. Section d must be taken before section e.

112-1 Exercise for Fitness (Women).

113-6 (1,1,1,1,1,1) Dance (Women). (a) Square, (b) Folk, (c) Social, (d) Beginning Contemporary, (e) Intermediate Contemporary. Section d must be taken before section e, (f) Ballet.

114-(1 per activity) Individual and Team Activity (Women). (a) Archery, (b) Badminton, (c) Basketball, (d) Bowling, (e) Golf, (h) Tennis, (i) Volley Ball, (m) Fencing, (p) Gymnastics and tumbling, (r) Track and field, (s) Intermediate Bowling, prerequisite: 114d, (t) Intermediate Tennis, prerequisite: 114h.

201-3 Healthful Living. Personal and community health. Presents scientific health information as a basis for helping the student develop wholesome health attitudes and practices.

Accounting

Professors Clifford R. Burger, M.S.

Edward J. Schmidlein, Ph.D.

Ralph D. Swick, D.B.A.

Associate Professors Mary Noel Baron, M.S.

William Cundiff, J.D.

Robert L. Gallegly, M.A.

Susie Ogden, M.A. (*Emerita*)

Roland M. Wright, Ph.D. (*Chairman*)

Assistant Professors Charles D. Baron, M.A.

Thomas V. Hedges, D.B.A.

Marvin W. Tucker, Ph.D.

Accounting is the process of identifying, measuring, and communicating economic information to permit informed judgments and decisions by users of the information. Such information is required and used by parties external to the business and by management within the business.

The curriculum is designed to prepare a student to assume a professional position as a certified public accountant or to join the management team in industry or government. The courses provide a basic understanding of all phases of accounting and permit the student to elect courses to prepare for a particular area of interest.

The various state laws prescribe the requirements for certification as a certified public accountant. In general, the accounting curriculum prepares the student educationally to meet these requirements.

Bachelor of Science Degree, SCHOOL OF BUSINESS

<i>General Studies Requirements</i>	67
<i>Professional Business Core</i>	52
GSB 201b,c, Mathematics 111a, or GSD 107 and Mathematics 108	(13)
Accounting 251a,b, 261	12
Economics 214, 215, and 308 or 408	12
Finance 320, 371 or 370	8
GSD 110	3
Management 340, 481	8
Marketing 301	4
Mathematics 150a or 140a,b	5
<i>Requirements for Concentration in Accounting</i>	40
Accounting 331, 341, 351-8, 456	20

Accounting 432, 442, 453 (choose any two)	8
Accounting 455, 458, 461, 475 (choose one unless three were chosen above)	4
Economics 315	4
Finance 372 or 373	4
lectives	
total	192

Course Descriptions

- 30-4 Accounting Fundamentals.** Prevalent accounting principles and practices employed in business organizations. Accumulation of data and usefulness of reports are considered. Not open to students with a concentration in the School of Business.
- 31-8 (4,4) Financial Accounting.** Emphasizes corporate transaction analysis and impact on financial measures including manufacturing and funds flow. First term develops financial terminology and the double-entry, accrual basis model. Second term develops alternate measurement methods for assets and liabilities. Prerequisite: sophomore standing.
- 31-4 Management Accounting.** Emphasis uses of accounting information in planning and control decisions through funds flow analysis, budgeting models, marginal analysis, variance analysis, and relevant costing procedures. Prerequisite: Mathematics 111A and 251B.
- 39-2 Individual Income Tax.** Preparation of income tax returns. Federal income tax law as applied to individuals. Not open to those with a concentration in accounting.
- 35-4 Electronic Data Processing in Business.** Modern data processing techniques and their business applications. Includes functions and limitations of existing data processing equipment and various input, output, storage, memory, and communication devices. Batch processing versus real time processing concepts, and introduction to programming and system analysis. Prerequisite: 261.
- 31-4 Tax Accounting.** Study of accounting principles and procedures for meeting requirements of current laws and regulations which relate to federal income tax. Laboratory problems and preparation of tax returns with special emphasis on the individual taxpayer. Prerequisite: 261.
- 31-4 Cost Accounting.** Interpretation and managerial implications of material, labor and overhead for job order, process and standard cost systems, cost-volume-profit relationships. Accounting for complex process production flows, joint and by-products, spoilage, defective units, and scrap. Reports to management. Prerequisite: 261.
- 31-8 (4,4) Intermediate Accounting.** Further study of current accounting principles and procedures relating to various elements of financial reporting. Special emphasis on asset valuation, income determination, and alternative statement construction. Also, analysis and interpretation of statements; preparation and use of special statements. Must be taken in a,b sequence. Prerequisite: 261.
- 30-4 Accounting Concepts.** Interpretation and critical analysis of reports, statements and other accounting data from the viewpoint of users of financial information. For entering MBA students.
- 32-4 Problems in Federal Taxation.** Study of income tax problems which arise from partnership, corporation, estate, and trust types of organization. Brief study of social security, federal estate, and gift taxes. Student does research in source materials in arriving at solutions of complicated tax problems. Prerequisite: 331.
- 32-4 Advanced Cost Accounting.** Managerial control and profit planning through direct and relevant costing, return on investment, capital budgeting, inventory planning and control, subjective probabilities, statistical methods, and operations research. Nonmanufacturing costs, differential and comparative cost analysis. Prerequisite: 341.
- 33-4 Advanced Accounting.** Advanced study of accounting principles and procedures relating to specialized topics, including partnership equity, installment and consignment sales, insurance, branch accounts, compound interest in relation to accounting practice, and preparation and use of consolidated statements. Prerequisite: 351-8.

455-4 Accounting for Public Organizations. Financial and managerial accounting concepts peculiar to the planning and administration of public and quasi-public organizations, such as governmental units, institutions, and charitable organizations. Includes the conventional budgetary-appropriation process, as well as some of the more recent accounting developments related to public decision making. Prerequisite: 261.

456-4 Auditing. Objectives, standards, and procedures involved in examining and reporting on financial statements of business organizations. Prerequisites: 331, 341, 351-8.

458-4 Accounting Systems. Accounting systems design and installation. Examination of existing systems and practice in systems design. Designing reports for management. Prerequisites: 341, 351-8.

459-4 Internship in Accounting. Supervised work experience in professional accounting. Prerequisite: outstanding record in accounting and recommendation of the committee on internship.

461-4 C.P.A. and Advanced Accounting Problems. Uses problems from the American Institute of Certified Public Accountants' examinations given in recent years and supplementary problems from selected sources. Prerequisite: 341 and 351b.

475-4 Budgeting and Systems. Study of concepts, methods, and tools used in the design of management information systems. A comprehensive budgeting program is developed to identify problems in coordinating and controlling business activities. Prerequisite: 261.

Administration of Justice

Professors Myrl E. Alexander, L.L.D.

Thomas G. Eynon, Ph.D.

Elmer H. Johnson, Ph.D.

Associate Professor Charles V. Matthews, Director

Assistant Professors Dennis B. Anderson, Ph.D.

Stanley L. Brodsky, Ph.D.

Robert H. Dreher, J.D.

Instructors James D. McMillin, M.A.

Richard C. Pooley, M.S.

Adjunct Professors Martin Groder, M.D.

A. Lamont Smith, D.P.A.

Visiting Professor Zvi Hermon, Ph.D.

The Bachelor of Science degree in Administration of Justice meets the career objectives of students in law enforcement, courts, corrections, and other components of the criminal justice system. Within a broad framework of social and behavioral science, an interdisciplinary approach is stressed. A philosophy of service, and involvement in settings and issues experienced by policy makers, administrators, and practitioners is emphasized. An opportunity for internship placement rounds out student's program.

Bachelor of Science Degree, ADMINISTRATION OF JUSTICE

<i>General Studies Requirements</i>	6
<i>Requirements for Concentration in Administration of Justice</i>	5
Core Courses	24
Administration of Justice 200, 201	8
Guided Electives	28
(With his adviser, the student selects courses from GSB 301, 302, 325, Government 231, 232, 315, 360, Psychology 305, 307, 323, 421, Soc 306, 308, 372, 383.)	
<i>Secondary Concentration</i>	2
(With his adviser, the student selects 24 hours of courses constituting a systematic sphere of study relevant to his interests and needs.)	
<i>Electives</i>	
Total	19

Administration of Justice

00-4 Diagnosis and Evaluation of Offenders. Introduction to the procedures and issues in identifying and evaluating individual differences in offenders and classes of offenders; typical diagnostic methods.

01-4 Societal Responses to Offenders. Survey of institutionalized patterns of society's responses to crime: probation, parole, community-based corrections, correctional establishments; underlying ideologies and recurrent procedures.

00-4 Introduction to Criminal Behavior. Multidisciplinary study of the etiology and patterning of offender behavior.

59-3 to 60 Administration of Justice. Designated for credit earned in technical or occupational proficiency when credit is to be established for work above the high school level. Prerequisite: transfer from two-year program.

01-4 Human Relations in Criminal Justice Agencies. Major interactive patterns among staff members, between staff and clients, and among clients of probation and parole agencies and correctional agencies. Problems of communication, bureaucracy, and leadership.

02-4 Community-Based Corrections. Relationships of the contemporary prison with the outside community; issues and practices of contemporary programs operating in the community; factors involved in integrating correctional programs into the structure of society.

03-4 Criminal Investigation and Behavior Science. Principles of behavioral science applied to the recurrent patterns of criminal investigation as a social and fact-finding process; survey of criminalistics.

04-4 Law Violation, Law Enforcement, and the Community. Behavioral and social control within the local community; problems raised by social change, assessment of issues: traffic control, civil disturbances, vice control, and crime prevention.

05-4 Legal Aspects of Law Enforcement. Analysis of relationships between legal codes and patterns in administration of criminal justice. Includes seizure, entrapment, informers, civil rights, wiretapping, interrogation, evidence, and the role of policing in court procedures.

03-4 to 12 Supervised Internship in the Administration of Justice. Under supervision of faculty and adjunct staff, the intern assumes a student-participant role in a criminal justice agency. Prerequisite: 16 hours of administration of justice courses.

06-1 to 4 Readings in Administration of Justice. Areas not covered in other courses. Students must submit a statement describing his topic and relevant reading materials to his adviser for approval before registering for this course.

06-4 Introduction to Research in Administration of Justice. Philosophy, theories, and methods of research. Principles of scientific inquiry contrasted with the constraints and demands of the criminal justice community. Prerequisite: consent of instructor.

07-4 Research Practicum in Administration of Justice. Review of alternative research models for measuring dispositional concepts. Interpretation of research. Construction and analysis of tools appropriate to some aspect of the administration of justice. Prerequisite: 416 or consent of instructor.

02-4 The American Correctional System. A survey of the correctional field, covering probation, institutional treatment, and parole. Historic development, organizational structure, program content, and current problems. Prerequisite: 32 or consent of instructor.

03-4 Juvenile Delinquency. Nature of juvenile delinquency; relationship to theories of deviant behavior; efforts at prevention and control. Prerequisite: to sociology or psychology courses or consent of instructor.

04-3 Law Enforcement Administration.

04-4 Current Problems in Corrections.

04a-4 Probation, Classification, and Parole.

04e-2 to 4 Independent Study in Corrections.

52-4 Seminar in Criminology.

52-4 Criminal Law and the Correctional Process.

51-4 to 12 Supervised Field Work in Corrections.

51-4 Seminar in Correctional Program Management.

Aerospace Studies

Adjunct Professor Col. C. R. Carlson,
Ph.D.
Adjunct Assistant Professors Major

Milton D. Forsyth, Jr., M.S.
Captain Norbert K. Torline, M.S.
Captain Charlie W. Chastain, B.S.

Aerospace Studies is a voluntary course sequence leading to a commission as an officer in the United States Air Force. When commissioned, all officers must have at least a baccalaureate degree; hence completion of the program is contingent upon maintaining satisfactory progress toward graduation. Enrollment in the first two years (general military course) is unrestricted and no military obligation is incurred. Special students who do not intend to obtain a commission are welcome.

Acceptance into the last two years (professional officer course—300 level) is competitive and requires qualification on the Air Force Officer Qualifying Test and a physical examination. While the emphasis is on obtaining pilots and navigators, there is an opportunity to compete for non-flying positions. The particular field of concentration for potential flying officers is not a factor in selection. For non-flying officers, however, the field of concentration must be related to one of the wide range of officer specialties in the air force. Students in the professional officer course do incur a military obligation. They are paid a monthly tax-free subsistence allowance and have a draft deferment. Graduate students who have six quarters remaining at SIU, not counting summers, are eligible.

Qualified students may enter directly at the 300 level without completing the general military course by attending a six-week field training course during the summer prior to entrance. Four year students attend a four-week field training course. Field training is conducted at air force bases and students are paid while attending.

Course Descriptions

100-0 (0,0,0) Corps Training. (a) Supervised training laboratory taken concurrently with 101. (b) Taken with 102. (c) Taken with 103. Required of regular students. Designed to develop the student's leadership potential and knowledge of customs and courtesies of the U. S. Air Force.

101-1 United States Air Force. Evolution of modern aerospace power and the concepts on which it was developed. Introduction to strategic offensive force and the constraints involved in the use of modern weapons.

102-1 Aerospace Defensive Forces. Introduction to concepts, organization, equipment, and procedures involved in strategic defense of the United States. Includes technological, economic, and political issues in missile defense.

103-1 Military Forces for Limited War. Introduction to U. S. General Purpose Forces and the support of our commitments to allied nations. Includes army, navy, and marine forces with emphasis on tactical air power. Includes aerial research, and development, logistics, and related supporting agencies.

200-0 (0,0,0) Corps Training. (a) Leadership laboratory taken concurrently with 201. (b) Taken with 202. (c) Taken with 203. Required of regular students. Continues development of the student's leadership potential. Prerequisite: 100.

201-1 United States Defense Policy. The military factor of national power and the organization of the Department of Defense. The changing nature of war and current military strategies of the U. S.

202-1 Military Strategies: USSR and China. The policies pursued by the countries and implications for the United States and its allies. Policies and capabilities of the USSR and China compared for their impact on security arrangements of the free world.

3-1 Formulating Defense Policy. The interaction of U.S. government agencies and Congress in formulating policy. The role of the Department of Defense and the military man as an adviser. U.S. Alliances considered.

0-0 (0,0,0) Corps Training. (a) Leadership laboratory taken concurrently with 301. (b) Taken with 302. (c) Taken with 303. The student participates as a cadet officer to develop the skills of leadership and team work required of a young officer. Prerequisite: GMC or field training.

1-3 Development of Air Power. Airpower development in the United States from 1903 to 1961. Emphasis on doctrine, organization, and technology. Prerequisite: satisfactory completion of General Military Course or six-weeks field training.

2-3 Aerospace Power Today. The Air Force in a changing defense environment, aerospace concepts and doctrine, and the future of manned aircraft. Prerequisite: satisfactory completion of the General Military Course or six-weeks field training.

3-3 Astronautics and Space Operations. Space vehicle systems, space operations, and future developments in space. Prerequisite: satisfactory completion of General Military Course or six-weeks field training.

0-0 (0,0,0) Corps Training. (a) Leadership laboratory taken concurrently with 351. (b) Taken concurrently with 352. (c) Taken with 353. Develops skills of leadership and teamwork required of a young officer. Prerequisite: 30 or consent of instructor.

1-3 Air Force Leadership. Leadership in command staff roles, human relations, professionalism as related to the air force, imposed and self discipline, and the military justice system. Oral and written assignments. Prerequisite: 31, 302, 303, or consent of instructor.

2-3 Military Leadership and Management. The trait, situational, and interactional approach to leadership. Theory and practice of military management and the planning and organizing functions of management, with special reference to the air force and the junior officer. Prerequisite: 351 or consent of the instructor.

3-3 Military Management. The coordinating, directing, and controlling function of management, with special reference to the air force and the junior officer. Participation in problem situations and oral and written assignments required. Prerequisite: 352 or consent of the instructor.

African Studies

The African Studies Committee can give information about the courses available and can also supply advice and assist research on African subjects with its bibliographical and documentary materials. Address the chairman of the committee, Department of Geography, Southern Illinois University, Carbondale, Illinois 62901.

Secondary Concentration

Core courses: GSB 356, 391; Anthropology 306c; History 349—18. A minimum of 10 hours from among GSD 210d,e,f; Agricultural Industries 47; Anthropology 470 (only when an African language is studied); Geography 465; Government 452; History 449; or 3 or 4 hours in reading courses on Africa sponsored by those departments represented on the African Studies Committee.

Suggested related courses are Anthropology 471a; Economics 422, 462; and Government 459.

Agricultural Education

In agricultural education, completion of a four year course of study leads to certification as a teacher of agricultural occupations. A student has the opportunity of specializing in one of the following areas: agriculture business, agricultural mechanization, ornamental horticulture, plant produc-

tion, soil conservation, parks and recreation, forestry and conservation and animal production. Courses in both the School of Agriculture and the College of Education are included. A student may receive the Bachelor of Science degree and take at least part of the additional courses at the graduate level to qualify to teach.

Bachelor of Science, SCHOOL OF AGRICULTURE

<i>General Studies Requirements</i>		6
Recommended GSA 101b or equivalent	8	
Recommended GSB 201c	4	
Recommended GSB 211a or Ag. Ind. 204	4	
Recommended GSB 314 (technical agriculture)	3	
Recommended GSD 107, 109, or equivalent	3-5	
Recommended GSD 107a,b, or Math 111a,b	8-10	
<i>Requirements for Concentration in Agricultural Education</i>		7
	<i>Production</i> (applied biology and agriculture)	<i>Ag Occupatio</i> (Specialty)
Agricultural Industries 204, 350 (ag. economics)	12	9
Agricultural Industries 412 (ag. mechanics)	12	12
Animal Industries 121, 315	12	9
Plant Industries 103, 301	12	9
Option in Agriculture specialty ¹	—	18
Other Agricultural electives	12	3
Other electives ²	12	12
<i>Professional Education Requirements</i>		3
Agricultural Industries 210, 309, 312	18	
Two of the following: Agricultural Industries 311, Education Administration 355, Guidance 422a, Instructional Materials 417, Technical and Industrial Education 408		7
Guidance 305	4	
Secondary Education 310	4	
<i>Electives</i>		
<i>Total</i>		19

Agricultural Industries

Professors W. E. Keepper, Ph.D.
William M. Herr, Ph.D.
Walter J. Wills, Ph.D. (*Chairman*)
Associate Professors Ralph A. Benton,
Ph.D.
J. J. Paterson, M.S.
Eugene S. Wood, Ed.D.

Assistant Professors Theodore Buil
Ph.D.
Donald Osburn, Ph.D.
Lyle Solverson, Ph.D.
Instructors William A. Doerr, M.S.
Thomas Stitt, M.S.

Work is offered in agricultural industries in two major specializations. (a) Agricultural business and economics and (b) agricultural mechanization. In specialization (a) there are two options: (i) 60 hours in agriculture and (ii) 48 hours in agriculture. The 60-hour option provides a broad

¹ Agricultural Occupations Specialty. The student may select one of eight agricultural specialties for major emphasis. Information about these specialties may be secured from an agricultural education counselor.

² These electives may be taken in the areas of guidance, occupational administration, special needs, and extension for greater breadth.

training in agriculture. The 48-hour option provides secondary concentration in either economics or business.

In agricultural economics courses are offered in the following fields: farm management, farm credit, agricultural prices, agricultural marketing, cooperatives, and farm policy.

In farm mechanization courses are offered in four areas: farm power and machinery, rural electrification, farm structures, and soil and water conservation.

Bachelor of Science Degree, SCHOOL OF AGRICULTURE
Agricultural Economics

General Studies Requirements	67
Requirements for Concentration in Agricultural Industries	109
Two options are available:	

	60 HOURS	48 HOURS
GSA 101b, GSB 314, Agricultural Industries 204	(11) ¹	(11) ¹
Agricultural Industries 350, 354	8	8
Other Agricultural Industries Courses ² ...	16	12
Animal Industries 121, 315	9	9
Plant Industries 109 and 301, 264 or		
Forestry 360	8	8
Electives in Agriculture	12	4
Total in Agriculture	(7) + 53	(7) + 41
Business and Economics Courses ²	16	24
SB 201b or c	4	4
Mathematics, statistics, and accounting	4	12
Electives		
Total		192

¹ GSB 314 may be used to meet General Studies requirements. Agricultural Industries substitutes

² GSB 211b.

³ Courses required depend on option taken.

Agricultural Mechanization

General Studies Requirements	67
Requirements for Concentration in Agricultural Industries	83
GSA 101b	(4)
Agricultural Industries 204 ¹ , 215, 306a, 350, 373, 375, 473, 478	(4) + 27
Animal Industries 121, 315	9
Plant Industries 109, 301	9
Electives in Agriculture	11
Engineering Technology 102a, 363a	7
Business courses—Acct. 250, Marketing 363 and others	16
Electives	
Total	192

¹ This course also meets General Studies requirements.

Course Descriptions

21-4 Introduction to Agricultural Economics. Agriculture in local and national economy; distribution; size and organization of the farm business units; policies affecting agriculture.

210-2 Introduction to Agricultural Education. An introduction to the history and philosophy of agricultural education.

215-4 Introduction to Farm Structures and Electrification. An introduction to the basic concepts of structures and electricity as they apply to agriculture. Includes farm structures, and farm electrification.

259-3 to 60 Technology in Agriculture. This is a designation for credit earned in technical or occupational proficiency when credit is to be established (by departmental evaluation) for work above the high school level. Prerequisite: transfer from two-year program.

306-5 (3,2) Soil and Water Conservation. (Same as Plant Industries 306.) (a) The study of the theoretical factors affecting soil erosion and excessive water run-off, including practices of water management and soil conservation. Prerequisite: one course in soils. (b) Laboratory. Practical structural methods of controlling water run-off and soil erosion. Prerequisite: 306a or concurrent enrollment.

309-4 Agricultural Education. Methods of teaching agriculture in secondary schools. Take concurrently with 312 in a professional quarter. Field trip estimated cost \$5.00. Prerequisites: 311, and 48 hours in agriculture, Secondary Education 310.

310-4 General Agriculture. A survey of the agricultural field as it relates to the art and science of food and fiber production; problems in livestock and poultry production; soil and water management; and field crops, fruit, and vegetable production. No credit for Agriculture Majors.

311-3 Adult Education in Agriculture. Nature and scope of adult education in agriculture; methods of effectively working with adult and young farmer groups. Prerequisite: Guidance 305, junior standing.

312-12 Student Teaching in Agricultural Education. Teaching a complete program in agricultural occupations in an approved center. Taken concurrently with 309.

350-5 Farm Management. Measuring profits, principles, and practice in organizing and operating the business. Field trips estimated cost \$5.00. Prerequisite: 204 or GSB 211a.

351-4 Farm Financial Management. Analysis of the capital structure of agriculture and sources of capital. Credit analysis of farm business employing financial statements. Prerequisite: 350 or equivalent.

352-3 Agricultural Prices. Fluctuations in the general price level, causes and stabilization policies as they affect agriculture. Price determination including the measurement of supply and demand, elasticity, their application to price stabilization. Prerequisites: 354.

354-3 Agricultural Marketing. Marketing outlets for farm products, price determinants, agricultural market efficiency, margins, and costs. Prerequisite: 204 and GSB 211a.

359-3 to 5 Intern Program. Work experience program in either an agricultural agency of the government or agri-business. Prerequisite: junior standing.

373-5 Field Machinery and Power. Acquaints the student with the principles of operating adjustments, maintenance, and management of common farm power units and field machines. Prerequisite: GSA 101a,b and Mathematics 107.

375-3 Basic Agricultural Mechanization. Selection and use of basic tools, equipment, and materials used in agricultural occupations. Includes shop organization and management. Prerequisite: GSA 101 a,b and Mathematics 107.

381-1 to 2 Agricultural Seminar. (Same as Animal Industries 381, Forest Industries 381, and Plant Industries 381.) Discussions of problems in agriculture. Limited to senior students.

390-1 to 6 Special Studies in Agricultural Industries. Assignments involving research and individual problems. Field trips. Prerequisite: consent of chairman.

391-1 to 6 Honors in Agricultural Industries. Independent undergraduate research sufficiently important to require three hours per week of productive effort for each hour of credit. Prerequisite: junior standing, GPA of 4.0 with 4.25 in major, and consent of department chairman.

410-2 to 4 Problems in Agricultural Services. Discussion, assignments, and special workshops on problems related to in-service training programs in the agriculturally related fields. Development of more effective programs in working with farm people. Prerequisite: graduate student in agricultural service or consent of instructor.

411-3 Agricultural Extension. A study of the history, organization, objectives, programs, and methods of agricultural extension work. Prerequisite: junior standing.

412-4 Principles of Agricultural Mechanization. Theory and use of remote controls, electric motors, survey kits, and other devices adaptable to the needs and interests of educators involved in agricultural mechanization laboratories. Prerequisite: Secondary Education 310.

417-4 Agricultural Development in Emerging Countries. Principles and practices in improving agriculture in areas with limited capital and low levels of technology. Special emphasis on developments in Asia, Africa, and South America. Prerequisite: 204 or GSB 211a.

418-3 Marketing Practices and Problems in Developing Countries. Types of markets, assembly of products, storage, transportation, quality determination, and pricing practices which are peculiar to the developing countries. Market organization and practices for the major export products and the principal domestic foods and fibers in such countries. Methods of progressively improving such markets. Prerequisite: 354 or Economics 215.

450-4 Advanced Farm Management. Methods of analyzing farm enterprises, comparing farm businesses, allocating farm resources, combinations of enterprises, and production factors. Field trip estimated cost \$5.00. Prerequisite: 350.

451-4 Agriculture Business Management. Functions of top management, such as: determining objectives; developing sound and consistent policies for achieving objectives; organizing the administrative personnel to carry out the plans; guiding and maintaining the administrative organization. Prerequisite: senior standing.

456-11 (3,2,2,2,2) Agricultural Marketing Problems and Practices. (a) Cooperatives. Development of the agricultural cooperative movement, agricultural cooperative organization, legal requirements, principles and practices of agricultural cooperative associations. (b) Livestock. Problems and their solutions in marketing livestock. (c) Field Crops. Problems and their solutions in marketing field crops. (d) Dairy and Poultry. Problems and their solutions in marketing dairy and poultry products. (e) Horticultural crops. Problems and their solutions in marketing horticultural crops. Field trips cost \$5. Prerequisites: 354 or consent of instructor.

471-4 Land Resource Economics. (Same as Forestry 471 and Economics 471.) The use of land as an economic variable in production of goods and services; land markets; group versus individual conflicts; elementary land resources planning techniques. Field trips. Prerequisite: 350 or Forestry 470.

473-4 Advanced Agricultural Power Systems. Advanced treatment of engine, mechanical, and electrical analysis, and hydraulics and engine testing. Prerequisite: 373 or equivalent.

478-4 Agricultural Materials Handling Systems. Arrangement of feed handling, storage, and processing systems for agricultural products. Includes cleaning, sorting, and drying. Prerequisite: 215, 350, or equivalent.

482-3 Seminar-Research-Work Experience on International Agricultural Problems. Weekly two-hour discussion period on methods by which foreign students can adapt information and training obtained in U.S. oriented courses to the solution of important agricultural problems in their home countries. Supplemented by work experience and research on the University farms, in laboratories, and in the library.

485-3 Principles and Philosophies of Vocational and Technical Education. (See Technical and Industrial Education 485.)

505-3 Agricultural Industries Research Methods.

512-3 to 6 Agricultural Occupation Internship.

520-1 to 6 Readings.

520b-1 to 6 Readings in Resource Economics.

525-4 Cooperative Vocational-Technical Education.

550-4 Production Management.

552-2 Advanced Agricultural Prices.

554-4 Advanced Agricultural Marketing.

575-1 to 6 Research.

581-1 to 6 Seminar.

599-2 to 9 Thesis.

Agriculture, General

General agriculture, intended for students seeking broad backgrounds in agriculture, is probably the best agricultural plan for students who have not chosen a professional area for emphasis.

Students gain basic preparation for many of the agricultural careers: general farming, agricultural services, agricultural extension, agricultural communications, agricultural business, agricultural industry, and agricultural production. Students who initially enroll in general agriculture may transfer to other agricultural areas of concentration or they may continue in general agriculture and select courses from various fields.

Bachelor of Science Degree, SCHOOL OF AGRICULTURE

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in General Agriculture</i>	60
GSA 101b or equivalent	(4)
GSD 107, 109, or equivalent	(8)
Agricultural Industries 204, or 350, or 354, and others	12
Animal Industries 121, 315, and others	12
Forestry or Agricultural Industries (Mechanization)	3-5
Plant Industries 301, 264 or 109, and others	12
Electives in agriculture	19-21
<i>Electives</i>	
<i>Total</i>	192

Animal Industries

<i>Professors</i> Scott W. Hinnners, Ph.D.	D. Dixon Lee, Ph.D.
Germain B. Marion, Ph.D. (<i>Chairman</i>)	Louis E. Strack, DVM, M.S.
Howard H. Olson, Ph.D.	George H. Waring, Ph.D.
Alex Reed, Ph.D.	<i>Assistant Instructors</i> Howard F. Benson, B.S.
<i>Associate Professors</i> Bill L. Goodman, Ph.D.	Ronald Carr, B.S.
W. G. Kammlade, Ph.D.	Robert Francis, B.S.
Howard W. Miller, Ph.D.	Russell Snyder, B.S.
<i>Assistant Professors</i> C. L. Hausler, Ph.D.	John Gholson, B.S.
	<i>Lecturer</i> Marshall Clark (<i>Emeritus</i>)
	David Stiles

Instruction, research, demonstration, and/or consultation are provided in dairy, horse, livestock and poultry production, animal behavior, meats, laboratory animal science and veterinary science. Courses are offered in all phases of animal production and management.

The student has opportunity to select courses in other areas of agriculture or related fields, such as business, biology, or physical sciences. This selection allows the student to include in his studies the agronomic, agricultural economic, and agricultural engineering phases of agriculture, pre-veterinary medicine, or business as related to animal production.

Bachelor of Science Degree, SCHOOL OF AGRICULTURE

	Production	OPTIONS Science	Business
<i>General Studies and substitutes</i> ¹	67	67	67
<i>Requirements for Concentration in Animal Industries</i>	67	64	79
GSD 107, 109, or equivalent	(8)		(8)
Animal Industries 121, 315, 332, 381, and either 311a or 318	16-17	16-17	16-17
Animal Industries electives	31-32	19-20	19-20
Agricultural electives (excluding Animal Industries)	12	12	12

Chemistry 240 or equivalent	4	0	4
Chemistry 121b, 305a or equivalent ...	0	10	0
Economics 214			4
Science electives (excluding GSA)	3	6	3
Business courses (Accounting 250, Management 301 or 340, Marketing 301, or Agricultural Industries 354)	0	0	11-12
Business electives (Excluding GSB) ..	0	0	8-9
<i>Electives</i>			
<i>Total</i>	192	192	192

Course Descriptions

121-5 Animal Science. Animal industry as related to human needs.

259-3 to 60 Technology in Agriculture. This is a designation for credit earned in technical or occupational proficiency when credit is to be established (by departmental evaluation) for work above the high school level. Prerequisite: transfer from two-year program.

311-7 (2 or 3,2,2) Evaluation and Selection of Farm Animals and Animal Products. (a) Comparative selection and evaluation of livestock and poultry and their products. (b) Grading and selection of breeding and producing meat animals, dairy or poultry. (c) Comparative grading and selection of live animals and evaluation of products. Those with interest in livestock or poultry must take in a, b, c, sequence, while those interested in dairy must take in b, c, sequence. Prerequisite: 121, 311b, or 318 or consent of instructor.

315-4 Feeds and Feeding. Principles of domestic animal nutrition and feeding. Balancing rations. Prerequisite: 121.

318-3 Meat, Animal, and Carcass Evaluation. Carcass quality, grade and cutability of beef, pork, and lamb as related to consumer acceptance characteristics to include meat color, texture, firmness, tenderness, and palatability. The influence of live animal value on yield of trimmed retail cuts. Prerequisite: 121 and concentration in animal industries.

319-3 Horses. Types, breeds, selection, use, care, and management of saddle and draft animals. Field trip. Prerequisite: 315 or consent of instructor.

321-4 Processing and Grading of Poultry Products. Skills required in price determination, processing, grading, storage, merchandising, and distribution of poultry products. Prerequisite: 121.

327-4 Poultry Management. Principles and practices of incubation, brooding and rearing, and disease prevention, control, and diagnosis. Prerequisite: 121.

332-4 Animal Breeding and Genetics. The application of the basic principles of genetics and breeding systems to the improvement of farm animals. Prerequisites: 121; GSA 201b or equivalent.

337-4 Animal Hygiene. Contagious, infectious, and nutritional diseases and parasites of animals; their prevention and control. Field trip. Prerequisites: 121.

359-3 to 5 Intern Program. Work experience program in either an agricultural agency of the government or agri-business. Prerequisite: junior standing.

381-1 to 2 Agricultural Seminar. (Same as Agricultural Industries 381, Forestry 381, and Plant Industries 381.) Discussions of problems in agriculture. Limited to junior and senior students.

390-1 to 6 Special Studies in Animal Industries. Assignments involving research and individual problems. Approval of department chairman required. Juniors and seniors only.

391-1 to 6 Honors in Animal Industries. Independent undergraduate research sufficiently important to require three hours per week of productive effort for each credit hour. Prerequisite: junior standing, GPA of 4.0 with a 4.25 in the major and consent of departmental chairman.

415-8 (4,4) Animal Nutrition. (a) Physical and chemical properties of nutrients and their uses and principles involved in determination of nutrient requirements. (b) An integration of the basic facts concerning the nature of

¹ Substitute Chemistry 110 or equivalent for GSA 101b in production and business options; substitute Chemistry 121a for GSA 101b in science option. Mathematics 111a,b are required for science option. GSA 301 is required.

- nutrients and their metabolism. Must be taken in a,b sequence. Prerequisite: 315 and organic chemistry or equivalent.
- 420-4 Commercial Poultry Production.** Broilers, layers, and turkeys as adapted to poultry specialty farms. Field trips. Prerequisite: 121.
- 421-3 Animal Production in Developing Countries.** World animal production, practices, and institutions which affect productivity. The adaptability of animals to serve mankind. Prerequisite: one year biological science.
- 430-4 Dairy Cattle Breeding and Management.** Application of principles of breeding, nutrition, and physiology to the management of the dairy herd. Field trip required. Prerequisite: 332.
- 431-4 Reproductive Physiology of Domestic Animals.** Comparative physiology of reproduction in farm animals and the principles of artificial insemination. Prerequisite: one course in physiology.
- 432-3 Quantitative Inheritance of Farm Animals.** A review of the principles underlying the influence of mutation, selection, migration, and random drift in animal breeding populations; estimation and interpretation of heritabilities and genetic correlations; effects of variances of quantitative traits of farm animals. Prerequisite: 332.
- 433-3 Dairy Cattle Nutrition.** Application of the latest knowledge of digestion and metabolism in ruminants, and their nutritional requirements to dairy herd feeding. Prerequisite: 315.
- 434-3 Physiology of Lactation.** Anatomy of the mammary gland, hormonal control of development and secretion, milk synthesis, physiology and mechanics of milking. Prerequisite: organic chemistry and physiology.
- 456-4 (2,2) Agricultural Marketing Problems and Practices. (b) Livestock.** Problems and their solutions in marketing livestock. (d) Dairy and poultry. Problems and their solutions in marketing dairy and poultry products. Prerequisites: GSB 211a, Agricultural Industries 354 or consent of instructor. (See also Agricultural Industries 456.)
- 465-4 to 5 Swine Production.** Breed selection, breeding, feeding, management, and marketing of swine. Field trip. Prerequisites: 315, 332.
- 479-4 Animal Behavior.** (See Zoology 479.)
- 480-4 Sheep Production.** Breeding, feeding, and management of sheep. Field trip. Prerequisites: 315, 332, 431.
- 485-4 Beef Production.** Breeding, feeding, and management of beef and dual-purpose cattle. Field trip. Prerequisites: 315, 332, 431.
- 487-4 Commercial Livestock Feeding.** Consideration of principles and problems in fattening beef cattle and sheep for market. Field trip. Prerequisites: 315 and organic chemistry.
- 502-3 Surgical Research Techniques in Farm Animals.**
- 505-8 (4,4) Research Methods in Agricultural Science.**
- 520-1 to 6 Readings in Animal Industries.**
- 525-4 Advanced Poultry Production.**
- 530-4 Dairy Science.**
- 565-4 Advanced Swine Production.**
- 575-1 to 6 Individual Research.**
- 579-4 Animal Behavior.**
- 581-1 to 6 Seminar.**
- 599-2 to 9 Thesis.**

Anthropology

Professors Philip J. C. Dark, Ph.D.
 J. Charles Kelley, Ph.D.
 Charles H. Lange, Ph.D. (*Chairman*)
 Robert L. Rands, Ph.D.
 Carroll L. Riley, Ph.D.
 Walter W. Taylor, Ph.D.

Associate Professors Milton Altschuler, Ph.D.
 Edwin A. Cook, Ph.D.
 Jerome S. Handler, Ph.D.
 Bruce B. MacLachlan, Ph.D.
 Joel M. Maring, Ph.D.

Assistant Professors J. Larry Grimes, Ph.D.
 Paul A. Ballonoff, Ph.D.
 Ester G. Maring, Ph.D.
 Jon D. Muller, Ph.D.
 Jim Richard Specht, Ph.D.
 Malcolm T. Walker, Ph.D.

Instructors John S. Belmont, Ph.D. candidate
 Marie M. Doenges, M.A., M.A.
 Frank Rackerby, Ph.D. candidate

Adjunct Professor Adrianus A. Gerbrands, Ph.D.

All the major divisions of anthropology are covered, viz. archaeology, ethnology, linguistics, physical anthropology, and social anthropology. Faculty members of the department have had field experience in North, South, Central America, the Caribbean, Europe, Africa, and the Pacific. Faculty specialization and field experience in the Greater Southwest, Mesoamerica, Midwest, and New Guinea are particularly strong.

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i> (Includes GSD 107-8.)	67
<i>Supplementary Two Years College Requirement in FL/Mathematics</i>	
FL: GSD FL-9 and FL 201-9	18
<i>Requirements for Concentration in Anthropology</i>	64
Anthropology 250 or equivalent is prerequisite to 300- and 400-level courses in anthropology. It does not count toward 64. 46 hours of anthropology, at least 24 of which are on the 400-level. 18 hours from at least three related fields, e.g. biology, geography, geology, history, linguistics, philosophy, psychology, sociology. Consult department for recommended courses.	
Two years of foreign language—18 hours	
Secondary concentration	24
<i>Electives</i>	
<i>Total</i>	192

Although there are no specific course or distribution requirements, students are urged to take at least one course each in the following subfields: applied anthropology, archaeology, art and technology, ethnology, history of anthropology, linguistics, physical anthropology, and social anthropology. The student who contemplates going on to do graduate work in the field is advised to take a broadly based curriculum, in order to increase his chances of admission into a graduate program.

The prospective graduate student is also advised to gain reading knowledge of one of the foreign languages containing a substantial anthropological literature, e.g. French, German, Russian, Spanish, and to obtain elementary knowledge of statistics or computer science.

Secondary Concentration in Anthropology

A secondary concentration in anthropology is available to students who desire a minor or who are required to complete a minor. University advisers should be consulted before selecting this field as a secondary concentration.

The secondary concentration, in anthropology consists of anthropology 250, or its equivalent, with at least nine of the required 24 hours at the 300-level and at least nine of the required 24 hours at the 400-level. The remaining three hours may be at either the 300- or 400-level.

Students are advised to consult the department before selecting courses.

Honors Program in Anthropology

An anthropology student who wishes to receive honors in anthropology is expected to participate in both his junior and senior years in departmental honors courses. The minimum number of hours required is 15 and the maximum, 21. The student must have and maintain an overall g.p.a. of 4.00 and an anthropology g.p.a. of 4.25.

Course Descriptions

- 250-3 Introductory Anthropology.** Subfields, interdisciplinary nature, scientific methodology, and application of anthropology.
- 275-1 to 18 Individual Study.** Anthropological topics studied on an individual, or other, basis not provided by GSB 102. The academic work may be done on the campus or in conjunction with approved off-campus (normally field research) activities. Prerequisite: consent of department.
- 300-3 Physical Anthropology.** Man as a biological being, his relationships to other living things. Human origins and development. Concept of race and the races of mankind. Human genetics and normal human variation. Prerequisite: 250 or equivalent.
- 303-3 Old World Prehistory.** A survey of man's earliest cultural beginnings. Paleolithic and Neolithic periods in Europe, Africa, the Near East, and Asia. Prerequisite: 250 or equivalent.
- 304-3 The Origins of Civilization.** A study of the complex environmental and cultural factors that led to the rise and fall of early high-cultures in both the Old and New Worlds. Prerequisite: 250 or equivalent.
- 311-9 (3,3,3) Peoples and Cultures of the World I.** The biological and cultural history of man. (a) North America. (b) Meso-America. (c) South America. Prerequisite: 250 or equivalent.
- 312-9 (3,3,3) Peoples and Cultures of the World II.** The biological and cultural history of man. (a) Europe. (b) Caribbean. (c) Oceania. Prerequisite: 250 or equivalent.
- 313-9 (3,3,3) Peoples and Cultures of the World III.** The biological and cultural history of man in: (a) Sub-Saharan Africa. (b) The Near East and North Africa. (c) Russian Asia. Prerequisite: 250 or equivalent.
- 314-9 (3,3,3) Peoples and Cultures of the World IV.** The biological and cultural history of man in: (a) Eastern Asia. (b) South Asia. (c) Southeast Asia. Prerequisite: 250 or equivalent.
- 315-3 Peoples and Cultures of the World V.** Survey of the world's peoples and cultures. Ethnological and documentary films. Prerequisite: 250 or equivalent.
- 399-3 to 9 Honors Tutorial.** Individual or seminar work. Introduces the student to research. Must have and maintain 4.000 overall gpa and 4.25 gpa in anthropology. Prerequisite: consent of department.
- 400-4 Man and Culture.** The nature of culture and cultural process. Relationships of culture and man as an individual and as a group. Emphasis on "the anthropological point of view." Prerequisite: 250 or equivalent.
- 401-4 Language in Culture.** Language as a part of culture. Linguistics and the study of culture. Prerequisite: 250, or equivalent, or consent of department.
- 403-3 to 4 General Archaeology.** Theory and methodology. The basic concepts underlying anthropology interpretations of man's past. Prerequisite: 250 or equivalent.
- 404-4 to 5 Primitive Art and Technology.** The development of man as a tool-using and art-loving being. Artistic and technological traditions of non-Western peoples, past and present. Prerequisite: 250 or equivalent.
- 405-3 Social Anthropology.** A comparative approach to the organizational features of human groups. Functional aspects and distributions of kinship, political, religious, and economic systems. Prerequisite: 250 or equivalent.
- 407-3 General Ethnology.** Ethnology as a major sub-field of anthropology, including interest in ethnohistorical studies as well as the more traditional aspects of the field. Prerequisite: 250 or equivalent.
- 408-3 History of Anthropological Thought.** The growth of anthropology as an academic discipline to about 1940, with emphasis upon the concepts and ideas since 1860. Prerequisite: 250 or equivalent.
- 409-3 Applied Anthropology.** The applications of anthropological principles to the solution of problems of the modern world. Contributions of anthropology to the work of the educator, social worker, administrator, business man, government official, and other specialists dealing with man in Western and non-Western cultures. Prerequisite: 250 or equivalent.
- 413-3 Introduction to General Linguistics.** Philosophical, with attention to linguistic theory, origin of language, acquisition of language, language change, dialectology. Undergraduate. Prerequisite: 250, or equivalent, or consent of department.

415-3 Logic of the Social Sciences. (Same as Philosophy 415.) Logical and epistemological examination of the social studies as types of knowledge. Basic problems in philosophy of science with major emphasis upon social science; relationship of theory to fact, nature of induction, nature of causal law, testability, influence of value judgments, etc. Intended for students with considerable maturity in a social science or in philosophy.

418-4 Languages of the World. Attention given to language families, focusing on studies of linguistic history, genetic relationships, and typological classification. Of interest to specialists in fields other than linguistics. Prerequisites: consent of department.

430-3 Archaeology of North America. Introduction to methods of archaeology and survey of prehistoric Indian cultures north of Mexico, with emphasis on cultures of the Mississippi Valley. Prerequisite: 250 or equivalent.

441-3 Comparative Economics. A comparative study of economic systems, with emphasis upon those found in primitive societies. Studies of systems which fall outside the conventional systems such as capitalism, socialism, and fascism. Prerequisite: 250 or equivalent.

442-3 Comparative Folklore. A comparative study of the role of folklore in various cultures of the world, with emphasis upon non-literate societies. Analysis of motifs, themes, and other elements; comparisons between non-literate and literate groups. Prerequisite: 250 or equivalent.

443-3 Comparative Law. Legal premises upon which societies are based; systems of the non-literate world; case studies of instances where these systems come into contact with those of literate, technologically advanced cultures. Prerequisite: 250 or equivalent.

444-3 Comparative Religion. Comparative study of religious systems, with emphasis upon those of non-literate societies. Examination of basic premises and elements of these belief systems, normally excluded from discussions of the "Great Religions." Prerequisite: 250 or equivalent.

465-6 (2,2,2) Museum Methods. Practical experience and associated philosophical-educational context of museum methods in exhibition/display, processing, cataloging, preservation, etc. Prerequisite: junior standing.

466-2 Museum Administration. Problems and policies associated with museum administration, either as a specialist in large organizations or as general museologist when the director serves as a multi-purpose staff member. Prerequisite: junior standing.

470-9 (3,3,3) Special Studies of World Languages. Specific languages or language families focusing on history and structure. Any one quarter will concentrate on language of a major geographical area. Prerequisite: 413 or Linguistics 401a,b, or consent of instructor.

471-6 (3,3) Ethnomusicology (See Music 471).

483-1 to 18 Individual Study in Anthropology. Guided research on anthropological problems. Consent of department required to enroll, unless required and scheduled with another anthropology course.

497-1 to 18 Honors Individual Research. Honors students participate in graduate seminar work with the consent of the instructor. Prerequisite: 250 or equivalent.

499-3 to 12 Honors Thesis. Work on a directed research problem. The topic of the thesis may be simple or complex, depending on the time expended on it. Paper to be of publishable quality. Prerequisite: 399 and consent of department.

10-3 to 9-Seminar in New World Archaeology.

11-3 to 9 Seminar in Mesoamerican Archaeology.

12-3 to 9 Seminar in Old World Archaeology.

20-3 to 9 Seminar in New World Ethnology.

21-3 to 9 Seminar in the Ethnology of Mesoamerica.

22-3 to 9 Seminar in the Anthropology of Oceania.

23-3 to 9 Seminar in the Anthropology of Africa.

24-3 to 9 Seminar in the Anthropology of Europe.

35-3 to 9 Seminar in Physical Anthropology.

45-3 to 9 Seminar in Linguistics.

50-3 to 9 Seminar in the Native Cultures of Latin America.

60-3 to 9 Seminar in Comparative Social Organization.

62-3 to 9 Seminar in the Anthropology of Contemporary Peoples.

65-3 to 9 Seminar in Cultural Change and Development.

567-3 to 9 Seminar in Anthropological Theory and Method.
 570-3 to 9 Seminar in Art and Technology.
 575-3 to 9 Seminar in the Individual and Culture.
 581-3 to 9 Seminar in Anthropology.
 582-1 to 27 Problems in Archaeology.
 584-1 to 27 Problems in Cultural Anthropology.
 585-1 to 27 Readings in Anthropology.
 595-6 (3-3) Field Methods in Ethnology.
 596-6 (3-3) Field Methods in Archaeology.
 597-1 to 27 Fieldwork in Anthropology.
 599-1 to 9 Thesis.
 600-1 to 48 Dissertation.

Applied Science

Course Descriptions

323-3 Introduction to Computer Science. Historical development of computers. Logical basis of computer structure; machine representation of numbers and characters; number systems. Current and prospective developments in computer hardware and software. Survey of special purpose computer usage including information retrieval, heuristics, simulation, file manipulation, sorting, and "total information systems." Prerequisite: Engineering 222, or Mathematics 225, or Management 455 and Mathematics 111.

401-12 (4,4,4) X-Ray Crystallography. (a) Introductory Crystallography. Lattice theory of the crystal. Miller indices. Crystal zones. The Bravais lattices. Symmetry elements. Proper and improper rotations. Point groups: crystal classes. Operators involving translation. Space groups. Elements of crystal structure. Coordination. Structure types. (b) X-Ray Diffraction Techniques. X-ray diffraction by single crystals: fundamental equations. Reciprocal lattice and Ewald sphere. Optical analog: The optical diffractometer. Single crystal photographic methods: the Laue method: rotating and oscillation, Weissenberg, Buerger-precession and Jong-Bourman. Divergent and convergent-beam techniques. Interpretation of the x-ray diagrams. Diffractometric methods; fundamentals. Identification of polycrystalline materials with x-ray diffractometer (power method). Single crystals diffractometry. Absolute intensity measurements. (c) Crystal Structure Analysis. Fundamental diffraction relations. Determination of the cell size, chemical formula, symmetry and space group. Measurement of intensities: geometrical and physical factors affecting intensities. The structure factor; phase of the structure factor. The anisotropic temperature factor. Fourier synthesis. Electron-density projections. The phase problem. Utilization of anomalous dispersion. Direct determination. The Patterson method. Refinement of the structure with high speed computers.

410-8 (4,4) Electronics and Instrumentation for the Life Sciences. (a) Review of electrical theory and electrical aspects of biological systems; introduction to circuit analysis; fundamentals of instrumentation, primarily electronic; laboratory. (b) Transducers and characteristics of instruments used in biological research; basic computer and data-system theory and applications; analysis of biological waveforms; simulation of biological systems; laboratory.

418-3 Digital Computers in Research. Computational techniques for matrix inversion, solution of linear equations, and characteristic roots and vectors; least squares analysis, curve-fitting, and regression; design of experiment; solution of nonlinear equations; min-max functional approximation techniques; generation of approximate solutions, Monte Carlo techniques. Prerequisite: Engineering 222 and Mathematics 150a.

421-3 Programming Languages. A study of the development and use of programming languages for high speed stored program digital computers. Included are problem-, procedure-, and machine-oriented languages, symbolic languages, interpretive systems, macro assemblers, and list processors. A comparison of the languages will be made and each student will prepare programs using the languages studied. Prerequisite: Engineering 222, Mathematics 225 or consent of instructor.

422-3 Programming Systems. The use and methods of electronic data processing systems. Topics are searching, ordering, codifying, information retrieval, process control, executive routines, and heuristic programming. The student

will apply system techniques for solution of problems using one or more of the available high speed digital computers. Prerequisite: Engineering 222 or Mathematics 225 or consent of instructor.

30-2 to 8 **Special Problems.** Special opportunity for students to obtain assistance and guidance in the investigation and solution of selected technical problems. Prerequisite: consent of coordinator.

31-9 (3,3,3) **Nuclear Science.** An introductory course to provide a background for further work in Nuclear Science. Lectures and problems in radioactivity and the uses of radio isotopes, nuclear engineering, introductory reactor theory, and use of an analog computer in solving problems of neutron transport and reactor kinetics. Prerequisites: 300 and Mathematics 252b.

32-3 **Nuclear Laboratory.** Health physics instruments; characteristics of alpha, beta, and gamma rays; radioactive decay; counting statistics; fundamental neutral experiments. Prerequisite: 300 or Physics 300.

40-6 (3,3) **Engineering Analysis.** (a) Basic vector field theory; transformation theorems. Methods of solution for basic ordinary differential equations with applications to engineering systems. Prerequisite: Mathematics 252b.

(b) Basic methods of solution for partial differential equations with emphasis on applications of the Laplace, Poisson and heat equations to engineering problems. Basic complex variables, matrix theory, numerical analysis and simulation techniques applied to engineering systems. Prerequisite: 470a or Mathematics 305a.

41-16 (4,4,4,4) **Materials Science.**

43-12 (4,4,4) **Physical Properties of Crystalline Materials.**

44-12 (4,4,4) **X-Ray Diffraction and the Solid State.**

45-6 (3,3) **Design of Automatic Programming Language Processors.**

46-6 (3,3) **Programming Systems Design.**

48-3 **Nuclear Processing.**

50-2 to 6 **Special Investigations.**

50-1 to 9 **Seminar.**

59-1 to 9 **Thesis.**

Art

Professors Burnett H. Shryock, Sr.,
M.A.

Herbert L. Fink, M.F.A. (*Chairman*)

Associate Professors Brent Kington,
M.F.A.

Lula D. Roach, M.A. (*Emerita*)

Milton Sullivan, M.A.

Nicholas Vergette, AID

Assistant Professors Roy Abrahamson,
Ed.D.

Lawrence Bernstein, M.F.A.

Violet B. Hill, M.A.

Thomas Walsh, M.F.A.

Lecturer Evert Johnson, M.A.

Undergraduate offerings in art provide introductory and specialized experiences. The course of study offered, leading toward the Bachelor of Arts degree in art, requires 111 hours in art with an emphasis on a professional degree.

Candidates for the Bachelor of Arts degree may select specializations in painting, sculpture, printmaking, drawing, metalsmithing, ceramics, weaving, or art education. Electives, courses outside of degree requirements, are provided so that the student may encounter additional areas of concern beyond his concentration.

The University reserves the right to withhold an example of the work of each student in each class. Such works become a part of a permanent collection from which exhibitions may be prepared.

The department is staffed by a faculty of artist-teachers, many of whom have national reputations resulting from their participation in major exhibitions and invitational shows throughout the country. There is also an *Artist-in-Residence* program which annually invites internationally known artists to teach, exhibit, and lecture. The student can expect to receive excellent training in all of the applied and theoretical branches of art.

No undergraduate student will be allowed to take any one course, in the Department of Art, for more than four hours of credit in a given quarter without permission from the chairman.

A student who expects to elect the studio or the studio-crafts specialization must have the approval of the faculty of the Department of Art. His past work will be evaluated and he must give evidence of the necessary level of competence to pursue this program. Students who do not meet this criterion may elect the specialization in art education or art history/aesthetics in the School of Fine Arts.

Secondary Concentration

A total of 24 hours constitutes a secondary concentration. A total of 12 hours must be taken in Art 100. The student then may elect to take an Art 200 or Art History 225 offerings. He also may elect to take any 300-level craft course to complete the 24-hour requirement.

Bachelor of Arts Degree, SCHOOL OF FINE ARTS

A student concentrating in art should select one of the following fields of specialization by the end of his sophomore year: painting, prints, sculpture, drawing, metalsmithing, ceramics, weaving, and art education. He must complete a minimum of 18 hours in art history, unless he specializes in art education.

Studio

<i>General Studies Requirements</i>	6
<i>Requirements for Concentration in Art</i>	11
Art 100, 200	24
Art 225, electives in art history	18
Art drawing 341-8	8
Art electives	29
Art specialization	32
Drawing—341, 441, 442	
Painting—320, 401, 406	
Prints—358, 410, 416	
Sculpture—393, 405, 493	
<i>Total</i>	19

Studio Crafts

<i>General Studies Requirements</i>	6
<i>Requirements for Concentration in Art</i>	11
Art 100, 200	24
Art 225, electives in art history	18
Art electives	37
Art specialization	32
Metalsmithing—332, 430, 436	
Pottery—302, 420, 426	
Weaving—385, 440, 446	
<i>Total</i>	19

Art Education

<i>General Studies Requirements</i>	6
<i>Requirements for Concentration in Art (Education)</i>	8

Art (studio) 100, 200, 302, 332, 385 36

Art (history) 225, GSC 340, 341, 342 15

Art (education) 365, 307, 308 10

Art Studio or Craft Minor 24

Professional Education Requirements 28

Guidance 305 4

Secondary Education 310, 352 16-20

Education Electives 4

Total 192

Art History—Aesthetics

General Studies Requirements 67

Requirements for Concentration in Art (History-Aesthetics) 63

GSD Foreign Language 9

Art 100 12

Art Studio Elective 6

Art History-Aesthetics 225, GSC 340, 341, 342 18

Art 447, 448, 449, 482, 483, to total 18 hours in any combination 18

Secondary Concentration 24

Electives 4

Total 192

Course Descriptions

- Art Education Courses: 300, 306, 307, 308, 365, 408, 460, 466, 560, 566, 599.
- Art History Courses: 225, 309, 345, 346, 347, 348, 349, 350, 356, 369, 380, 445, 449, 471, 473, 475, 482, 483, 571, 573, 599.
- Studio Courses: 100, 200, 302, 325, 332, 341, 358, 385, 393, 400, 401, 404, 405, 406, 410, 416, 420, 426, 430, 436, 440, 441, 446, 493, 501, 502, 504, 506, 511, 513, 520, 526, 530, 540, 546, 599.
- 10-5 to 15 (5,5,5,5,5) **Basic Studio.** Restricted to majors in School of Art, Photography, and School of Home Economics. (a) Sculpture-crafts (b) Crafts-sculpture (c) Painting-graphics (d) Graphics-drawing (e) Drawing-painting.
- 10-12 (4,4,4) **Studio Disciplines.** Restricted to majors in School of Art, photography, and School of Home Economics. (a) Sculpture (b) Drawing (c) Painting. Prerequisite: 100-15.
- 10-14 **Meaning in the Visual Arts.** Relationships between art and civilization. Prerequisite: 101.
- 10-9 (3,3,3) **Introduction to Art History.** The student is acquainted with the nature of art as a human activity in order to gain an understanding of its significance now and in the past through three distinct sequential courses: (a) the nature of visual art and history, (b) classification of art in major historical periods, and (c) representative problems in the history of art.
- 10-4 to 24 **Studio.** Credit established by departmental evaluation.
- 10-12 (4,4,4) **Art Education.** Theory and practice of art activities in the elementary schools. Designed for elementary education students.
- 10-12 (4,4,4) **Pottery.** (a) Beginning pottery, (b) Intermediate pottery, (c) Advanced pottery. Must be taken in a,b,c sequence. Prerequisite: 12 hours 10-level courses or consent of instructor.
- 10-3 **Theory and Philosophy of Art Education.** Survey of art education theory providing the art education student with an introduction to theoretical studies in his field, and through scheduled observation visits to art classes at the University School, with the problems of relating theory to practice.
- 10-3 **Curriculum and Administration in Art Education.** Provides experience in dealing with problems of planning, organizing, introducing, and administering art curricula in grade and high school. Includes comparative study of published material and preparation of a working file on the subject.
- 10-3 **Oriental Art.** A survey of Asiatic arts.

320-12 (4,4,4) Oil Painting Techniques. (a) Beginning painting. (b) Intermediate painting. (c) Advanced painting. Must be taken in a,b,c sequence. Prerequisite: 200c or consent of instructor.

325-2 to 15 Studio. No more than 4 hours per quarter. Prerequisites: 8 hours in medium of choice (except where such courses do not exist) and consent of instructor.

332-12 (4,4,4) Jewelry and Metalsmithing. (a) Beginning jewelry and metalsmithing. (b) Intermediate jewelry and metalsmithing. (c) Advanced jewelry and metalsmithing. Must be taken in a,b,c sequence. Prerequisite: 12 hours 100-level courses or consent of instructor.

GSC 340 Art of the Nineteenth Century. A survey of modern art history from the French Revolution to the present: (a) art from the beginning of the Romantic period through Impressionism, (b) post impressionism and the early 20th century, and (c) art since the First World War.

340-9 (3,3,3) Art of the 19th and 20th Centuries. A survey of modern art history from the French revolution to the present. (a) Art from the beginning of the Romantic period through Impressionism. (b) Post Impressionism at the early 20th century. (c) Art since the first world war. Prerequisite: 225.

341-4 to 12 Drawing. Prerequisite: 12 hours of 100- and 200-level art courses or consent of instructor.

343-3 Experimental Art Studio. Junior and senior level non art majors experience the creation of a variety of art forms. Structured to meet the needs, interests, and backgrounds of individual students.

350-6 (3,3) American Art. A survey of American painting, sculpture, and architecture from the early 18th century to the present.

356-3 Theory of Art.

358-2 to 12 Prints. Introduction to printmaking as a medium. Studio projects in intaglio, relief, and planographic processes. Prerequisite: 100- and 200-level art courses or consent of instructor.

365-4 Art Education Methods for Elementary and Secondary Schools. For students who will teach art in elementary and secondary schools. Includes: readings and discussion of literature, lesson planning, observation-participation programs in local schools, and studio projects designed to develop understanding of artistic and technical needs of children and adolescents. Prerequisite: 100.

369-3 Primitive Art. A study of the arts of "Primitive" peoples of Africa, the Pacific, and the Americas. Characteristic works are interpreted in context with the general conditions of primitive society. The significant influences of primitive art on modern painting and sculpture are considered.

380-4 Theory and Appreciation of Art.

385-12 (4,4,4) Weaving. (a) Beginning weaving. (b) Intermediate weaving. (c) Advanced weaving. Must be taken in a,b,c sequence. Prerequisite: 12 hours 100-level courses or consent of instructor.

393-4 to 12 Sculpture. Problems in modeling, carving, casting, and construction. Prerequisite: 100- and 200-level courses in art or consent of instructor.

401-2 to 12 Research in Painting.

405-2 to 12 Studio in Sculpture.

406-2 to 12 Studio in Painting.

408-4 Art Education for Elementary Teachers II.

410-2 to 12 Research in Prints.

416-2 to 12 Studio in Prints.

420-2 to 12 Research in Pottery.

426-2 to 12 Studio in Pottery.

430-2 to 12 Research in Metal Construction.

436-2 to 12 Studio in Metal Construction.

440-2 to 12 Research in Weaving.

441-2 to 12 Studio in Drawing. Prerequisite: 341-12.

442-2 to 12 Studio in Drawing. Prerequisite: 341-12.

445-9 (3,3,3) Modern Art. (a) 19th century, (b) Early 20th century (c) Mid 20th century.

446 2 to 12 Studio in Weaving.

447a-3 The Art of Ancient Egypt and The Near East. A survey of principal monuments and archeological evidence relevant to an appraisal of the origin and development of art in the early civilizations of Africa, Western Asia, Europe, and the Aegean from prehistoric times to the rise of the Persian Empire.

7b-3 **The Art of Ancient Greece.** A study of the origins, development and influence of art produced in Greece and its colonies from the Bronze age to the Roman Empire.

7c-3 **The Art of the Ancient Romans.** An appraisal of the natural culture and art of the Roman civilization, its debt to other ancient civilizations and achievements in architecture, sculpture and painting from its foundation until the reign of Constantine.

8a-3 **Early Christian and Byzantine Art.** A survey of problems related to art and architecture produced in Christian communities and under the aegis of the Byzantine Empire until the fall of Constantinople.

8b-3 **Early Medieval and Romanesque Art.** A study of the development of architecture and art in Europe from the fall of the Roman Empire to the culmination of the Gothic style.

8c-3 **Gothic Art.** A survey of major developments in Architecture, Sculpture and Painting in Europe from the earliest formulation of Gothic style to its decline in the Renaissance period.

9a-3 **Art of the Renaissance in Europe.** A study of developments in art during the 15th century in Italy and the Lowlands leading to the High Renaissance and its impact on European painting, sculpture and architecture of the 16th century. Prerequisite: 225-9.

9b-3 **Baroque Art in Europe.** A study of the formation of national styles in the arts of Italy, Spain, Austria, Germany, France, Flanders and Holland from the 16th to the 17th centuries with particular attention to major masters.

9c-3 **The Art of 18th Century Europe.** A study of architecture, sculpture and painting in European countries and colonies from the end of the seventeenth century to the French Revolution with particular emphasis on the Rococo Art of Italy, England, Spain and France.

10-1 **The Visual Arts in Higher Education.**

11a-3 **Art of Ancient Asia and America.** A survey of early developments in architecture and the plastic arts of related civilizations in India, China, Japan and Ancient America, from prehistoric evidence to major monuments of the first Millennium A.D.

11b-3 **Painting in the Far East.** General survey of the major pictorial arts of China from six dynasties to Ch'ing dynasty, of Korea from Silla period to Choson dynasty, and of Japan from Asuka to Edo periods. An attempt will be made to trace influences central to the development and spread of important styles and to relate art to the classics of Oriental aesthetics.

11c-3 **Islamic Art.** A survey of important monuments and art works produced in the context of Islamic culture in the Near East, Africa, Spain, Persia, Turkey and India from the 7th century to the present.

12-2 to 12 **Research in Art Education.**

12-2 to 12 **Studio in Art Education.**

13-15 (3,3,3,3,3) **Art History Seminar.** Lectures, discussions and reports on subjects of special interest which will be announced periodically in the following general areas: (a) ancient art, (b) medieval art, (c) Renaissance art, (d) modern art, and (e) oriental art.

14-15 (3,3,3,3,3) **Research in Art History.** Individual research in the painting, sculpture, architecture, and related art in the following areas: (a) ancient art, (b) medieval art, (c) Renaissance art, (d) modern art, and (e) oriental art.

15-2 to 12 **Advanced Sculpture.**

15-2 to 12 **Seminar in Painting.**

15-2 to 12 **Seminar in Sculpture.**

15-2 to 12 **Research in Sculpture.**

15-2 to 12 **Research in Painting.**

15-1 to 12 **Seminar: Print Making.**

15-1 to 12 **Research in Prints.**

15-2 to 12 **Seminar in Pottery.**

15-2 to 12 **Research in Pottery.**

15-3 to 12 **Seminar in Metal Construction.**

15-3 to 12 **Research in Metal Construction.**

15-4 to 12 **Seminar in Weaving.**

15-4 to 12 **Research in Drawing.**

15-4 to 12 **Research in Weaving.**

16-2 to 12 **Seminar in Art Education.**

16-2 to 12 **Research in Art Education.**

571-2 to 5 Readings in Art History.
 573-3 to 12 Problems in Art History.
 599-2 to 9 Thesis.

Asian Studies

Secondary Concentration

A secondary concentration in Asian studies is offered within the College of Liberal Arts and Sciences. To qualify, one must present a minimum of 30 hours to be chosen from at least three areas from a list of offerings approved by the Committee on Asian Studies. Not more than 12 hours may be taken in any one area. The approved courses cover areas of instruction in agriculture, anthropology, art, economics, foreign language, geography, government, history, and philosophy.

Biological Sciences

The course of study is designed to give the student a broad, yet intensive education in the biological sciences preparatory for various professions, especially the teaching of biology at the secondary level. This work may be taken in either the College of Liberal Arts and Sciences or the College of Education. The science requirement for this concentration is the same in both colleges.

The biological sciences curriculum consists of courses selected from General Studies Area A and the Departments of Botany, Microbiology, Physiology, and Zoology. A student selecting biological sciences as his concentration does not need to take a secondary concentration. Core courses required in the biological sciences are Biology 305, 306, 307, 308. These courses may substitute for 16 hours of courses listed among the requirements for concentration in biological sciences. In addition, work in chemistry and mathematics is required. Students should consult with their adviser for additional information.

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i>	6
<i>Supplementary Two-Year College Requirements in FL/Mathematics</i> 18-2	
GSD FL-9, GSD 107-8 (or Mathematics 111-10)	
Foreign Language 201-9 or Mathematics 150-10 ¹	
<i>Requirements for Concentration in Biological Sciences</i>	6
GSA 201-8 or 210-8	(8)
GSA 301, 302, 303, 312	13
Biology 305, 306, 307, 308	16
Botany 300, 301	8
Mathematics 110-10	(10)
Microbiology 301, 302	10
Zoology 317a,b, and 402 or 403	14
<i>Additional Requirements</i> ²	18-2
<i>Electives</i> ²	
<i>Total</i>	19

¹ Students in LA&S must take one year foreign language and two years of mathematics or two years of foreign language and one year of mathematics; students intending to teach must take hours of education requirements.

² May be used to satisfy additional requirements of either college.

Bachelor of Science Degree, COLLEGE OF EDUCATION

the degree is to be in the College of Education, the student must satisfy all requirements of that college for the Bachelor of Science degree. The requirements for a concentration are the same in both colleges.

Secondary Concentration

A secondary concentration in biological sciences consists of a minimum of 36 hours and may be taken in either the College of Liberal Arts and Sciences or the College of Education. It must include Biology 305, 306, 307, 308 (16 hours) plus 20 hours of the following courses: GSA 301, 303, 302, 313, Botany 300, 301, Microbiology 301, 302, Physiology 315a, or b, 315c, and Zoology 317a,b. Attention is called to the fact that Chemistry 31a,b is a necessary prerequisite to some of these biology courses.

Biology*Course Descriptions*

35-4 Genetics-Classical and Molecular. Broad principles of genetics, including Mendelism, chromosomal behavior, genetic mapping and mutation, allelism, clones and development, polygenic systems, inbreeding and outbreeding, and genetic applications. Prerequisite: GSA 201b, or 210B, or advanced standing in biology.

36-4 Developmental Biology. Basic principles including cell concepts, reproduction from the macromolecular to the cellular level, transmission of developmental information, evolutionary compensation phenomena, and aging. Prerequisite: GSA 201b, or 210b, or advanced standing in biology.

37-4 Environmental Biology. Broad principles of ecology on the organismic level, the population level, and the community level. Includes environmental factors, adaptations, energy and material balance, succession, and human ecology. Prerequisite: GSA 201b, or 210b, or advanced standing in biology.

38-4 Organismic Biology. Structural and functional organization of organisms including reproduction, biological clocks, hormones, and transport, respiratory, skeletal, and secretory systems. Prerequisite: GSA 201b, or 210b, or advanced standing in biology.

Black American Studies

Two options are provided in a secondary concentration in Black American Studies.

A general secondary concentration in Black American Studies consists of a minimum of 24 hours, with a minimum of 15 hours from among the following: GSB 109, 325; GSC 370b, 325; Anthropology 306c; English 417; Government 425; History 309, 349a,b,c; Philosophy 345; Rehabilitation 47; Sociology 452. Additional courses to complete the minimum of 24 hours total may be elected from among the following: GSB 391, 312; GSC 30a; GSD 210d,e,f; Anthropology 275, 483; Educational Administration and Foundations 360; Government 321; History 401a,b,c, 410, 449a,b; Music 482; Sociology 335, 396. For the readings courses in the preceding list, the specific topic should be approved by the Black American Studies program.

A student wishing to use a secondary concentration in Black American Studies as part of a teacher education program should select from the lists of courses below. For this purpose the secondary concentration shall consist of 30 to 36 hours, with a minimum of 20 hours from list A and the remaining hours from the courses in list A or B.

List A: GSB 109, 325; GSC 325; Child and Family 407; Educational Administration and Foundations 360; Government 425; History 309; Psychology 495; Rehabilitation 417; Sociology 396.

List B: GSB 391; GSC 370; Anthropology 275, 306c, 483; English 417; Government 321; History 349, 410; Music 482; Philosophy 345; Sociology 335.

Course Descriptions

309-3 Introduction to Black Studies. Survey including an interdisciplinary and Pan-African orientation. Prerequisite: GSB 102 and 109.

318-2 to 12. Seminar in Black Studies. Analysis of "The Black Experience" directed toward practical contributions in the area studied. Prerequisite: GSB 109, or GSC 325, or consent of instructor.

320-2 to 6 Seminar in Group Leadership. Advanced analysis and exercises in problems of articulating "The Black Experience." Designed for learning group leaders from the staff of GSB 109. Prerequisite: consent of instructor.

322-4 Workshop in Methods of Black Studies. Theories and operations of current Black American studies programs. Develops a continuing approach to the methodological problems of Black studies programs. Prerequisite: GSB 109 or consent of instructor.

340-4 Blacks in the Performing Arts. Dance companies, ballet, folk dance and black dramatists; cinema, in all its forms; radio and television; and music (spirituals, jazz, opera, classics.) Prerequisite: GSC 325, History 309 and 349, or consent of department.

360-4 Black Americans and The Law. Criminal deviancy and its consequences among Blacks and other American minorities. Includes social history, immigration to America, and life conditions here. Prerequisite: 309, GSB 109 or consent of department.

Botany

Professors William C. Ashby, Ph.D.

William D. Gray, Ph.D.

Robert H. Mohlenbrock, Ph.D.

(Chairman)

Ladislao V. Olah, Ph.D.

Jacob Verduin, Ph.D.

John W. Voigt, Ph.D.

Walter B. Welch, Ph.D. (Emeritus)

Associate Professors Margaret Kaeiser, Ph.D.

Lawrence Matten, Ph.D.

Oval Myers, Ph.D.

Aristotel J. Pappelis, Ph.D.

Walter E. Schmid, Ph.D.

Assistant Professors William M. Marberry, M.S.

Philip Robertson, Ph.D.

Barbara Stotler, Ph.D.

Donald R. Tindall, Ph.D.

Donald Ugent, Ph.D.

John H. Yopp, Ph.D.

Botany is a broad science that includes many specialties. For example, a person who has a quantitative turn of mind and enjoys mathematics or chemistry might find genetics or biochemistry exciting, whereas a person who has always enjoyed outdoor activity might be attracted to systematic botany or ecology. Plant morphology might appeal to a person who enjoys observation and interpretation, but plant physiology might have more appeal for a person who prefers experimentation. The exact courses that should be selected by a student who wishes to prepare for a career in botany or for graduate study will vary somewhat depending on the area of plant science in which he intends to specialize. As a general rule, a student who intends to apply for admission to a graduate school to study for an advanced degree in botany should include the following in his undergraduate program: inorganic and organic chemistry, mathematics through calculus, a modern European language, and as many botany and biology courses as time and scheduling will permit. Core courses require

for concentration in botany are Biology 305, 306, 307, and 308. These courses may substitute for 16 hours of required courses in botany. Students planning to concentrate in botany should consult with the chairman of the department.

An honors program is available to those juniors and seniors in Botany who have an overall grade point average of 4.00 or better and an average in Botany courses of 4.25 or better. The honors student should enroll in Botany 392 during some quarters of both his junior and senior year for a total of no fewer than nine hours and no more than 21 hours.

<i>Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES</i>	
<i>General Studies Requirements</i>	67
<i>Supplementary Two-Year College Requirement in FL/Mathematics</i>	9-10
GSD-FL and FL 201-9	
or	
Mathematics 150-10	
<i>Requirements for Concentration in Botany</i>	59
GSA 201-8 (4 hours credited toward major)	(8)
GSA 303	3
Biology 305, 306, 307, 308	16
Botany 300-4, 301-4, 320-5, 335-2, 337-2, 338-2	19
Botany electives to complete 48 hours	6
Chemistry 121-10, 305-5	15
<i>Electives</i>	
<i>Total</i>	192

Secondary Concentration

A secondary concentration in botany consists of a minimum of 24 hours, including GSA 201-8 or 210-8 (which contributes only 4 hours) and excluding Botany 390 and 391.

Course Descriptions

- 300-4 Morphology of Non-Vascular Plants.** Introduction to the structure, development, and relationships of the algae, fungi, and bryophytes. Prerequisite: GSA 201b.
- 301-4 Morphology of Vascular Plants.** Introduction to the structure, development, and relationships of the fern-allies, ferns, gymnosperms, and angiosperms. Prerequisite: GSA 201b. Recommended: Botany 300.
- GSA 303-3 Ferns, Trees, and Wild Flowers: The Pleasure of Recognition.**
- 308-5 Taxonomy of Cultivated Plants.** A study of the classification of woody and herbaceous cultivated plants, both exotic and native. Prerequisite: consent of instructor.
- 320-5 Elements of Plant Physiology.** A study of the functions of plants and their relation to the various organs. Three lecture and 4 laboratory hours per week. Prerequisite: GSA 201b; chemistry 350 or a secondary concentration in chemistry.
- 321-3 to 5 Elementary Botanical Microtechnique.** Methods of preservation and preparation of plant materials for examination by the light microscope. One lecture and 4 laboratory hours per week. Prerequisite: GSA 201b.
- 335-2 Genetic Methods.** Study of selected organisms and techniques illustrating genetic principles. Two 2-hour laboratories per week. Prerequisite: Biology 305 or equivalent.
- 337-2 Ecology Laboratory.** One 4-hour laboratory per week. Concurrent or subsequent enrollment in Biology 307.
- 338-2 Organismic Laboratory.** Four hours laboratory per week. Concurrent or subsequent enrollment in Biology 308.
- GSA 340-3 Ecology.**

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. Prerequisites: concentration in botany, consent of instructor.

391-2 to 5 Special Problems in Botany. Individual laboratory or field work under supervised direction. Both written and oral discussions required. Prerequisite: concentration in botany, consent of department or division.

392-3 to 21 Botany. Individual research problems available to qualified juniors and seniors. Prerequisite: consent of department.

400-5 Plant Anatomy. An introduction to cell division, development, and maturation of the structures of the vascular plants. Laboratory. Cost \$5. Prerequisites: 301 or consent of instructor.

404-5 The Algae. Structure, development, and relationships of the algae. Laboratory and some field work. Prerequisite: 300.

405-5 Mycology. Structure, development, and relationships of the fungi. Problems of economic and scientific interest stressed. Laboratory. Prerequisite: 300.

406-5 Industrial Mycology. A consideration of the myriad ways in which fungi impinge on man's affairs, with special emphasis upon their various industrial application—real and potential. Three lectures and 4 laboratory hours per week. Prerequisite: 405 or consent of instructor.

410-3 The Taxonomy and Ecology of Bryophytes and Lichens. Floristic studies of the moss, liverwort, and lichen communities of Southern Illinois. 1 lecture and 4 laboratory hours per week. Prerequisite: consent of instructor.

411-4 The Bryophytes and Pteridophytes. Structure, development, and relationships of the liverworts and mosses, and the ferns and fern allies. Laboratory. Prerequisite: 301.

412-4 The Spermatophytes. Structure, development, and relationships of the gymnosperm and angiosperm. Laboratory. Prerequisite: 301, GSA 303.

414-5 Paleobotany. (Same as Geology 414). An introduction to the study of fossil plants emphasizing the major features of plant evolution and the applications of paleobotany to problems in the botanical and geological sciences. Lecture, laboratory, and field trips. Student cost about \$5. Prerequisite: 303 or Geology 221.

420-4 Physiology of Fungi. A treatment of the physiological activities of fungi with particular stress upon (1) those aspects peculiar to the group by virtue of their being non chlorophyllous plants, and (2) exploration of the possible explanations of the parasitic vs. the saprophytic habit. Prerequisite: consent of instructor.

425-15 (5,5,5) Advanced Plant Physiology. (a) Physics of the plant, water relations, membrane phenomena, photobiology. (b) Chemistry of the plant; anabolic and catabolic processes, photosyntheses, respiration, chemosynthesis. (c) Covers the absorption, translocation, function and interaction of inorganic nutrient elements in green plants with application to forest, agronomic, and horticultural species. Prerequisites: 320, Chemistry 350, or a secondary concentration in chemistry.

428-3 Plant Nutrition. The physiological importance of carbon, nitrogen, and phosphorus-containing compounds is stressed. Prerequisites: organic chemistry, secondary concentration in botany or agriculture.

440-14 (4,5,5) Advanced Ecology. (a) Management and ecology of grasses and grasslands. (b) Physiology and autecology of forest species. (c) Sampling methods and community analysis. Prerequisite: Biology 307, or consent of department.

446-12 Tropical Ecology. Three weeks of marine ecology on the atolls and extensive barrier reef near Belize, British Honduras, and three weeks of terrestrial ecology at several locations inland. Prerequisite: advanced undergraduate or graduate standing in one of the biological sciences.

447a-4 to 12 Botanical Field Studies in Latin America. Four to eight weeks long. Acquaints students with plants in various environments of Latin America and with methods of field study, collection, and preservation. Cost per individual will be determined by type of study and location. Prerequisite: advanced undergraduate or graduate standing in one of the biological sciences and consent of instructor.

449-3 Elements of Taxonomy. Principles of taxonomy including historical sketch, phyletic concepts, biosystematics, classical and experimental methods. Lecture. Laboratory. Prerequisite: GSA 303 or equivalent, or consent of the instructor.

- 450-3 Plant Geography.** World distribution of plants related to environmental, floristic, and historical factors. Prerequisites: consent of instructor.
- 456-5 Plant Pathology.** (Same as Plant Industries 455.) A study of plant diseases caused by fungi, bacteria, and viruses. Special attention given diseases of southern Illinois plants. Laboratory and field trips. Lab charge. Prerequisite: consent of instructor.
- 457-4 Forest Pathology.** Nature and control of forest and shade tree diseases. A study of tree diseases in forests, parks, streets, and nurseries. Fungi important in decay and stain of timber and its products are included. Lab charge. Prerequisite: consent of instructor or 456.
- 470-4 Methods of Teaching High School Biology.** Methods, objectives, types of courses taught in secondary school biology. Laboratory and field trips. Prerequisite: concentration in botany or zoology.
- 480-4 Classic Principles of Botany.** Theories, principles, and developments in the various divisions of the plant sciences. Prerequisites: GSA 201b, or 210b, or consent of instructor.
- 484-4 Palynology.** (See Geology 484)
- 490-8 (4,4) Photographic Methods in Scientific and Biological Photography.** (a) Black and White. (b) Color. Specimen photography, photomicrography, macrophotography, infrared and ultraviolet photography. Slides for presentation, materials and methods used in scientific publications. Prerequisite: consent of instructor.
- 500-5 Biosystematic Plant Anatomy.**
- 503-20 (5,5,5,5) Advanced Angiosperm Taxonomy.**
- 510-4 Bio-Ecology.**
- 522-5 Advanced Microtechnique.**
- 524-3 Advanced Plant Genetics.**
- 525-5 Cytology.**
- 526-5 Cytogenetics.**
- 533-3 to 4 Growth and Development in Plants.**
- 535-3 Energetics of Aquatic Ecosystem.**
- 542-3 Biosystematics.**
- 543-5 Experimental Ecology.**
- 551-4 The Natural Vegetation of the Mississippi Basin, Upland.**
- 552-4 Mississippi Flora, Aquatic.**
- 555-12 (4,4,4) Advanced Plant Pathology.**
- 570-2 to 5 Readings.**
- 580-1 to 3 Seminar.**
- 581-4 Advanced Systematics.**
- 584-3 Palynology.**
- 590-2 to 4 Introduction to Research.**
- 591-3 to 9 Research.**
- 599-3 to 9 Thesis.**
- 600-1 to 36 Dissertation.**

Business Administration

- 500-4 Research Methods and Communications.**
- 501-4 Quantitative Methods for Decision Making.**
- 502-4 Business and Society.**
- 510-4 Managerial Accounting and Control.**
- 511-4 Accounting Theory.**
- 512-4 Advanced Auditing.**
- 513-4 CPA and Advanced Accounting Problems.**
- 514-4 Controllorship.**
- 519-4 Seminar in Accounting.**
- 521-4 Business Conditions Analysis.**
- 526-4 Managerial Economics.**
- 530-4 Financial Management.**
- 531-4 Financial Policies.**
- 532-4 Financial Institutions and Markets.**
- 539-4 Seminar in Finance.**
- 540-4 Managerial and Organization Behavior.**
- 541-4 Operations Analysis and System Controls.**
- 542-4 History and Theory of Management.**
- 543-4 Personnel Management.**

- 544-4 Production Management.
- 549-4 Seminar in Management.
- 550-4 Marketing Management.
- 551-4 Product Strategy and Management.
- 552-4 Advanced Marketing Research and Analysis.
- 553-4 Logistics Management.
- 554-4 Marketing Theory.
- 559-4 Seminar in Marketing.
- 580-4 International Business Operation.
- 590-4 Independent Study.
- 598-4 Business Policies.
- 599-4 to 8 Thesis.

Business Teacher Education

(See also *Secretarial and Business Education*.)

Bachelor of Science Degree, COLLEGE OF EDUCATION

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in Business Teacher Education</i> ..	69-75
GSB 201c, GSD 110, and 107a or 111a,b	(11) + 4
Accounting 250 or 251a	4
Economics 214, 215	8
Finance 305 or Management 170 or 340	4
Marketing 301	4
Secretarial and Business Education 201b	3
Preparation to teach in a minimum of four of the following areas:	42-48
Bookkeeping, Accounting, and Record Keeping.	
Two of the following: in addition to the accounting course taken as part of the core—Accounting 250, 251a, 251b, 261, 309, or 351a	
Business Law—Three of the following: Finance 371, 372, 373, 473	
Data Processing—101a, 103a or Secretarial 341; Accounting 315 or Secretarial 417	
Distributive Education—Three of the following in addition to the marketing course taken as a part of the core: Marketing 329, 363, 390, 401	
Electronic Data Processing—341, 417 or Data Processing 101a and 104; Accounting 315; Data Processing 103a	
General Business or Consumer Education—Three of the following courses in addition to the courses taken to fulfill requirements of any other part of the program: Family Economics and Management 340, 341; Management 170, 340	
Office Practice and Machines—Required courses for Typewriting; Management 271; Secretarial 326, 341	
Shorthand and Transcription—221c, 324	
Typewriting—201c, 241, 304 ¹	

¹ Students who demonstrate by examination an initial competence in typewriting may be excused from as many as 9 hours of typewriting (201-9). Those students starting with a proficiency in shorthand may be excused from as many as 16 hours of shorthand (221-12, and 324a). Those who have had high school instruction in bookkeeping will start with Accounting 251a.

Professional Education	37-43
Guidance 305	4
Secondary Education	4
Secondary Education 352-12 or 16	12 or 16
Two of the following:	8
Guidance 422a	
Educational Administration 355	
Instructional Materials 417	
Three of the following:	9 or 10
Secretarial and Business Education 403, 404, 405, 406, 408, 409, Secondary Education 315	
To become a vocational teacher or coordinator in a reimbursable vocational program in distributive education or office occupations, the following courses are required:	
Secretarial and Business Education 414a,b-6, 415-6	
Electives	
Total	205-226

Bachelor of Science Degree, SCHOOL OF BUSINESS

Students who choose a concentration in accounting, economics, finance, management, marketing, or secretarial studies may become certified to teach in the public secondary schools by taking selected courses in the School of Business and professional education courses in the College of Education. Those students who are interested in preparing themselves for executive positions as well as for business teaching positions should consult a School of Business adviser.

Secondary Concentrations

Secondary concentrations are offered in the following areas: (1) secretarial studies, consisting of a minimum of 24 hours in business; (2) business-teacher education, consisting of a minimum of 30 hours in business.

Secondary concentrations are planned for each student individually by the student and his adviser. This procedure is necessary because students' backgrounds and needs vary greatly.

Chemistry

Professors Talbert W. Abbott, Ph.D. (Emeritus)	John H. Wotiz, Ph.D.
Richard T. Arnold, Ph.D. (Chairman)	Associate Professors Albert L. Caskey, Ph.D.
James N. McMiller, Ph.D.	Herbert I. Hadler, Ph.D.
Roger E. Beyler, Ph.D.	J. Herbert Hall, Ph.D.
George E. Brown, Ph.D.	Wilbur N. Moulton, Ph.D.
Elbert H. Hadley, Ph.D.	Donald W. Slocum, Ph.D.
Cal Y. Meyers, Ph.D.	Gerard V. Smith, Ph.D.
Boris Musulin, Ph.D.	Assistant Professors James A. Cox, Ph.D.
James W. Neckers, Ph.D. (Emeritus)	Michael R. Emptage, Ph.D.
Charles Schmulbach, Ph.D.	William E. Geiger, Jr., Ph.D.
Robert A. Scott, Ph.D. (Emeritus)	H. Frank Gibbard, Ph.D.
Russell F. Trimble, Ph.D.	Conrad C. Hinckley, Ph.D.
Kenneth A. Van Lente, Ph.D.	David Koster, Ph.D.
	James Tyrrell, Ph.D.

The Department of Chemistry offers three degree programs with a concentration in chemistry. The first is the Bachelor of Arts degree with certification by the American Chemical Society. The degree is recommended for those who wish to become professional chemists. A minimum of 58 credit hours in chemistry is required for this degree. The second is the Bachelor of Science degree. This degree involves less work in chemistry, with a minimum of 42 hours being required. This program is recommended to students who wish to complete a concentration in chemistry, but who plan on eventually going into other professional areas such as medicine, dentistry, etc.

The third program of study leads to the Bachelor of Science degree in education. This degree program is administered by the College of Education. It is provided for those who wish to become secondary school chemistry teachers.

Candidates for degrees are required to have a 3.00 grade point average in chemistry courses at the start of the second year of the concentration and a 3.25 grade point average in chemistry courses, and/or consent of the chairman, before starting the third and fourth years.

A knowledge of German is recommended for all concentrations in chemistry, and required for those students working for ACS certification. Scientific German may be counted as the equivalent of German 201c.

Bachelor of Arts Degree, A.C.S., COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i>	59
(Advanced Standing Assumed in GSA 101ab)	
<i>Supplementary College Two-Year Requirement in FL/Mathematics</i>	
Mathematics 111-10, 150-10	20
<i>Requirements for Concentration in Chemistry</i>	79-82
Chemistry 121ab-10, 235, 341-15, 411, 432a, 461-12 plus three of the following: 412, 432b, 433, 446, 455, 496, 451, 464, 472, two of which must be picked from the first six on the list	58
Mathematics 252-9	9
Physics (one year)	12-15
GSD 126-9	(9)
<i>Electives</i> (additional mathematics is recommended)	
<i>Total</i>	192

Bachelor of Science Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i>	59
(Advanced Standing Assumed in GSA 101ab)	
<i>Supplementary Two-Year College Requirement in FL/Mathematics</i>	
Mathematics 111-10, 150-10	20
<i>Requirements for Concentration in Chemistry</i>	54-57
Chemistry 121-10, 235, 341-15 or 305-9, 461-12 or 460-5, 432a plus courses selected from 350, 375, 411, 412, 432, 433, 446, 447, 451, 455, 464, 471, 472, 490, 496, to total 42 hours	42
Physics (one year)	12-15
GSD 126-9 (recommended) or 123-9 or 136-9	(9)
<i>Electives</i>	
<i>Total</i>	192

Bachelor of Science Degree, COLLEGE OF EDUCATION

<i>General Studies Requirements</i>	59
(Advanced Standing Assumed in GSA 101a,b)	
<i>Requirements for Concentration in Chemistry</i>	48
Chemistry 121ab, 235, 341-15 or 305-9, 461-12 or 460, plus courses selected from 350, 375, 411, 412, 432-8, 433, 446, 447, 451, 455, 464, 471, 490, 496	48
For other course requirements see Secondary Education.	

SECONDARY CONCENTRATION

A secondary concentration in Chemistry consists of a minimum of 24 hours of chemistry courses.

Course Descriptions

110-4 General and Inorganic 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. Three lecture and 3 laboratory hours per week. Not applicable to a concentration or to a secondary concentration in chemistry. No prerequisite.

115-5 Introductory General Chemistry. Equivalent to a year of high school chemistry. For students who have had less than a year of high school chemistry and who require a year or more of college chemistry. May be audited by students who have had a year or more of high school chemistry. Three lectures, four laboratory hours, and one recitation per week.

121-10 (5,5) General Chemistry and Qualitative Analysis. For students requiring at least 10 hours of chemistry, including those concentrating in chemistry or other scientific, pre-professional, or technological areas. (a) Basic principles of chemistry and chemistry of non-metals; emphasis on chemical calculations. (b) Chemistry of metals, alloys, amphoterism, coordination compounds, and ionic equilibria; laboratory work includes qualitative analysis of certain cations, anions, and alloys. Must be taken in a,b sequence. Prerequisite: 115 or 1 year of high school chemistry.

235-5 General Quantitative Analysis. Introduction to theories and methods of volumetric and gravimetric techniques. Three lecture and 6 laboratory hours per week. Prerequisite: 121b.

240-4 Organic Chemistry. A survey course not open to those concentrating in chemistry. An introduction to aliphatic and aromatic compounds with emphasis on those of biological importance. Three lecture and 3 laboratory hours per week. Prerequisite: 110 or 121a.

305-10 (5,5) Organic Chemistry, Preprofessional. For secondary concentration in chemistry and preprofessional students. Three lectures and one laboratory hour per week. (a) Three laboratory hours per week. (b) Six laboratory hours per week. Must be taken in a,b sequence. Prerequisite: 121b.

341-15 (5,5,5) Organic Chemistry. Three lectures and one laboratory lecture hour per week. (a) Three laboratory hours per week. (b), (c) Two laboratory periods per week. Must be taken in a,b,c sequence. Prerequisite: 121b or 305b.

350-4 Biological Chemistry. A brief introduction to metabolism, nutrition, and the chemistry of the important biological processes in plants and animals. Three lecture and 3 laboratory hours per week. Prerequisite: 240 or 305b or 41c.

375-0 to 2 Undergraduate Seminar. For juniors and seniors with a concentration in chemistry.

411-4 Intermediate Inorganic Chemistry. Modern inorganic chemistry involving atomic structure, chemical bonds, complexes, and chelate structures; with emphasis on physical chemical principles. Four lecture hours per week. Prerequisite: 461b.

412-3 Inorganic Preparations. A study of several important inorganic syntheses. One lecture and 6 laboratory hours per week. Prerequisites: 235, 305b or 341c.

416 X-Ray Crystallography. (See Geology 416.)

432-8 (4,4) Instrumental Analytical Measurements. Theory and practice of instrumental analytical measurements, including spectrophotometric, electro-

- analytical, and chromatographic methods. Two lecture and 6 laboratory hours per week. May be taken in either sequence. Prerequisite: 461b.
- 433-3 Intermediate Quantitative Analysis.** A study of the analysis of complex materials, with emphasis on separations, functional group analysis, and instrumental applications. Two lecture and 3 laboratory hours per week. Prerequisites: 432a or b and 461c.
- 438-3 Review of Analytical Chemistry.** A discussion, in depth of the principles of chemical equilibrium, analytical separations, and common chemical and physical measurements. Three lecture hours per week. Prerequisite: graduate standing and consent of instructor.
- 446-4 Qualitative Organic Analysis.** A systematic study of the separation and identification of organic compounds. Two lecture and 6 laboratory hours per week. Prerequisite: 235 and 341c or consent of instructor.
- 447-3 Quantitative Organic Chemistry.** The determination of functional groups and elements commonly found in organic compounds by selected methods of analysis; illustration of general methods of procedure in the field of quantitative organic chemistry. One lecture and 6 laboratory hours per week. Prerequisite: 305b or 341c.
- 451-9 to 11 (3,3,3 or 4) Biochemistry.** (a) Chemistry and function of amino acids, proteins, and enzymes. (b) Carbohydrate chemistry, function and metabolism; biochemical energetics; citric acid cycle; oxydative phosphorylation. (c) Photosynthesis; lipid chemistry, function and metabolism; nitrogen metabolism; nucleic acid and protein biosynthesis; metabolic regulation. Prerequisite: 235, 305b, 341c.
- 455-8 (4,4) Biochemistry Laboratory.** Modern biochemical laboratory techniques (a) for isolation, purification, and characterization of constituents of living cells and (b) for investigations of pathways, kinetics, energetics, and regulatory mechanisms related to metabolism and enzymic activity. 1 lecture and 8 laboratory hours per week. Prerequisite: 451.
- 460-5 Principles of Physical Chemistry.** A one-term course in physical chemistry designed especially for non-chemistry majors including prospective teachers of high school chemistry. Three hours of lecture and six hours laboratory per week, one hour of which will be used for special instruction. Prerequisite: 235, 305b, or 341c, and one year of physics or consent of department.
- 461-12 (4,4,4) Physical Chemistry.** A fundamental course in physical chemistry composed of a sequence of a, b, and c. Three lecture and 3 laboratory hours per week. Prerequisites: 235, 12 hours of physics, and one year of calculus. Must be taken in a, b, c sequence, and each is a prerequisite for the next course in the sequence.
- 464-3 Introduction to Quantum Chemistry.** Quantum chemistry as applied to atoms and molecules. Three lecture hours per week. Prerequisite: 461c or consent of instructor.
- 468-4 Elements of Physical Chemistry.** Open only to graduate students in chemistry whose diagnostic examinations indicate a need for this course, and to qualified non-chemistry majors. Prerequisites: twelve hours of physics, one year of calculus, and at least one year of chemistry.
- 471-3 Industrial Chemistry.** A survey of modern industrial chemistry and an introduction to chemical research processes. Three lecture hours per week. Prerequisite: 305b or 341c.
- 472-12 (4,4,4) X-Ray Crystallography.** (Same as Applied Science 401-12.) (a) Introductory crystallography. (b) X-ray diffraction techniques. (c) Crystal structure analysis. Prerequisite: 461b.
- 490-2 Chemical Literature.** A description of the various sources of chemical information and the techniques for carrying out literature searches. Two lecture hours per week. Prerequisites: 235, 305b or 341c, reading knowledge of German or consent of instructor.
- 496-1 to 12 Chemical Problems.** Investigation of individual problems under the direction of a staff member. Prerequisite: consent of instructor and department chairman.
- 504-3 Mechanisms and Syntheses in Organic Chemistry.**
- 511-9 (3,3,3) Advanced Inorganic Chemistry.**
- 519-2 to 30 (2 to 6 per quarter) Advanced Topics in Inorganic Chemistry.**
- 531-3 Theory of Quantitative Analysis.**
- 532-3 Instrumental Methods of Analysis.**
- 539-2 to 30 (2 to 6 per quarter) Advanced Topics in Analytical Chemistry.**
- 541-3 Advanced Organic Chemistry.**
- 542-3 Advanced Organic Chemistry.**

- 3 Advanced Organic Chemistry.
- 3 to 6 Advanced Laboratory Preparations in Organic Chemistry.
- 2 to 30 (2 to 6 hours per quarter) Advanced Topics in Organic Chemistry.
- 3 Nucleic Acids and Protein Biosynthesis.
- 3 Carbohydrate Chemistry.
- 3 Plant Biochemistry.
- 3 Biochemical Mechanisms.
- 3 Enzymes.
- 2 to 30 (2 to 6 hours per quarter) Advanced Topics in Biochemistry.
- 3 Chemical Thermodynamics.
- 3 Quantum Chemistry.
- 3 Chemical Dynamics.
- 3 Statistical Thermodynamics.
- 2 to 30 (2 to 6 hours per quarter) Topics in Advanced Physical Chemistry.
- 2 to 15 (2 to 6 hours per quarter) Special Readings in Chemistry.
- 0 to 9 Advanced Seminar in Chemistry.
- 1 to 20 Advanced Chemical Problems.
- 1 to 40 Research and Thesis.
- 1 to 48 Research-Doctoral.
- 3 to 48 Dissertation-Doctoral.

Child and Family

Professor Michael Zunich, Ph.D.	Instructors Victoria Azrin, M.S.
(Chairman)	Thelma K. Kraft, M.S.
Associate Professor Mary Hicks, Ph.D.	Melva F. Ponton, M.S.
Assistant Professor Timothy Flynn, Ph.D.	Shirley Rogers, M.S.

Within a concentration in Home Economics the Department of Child and Family offers specialization in Pre-School Programs. (See Home Economics)

Pre-School Programs

These courses offer basic background leading to positions as nursery school director or teacher in private schools, colleges and universities and day care centers; child care specialists with social, public health and welfare agencies; agricultural extension specialist in child care and recreation workers.

General Studies Requirements	67
Requirements for Concentration in Home Economics	80-82
SA 201a,b; GSB 201b,c, 341; GSC 100 or 101, 102, 103 (37) + 3	
SA 110a,b or Chemistry 110, 240	(4) + 4
Child and Family 227, 237, 337, 345a,b, 366, 445, 456, 466, 471	31-33
Clothing and Textiles 127a	2
Elementary Education 413	4
Family Economics and Management 331, 332, 341 ...	11
Food and Nutrition 100	3
Guidance 305, 412	8
Home Economics Education 111 or 306	2
Interior Design 131	3
Psychology 301	3
Special Education 200, 414	2
Electives	
SB 321, 325; Clothing and Textiles 440; Home Economics Education 312, 325, 400; Home and Family 407, 481; Instructional Materials 405, 417; Psychology 305, 451; Recreation	

201, 202, 310a,b,c,d; Special Education 410a,b,c; Theater 410.

Total 1

Course Descriptions

227-3 Family Living. A study of relationships and adjustments in family living, designed largely to help the individual.

237-3 Child Development. Principles of development and guidance of children as applied to home situations. Directed observation involving children of varying ages.

337-3 Advanced Child Development. Developmental approach to the study of child behavior in the family. Prerequisite: 237.

345-5 (2,3) Child Development Practicum. Observation and participation in the guidance of pre-school children. (a) Preparation and use of materials, equipment and activities. One hour lecture, 2 hours laboratory; (b) Planning and executing a variety of experiences for preschool children. One hour seminar, 3 hours laboratory. Part b may be elected independently of a.

366-3 Family Development. Study of changing patterns in family living throughout the family life cycle. Prerequisites: 227 or GSB 341.

408-2 to 8 Workshop. For workers in fields related to child and family.

445-4 Administration of Pre-School Programs. Objectives in pre-school programs. Programming including housing, equipment, health protection, and supervision. Field trip. Prerequisite: 345b or consent of instructor.

456-4 Infant Development. Current theories and knowledge concerning growth and development of infants with related laboratory and field experiences. Prerequisite: 237 or Psychology 301 or equivalent.

466-2 Practicum in Parent-Child Study. Designed to increase student's ability to work with parents and parent groups through an awareness of factors in the parent-child relationship and knowledge of current research and methods in parent education. Integration with infant and child development laboratories and related field experience. Prerequisites: 227, 237 or equivalent.

471-2 to 6 Field Experience. Supervised learning experiences. Child development experience in a community nursery school. Prerequisite: consent of chairman.

481-2 to 6 Readings. Child development and family living readings under staff supervision. Prerequisite: consent of instructor and chairman.

500-4 Research Methods.

556-4 The Pre-school Child.

562-4 Child Development Through Home and School.

566-4 Interpersonal Relationships within the Family.

571-4 Recent Research.

572-2 to 8 Special Problems.

599-2 to 9 Thesis.

Cinema and Photography

Associate Professors C. William Horrell, Ed.D. Assistant Professors George C. Brown, Ed.D.

Robert Davis, Ph.D. (Chairman)

Howard F. Eilers, M.F.A.

Frank R. Paine, B.S.

Cinema and Photography courses provide the undergraduate student with a substantial background in the history, theory, and practice of photographic communication. The three specializations are structured to provide available a strong foundation for both professional and educational careers in film and photography, to explore the social implications of still and moving pictures, and to provide opportunity for the study of both cinema and still photography as media for personal expression. In all instances, programs are tailored to the interests and career plans of the individual student.

Three fields of specialization are available to the student concentrating in photography: Cinema, Photography, Cinema/Photography. Students

must successfully complete the core requirements and a minimum of 24 hours of work in other courses in their field of specialization. A grade of C is required in prerequisite courses and a 3.0 average must be maintained in cinema and photography courses in order to remain in the concentration. Students purchase supplies for many cinema and photography courses. In courses which involve analysis and screening of a number of films, a screening fee is assessed. Lab fees may be required for certain other courses.

The University reserves the right to retain examples of the work of each student in each photography class and to make and retain prints of all films made as part of course work. Such photographs and films become part of a permanent departmental collection from which exhibitions may be prepared.

There is no required minor.

Bachelor of Science Degree, SCHOOL OF COMMUNICATIONS

Cinema

General Studies Requirements	67
Requirements for Concentration in Cinema	48
Cinema and Photography 350, 351, 355, 356, 357, one 4-hour course in film history, and at least 24 additional hours selected from the following: 361, 362, 450, 456, 457, 458, 460, 461, 463, 470, 480	
Electives	
Total	192

Photography

General Studies Requirements	67
Requirements for Concentration in Photography	48
Cinema and Photography 310, 311, 313, 320, 321, 322, and at least 24 additional hours selected from the following: 403, 404, 405, 406, 407, 408, 409, 415, 418, 420, 421, 422, 457, 458, 480.	
Electives	
Total	192

Cinema and Photography

General Studies Requirements	67
Requirements for Concentration in Cinema/Photography	60
Cinema and Photography 311, 313, 320, 321, 322, 350, 355, 356, 357, and at least 24 additional hours in Cinema and Photography.	
Electives	
Total	192

3-4 **History of Still Photography.** History, esthetics, and appreciation of still photography. Not open to students who have had GSC 348.

3-4 **Contemporary Photography.** Uses, styles, and influences of contemporary still photography.

3-4 **Visual Design in Photography.** Study and use of elements of design as used in the photographic image. Prerequisite: 320.

3-4 **Fundamentals of Still Photography.** Introduction to photographic communication. Basic camera controls, black and white film, and print processing.

3-4 **Intermediate Photography.** Continuation of 320 with emphasis on refinement of photographic techniques and processes. Prerequisite: 320 and consent of department.

- 322-4 Fundamentals of Color Photography.** Theory, techniques, and aesthetics of color photography. Production of color prints and transparencies. Prerequisite: 321 and consent of department.
- 350-4 Introduction to Cinema.** Analysis of film as an independent form of art and communication. Survey of production methods, film types, and utilization of the medium in contemporary society. Screening fee.
- 351-4 Introduction to Film Theory.** Historical survey of the theories of film. Analysis of theoretical and aesthetic concepts associated with the motion picture. Screening fee.
- 355-4 Beginning Film Production.** Basic techniques for silent film making. Production of short motion pictures by student crews.
- 356-4 Intermediate Film Production.** Sound film techniques. Production of short synchronous sound films from student scripts. Prerequisite: 335 and consent of department.
- 357-4 Advanced Film Production.** Production of sound and color films by students working individually and in crews. Prerequisite: 356 and consent of department.
- 361-4 Film Planning and Scripting.** Analysis of both scripted and non-scripted films. Script as a basis for production. Practice in preparing film plans, treatments, and scripts.
- 362-4 Sound for Motion Pictures.** Analysis and practice of sound recording and editing techniques. Prerequisite: consent of department.
- 403-4 Portrait Photography.** Formal and informal approaches to portraiture. Studio lighting and natural light techniques. Prerequisite: 322.
- 404-4 Advanced Portrait Photography.** Advanced problems in portraiture. Prerequisite: 403.
- 405-4 Commercial Photography.** Study and use of studio lighting techniques for commercial photography. Prerequisite: 322.
- 406-4 Advanced Commercial Photography.** Assignments in areas of commercial photography in black and white and color. Prerequisite: 405.
- 407-4 Publications Photography.** Photographic news reporting with emphasis on single pictures and short picture stories. Prerequisite: 322.
- 408-4 Advanced Publications Photography.** Production of picture essays including research, lay-out, captions, and text. Black-and-white and color. Prerequisite: 407.
- 409-4 Picture Editing.** Picture usage and layout and methods of photographic reproduction for the mass media.
- 415-4 Technical and Scientific Photography.** Introduction to photographic methods used in science and research. Prerequisite: 322.
- 418-4 Documentary Photography.** Methods, approaches, and work in documentary photography. Prerequisite: 322.
- 420-4 Experimental Photography.** Experimental approaches to the creation of photographic images. Prerequisite: 322.
- 421-4 to 8 Personal Photographic Expression.** Development of personal vision in photography. Usually taken 4,4. Prerequisite: consent of department.
- 422-4 Advanced Color Photography.** Study and production of color photographs. Emphasis on experimental techniques. Prerequisite: 322.
- 428-3 Managing the Industrial Photographic Unit.** A study of practices, procedures, administration, and management of typical units. Prerequisite: consent of department.
- 450-4 Film and Society.** Major social issues associated with the cinema. Examination of attempts to regulate and control the medium.
- 456-1 to 6 Workshop in Film Production.** Crew work on university film productions. Prerequisite: consent of department and film production.
- 457-4 Mixed Media Production.** Multi-media theory. Creation and coordination of presentations involving visual and aural media. Prerequisite: consent of department.
- 458-1 to 12 Projects in Cinema and Photography.** Individual or crew projects in motion picture production or still photography. Usually taken 4,4,4. Prerequisite: consent of department.
- 460-4 History of the Silent Film.** Emphasis on the theatrical film to 1918. Screening fee.
- 461-4 History of the Sound Film.** Theatrical film from early experimentation to the present. Screening fee.
- 462-4 History of the Documentary Film.** Documentary film illustrated by work of representative film makers. Screening fee.
- 463-4 History of the Experimental Film.** Survey of experimentation in cinema.

om the turn of the century, through the avant-garde periods, to contemporary dependent films.

10-4 Special Cinematic Forms. Innovation in technique and content in aniated, advertising, and experimental films. Production of short innovative ms. Prerequisite: 357 or equivalent.

10-1 to 12 Individual Study in Cinema and Photography. Research in history, eory, or aesthetics. Usually taken 4,4,4. Prerequisite: consent of department.

Clothing and Textiles

(See also Home Economics.)

rofessors Rose Padgett, Ph.D. (Chairman)

Lucy K. Woody, M.A. (Emerita)

ssociate Professors Thelma Berry, Ph.D.

Ritta Whitesel, M.A. (Emerita)

Instructors Judith A. Cowger, M.S.

Marva Morrison, M.S.

Sue Ridley, M.S.

Within a concentration in Home Economics the Department of Clothing and Textiles offers specializations in apparel design and in clothing and xtiles merchandising. (See Home Economics)

Bachelor of Science Degree, SCHOOL OF HOME ECONOMICS

Apparel Design

These courses offer preparation for designing of apparel or allied positions the wholesale and retail fashion fields through training in textiles, creaive design, draping, pattern making, and clothing construction.

General Studies Requirements	67
Requirements for Concentration in Home Economics	95-96
GSC 102, 103	(6)
Art 100, 200b	16
Art 225a or Art History	3-4
Chemistry 110, 240	(4) + 4
Child and Family 227, 237	6
Clothing and Textiles 127-4,* 233, 304, 329, 334, 339, 364, 371, 434, 473, 474, 433, 440, 481-3	52
Family Economics and Management 341	4
Food and Nutrition 100	3
Home Economics Education 111 or 306	2
Physiology 300 or elective	4
Physical Education 303 or elective	5
Electives	
Accounting 250-4 or 251a-4; Design 100-5,5,5; Interior Design 327-3; Journalism 101-3, 393-3; Marketing 301-4; Physical Education 113-1, Psychology 307-4; Theater 414-4, 415-4; VTID 175a-3.	
Total	192

* Students may request exemption from 127b.

Merchandising

These courses provide fundamental training for positions as salespeople, buyers, and department managers in department stores and other retail stores dealing with apparel and home furnishings. They include work in marketing, advertising, accounting, journalism, and merchandising, as

well as clothing, textiles, and home furnishings. A period of field experience in the area of the student's special interest is provided.

<i>General Studies Requirements</i>	6
<i>Requirements for Concentration in Home Economics</i>	8
Accounting 250 or 251a	4
Chemistry 110, 240	(4) + 4
Child and Family 227, 237	6
Clothing and Textiles 127-4, 233, 304, 329, 334, 339, 360 or 473, 364, 371, 434, 474, 440, 481-3	48
Family Economics and Management 341	4
Food and Nutrition 100	3
Home Economics Education 111 or 306	2
Interior Design 131, 327 or elective	6
Marketing 301, 363, 401	12
<i>Electives</i>	
Art-History—choice 471, 474, or other; Guidance 305-4; Family Economics and Management 324, 331, 424; Publicity Methods 393; Weaving 385.	
<i>Total</i>	19

Secondary Concentration

A secondary concentration in clothing and textiles consists of 24 hours in clothing and textiles courses.

Course Descriptions

104-4 Basic Textiles. Emphasis on recognition of fabrics and weaves, suitability, care, and maintenance, especially household textiles. Prerequisite: GS. 101B or equivalent.

127-4 (2,2) Clothing Selection and Construction. (a) Clothing selection and care. Study of clothing in relation to fabric composition, fashion emphases, and principles, suitability and cost. (b) Clothing selection laboratory. Use and alteration of patterns, construction of garments using fabrics made of different fibers (emphases on fitting and on construction techniques).

233-3 Pattern Designing and Clothing Construction. Principles of flat pattern design, pattern manipulation, and fitting. The making of dress patterns from master patterns. Construction of dresses using custom finishes. Field trip. Prerequisites: 127, or consent of chairman.

304-4 Textiles. Selection of textiles from consumer standpoint. Characteristics of commonly used fibers and fabrics; textile formation as a tool in the selection and care of household textiles and clothing. Prerequisite: Chemistry 110.

329-3 Fashion. A study of economic, psychological, social, and aesthetic factors in fashion which affect the individual and family. Exploration into the fashion industry and opportunities in the field of fashion.

334-3 Costume Design. The development of original dress design and adaptation from period costume and other sources, using various media. Prerequisite: 127a or consent of chairman. Offered alternate years.

339-3 Clothing Economics. Factors of production, distribution, and consumption which influence economics of clothing.

360-4 Tailoring and Clothing Construction. Fundamental construction processes reviewed and basic principles of tailoring applied in the construction of a suit or coat and a dress. Prerequisite: 233 or consent of chairman.

364-3 Draping and Construction. Principles of design applied to draping of fabric on dress form. Emphasis on interpretation of design in relation to different fabrics and figures. Construction of one draped garment. Prerequisite: 233 or consent of chairman.

371-3 to 6 Field Experience. Opportunity for supervised learning experience in the chosen area. Prerequisite: consent of chairman.

395-2 to 8 Special Problems. Specific problems in clothing, textiles, applied design, housing, home furnishings, or interiors. Prerequisite: consent of chairman.

32-2 to 8 Workshop. Designed to aid leaders in the field with current problems. Discussion, reports, lectures, and other methods of analyzing and working on solutions to problems. Emphasis for the workshop to be stated in the announcement of the course. Prerequisite: consent of chairman.

33-4 Advanced Pattern Designing. Application of flat pattern design principles to the making of patterns for garments of various designs and fabrics. Fitting and pattern alteration related to various figure types. Production cost analysis. Prerequisite: 233 or consent of chairman.

34-4 History of Clothing. Development of clothing from prehistoric times to the present. Social, economic, and aesthetic background. Technical innovations that made possible its design.

40-4 Clothing the Family. Needs and wants of individuals at various developmental stages, in family and societal settings with respect to apparel consumption; functional and fashion-motivated choice of clothing; family budgets.

70-3 Seminar in Clothing and Textiles. Apparel and environmental-textile needs of consumers at the level of design room research laboratory, mill, store, and satisfactory end-use performance. Prerequisite: consent of chairman.

73-4 Advanced Tailoring. The student will tailor one garment for herself. Time-saving methods, high-quality construction details, and professional finishes stressed. Prerequisite: 360, proficiency, or consent of chairman.

74-4 Advanced Textiles. The physical and chemical analysis of textiles. Problems dealing with economic and industrial developments, standards, labeling, and legislation. Current literature of developments within the field. Prerequisites: 304 or consent of chairman.

80-4 Research Methods.

80-4 Clothing and Textiles Seminar.

82-2 to 8 Special Problems.

82-4 Foundations of Fashion.

83-3 (1,1,1) College Teaching of Clothing, Textiles, and Interiors.

89-2 to 9 Thesis.

Community Development

Secondary Concentration

A secondary concentration in community development consists of 24 hours, including Sociology 335, 487a,b, plus 13 additional hours approved by the Community Development Institute. A student intending to concentrate in community development should consult the director.

Course Descriptions

1-4 Introduction to Community Development. This survey includes an analysis of the history, values, and techniques of various approaches to community development and explores some of the specific social issues and problems which confront community development practitioners. Prerequisite: 4 hrs. soc. or consent of instructor.

2-4 Comparative Community Development. Surveys the historic, economic, organizational, and other aspects of international community development programs under the auspices of world and regional agencies, or of multinational, or local sponsorship, focusing primarily upon specific case studies. Prerequisite: 401, 4 hrs. soc. or consent of instructor.

9-1 to 5 Independent Study in Community Development. Supervised study and projects in fitting with the needs of each student. Prerequisite: consent of instructor.

1-4 Small Group Process in Community Development.

2-4 Community and Change.

3-4 Problems and Approaches to Community Development.

1-4 Laboratory in Small Group Process.

2-4 The Change Agent in Planned Change.

3-4 Laboratory in Consulting Styles and Techniques.

6-1 to 8 Independent Study in Community Development.

8-4 Research Seminar in Community Development.

9-1 to 8 Thesis Research.

Computer Science

Assistant Professors Kenneth J. Danhoff, Ph.D.

Ratan K. Guha, Ph.D.
Instructor William E. Wright, M.

The Department of Computer Science does not offer an undergraduate concentration at the present time. However the courses offered for undergraduate credit cover a wide range of topics in computer science. Students interested in this area will be advised by the department so that they may profitably pursue their academic and professional interests.

202-3 Introduction to Computer Programming. Discussion of algorithms, flow charts, data representation, structure and debugging of programs, computers and languages. Emphasis on computational problems using an algorithmic language. Non-numeric applications also considered. Prerequisite: Mathematics 108, or 111a or 2 years of high school algebra.

302-6 (3,3) Computer Structure and Programming. The organization of computers into memory, control, arithmetic/logical, and input/output structures. Principles of programming, selected programming techniques, logic design and interpreters, the design of hardware components, computer hardware systems, supervisory software systems, segmentation, linkage, and multiprogramming. Must be taken in a,b sequence. Prerequisite: 202.

403-3 Data Structures. Data, strings, stacks, arrays, lists, trees, storage systems and structures, searching and sorting, and list and string processing languages. Prerequisite: 302a.

411-3 Structure of Programming Languages. Introduction to the formal definition of a language. Representation and evaluation of arithmetic expressions. Extensive analysis of the structure of an algorithmic language. Prerequisite: 302a, Mathematics 301.

414-3 Systems Programming I. Interpretive systems, assemblers, loaders, compilers. Addressing techniques, program segmentation, and linkage. Explicit input-output references. Batch processing systems. Time sharing, multiprogramming, and multiprocessor systems. Prerequisite: 403.

442-3 Discrete Structures. Review of sets, functions, and relations. Algebraic structures including semi-groups, groups, and Boolean algebras. Subalgebras, congruence relations, homomorphisms, and direct products. Elements of graph theory. Applications to various areas of computer science. Prerequisite: Mathematics 301.

445-3 Applied Boolean Algebra. Applications to switching circuits and propositional logic. Circuit simplification, logical circuits, and sequential circuits. Prerequisite: 442.

451-3 Introduction to the Theory of Computation. Automata, their behavior, and basic properties. Turing machines. Examples and applications to computing functions and recognizing sets. The concept of an algorithm. Definitions and examples of formal grammars. Prerequisite: 442 and either 445 or consent of instructor.

461-6 (3,3) Numerical Calculus. Algorithms for the solution of numerical problems encountered in scientific research work. Emphasis on the use of high speed, digital computers. Elementary discussion of error, polynomial interpolation, quadrature, solution of nonlinear equations and linear systems, matrix calculations, solution of differential equations. May not be taken for credit by graduate students in computer science or mathematics. Students may not receive credit for both 461 and 464. Must be taken in a,b sequence. Prerequisite: 202, Mathematics 305a, and 221.

464-6 (3,3) Numerical Analysis I. Theory and practice of computation. Emphasis on methods useful with high speed digital computers. Solution of nonlinear equations, interpolation and approximation, numerical differentiation and integration, solution of differential equations, matrix calculations and the solution of systems of linear equations. Students may not receive credit for both 461 and 464. Must be taken in a,b sequence. Prerequisite: 202, Mathematics 305a, and 221.

470-3 Theory of Simulation. Methodology, including generation of random numbers and design of experiments. Discrete and continuous models of stochastic processes. Emphasis on the use of the computer in constructing

The Department of Design sees multi-faceted problems today. It therefore seeks to prepare multi-faceted individuals to help solve them. Learning to state today's complex needs and meet them with the relevant set of interrelated tools requires a different, even experimental approach.

It is not an industrial design school, nor a commercial art school, nor a school of architecture. It is not a professional school in the sense of preparing graduates specifically for clearly defined jobs. It views the designer not simply as a manipulator of tools, materials, and products of the present industrial process, but as a change agent, an individual capable of purposeful action guided by humanistic values and equipped with generalized problem-solving principles. It focuses on problems and opportunities of people and their environment, with an emphasis on process and information rather than form or material substance.

In the learners who share its risky educational venture, it seeks the following characteristics: evidence of leadership, imagination and self-discipline; independence in thought and action with a firm sense of responsibility; a willingness to operate in changing and unstructured situations; the ability to see the world through the eyes of another; and a willingness to question and examine critically.

The courses are different. Most similar to the familiar class are courses which focus on developing problem-solving skills emphasizing philosophy, theory, and method. Another course form is the experimental design activity which enables students to engage in the entire variety of behaviors needed in an actual problem-solving context. Students organize themselves as necessary to best deal with the problem. Group behavior is a significant part of the process.

Bachelor of Arts Degree

<i>General Studies Requirements</i>	67
(General Studies mathematics is required)	
<i>Requirements for a Concentration in Design</i>	119
GSC 205	(4)
Design 100	5
Design 275	4
Design 300 level	38
Design 400 level	45
Electives	
<i>Total</i>	203

Students transferring from other schools, other areas of concentration, or from the General Studies program should arrange a personal interview with the chairman of the Department of Design to develop the appropriate curriculum for fulfilling degree requirements.

Course Descriptions

100-5 to 15 Design Fundamentals. Dialogue, problems, and experimentation illuminating the possibilities of the participants and their environment. The individual is encouraged to struggle with problems of making a world he wants to live in. Visual and verbal communications, alternative futures, gaming, and problem-solving are some of the techniques used in the involvement.

200-2 to 6 Materials and Basic Techniques. Three-quarter sequence. Laboratory exploration of two- and three-dimensional materials utilized in design process. No more than 2 hours per quarter. Prerequisite: 100.

215-4 to 12 Basic Product-Shelter Design. Three-quarter sequence. Develop-

ment of an analytical approach to the solution of product and shelter problems, using lecture, text, and laboratory methods. Prerequisite: 100.

275-4 Integrated Study. Surveys general concepts and trends (i.e. evolution, ecology, culture, etc.) with emphasis on their meaning for man. Charts man's physical and psycho-social evolution and his prospects for the future. Prerequisite: 100.

300-2 to 6 Materials and Basic Techniques. Three-quarter sequence. A continuation of 200. Prerequisite: 200.

345-4 to 12 Design Studio. Special projects in two, and three-dimensional experimental structures.

366-4 to 16 Product-Shelter Design. Three-quarter sequence. Development of three-dimensional design projects of community scope. Prerequisites: 200, 215, 275.

375-4 to 16 Visual Design. Development of design projects exploiting various communications media. Prerequisites: 200, 215, 275.

390-2 Principles of Design. Critical survey of the theory and practice of contemporary design.

400-0 to 6 Materials and Basic Techniques.

465f-4 to 16 Research in Product-Shelter Design.

465g-4 to 16 Research in Visual Design.

490f-2 to 12 Studio in Product-Shelter Design.

490g-2 to 12 Studio in Visual Design.

520-4 to 10 Educational Tool Systems.

530-4 to 12 Studies in the Industrial Process.

535-4 to 12 Research in Product Design.

540-4 to 12 Studies in Communications Design.

545-4 to 12 Research in Communications Design.

550-2 to 16 Field Study in Design.

560-4 to 12 Environmental Control.

570-4 to 12 Design Science Exploration.

575-4 World Ecological Studies.

576-4 to 8 Structural Evolution.

599-3 to 9 Thesis.

Earth Science
Secondary Concentration

This course of study is designed for the student with an interest in the interdependent dynamic processes that take place on and near the earth's surface. At present the program is structured to complement a concentration in another discipline. This work may be taken either through the College of Liberal Arts and Sciences or through the College of Education.

A secondary concentration in earth science consists of a core program of 20 hours and 9 to 12 hours of electives, as follows:

Core Program	20
GSA 110-8, 330 or 331-3	
Ag 100, 306a or GSA 312 or GSB 353-3	
Geol 221 or 331-3, 400-3	
Electives	9-12
GSA 321, 322, 340, 363a	
Ag Ind 306b	
Geog 302, 310, 403a, 424	
Geol 425a	
Pl Ind 402	

Economics

Professors Albert N. Y. Badre, Ph.D.	Robert G. Layer, Ph.D.
Milton T. Edelman, Ph.D.	Thomas A. Martinsek, Ph.D.
George H. Hand, Ph.D.	Lewis A. Maverick, Ed.D. (Emeritus)
C. Addison Hickman, Ph.D.	

Edward V. Miles, Jr., M.A. (*Emeritus*)
 G. Carl Wiegand, Ph.D.
Associate Professors Bernard J. Marks, Ph.D.
 Vernon G. Morrison, Ph.D.
 Milton R. Russell, Ph.D. (*Chairman*)
Assistant Professors Eric Brucker, Ph.D.

Byron M. Bunker, Ph.D.
 Robert J. Ellis, Ph.D.
 Richard G. Fryman, Ph.D.
 Kanji Haitani, Ph.D.
 Jerome J. Hollenhorst, Ph.D.
 Andrew J. Petro, Ph.D.
 Charles G. Stalon, Ph.D.
 Peter Skinner Stowe, Ph.D.
Instructor Habib O. E. Jam, M.A.

The aim of the course of study in economics is to develop in the student such critical and analytical skills as underlie the ability to understand economic problems and institutions, both in their contemporary and historical setting.

Concentration in economics gives the student a basic understanding of the chief theoretical and institutional branches of the subject as well as the academic background necessary for many positions in industry and labor organizations, for work in the economic branches of government service, for college or university teaching, and for graduate study in economics and business.

Bachelor of Science Degree, SCHOOL OF BUSINESS

<i>General Studies Requirements</i>	6'
<i>Professional Business Core</i>	52-53
GSB 201b,c, Mathematics 111a-5 or GSD 107 and Mathematics 108	(13)
Accounting 251a,b, 261	12
Economics 214, 215, 308	12
Finance 320, 370, or 371; or 473	8
GSD 110	3
Management 340, 481	8
Marketing 301	4
Mathematics 150a or 14a,b	5-6
<i>Requirements for Concentration in Economics</i>	32-36
Economics 310, 315, 330, 440, 441	20
Any four remaining Economics Courses (including GSB 311) Except 301, 433, 479, 490	12-16
<i>Electives</i>	
<i>Total</i>	19'

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i> ¹	6'
<i>Requirement for Concentration in Economics</i>	51-53
GSD 110, GSD FL-9	(12)
Supplementary two year college requirement in FL/Math	9
Economics 214, 215, 310, 315, 330, 440, 441	28
Any four remaining Economics Courses (including GSB 311) except 301, 433, 479, 490	14-16
<i>Secondary Concentration</i>	26-30
(To be taken in anthropology, foreign languages, geography, gov-	

¹ Economics majors should fulfill their Mathematics GSD requirement by taking Math 111a. All student planning to do graduate work in Economics should consider taking Math 150 as a elective.

ernment, history, mathematics, philosophy, psychology, sociology or some other area approved by the Chairman of the Department of Economics.)	
Electives	
Total	192

Secondary Concentration in Economics

The following courses constitute a 27-hour secondary concentration in economics: GSD 110, Economics 214, 215, 315, and any three of the following: 310, 330, 429, 440, 441.

Course Descriptions

- 214-4 Economics (Macro).** Analysis of the methodology of economics; the determination of the level of national income, employment, and output; money and banking; and economic fluctuations, including government monetary and fiscal policy to control those fluctuations.
- 215-4 Economics (Micro).** Analysis of the operation of an economy in the determination of product prices, wage rates, levels of output by the firm, and the distribution of income, including the role of government therein. Prerequisite: 214.
- 301-1 to 6 Economic Readings.** Readings in books and periodicals in a defined field, under direction of one or more staff members. Periodic written and oral reports. Prerequisite: consent of instructor and chairman.
- 303-4 Introduction to Economics—MBA.** Survey of economic principles including national income, money and banking, fiscal policy, economic growth, prices, theory of the firm, labor, rent, interest, and profits. MBA students only.
- 304-4 Introduction to Statistics—MBA.** A survey of statistics. Specifically, hypotheses testing and confidence interval determination. Three hours lecture; 2 hours laboratory. Restricted to MBA students.
- 308-4 Economics and Business Statistics I.** Three hours lecture; 2 hours laboratory. Prerequisite: GSD 110.
- 310-4 Labor Problems.** Prerequisites: 215.
- GSB 311-3 Economic Development of the United States.** Prerequisite: GSB 101c or 211c.
- GSB 312-3 Comparative Economic Systems.** Prerequisite: GSB 211a.
- GSB 313-3 Economics of War and Peace.**
- 315-4 Money and Banking I.** Prerequisite: 215 or consent of instructor.
- 330-4 Public Finance.** Government spending, taxing, budgeting, and debt in relation to resource allocation, income distribution, and economic stability. Prerequisite: 211a, 215, or consent of instructor.
- 408-4 Economic and Business Statistics II.** Techniques for making decisions when the economic conditions are not known with certainty. Three hours lecture; 2 hours laboratory. Prerequisite: 307 or GSD 110, or GSD 108c, or GSD 114c, or consent of instructor.
- 411-4 Collective Bargaining and Dispute Settlement.** Nature, issues, procedures, economic effects. Prerequisite: 310 or consent of instructor.
- 416-4 Money and Banking II.** Emphasis upon the Federal Reserve System and other banking systems. Prerequisite: 315 or consent of instructor.
- 418-4 Economic History of Europe.** A survey of the economic growth of Europe with emphasis upon the development of European agriculture, industry, finance, and international trade since 1750. Prerequisites: 215, or GSB 211a, or consent of instructor.
- 419-4 Latin American Economic Development.** A survey of the resource base of Latin American economic development with special reference to the problems of transition from an export-import to an integrated industrial economy; monetary policies; problems of economic planning. Prerequisites: 215, or GSB 211a, or consent of instructor.
- 420-4 Recent Economic History of the United States.** Review and analysis of the chief characteristics, trends, and continuing problems of the economy of the United States in the 20th century. Prerequisites: 215.
- 422-4 Introduction to Economic Development.** An analysis of the preconditions, processes, and problems involved in economic development. Both the theory and policy relevant to development, with special emphasis upon the developing or emerging economics, are stressed. Prerequisites: 215.

- 429-4 International Economics.** Intensive treatment of the principles of international economics with special emphasis on the classical and modern theories of international trade. Income effects. Balance of payments adjustments. Prerequisites: 215, or consent of instructor.
- 430-4 Regional Economy.** Natural economic regions, governmental action (as in the T.V.A.), local applications. Prerequisite: 215.
- 431-3 Public Finance II.** State and local. Prerequisite: 330 or consent of the instructor.
- 436-4 Government and Labor.** (Same as Government 436.) A study of labor relations and legislation considering both constitutional and economic aspects. Prerequisite: GSB 211a,b, or consent of instructor.
- 440-4 Intermediate Micro Theory.** A more intensive treatment of price theory. Prerequisites: 215, or consent of instructor.
- 441-4 Intermediate Macro Theory.** Basic analytical concepts of the modern theory of aggregative income determination. Prerequisites: 214 or consent of instructor.
- 450-6 (3,3) History of Economic Thought.** The development of economic thought; (a) ancients to 1850; (b) 1850 to present. Must be taken in a,b, sequence. Prerequisites: 215, or consent of instructor.
- 460-4 Russian Economy.** Development of Russian trade, agriculture, industry, government, finance, and standards of living in successive periods in relation to the historical, geographic, economic, and ideological background. Prerequisite: 215, or GSB 211a, or consent of instructor.
- 461-8 (4,4) Comparative Economic Development in Asia.** A comparison of the economies of Japan, India, and China within the framework of emerging economic theory of developing economies (a) Japan from Tokugawa period to the present (b) contemporary China and India. Prerequisite: 215, or GSB 211, or consent of the instructor.
- 462-4 Economic Development of the Middle East.** Economic structure of the countries constituting the Middle East; economic, political, social, and cultural forces influencing economic development. Prerequisite: 215.
- 465-4 Mathematical Economics I.** A systematic survey of mathematical economic theory. Conditions of static equilibrium (including stability conditions), optimizing behavior under constraints, and dynamic economic models. Prerequisite: 440 or consent of instructor.
- 467-4 Econometrics I.** Introduction to resource allocation under uncertainty. Probabilistic economic models, theory of games and economic choices, and stochastic economic processes. Prerequisite: consent of instructor.
- 471-4 Land Resource Economics.** (Same as Forestry 471 and Agricultural Industries 471.) The use of land as an economic variable in production of goods and services; land market; group versus individual conflicts; elementary land resources planning techniques. Prerequisite: 440, or 441, or Agricultural Industries 350, or Forestry 470.
- 481-4 Comparative Economic Systems.** Capitalism, socialism, fascism, and other forms of the economy. Prerequisite: 215, or consent of instructor.
- 490-4 Workshop in Economic Education.** (Same as Elementary or Secondary Education 490.) Designed to assist elementary and secondary school teachers in promoting economic understanding in the minds of their students through the translation of economic principles and problems into classroom teaching materials.
- 500-4 to 8 Economics Seminar.**
- 501-1 to 5 Economics Readings.**
- 502-1 to 6 Readings in Resource Economics.**
- 512-4 Seminar in Labor Institutions.**
- 517-4 Monetary Theory and Policy.**
- 520-8 (4,4) Economic Development Theory and Policy.**
- 522-4 Microeconomic Foundations of Labor Markets.**
- 526-4 Managerial Economics.**
- 530-4 Foreign Trade.**
- 531-4 International Economics.**
- 533-4 Public Finance Theory and Practice.**
- 540-8 (4,4) Microeconomic Theory I and II.**
- 541-8 (4,4) Macroeconomic Theory I and II.**
- 543-4 Seminar in Economic Policy.**
- 552-4 Seminar in Economic Thought.**
- 555-4 Seminar in Economic History.**
- 562-4 Seminar in Economic Systems.**

- 566-4 Mathematical Economics II.
 567-4 Econometrics II.
 570-4 Seminar in Contemporary Microeconomic Theory.
 571-4 Seminar in Contemporary Macroeconomic Theory.
 575-4 Economic Regulation.
 581-4 Economics of Welfare.
 582-4 Economic Behavior.
 583-4 Methodological Foundations of Economics.
 599-1 to 9 Thesis.
 600-1 to 48 Doctoral Dissertation.

Educational Administration and Foundations

Professors Jacob O. Bach, Ph.D.
 George Bracewell, Ed.D.
 John Childs (*Emeritus*)
 Raymond H. Dey, Ed.D.
 Parmer L. Ewing, Ed.D.
 Robert Jacobs, Ed.D.
 Eugene Lawler (*Emeritus*)
 Arthur E. Lean, Ph.D.
 William R. McKenzie, Ed.D.
 Bruce W. Merwin, Ph.D. (*Emeritus*)
 F. G. Warren, M.A. (*Emeritus*)
Associate Professors Fred J. Armistead, Ph.D.
 Woodson W. Fishback, Ph.D.
 James Herrick Hall, Ed.D.

Dale E. Kaiser, Ph.D.
 Malvin E. Moore, Jr., Ed.D.
 Edward B. Sasse, Ph.D. (*Chairman*)
 William E. Shelton, Ph.D.
Assistant Professors Lawrence J. Dennis, Ph.D.
 Dean L. Stuck, Ph.D.
 Samuel M. Vinocur, Ph.D.
 Herbert W. Wohlwend, Ph.D.
Instructors James E. Fisher, Ed.S.
 George C. Stone, M.A.

Visiting Professor George S. Counts, Ph.D.

Course Descriptions

GSB 331-3 The American Educational Systems.

355-4 Philosophy of Education. (Same as Philosophy 355.) The philosophical principles of education and the educational theories and agencies involved in the work of the schools.

360-4 Subcultures in American Education. Poverty, racial prejudice, and various subcultural issues as may relate to American educational development. Analysis of conflicting systems of cultural values and norms and their implications.

431-4 History of Education in the United States. An historical study of the problems of American Education which have relevance to contemporary education.

432-4 Education and Social Forces. The role of social and cultural forces in the shaping of educational policy in the United States. Emphasis on voluntary associations, political parties, media and mass communication, cultural traditions, and the operation of social forces in other societies.

500-4 Research Methods.

501-12 (4,4,4) Seminar in Educational Administration.

502-4 Seminar in Comparative Education.

502S-4 Seminar in Comparative Education: Soviet Russia.

502v-4 Seminar in Comparative Education: Vietnam.

503-4 Seminar in Philosophy of Education.

504-4 Seminar in History of European Education.

506-4 Seminar: Curriculum in Relation to American Culture.

507-12 (4,4,4) The Twentieth Century and Education.

508-8 (4,4) Interdisciplinary Seminar in Education Administration.

511-12 (4,4,4) Internship Practicum.

512-3 Workshop in Adult Education.

520-8 (4,4) Legal Basis of American Education.

524-12 (4,4,4) School Administration.

527-2 to 4 Current Issues in School Administration.

533-4 School Buildings.

534a-4 School Finance.

534b-4 School Business Administration.

534c-2 to 4 Educational Application of Electronic Data Processing.

535-4 Research in Problems of School Administration.

- 536a-4 Administrator's Workshop.
- 539-4 Community Development Through the School.
- 554-4 Contrasting Philosophies of Education.
- 556-8 (4,4) School Supervision.
- 560-4 Curriculum.
- 563-4 School Public Relations.
- 564-4 High School Principalship.
- 575-1 to 4 Individual Research.
- 576-1 to 4 Readings in Administration and Supervision.
- 589-2 to 12 General Graduate Seminar.
- 591-2 Seminar—Social and Philosophical Foundations.
- 592-4 Doctoral Seminar in Cultural Foundations of Education.
- 596-5 to 9 Independent Investigation.
- 597-1 to 3, 598-1 to 3, 599-5 to 9 Thesis.
- 600-1 to 48 Dissertation.

Elementary Education

Professors Melvin Alston, Ph.D.
 Rebecca Baker, Ph.D.
 Margaret Hill, Ed.D.
 J. Murray Lee, Ph.D.
 Willis Malone, Ph.D.
 Victor R. Randolph, Ph.D.
 Fred A. Sloan, Jr., Ed.D. (*Chairman*)
 John Richard Verduin, Ph.D.
Associate Professors Mary E. Entsminger, M.A. (*Emerita*)
 Luther Bradfield, Ed.D.
 Ernest E. Brod, Ed.D.
 Daniel T. Fishco, Ed.D.
 William Matthias, Ed.D.
 Donald D. Paige, Ed.D.

Assistant Professors Ian Beattie, Ph.D.
 Melvin Buller, Ed.D.
 Harold Hungerford, Ph.D.
 Helen H. James, Ph.D.
 Morris Lamb, Ed.D.
 Dormalee Lindberg, Ed.D.
 Kevin Swick, Ph.D.
Instructors Earl Caspers, M.S.
 Barbara Hoskin, M.S.
 William Maggart, M.A.
 Audrey Tomera, M.S.
 Elizabeth Weir, M.S.
 Billie Zimny, M.S.
 Walter Rehwaldt

Bachelor of Science Degree, COLLEGE OF EDUCATION

Following are the requirements for the Bachelor of Science degree with concentration in elementary education and meeting the minimum requirements for a Standard Elementary School Certificate on either the early childhood level or the elementary level.

In addition to general university and College of Education requirements a student must (1) meet all requirements pertaining to prerequisites to student teaching and should study the section in this bulletin which lists such requirements; and (2) have at least 24 hours in each of these three fields: language arts, science, social science.

Everyone in elementary education or early childhood education should plan to have September Experience. This experience consists of serving as a teacher aide in an elementary school in the student's own home town after the public schools open in the fall and before the University opens. Usually there is an opportunity for a full two weeks' experience in helping in the classroom. Students can sign up for September Experience during the spring quarter in the office of the Department of Elementary Education, which then makes the necessary arrangements.

ELEMENTARY

<i>General Studies Requirements</i>	67
<i>Requirements of Concentration in Elementary Education</i>	94
GSB 211b or Government 300	4
GSB 300b,c	6

Fine Arts electives (Including Music 300a or b)	9
Language Arts electives	7
Mathematics 310	4
Physical Education for Women 319	4
Area of Specialization	12
<i>Professional Education: (48 hours)</i>	
Educational Administration 355	4
Guidance 305	4
Elementary Education 314, 337, 351b-16	24
Electives	16
<i>Other Electives</i>	
Total	192

EARLY CHILDHOOD

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in Elementary Education</i>	99
GSB 211b or Government 300, GSB 300b,c	10
Art 300	4
Language Arts electives	6
Mathematics 310	4
Music 010e (or proficiency), 300c	6
Physical Education for Women 319	4
Secretarial and Business Education 241	1
Technical and Industrial Education 302	4
Area of Specialization	12
<i>Professional Education: (48 hours)</i>	
Educational Administration 355	4
Guidance 305	4
Elementary Education 309 (winter only), 316, 337, 350b-16 ..	27
Electives	13
<i>Electives</i>	
Total	192

Course Descriptions

00-0 Reading and Study Techniques. A service course to aid students in improving reading and study skills. Time schedules, general principles of effective study, improving reading, making notes, etc.

00-3 Introduction to Elementary Education. A thorough investigation of the factors which are involved in teaching in the elementary school.

01-2 Developing Reading and Learning Skills. (Same as Secondary Education 101.) Designed to increase reading and study efficiency. Areas covered include speed, comprehension, vocabulary, study skills, (concentration, note-taking, test-taking, time-scheduling, etc.). Open to all students.

03-3 Understanding the Elementary School Child. Concepts needed to understand the child in the elementary school situation. Two hours lecture and two hours observation. Prerequisite: GSB 201c.

01-2 Early Fall Field Experience. Work completed in public schools. Designed to acquaint prospective elementary teachers with the teaching-learning process in elementary classrooms. Direct supervision of a public school teacher. Minimum of two weeks in early September.

09-3 Kindergarten-Primary Social Studies Methods. The objectives and methods of teaching social studies at the kindergarten-primary level, culminating in the planning of a unit of work. Prerequisite: 316.

12-2 to 8 Instructional Analysis and Field Work. Presents systems for analysis of classroom interaction. Allows teacher education students to move into classrooms for direct observation and participation. Variable credit permits

the student to utilize part of the course credit for observation and participation during his block program and other aspects of his teacher education program. Prerequisite: Admission to teacher education program.

314-4 Elementary School Methods. The fundamental principles of education, the interpretation of current educational theory and practice, the process of teaching and learning involved in elementary education. Prerequisite: Guidance 305.

316-4 Kindergarten-Primary Methods and Curriculum. Philosophy and principles underlying the teaching of four-to-eight-year-olds. Emphasis upon organization, equipment, materials and methods for promoting growth of young children. Prerequisite: Guidance 305.

337-4 Reading in the Elementary Schools. The principles of reading, factors that condition reading, together with grade placement of aims and materials, diagnostic and remedial treatment. Prerequisite: 314.

350-4 to 16 Kindergarten-Primary Student Teaching. Prerequisites: 203, 316, and 337.

351-4 to 16 Elementary Student Teaching. Prerequisites: 314, 337, and two specialized elementary education courses.

375-2 to 3 Readings in Elementary Education.

401-2 to 4 Problems in Public School Reading. Requirements: attendance at all sessions of a reading conference; preparation of a paper showing practical applications of theory to the student's own teaching situation.

410-4 Improvement of Instruction in Arithmetic in Kindergarten-Primary Grades. Recent findings and current practices in building a basis for quantitative thinking in early childhood education. Special emphasis upon grade placement of content and of techniques to aid children in understanding of the number system.

411-4 Seminar in Instruction. To assist student teachers and in-service teachers in solving classroom problems. Involves clinical study and discussion of behavioral and learning situations, with special attention to the development of characteristics and needs of students.

413-4 Children's Literature. Emphasizes types of literature, analysis of literary qualities, selection and presentation of literature for children. Not for students who have had English 213. Prerequisite: Guidance 305.

415-2 to 4 Improvement of Instruction in Arithmetic in the Elementary School. Items to be taught, the grade placement of content, newer instructional practices and materials of instruction, and means of evaluating achievement. Prerequisite: consent of instructor.

423-4 Teaching Elementary School English Language Arts. Oral and written communication processes, with emphasis on the structure and process of the English language arts. Specific attention to the fundamentals of speaking, English, writing, spelling, and listening. Study of learning materials, specialized equipment, and resources. Prerequisite: 314, 316, 337.

424-4 Teaching Elementary School Social Studies. Emphasis on the structure and process of social studies. Specific attention to developing social studies objectives, planning units, developing a general teaching model, organizing the curriculum, and evaluating behavioral change. Study of learning materials, specialized equipment, and resources. Prerequisite: 314, 316, 337.

430-3 Workshop in Creative Writing in the Elementary School. Techniques of encouraging creative writing in the elementary school.

431-2 to 4 Education for the Disadvantaged Child. An understanding of culturally disadvantaged children with emphasis on the nonurban poor. Discussion of necessary adjustments of school programs emphasizing early school admission, experimental background, self-concept, language development and learning style. Prerequisite: 337.

433-4 Workshop in Kindergarten-Primary Education. Meets needs of in-service teachers in such areas as curriculum adjustment, remedial teaching, child development, and early childhood education. No credit if student has had 333 or 390.

435-4 to 8 Workshop in Elementary School Foreign Language Instruction.

437-4 Problems in Reading. Practices and trends in the teaching of reading; materials of instruction in reading, particularly remedial materials; techniques and materials for prevention of reading difficulties; diagnosis and remediation of reading difficulties. Prerequisites: senior standing, 337. Not open to students having had 505.

441-4 An Introduction to Teaching Elementary School Science. Content and methods of elementary school science, grades K-8. Emphasis on the materials

- and strategies for using both traditional and modern techniques of science education. One or more field trips. Prerequisite: 314.
- 42-4 Analysis and Design of Elementary Science Curricula and Instructional Strategies.** Analysis of existing science materials with reference to educational philosophy, learning theory, and instructional design. Emphasis on student development of instructional designs and seminars to critique prepared materials. Field trips. Prerequisite: 441 or consent of instructor.
- 43-4 Workshop in Social Studies.** Material on critical areas of the world, not commonly emphasized in elementary social studies. Areas considered; significant geographical concepts, Asia, Africa, Russia, and Eastern Europe. Outstanding specialists in social science present their specialties.
- 45-4 Parent Involvement in Education.** Materials, techniques, and resources suitable for use by teachers in helping parents and teachers to understand how they can help each other in the partnership responsibilities of the education of culturally disadvantaged children. Prerequisite: Student teaching or consent of instructor.
- 65-4 Seminar in Psychology of Elementary School Subjects.** Psychological principles of learning applied to the mastery of materials used in elementary school subjects. Prerequisites: 314, Guidance 305.
- 75-2 to 8 Workshop in Elementary Education.** Evaluation of innovative programs and practices. Acquaints teachers within a single school system, or a closely associated school system, with the philosophical and psychological considerations and methods of implementation of new programs and practices in one of the following areas: curriculum, supervision, language arts, science, reading, social studies, problems in elementary education, arithmetic, kindergarten-primary, elementary education, administration and supervision. Prerequisite: 314.
- 90-2 to 3 Workshop in Economic Education in Elementary Schools.** (Same as Economics 490.) A study of newer programs stressing economic understandings of the social studies in the elementary school.
- 103-9 NDEA Summer Institute in Reading.**
- 105-4 Reading in Elementary School.**
- 107-2 to 4 Readings in Reading.**
- 109-4 to 8 Practicum in Reading.**
- 110-4 to 8 Seminar: Problems in Reading.**
- 114-4 Organization and Administration of Reading Programs.**
- 115-4 Special Problems in the Teaching of Arithmetic in the Elementary School.**
- 116-4 to 12 Internship in Reading.**
- 117-2 to 4 Kindergarten-Primary Practicum.**
- 118-2 Supervision of Student Teachers.**
- 119-2 to 4 Readings in Research in Elementary Mathematics.**
- 120-4 Diagnosis and Correction of Elementary Mathematics Disabilities.**
- 121-12 (4,4,4) Diagnosis and Correction of Reading Disabilities.**
- 125-4 Kindergarten-Primary Seminar.**
- 137-4 Kindergarten-Primary Reading.**
- 141-4 Problems, Trends, and Research in Elementary School Science.**
- 142-1 to 4 Language Arts in the Elementary School.**
- 143-4 Teaching the Social Studies in the Elementary School.**
- 157-4 The Elementary Principalism.**
- 158-3 to 4 Leadership in Elementary Education.**
- 159-3 Workshop in Instructional Leadership.**
- 160-4 Kindergarten-Primary Education.**
- 161-4 The Elementary School Curriculum.**
- 163-4 Organization of the Elementary School.**
- 164-4 to 12 Internship in Elementary Science Education.**
- 170-4 Seminar, Research in Elementary Education.**
- 175-2 to 4 Individual Research.** (Selected areas with 2 to 4 hours in each.)
- 196-5 to 9 Independent Investigation.**
- 199-3 to 9 Thesis.**
- 200-1 to 48 Dissertation.**

School of Engineering and Technology

The following faculty members hold general School of Technology assignments:

Professors J. L. Amoros, Ph.D.
 Marisa Canut-Amoros, Ph.D.
 Thomas B. Jefferson, Ph.D.
 Marvin E. Johnson, Ed.D.

Julian H. Lauchner, Ph.D.
 Assistant Professor Dale Besterfield
 Ph.D.

Engineering

Professors Jose-Luis Amoros, Ph.D.
 Marisa Canut-Amoros, Ph.D.
 Juh W. Chen, Ph.D. (*Chairman,
 Dept. of Thermal and Environ-
 mental Engrg.*)
 Philip K. Davis, Ph.D. (*Chairman,
 Dept. of Engineering Mechanics
 and Materials*)
 E. Leon Dunning, Ph.D.
 Eldred W. Hough, Ph.D.
 Thomas B. Jefferson, Ph.D.
 Julian H. Lauchner, Ph.D.
 William C. Orthwein, Ph.D.
 Herman J. Stoeve, Ph.D.
 Associate Professors Najim Al-Rubayi,
 Ph.D.
 Vernold K. Feiste, Ph.D.
 F. Lee Grismore, Ph.D.

Albert C. Kent, Ph.D.
 Thomas M. McCalla, Ph.D.
 C. Raymond Nowacki, Ph.D.
 Sedat Sami, Ph.D.
 James G. Smith, Ph.D. (*Chairman,
 Dept. of Electrical Sciences
 Systems Engrg.*)
 Assistant Professors Curtis W. Dod
 Ph.D.
 James L. Evers, Ph.D.
 Howard E. Hesketh, Ph.D.
 Charles B. Muchmore, Ph.D.
 Sonny W. Pearson, Ph.D.
 Douglas S. Prensner, Ph.D.
 Instructors Edwin R. Ashworth, M.
 Reza Bahmanyar, M.S.
 Kenneth B. Jordan, M.S.
 Lecturer Charles A. Rawlings, M.S.

Engineering is the profession in which a knowledge of the mathematics and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to utilize, economically, the materials and forces of nature for the benefit of mankind.

In recent years engineers have been asked to assume responsibility for solving the complex problems of society, recognizing not only the technical aspects but also the sociological implications of their decisions. The engineering curriculum is designed to produce graduates who understand the engineering sciences, social sciences, and humanities, and are able to apply this knowledge to the solution of such problems. Areas of professional activity include research, development, and creative design. Although the graduate of this curriculum is equipped to begin his engineering career, he should recognize the need for continuing education throughout his professional career.

Junior college and transfer students from other institutions should have strong backgrounds in the physical sciences, the social sciences, and the humanities. Students are encouraged to complete specific freshman and sophomore course requirements which include 9 hours of composition and speech; 12 hours of university physics; 10 hours of chemistry; 10 to 12 hours of mathematics, including calculus; 9 hours of analytical mechanics (statics and dynamics); and 3 hours of graphics. Calculus and analytical mechanics are prerequisites for most junior level courses.

The engineering program shown below is designed to provide a basic foundation for the professional engineer. Students with Bachelor of Science degrees in engineering will have an opportunity to specialize further at the graduate level.

Bachelor of Science Degree, SCHOOL OF ENGINEERING AND TECHNOLOGY

<i>General Studies Requirements</i> (substitute GSA-1; and GSD mathematics.)	10
<i>Requirements for Concentration in Engineering</i>	10
Chemistry 121	10

Mathematics 150-10, 252-9, 305a-3, and either 305b-3 or 455-3	25
Physics 211, 212, 300	16
Graphic Communication	3
GSB 361	(3)
Engineering 100-0, 222-3, 260-9, 300-6, 302-3, 311-9, 313-6, 335-4, 336-4, 338-3, 443-6	53
Optional Groupings	26
Electrical Science & Systems Engineering: 432-3, 436-3, 439a-3, 448a-3, 463a-3; technical electives-11, including at least 6 hours of Electrical Science and Systems Engineering credit.	
Engineering Mechanics and Materials: 447-3, 449-3, 464-3, 413-6, technical electives-11, including at least 3 hours of Engineering credit.	
Thermal & Environmental Engineering: 300-3, 415a-3, 416a-3, 412c-3, 480a,b-6; technical electives-8.	
Total	200

Course Descriptions

00-0 Orientation. (See Engineering Technology 100.)

22-3 Digital Computer Programming. Programming of digital computers in problem-oriented language (FORTRAN). Problems solved will illustrate some of the elementary methods of numerical analysis. Prepares the student to use digital computers in later courses. Includes programming of a computational problem from inception to completion: formulation and analysis, flow charting, coding, check-out, documentation. Prerequisite: Mathematics 111b.

60-9 (3,3,3) Analytical Mechanics. (a) Principles of mechanics; force systems; statics of particles; statics of rigid bodies in two dimensions and three dimensions; equilibrium; analysis of structures; distributed forces; forces in beams and cables. Prerequisite: Mathematics 150b or concurrent enrollment. (b) Centroids and center of gravity; friction; moments of inertia; kinematics of particles; kinematics of rigid bodies; relative motion. (c) Kinetics of particles; Newton's laws of motion (mass, force and acceleration); kinetics of rigid bodies; D'Alembert principle; work and energy; impulse and momentum. Taken in a,b,c sequence.

00-9 (3,3,3) Thermodynamics. (a) The study of fundamental energy concepts and the laws of thermodynamics, availability of energy, properties of gases, vapors and gas-vapor mixtures, flow and nonflow processes. (b) Engine cycles and applications to internal combustion engines, gas turbines, steam turbines, jet devices, air compressors and air engines. Combustion refrigeration and air conditioning. (c) Axiomatic thermodynamics, criteria for equilibrium; absolute temperature; Maxwell's relations; open systems; the phase rule; systems of one and two components; idealized systems; equations of state; systems involving chemical and electrochemical equilibrium. Prerequisite: Mathematics 252a.

02-3 Heat Transfer. Fundamental modes of heat transfer and application to engineering systems. Steady-state heat transfer by conduction, convection, and radiation. Heat transfer with phase change. Prerequisite: 222, 300a, and Mathematics 305a.

11-9 (3,3,3) Properties of Materials. (a) Introduction to the mechanics of deformable bodies. Torsion; Bernoulli-Euler Beam theory. Inelastic behavior. Stress concentrations. Mohr circle. Thermal stresses. Maxwell and Kelvin-Voigt theories of viscoelasticity. Buckling of columns. (b) Atomic constitution of materials, Lattice theory, structure, point imperfections in solids, diffusion, dislocations, domain structure. Fatigue, friction and wear, polymer characteristics, relation between microscopic and macroscopic properties. (c) Physics of submicroscopic materials, electronic states in solids, relation of bonding to electrical properties, properties of semiconductors, electron transport, dielectric properties of materials. Prerequisite: 260c, Mathematics 252b.

- 313-6 (3,3) Fluid Mechanics.** (a) A broad introduction to the concepts and principles of fluid statics, kinematics and dynamics using the continuum as mathematical model. Differential and integral form of the basic law of conservation of mass, Newton's law of motion in the form of Euler's, Bernoulli and the momentum equation; the basic law of conservation of energy. Laminar and turbulent pipe flow; open channel flow. Turbomachinery. Fluid property measurement. Prerequisite: 260-9. (b) Resistance to flow around submerged bodies, basic boundary layer theory. Dimensional analysis by means of the Buckingham Pi-theorem and the method of non-dimensionalizing the governing equations, dynamic similitude. Perfect gas equations, basic theory of compressible flow in short passages and pipes; shock waves. Inviscid flow concepts including the velocity potential. Must be taken in a,b sequence.
- 335-4 Electrical Circuits.** Introduction to basic laws and concepts of linear circuits. Direct current analysis; Kirchhoff's laws; principle of superposition; Thevenin's theorem; Norton's theorem; sinusoidal analysis; complex frequency phasor concepts; resonance. Prerequisite: Mathematics 252a.
- 336-4 Introduction to Electronics.** The ideal amplifier. Diode and controlled source are introduced, followed by a detailed study of actual amplifiers and electronic devices. Includes concepts of device modeling, voltage, current and power gain, input and output impedance, and biasing. Current technology: field effect, and bipolar junction integrated circuits and devices. Prerequisite: 335.
- 338-3 Electromagnetic Fields.** Electric and magnetic fields using Vector Analysis. Evolution of Maxwell's equations through the laws of Coulomb, Gauss, Ampere, and Faraday and the concepts of energy, potential, and Poisson and Laplace fields. Prerequisite: Mathematics 305a.
- 401-6 (3,3) Principles of Propulsion.** (a) Basic principles of propulsion dynamics. (b) Thermodynamics of fluid flow and application to propulsion engines. Must be taken in a,b sequence. Prerequisite: 309a,b,c, and 309d.
- 406-3 Introductory Wave Motion.** Wave motion in strings and bars. Four methods. Wave motion in fluids. Electromagnetic waves. Prerequisite: Mathematics 252b.
- 409-3 Engineering Hydrology.** Hydrologic cycle and analyses. Infiltration studies, groundwater exploration. Statistical analyses, flood routings. Mechanisms of entrainment, movement and deposition of sediment material by moving fluids. Analysis of roughness and sediment transport rate in rivers. Prerequisite: 313b.
- 412-9 (3,3,3) Engineering Practice.** (a) Written communication encountered in engineering organizations. Correspondence, memoranda, technical papers, specifications, and reports. Lectures, conferences, and frequent written assignments are adapted to the individual needs of each student. (b) The law of contracts with enough emphasis on legal procedure to enable students to understand decided cases. Practice in applying some of the principles. (c) Engineering data evaluation by application of statistical techniques. Design of engineering experiments. Prerequisite: 222 and Mathematics 252a.
- 413-6 (3,3) Intermediate Mechanics of Fluids.** (a) Application of basic laws of nature to the theory of fluids using the continuum approach. Kinematics of fluid motion using various coordinate systems; the continuity equation. Dynamics of viscous fluid motion; the Navier-Stokes energy equations. Solutions to the fundamental system of equations. (b) Introduction to magnetohydrodynamic fluid mechanics. Dimensional analysis. Incompressible irrotational flow. Fundamentals of compressible fluid flow including isentropic flows, normal and oblique shocks, and Prandtl-Meyer expansions. Turbulence. The application of the equations of motion to turbulent flow fields. Reynolds equation. Production, convection, and dissipation of turbulence. Prerequisite: 313a, and Mathematics 305a.
- 415-9 (3,3,3) Principles of Water Quality Control.** (a) Characteristics of water quality, natural and man-made; relationship of quality to use; unit operations or water quality control for municipal and industrial use. (b) Characteristics of waste waters; biological and chemical processes for treatment of sewage and industrial wastes; water quality criteria in stream pollution control. (c) Application of physical, chemical, and biological unit operations and processes to design of waste treatment facilities. Laboratory. Prerequisite: Chemistry 121b, and Mathematics 150 or equivalent.
- 416-6 (3,3) Air Pollution Control.** (a) Introduction to emission sources, transport/diffusion, and effect of air pollution. Aspects of social, meteorological, biological, physiological, and chemical relationships plus control methods and

- economics included. Laboratory. (b) Engineering control theory, procedures, and equipment related to particulate and gaseous emissions control. Source and atmospheric sampling and analytical techniques covered. Laboratory.
- 17-3 Fundamental Compressible Fluid Flow.** Principles of fluid flow. Wave propagation in compressible media, isentropic flow of a perfect gas, normal and oblique shock waves, Prandtl-Meyer expansions, and supersonic aerodynamics. Prerequisite: 313a,b.
- 20-9 (3,3,3) Transport Phenomena.** (a) Mechanism of heat, mass and momentum transport on both molecular and continuum basis. Estimation of transport properties. Generalized equations of transport in one or three dimensional system. (b) Interphase transport in isothermal and nonisothermal systems. Unsteady state transport problems in multicomponent systems. Mechanism ratio analysis. Analogy of mass, heat and momentum transfer. (c) Macroscopic balances, diffusion operations, penetration theory, simultaneous mass and heat transfer, equilibrium operations. Prerequisite: 302a and 313b.
- 21-3 Introduction to Systems Theory.** Description of physical systems and analysis of system properties and system interaction using a generalized mathematical model. Prerequisite: Mathematics 305b.
- 22-4 Operations Research and Mathematical Model Formulation.** Applications of digital computers to the mathematical modelling of physical systems with particular emphasis on the simulation and problem solving techniques of operations research. Dynamic models of transportation, allocation, and replacement. Physical applications and computation techniques related to the theory of games. Prerequisites: Mathematics 150b or consent of instructor.
- 23-3 Hybrid Computation.** The simultaneous use of the analog and the digital computer for the solution of engineering problems. Scaling of problems. Block diagrams and logic are stressed. Linear and nonlinear differential equations. Simulation as well as iterative analog computation are covered. Prerequisite: 222 and 432 or equivalent.
- 26-3 Communications Theory.** Fourier spectral analysis, sampling theory, modulation, multiplexing, random signal theory, signal to noise ratio, and basic information theory. Prerequisite: 336.
- 30-2 to 8 Special Problems in Engineering.** Special opportunity for students to obtain assistance and guidance in the investigation and solution of selected technical problems. Prerequisite: consent of instructor.
- 31-6 (3,3) Analog and Digital Computer Design.** Introduction to the design of analog and digital computers. Subjects include: operational amplifiers, multiplying circuits, regulated power supplies, 3 column algebra, switching circuits, memory devices. Prerequisite: 336.
- 32-3 Analog Computation in Engineering Design.** An introduction to the theory and operation of an analog computer. Applications to engineering design, simulation, optimization. Laboratory. Prerequisite: Mathematics 305a.
- 34-4 Electronic Design.** Applications of electronic circuits including wide band amplifiers, oscillators, modulation and detection, power amplifiers and digital circuits. Device models studied include high frequency, y parameter, T -equivalent, and Beaufoy-Sparkes charge control. Introduction to computer aided techniques. Laboratory. Prerequisite: 336.
- 36-3 Control Theory.** Develops and makes use of the students' knowledge of electrical systems. Topics include Laplace transforms, stability conditions, compensation techniques, and state variables. Prerequisite: 439a.
- 37-4 Microwaves Theory and Measurements.** Theory of passive microwave devices for guiding, storing, coupling, or radiating electromagnetic energy. Theory of active and non-linear devices including klystrons, circulators, and solatons. Microwave measurements. Prerequisite: 338.
- 38-3 Electronic Devices.** Semiconductor, magnetic, dielectric, and vacuum devices with wide range of engineering applications. Develop understanding of the mechanisms of operation. Prerequisite: senior standing.
- 39-6 (3,3) Transient Analysis and Network Theory.** (a) Transient analysis of linear electric networks and analogous systems by means of differential equations and Laplace transforms. (b) One- and two-port networks, reactive, ladder, T and Pi networks, Foster and Cauer forms, and m - and k -derived filters. Prerequisite: 336.
- 40-6 (3,3) Structures.** (a) Analysis of statically determinate and statically indeterminate structures. Deflections. Slope deflection. Moment distribution. Model analysis. (b) Principles of structural design. Loads. Influence diagrams. Factor of safety. Structural materials. Structural requirements. Types of

structures and their behavior. Must be taken in a,b sequence. Prerequisite: 311a.

441-3 Intermediate Mechanics of Vibrations. Equations of motion applied systems with free and forced vibrations, damping, and multiple-degrees of freedom; Euler's equations; introduction to Lagrange's equations; and introduction to orbital mechanics. Prerequisite: 260c and Mathematics 305.

443-6 (3,3) Engineering Design. Projects of an engineering systems design nature. Students select a problem, define and design the various subsystems, define subsystem interface requirements, integrate the subsystems into the final design, and document the design effort. Laboratory. Must be taken in a sequence. Prerequisite: senior standing in engineering.

444-4 Design of Reinforced Concrete. Ultimate strength and behavior of reinforced concrete members. Flexure. Shear. Bond. Continuity. Compression members. Prerequisite: 311a.

446-6 (3,3) Energy Conversion. Theory of energy conversion devices and processes. Conventional rotating machines, and direct energy conversion devices such as: photovoltaic, thermoelectric, and thermionic generators, fuel cells, and magneto hydrodynamic generators. Present development and application, future potential. Prerequisite: 335 and 338.

447-3 Intermediate Mechanics of Materials and Structures. Stress and strain at a point in three dimensions. Theory of elasticity. Shear center; unsymmetrical bending; curved beams; elastic foundations; thick walled cylinder theory of failures; energy methods. Prerequisite: 311a.

448-4 Experimental Stress Analysis. Theoretical and experimental methods of determining stresses and strains; use of optical, electrical, and mechanical instrumentation; relation of model and prototype; brittle coating; electric resistance gages; photoelasticity. Prerequisite: 311a.

449-3 Advanced Dynamics for Engineers. Kinematics and kinetics of three-dimensional motion; Coriolis' acceleration; rigid body motion; Euler's equations; work and energy; gyrostatics; generalized coordinates; impulse-momentum principle; vibrations; computer applications. Prerequisite: 260

450-4 Fundamentals of Reactive Systems. Chemical processes, stoichiometry, properties of gases, solution chemistry, modern techniques of analysis, surface chemistry. Nonideal systems, rates and mechanisms of industrial processes. Instrumentation and process control. Laboratory. Prerequisites: 300 and Chemistry 121b or consent of instructor.

455-3 Engineering Geology. (Same as Geology 455.) Engineering problems encountered by man in dealing with geology and ground water. It will include studies of earthquake effects, land subsidence, landslides, pore water pressures, and methods of coping with these. Field trip required. Prerequisite: Geology 220 or consent of instructor.

458-3 Photoelasticity. Optics related to photoelasticity, theory of photoelasticity, photoelastic model materials, analysis techniques, three-dimensional photoelasticity, birefringent coatings, application of photoelasticity methods. Prerequisite: 448 or consent of instructor.

462-6 (3,3) Matrix Methods in Structural Analysis. (a) Review of matrix algebra. Displacement method of analyzing trusses, continuous beams, and rigid frames with and without sidesway. (b) Force method of analysis. Direct element method of analyzing trusses, rigid frames, and plane grids. Prerequisite: 311.

463-6 (3,3) Introductory Instrumentation. (a) Characteristics and techniques in analog and digital instrumentation; transducers; signal conditioners; output and display systems; recorders. Laboratory. (b) Ultrasonic techniques; fringe patterns, Fresnel and Schlieren lenses, Moire patterns, pattern enhancement methods, optical systems. Laboratory. Must be taken in a,b sequence. Prerequisite: 336.

464-3 Intermediate Materials Science. Internal structure, treatment, and properties of metals and intermetallic compounds. Theory of dislocations in metals. Plastic flow, phase transformations, martensitic transformation, and X-ray diffraction identification of metallic phases. Prerequisite: 311c.

466-4 Prestressed Concrete. Theory and design of prestressed concrete simple beams, continuous beams and shells. Deflections. Behavior. Prerequisite: 311. **480-9 (3,3,3) Engineering Process Design.** (a) Application of the fundamentals of conduction, convection, and radiation heat transfer. Combined mode and transient heat transfer. Design of equipment using simultaneous heat and mass transfer. (b) Applications of the fundamentals of mass transfer. Consideration of rate controlled, equilibrium, and mass transfer operations. (c) Original

design of a process and determination of process variables and equipment.
 Analysis of construction cost. Prerequisite: 300c, 302.
 500-3 Convection Heat Transfer.
 501-3 Radiation Heat Transfer.
 502-3 Conduction Heat Transfer.
 503-6 (3,3) Heating and Cooling Systems.
 510-9 (3,3,3) Electromagnetic Fields.
 511-6 (3,3) Quantum Electronics.
 512-4 Continuum Mechanics.
 513-3 Mechanics of Viscous Fluids.
 514-3 Mechanics of Inviscid Fluids.
 515-3 Wave Motion in Fluids.
 516-8 (4,4) Water Resources Development.
 517-12 (4,4,4) Analysis and Design of Engineering Systems.
 518-3 Introduction to Turbulence.
 519-3 Boundary Layer Theory.
 520-6 (3,3) Reaction Engineering and Rate Processes.
 522-3 Advanced Topics in Operations Research.
 525-3 Small Particle Phenomena.
 530-6 (3,3) Separation Processes and Equilibrium Operations.
 535-6 (3,3) Network Analysis and Synthesis.
 540-3 Elastic Stability.
 542-3 Theory of Plates.
 544-4 Plastic Analysis of Structures.
 550-3 Advanced Compressible Fluid Flow.
 561-6 (3,3) Advanced Vibrations.
 570-2 to 6 Special Investigations.
 580-1 to 9 Seminar.
 599-1 to 9 Thesis.

English

Research Professor Harry T. Moore, Ph.D.

Professors William W. Benziger, Ph.D.
 E. C. Coleman, Ph.D. (*Emeritus*)

William Evans, D.Ed.

Joseph H. Friend, Ph.D.

John Gardner, Ph.D.

Mark Hillegas, Ph.D.

Sidney Moss, Ph.D.

Henry Dan Piper, Ph.D.

Howard Schultz, Ph.D.

William Simeone, Ph.D.

E. Earle Stibitz, Ph.D.

Charles D. Tenney, Ph.D.

David Vieth, Ph.D.

Howard Webb, Ph.D. (*Chairman*)

Georgia Winn, Ph.D.

Bruce C. Appleby, Ph.D.

Associate Professors Frances M. Barbour, M.A. (*Emerita*)

Ted E. Boyle, Ph.D.

Alan M. Cohn, M.A.

Edmund Epstein, M.A.

Robert Griffin, Ph.D.

John Howell, Ph.D.

Paul Hurley, Ph.D.

Edith Krappe, Ph.D. (*Emerita*)

Richard Lawson, Ph.D.

Paul Morrill, Ph.D.

Robert Partlow, Ph.D.

Raymond Rainbow, Ph.D.

Manuel Schonhorn, Ph.D.

Assistant Professors Julia M. Barber, A.M. (*Emerita*)

Roderic Botts, Ph.D.

William J. Brown, Ph.D.

Winifred Burns, M.A.

George Camp, Ph.D.

Thomas Cassidy, M.A.

Elizabeth A. Cox, A.M. (*Emerita*)

Herbert Donow, Ph.D.

Jewell Friend, M.A.

Robert Harrell, Ph.D.

Thomas Hatton, Ph.D.

David Kvernes, Ph.D.

Aristotle Katranides, Ph.D.

John Joseph Leonard, M.A.

Fred Lingle, M.A.

Richard Peterson, Ph.D.

Larry Taylor, Ph.D.

Byron Raizis, Ph.D.

Hans Rudnick, Ph.D.

Instructors Diana Dodd, M.A.

Lewis Hilliard

Joan Martin, M.A.

Edward McNichols, M.A.

Betty L. Mitchell, M.A.

Lois Richman, M.A.

Mary Simon, M.A.

Roy Weshinsky, M.A.

The student who wishes to declare English as a concentration should consult the department's director of undergraduate studies as soon as he knows he will concentrate in English. Transfer students from General

Studies and other units of Southern Illinois University should bring a Request for Transfer form. Transfers from colleges other than Southern Illinois University should bring their evaluated transcript of grades. Thereafter, all students must have their advance registration forms signed by an adviser. Deviations from approved programs must have approval.

Foreign language requirement for all concentrations in English: two years on the college level (or equivalent).

*Bachelor of Science Degree, COLLEGE OF EDUCATION OR
Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES
Option 1 (primarily for teacher-training candidates)*

<i>General Studies Requirements</i>	67
<i>*Supplementary Two-year College Requirement in FL/Mathematics</i>	
Foreign Language: GSD FL-9 and FL 201-9	18
<i>Requirements for Concentration in English</i>	51
English 209 (substitute for GSC 209), 300-6, 302-12, 309a,b or 309a,c, 390, 471b, 485, 495a or 495b	41
One 400-level genre-period course in Poetry and one in Fiction	10
<i>Education Requirements (for certification)</i>	31
Guidance 305 (GSB 201c is prerequisite), Secondary Education 310, 352, two electives	
<i>*Electives</i>	
<i>Total</i>	192

*Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES
Option 2 (primarily for nonteacher-training candidates)*

<i>General Studies Requirements</i>	67
<i>Supplementary Two-year College Requirement in FL/Mathematics</i>	
Foreign Language: GSD FL-9 and FL 201-9	18
<i>Requirements for Concentration in English</i>	51
English 209 (substitute for GSC 209), 302-12, 309a,b or 309a,c, 390, 471a, 471b, 495a or 495b	35
One 400-level genre-period course in Poetry and one in Fiction	8
English 400-level electives to complete 53 hours	8
<i>Electives</i>	
<i>Total</i>	192

Option 3 (primarily for prospective graduate students)

<i>General Studies Requirements</i>	67
<i>Supplementary Two-year College Requirement in FL/Mathematics</i>	
Foreign Language: GSD FL-9 and FL 201-9	18
<i>Requirements for Concentration in English</i>	52
One course in each of the following areas: medieval, Renais- sance or 17th century, 18th century, 19th century, 20th cen- tury, early American, and American since 1865	28
English 209 (substitute for GSC 209), 471a, 471b, 495a or 495b	12
English language course	4

* English majors in the College of Education are not required to take the Mathematics combination. GSD FL-9 is considered as being part of the General Studies 84-hour requirement. FL 201-9 is required. Electives then total 17 hours.

English 400–level electives to complete 54 hours	8
Electives	
Total	192

Option 4

Students may petition to undertake a program which does not match printed requirements. Interested students should discuss this possibility with the departmental director of undergraduate studies.

Option 5

Any of the options outlined above may be modified by entry into the departmental honors program. Eligible students will be invited to enter. Requirements for honors students remain as above except that three seminars substitute for three senior genre-period courses.

Recommended Electives Especially for Option 1.

Journalism 103; 201; 421; 422 or 449	12–13
Theater 402a; 409; GSC 203	11
Speech 202 or 205; 323, 423 or 424; 406 (GSD 103 and GSC 200 are prerequisites)	15

Secondary Concentration

A secondary concentration is 27 hours, prescribed as follows: from GSC 200-level English courses, 6 hours (including GSC 202); English 300a,b; 302b, and 302a or c; 309a; 390. Deviations must have departmental approval.

Course Descriptions

- 105–6 (3,3) English Composition for Foreign Students.** A course in writing and reading skills: composition, note-taking, summaries, grammar. Equivalent to GSD 101 and 102. Limited to foreign students selected by proficiency examination on entrance.
- 209–4 Introduction to the Three Genres.** Poetry, drama, and fiction. Statement and illustration of the techniques of the three genres over the range of American and English literature. English majors only. Substitutes for GSC 209. Prerequisite: GSC 103.
- 300–6 (3,3) Grammatical Analysis.** Basic principles of traditional, structural, and generative grammars. Required of all teacher training candidates and minors; elective to others. English 300a is prerequisite for 300b.
- 302–12 (4,4,4) Survey of English Literature.** A survey (a) to 1550, (b) 1550–1750, (c) after 1750. All three courses are required of students with a concentration in English.
- 309–12 (4,4,4) Survey of American Literature.** A survey (a) to 1860; (b) 1860 to 1914; (c) 1914 to the present.
- GSC 317–3 Recent American Literature.**
- GSC 318–3 British Modern Literature and Its Social Context.** (Summer, abroad.)
- GSC 345–9 (3,3,3) Masterpieces of World Literature.**
- GSC 351–6 (3,3) Masterpieces of the Novel.**
- GSC 365–3 Shakespeare.**
- 390–3 Advanced Composition.** Expository writing. Prerequisite: C average in GSD 101, 102, and GSC 103. Open to English majors or consent of department.
- 392–3 Professional Writing I.** Introductory course for undergraduates. Prerequisite: consent of instructor.
- 400–4 Introduction to English Linguistics.** Methods of structuralizing: phonetics, phonemics, morphemics, syntax. Especially recommended for students preparing to teach English to native speakers.
- 402–4 Old English Literature in Translation.** A study of prose selections

from Bede, Aelfric, and other writers, and of poetry from the simplest riddles and gnomic verses to the complex forms of the Caedmonian and Cynewulfian schools, the elegaic poems, and *Beowulf*. Emphasis is on the literary and cultural significance of works studied.

403-4 The History of the English Language. A survey of the development of the language from Indo-European to modern English with special emphasis on Middle and Early Modern English changes.

404-12 (4,4,4) Middle English Literature. (a) Middle English Literature excluding Chaucer, (b) Chaucer: early poems and *Troilus*, (c) Chaucer: *Canterbury Tales*.

410-4 Literature for the Adolescent. Criteria for evaluation of literary materials for junior and senior high school, with emphasis on critical approaches in selection of literature.

412-20 (4,4,4,4,4) English Nondramatic Literature. (a) 16th century. (b) 17th century. (c) The age of Dryden. (d) The age of Pope. (e) The age of Johnson.

417-4 Black Literature. Special studies in Black literature, American and African, with major emphasis upon contemporary Black expression.

418-4 English Literature, 1885-1914. Poetry, drama and fiction of the later Victorian and early modern period.

420-8 (4,4) American Poetry. (a) Trends in American poetry to 1900 with a critical analysis of the achievement of the more important poets, (b) the more important poets since 1900. May be taken singly.

421-16 (4,4,4,4) English Poetry. (a) Early Romantics: major emphasis on general background and on Blake, Coleridge, and Wordsworth; (b) later Romantics: emphasis on Byron, Shelley, and Keats, the minor figures; (c) Victorian poets: Tennyson, Browning, Arnold, and other poets in England 1830-1880; (d) modern British poets. May be taken singly.

425-4 Modern Continental Poetry. Representative Poems by major 20th century poets of France, Italy, Germany, Spain, Russia, and Greece.

431-12 (4,4,4) Major American Writers. Significant writers of fiction and nonfictional prose from the Puritans to the twentieth century. (a) 1620-1800 (b) 1800-1865; (c) 1865-1915. May be taken singly.

438-4 Intellectual Backgrounds of American Literature. The relationship of basic ideas in America to American literature.

442-4 Romantic Prose. Fiction of Austen, Scott, Mary Shelley, Peacock, the Gothic novelists; prose of Lamb, Landor, Hazlitt, DeQuincey; criticism, journals and letters.

443-4 Victorian Prose. The chief writers of nonfiction prose from the late romantics to 1880.

454-12 (4,4,4) English Fiction. (a) Eighteenth century: Defoe through Jane Austen, (b) Victorian novel: 1830-1880; (c) twentieth century. May be taken singly.

456-4 Modern Continental Fiction. Selected major works of European authors such as Mann, Silone, Camus, Kafka, Malraux, Hesse.

458-8 (4,4) American Fiction. (a) The novel in America from its beginnings to the early twentieth century; (b) trends and techniques in the American novel and short story since 1914. May be taken singly.

460-16 (4,4,4,4) British Drama. (a) Elizabethan drama: from the beginning of the drama in late Middle Ages through its flowering in such Elizabethan playwrights as Greene, Peele, Kyd, Marlowe, Heywood, Dekker, but excluding Shakespeare; (b) Jacobean drama: the Jacobean and Caroline playwrights Jonson, Webster, Marston, Middleton, Beaumont and Fletcher, Massinger, Ford, Shirley; (c) Restoration and eighteenth century drama: after 1660 representative types of plays from Dryden to Sheridan; (d) modern British drama. May be taken singly.

464-4 Modern Continental Drama. The continental drama of Europe since 1870; representative plays of Scandinavia, Russia, Germany, France, Italy, Spain, and Portugal.

468-4 American Drama. The rise of the theater in America, with readings of plays, chiefly modern.

471-8 (4,4) Shakespeare. (a) The plays before 1600; (b) the plays of 1600 and later. Readings on the life of Shakespeare, the theater, and the acting company. May be taken singly.

473-4 Milton. A reading of a selection of the minor poems, of *Paradise Lost*, *Paradise Regained*, *Samson Agonistes*. Also a reading of the major treatises

- 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.
- 487-2 to 8 Workshop in Junior High School English.
- 492-8 (4,4) Professional Writing II.
- 493-4 Special Problems in English. Topics vary and are announced in advance; both students and faculty suggest ideas. May be repeated for a maximum of eight quarter hours provided registrations cover different topics. Prerequisite: consent of instructor.
- 494-4 Literature in Society. An analysis of the structure and function of literature as a social institution.
- 495-8 (4,4) Literary Criticism. (a) History of criticism: ideas and techniques from Aristotle to the end of the nineteenth century; (b) modern criticism: recent critics and critical attitudes, and practice in writing criticism. Open only to seniors and graduate students.
- 497-12 (4,4,4) Senior Honors Seminars. (a,b) Topic will vary yearly. (c) Honors Readings. Enrollment restricted to undergraduates. Departmental approval required.
- 499-2 to 6 Readings in English. For English concentrations only. Departmental approval required. No more than four hours may be taken any one quarter.
- 500-2 Materials and Methods of Research in English.
- 501-4 Old English Grammar.
- 502-4 Beowulf.
- 506-4 Old Norse.
- 508-4 to 12 Studies in Chaucer.
- 509-4 to 12 Studies in Middle English.
- 511-4 to 12 Studies in The Renaissance.
- 513-4 to 12 Studies in Seventeenth Century Literature.
- 514-4 to 12 Studies in Restoration and Eighteenth Century Literature.
- 518-4 to 12 Studies in English Literature, 1885-1914.
- 519-4 to 12 Studies in Contemporary British Literature.
- 520-4 to 12 Studies in Romantic Writers.
- 521-4 to 12 Studies in Victorian Poetry.
- 524-4 to 12 Studies in the Metaphysical Poets.
- 532-4 to 12 Studies in American Transcendentalism.
- 534-4 to 12 Studies in Early Nineteenth Century American Writers.
- 536-4 to 12 Studies in Later Nineteenth Century American Writers.
- 537-4 to 12 Studies in Twentieth Century American Writers.
- 538-4 to 12 Problems in American Literature.
- 543-4 to 12 Studies in Victorian Nonfiction Prose.
- 555-4 to 12 Studies in The Victorian Novel.
- 560-4 to 12 Studies in Renaissance Drama.
- 566-4 to 12 Studies in Shakespeare.
- 579-16 (4,4,4,4) Studies in Modern Literature.
- 580-4 Traditional Themes.
- 581-12 (4,4,4) Problems in Teaching English.
- 585-2 Teaching College Composition.
- 593-4 Special Problems in English.
- 594-4 or 8 Studies in Literary Form and Symbolic Action.
- 598-1 to 6 (1 to 3, 1 to 3) Review of English and American Literature.
- 600-1 to 48 Dissertation.

European and Russian Studies

Secondary Concentration

A secondary concentration in area studies with specialization in European studies or in Russian studies is offered especially for those students who also work for a concentration in foreign languages: Russian for Russian studies; German, Russian, or French for European studies.

For either specialization a minimum of 24 hours must be earned in the chosen field, at least 12 of them in principal courses, the rest by electives. Not more than three courses in any one subject area will be counted

toward fulfillment of the requirements. In exceptional cases an elective course may be substituted after consultation with the adviser for the course of study.

Principal courses for the European studies consist of GSB 380, 390 Economics 418, Geography 462, Government 455, History 333, 406, 434, 463, 464. The electives are GSB 312, Anthropology 306b, Economics 460, 481, Geography 464, Government 453, History 465. One reading course or one independent-studies course can be used in fulfillment of the requirements. Each student's list of courses, however, should be approved by the adviser.

Principal courses for the Russian studies consist of Economics 460, GSB 380, Geography 464, Government 453, History 465. Electives are GSB 312, Anthropology 305b, 306b, Economics 418, 481, Geography 462, Government 455, History 333, 406, 434.

Family Economics and Management

Professor Betty Jane Johnston, Ph.D. (Chairman)
Visiting Professor Arch W. Troelstrup, M.A.
Assistant Professor Karen Craig, Ph.D.

Instructors Beverly A. Ecker, M.S.
Arlene Heisler, M.S.
Thelma Malone, M.S.
Helen M. Stevens, M.S.

Consumer Services in Business

These courses prepare those students interested in working in business for equipment manufacturers, utility companies or related business organizations in promotional or testing work.

<i>General Studies</i>	6
<i>Requirements for Concentration in Home Economics</i>	8
GSB 211a,b; GSC 100 or 101, 102, 103	(29)
Chemistry 110, 240	(4) + 4
Child and Family 227, 237	6
Clothing and Textiles 127a,b, 304	8
Family Economics and Management 331, 323, 324, 332, 340, 342, 423 or 435, 424	27
Food and Nutrition 100, 256, 321, 335, 356	19
Interior Design 131, 300	5
Journalism 393	3
Marketing 301, 363, 401	12
Radio-TV 252 or Speech 102	4
<i>Electives</i>	
Child and Family 345a,b, 366, Clothing and Textiles 327, 329, 339, 440, 474, 481; Food and Nutrition 320, 360a,b, 421; Home Economics Education 111, 306; Instructional Materials 417; Interior Design 327; Journalism 369, 433; Radio-TV 300, 351, 377.	
<i>Total</i>	19

Family Services Consultant

These courses are designed for those seeking employment with public and private social welfare agencies.

<i>General Studies</i>	6
<i>Requirements for Concentration in Home Economics</i>	100-10
GSA 201a,b, 301, 302; GSB 201b,c; GSC 100 or 101, 102, 103	(48) + 1

Chemistry 110, 240	(4) + 4
Child and Family 227, 237, 345a, 345b, 336, 466 ...	16
Clothing and Textiles 127-4, 304	8
Family Economics and Management 266, 302, 323, 324, 331, 332, 340, 341, 407, 423 or 435, 471-4 to 6	33-37
Food and Nutrition 100, 256, 320, 335 or Health Ed- ucation 330	15-16
Home Economics Education 111 or 306, 309a	5
Interior Design 131, 327	6
Social Welfare 375, 383	8

Electives

For career working with private or public social welfare agency: GSB 321, 325, 341, 346; Government 438; Child and Family 456; Home Economics Education 309b; Instructional Materials 417; Psychology 301, 303, 304, 305, 307; Sociology 301, 302, 308, 312, 335, 426, 473, 481, 482.

For working with senior citizens: GSB 321, 325, 346; Government 438; Home and Family 427, 431; Instructional Materials 417; Psychology 304; Recreation 201, 202, 302, 310a,b,c,d, 325, 335; Sociology 312, 481.

For working with Vista, Peace Corps, or other overseas agencies: GSB 321, 325; Anthropology 305, 306; Child and Family 456; Home Economics Education 309b; Instructional Materials 417; Psychology 301, 303, 304; Recreation 201, 202; Sociology 312, 426, 481.

For working with business agency such as a bank or other credit or financing agency, trade association, or educational service: GSB 341, 346; Government 438; Child and Family 456; Home Economics Education 309b; Instructional Materials 417; Psychology 303, 305, 307; Sociology 426, 435.

Total

192

Course Descriptions

300-3 Home Economics for Men. Units dealing with food selection, serving, and table practice; economics of the home; grooming and clothing selection; family relations; consideration of personality evaluation. Field trip.

301-3 Home Arts and Social Usage. Emphasis on the home arts and social usage that will provide for more satisfying personal and family living. For women who are not concentrating in home economics.

302-4 Basics of Family Living. Job oriented course for social welfare workers; selected units in several aspects of homemaking with application to the low income family.

323-2 Housing. Housing needs of families. Housing design, plans, and construction. Historic modes of housing.

324-3 Equipment. Selection, use, and care. Field trips.

331-3 Management of Family Resources. A study of factors affecting the management of the home in meeting the needs of individuals and creating a satisfying environment for the family. Special consideration given to those problems involving the use of time, money, and energy.

332-4 Home Management Practicum. Analysis of current management situations. Evaluation of family resource use. Normally includes residence in home management house, but students with special problems should consult the departmental chairman. Prerequisite: 227, 331.

340-3 Consumers and the Market. Consumer role, market organization, and impact on consumers. Decision making in market goods and services; analysis and evaluation of programs for consumer information and protection.

341-4 Consumer Problems. Study of motives of consumption, family income and expenditures, selection of commodities and services, buying and selling

practices, and evaluation of consumer aids. Consideration of contemporary consumer problems. Field trips.

407-2 to 8 Workshop. Designed to aid workers in professions related to home and family. Emphasis for the workshop will be stated in the announcement of the course.

423-4 Advanced Family Housing. Further appreciation and understanding of aesthetic, economic, psychic, and social factors influencing choice of family housing today. Prerequisite: 323.

424-4 Selection, Use, and Care of Appliances. Materials used in equipment methods of construction, principles of operation of appliances for cooking, refrigeration, laundering, cleaning; selection, operation, and care of appliances to obtain maximum satisfaction in use. Prerequisite: 324 or consent of instructor.

435-4 Work Simplification in Home Management. Basic scientific work simplification principles applied to work done in the home by full-time employed or physically handicapped homemakers.

471-2 to 6 Field Experience. Opportunity for supervised learning experiences in selected areas. Prerequisite: Consent of departmental chairman.

481-2 to 6 Readings. Supervised readings for qualified students. Prerequisite: consent of instructor and chairman.

500-4 Research Methods.

540-4 Trends in Consumer Problems.

550-4 Advanced Home Management.

571-4 Recent Research.

572-2 to 8 Special Problems.

599-2 to 9 Thesis.

600-3 to 48 Dissertation.

Finance

Associate Professors J. Van Fenstermaker, Ph.D.

Edward L. Winn, Jr., D.B.A.
(Chairman)

Assistant Professors Irving W. Adams, B.A.

Peter W. Bacon, D.B.A.

Van A. Buboltz, M.A.

Ahmad D. Issa, Ph.D.

Jeffrey P. Laycock, Juris Dr.

Gola Waters, M.S.

The financial implications of decisions in both business and government are daily becoming more complex. Within the firm, financial considerations permeate the central decisions of research, engineering, production and marketing. Within governmental activities, sophisticated financial techniques are becoming increasingly important. The financial executive thus takes a key role in the successful management of both business and governmental operations.

The finance curriculum offers two areas of specialization to meet the varied interests of students: (1) financial management and (2) financial institutions. The financial management program provides the background for a career in the financial operations of business firms and public institutions. The financial institutions specialization is designed for those interested in the operations of financial intermediaries and financial markets.

Bachelor of Science Degree, SCHOOL OF BUSINESS

General Studies Requirements	67
Professional Business Core	52

GSB 201b, 201c, Mathematics 111, a (or GSD 107 and Mathematics 108)	(13)
Accounting 251a & b, 261	12
Economics 214, 215 and 308 or 408	12
Finance 320, 371 or 370 or 473	8
GSD 110	3

Marketing 301	4
Management 340, 481	8
Mathematics 150a or 140a,b	5
<i>Requirements for Concentration in Finance</i>	40
Accounting 315 or Management 345	4
Economics 440 or Management 479	4
Management 361 or Marketing 390	4
Management 430	4
Finance 323, 325, 421	12
<i>One of the following specializations</i>	
Financial Management	
Accounting 341	4
Two of the following:	
Accounting 351a, 351b, 442, 475, Economics 315	8
Financial Institutions	
Finance 324	4
Finance 326	4
Economics 315	4
<i>Lectives</i> —(300 or 400 level courses, unless lower level courses necessary to fulfill a departmental sequence	
<i>Total</i>	192

Course Descriptions

71-4 Business Law I. Legal problems arising from situations involving torts, contracts, and agency and business organizations.

01-1 to 6 Readings in Finance. Readings in classical and current writing on selected topics in various areas in the field of Finance.

05-4 Personal Finance. An introduction to the problems of personal financial asset management, including income and expense budgeting. Emphasis also placed on consumer credit, insurance, investments, home ownership and taxation. (Not open to students with concentrations in the School of Business.)

20-4 Introduction to Business Finance. Principal problems of managing the finance function of a business firm. Emphasis on asset acquisition and management, and financial structure planning and management. Prerequisite: Accounting 261, Economics 215.

23-4 Investments. Survey of the problems and procedures of investment management; types of investment risks; investment problems of the individual as well as the corporation. Prerequisite: 320 or consent of instructor.

24-4 Security Analysis. Application of investment principles to investment policy; analytical principles and techniques; analysis of fixed income corporate securities, of senior securities with speculative features, of common stocks, of government and municipal securities, and of investment company securities. Prerequisites: Finance 323.

25-4 Financial Markets. Operations of capital markets. Sources and uses of funds of financial institutions. Prerequisite: 320 or consent of instructor.

26-4 Management of Financial Institutions. Principal policies and problems which confront top management. Emphasis on liquidity loans, investments, deposits, capital funds, financial statements, organization structure, operations, personnel, cost analysis, and public relations. Prerequisite: 320-4.

27-4 Risk Management. Aggregate effort of a business or institution to conserve earning power and assets by controlling the risk of accidental loss. Includes the identification and evaluation of both risk exposures and means of dealing with these exposures. Prerequisite: junior standing.

28-4 Real Estate. Problems of real estate ownership, management, financing, and development.

30-4 The Legal and Social Environment of Business. Legal, social, and political forces that influence business and businessmen.

32-4 Business Law II. Legal problems arising from situations involving sales, commercial paper, secured transactions, and property.

31-4 Management of Business Finance. The principal problems of manag-

ing the financial operations of an enterprise. Emphasis upon analysis and solutions of problems pertaining to policy decisions. Prerequisite: 320.

422-4 Advanced Financial Management. The development of ability to use sophisticated analytical tools by the discussion of case situations dealing primarily with capitalization, return on investment, and cost of capital. Prerequisite: 421.

430-4 Business Finance. An introductory course combining both a description of the structure of business financing and an analysis of functional finance from a managerial viewpoint. Restricted to MBA students.

473-4 Government Regulation of Business. Social and economic assessment of environmental factors influencing business policies and strategies. Emphasis is placed on legislation affecting competition and allocation of the firm's products and resources. Prerequisite: senior standing.

475-4 Budgeting and Systems. Aids in coordinating and directing business operation.

480-4 International Financial Management. Financial behavior of multinational firms. Emphasis on the modifications of conventional financial models to incorporate uniquely foreign variables. Prerequisite: 320 and Economics 320.

Food and Nutrition

(See also *Home Economics*.)

Professors Frank Konishi, Ph.D.

(Chairman)

Eileen E. Quigley, Ed.D. (Emerita)

Associate Professors Jennie Harper, Ph.D.

Irene R. Payne, Ph.D.

Assistant Professor Mary Lou Barnes, M.S. (Emerita)

Karolynn Knauft, M.S.

Lecturer Miss Henrietta Becker, M.S.

Dietetics

These courses give a strong scientific education to those interested in becoming dietitians in hospitals, college dormitories, industrial plants, health clinics, laboratories, or public health and welfare organizations. They meet the requirements of the American Dietetics Association.

General Studies Requirements

Requirements for Concentration in Home Economics

GSA 301; GSB 102-8; 201b,c; GSC 100 or 101, 102, 103; GSD 107a,b (41)

Accounting 250 4

Chemistry 110, 240, 350 (4) + 8

Child and Family 227, 237 6

Clothing and Textiles 127a 2

Family Economics and Management 331, 341 7

Food and Nutrition 100, 256, 320, 335, 356, 360a, 361, 362, 363, 390, 420 38

Home Economics Education 307 3

Management 385 4

Microbiology 301 5

Electives

Recommended electives: Family Economics and Management 332;

Food and Nutrition 321, 360b, 421, 490; Interior Design 131;

Microbiology 421; Management 382.

Total 12

Foods in Business

These courses are for students who desire to enter the business field as home service representatives for utility companies, as demonstrators for

manufacturers, or for other educational, experimental, and promotional work with household equipment and foods.

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in Home Economics</i>	78
GSA 301, 302; GSB 101a,b, 201b,c; CSC 100 or 101, 102, 103; GSD 107a,b	(44)
Accounting 250	4
Chemistry 110, 240, 350	(4) + 8
Child and Family 227, 237	6
Clothing and Textiles 127a	2
English 390	3
Family Economics and Management 324, 331, 332, 341 ..	14
Food and Nutrition 100, 256, 320, 321, 335, 356	22
Home Economics Education 306	2
Management 385	4
Marketing 301, 363	8
Microbiology 301	5

Electives

Recommended electives: Clothing and Textiles 127a, 304; Family Economics and Management 424; Food and Nutrition 371, 420.

Total 192

Food and Nutrition Science

These courses give a strong scientific education to those interested in preparing for graduate study in food, nutrition or related discipline; for research in university, industrial or governmental laboratories; or for educational and promotional work in industry or public health organizations.

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in Home Economics</i>	84
GSA 301, 313; GSB 102a,b, 201b,c; GSD 107-8	(44)
Anthropology 402	4
Chemistry 121a, 121b, 305a, 305b, 350	(4) + 19
Child and Family 227, 237	6
Clothing and Textiles 127a	2
Family Economics and Management 341	4
Food and Nutrition 100, 256, 320, 356, 360a, 390, 420, 421, 490	31
Home Economics Education 306	2
Mathematics 111a, 111b, 410a	(8) + 6
Microbiology 301, 421	10

Electives

Recommended electives: Chemistry 235, 451a; Food and Nutrition 335; Home Economics Education 325; Family Economics and Management 331; Psychology 211a,b.

Total 192

Institution Management

These courses prepare students to fill positions as food service managers or residence halls, hotels, tearooms, school lunchrooms, and industrial or commercial restaurants. They meet the requirements of the National Restaurant Association.

<i>General Studies Requirements</i>	6
<i>Requirements for a Concentration in Home Economics</i>	8
GSA 301; GSB 102a,b, 201b,c; GSC 100 or 101, 102, 103; GSD 107a,b	(41)
Accounting 251a,b	8
Chemistry 110, 240, 350	(4) + 8
Child and Family 227, 237	6
Clothing and Textiles 127a	2
Family Economics and Management 331, 341	7
Finance 271	4
Food and Nutrition 100, 256, 320, 335, 360a, 360b, 361, 362, 363	32
Home Economics Education 306	2
Management 382, 385	8
Microbiology 301	5
Psychology 320	4
<i>Electives</i>	
Recommended electives: Interior Design 131; Food and Nutrition 321, 371, 390, 420; Family Economics and Management 332; Microbiology 421.	
<i>Total</i>	19

Course Descriptions

100-3 Fundamentals of Nutrition. Emphasis on basic principles of food and nutrition in relation to personal health.

106-3 Fundamentals of Foods. An introduction to the basic principles and techniques of food preparations. Not open to students specializing in Food and Nutrition or Home Economics Education.

247-6 (2,2,2) The School Lunch Program. (a) Food purchasing; (b) quantity food production, and (c) nutrition practices in the school lunchroom.

256-5 Science of Food. Application of scientific principles to food preparation. Prerequisites: 100, Chemistry 110 and 240 or equivalent.

320-3 Nutrition. Principles of nutrition in relation to intermediary metabolism and the role of vitamins and minerals. Prerequisites: 100, Chemistry 110 and 240.

321-3 Food and Nutrition Demonstration. Emphasis on principles of food and nutrition including food standards and demonstration techniques. Field trip. Prerequisite: 256.

335-4 Meal Management. The selection, purchase, preparation and service of food with emphasis on time and money management. Prerequisite: 256.

356-4 Experimental Foods. Experimental approach to the study of factors influencing the behavior of foods. Individual problems. Prerequisite: 256.

360-8 (4,4) Quantity Food Production. (a) Use of power equipment, standardized formulas, and techniques of quantity preparation and service of food to large groups; (b) Practical experiences in area food service units. Prerequisite: 256.

361-3 Food Service Organization and Management. Policies, budgets, supervision, and personnel in feeding large groups. Prerequisite: 256.

362-3 Institution Equipment and Layout. Selection and arrangement of various types of institutional food service equipment, including material construction, operation, cost, use and care. Field trip. Prerequisite: 256.

363-3 Food Purchasing for Institutions. Principles and methods of purchasing food in quantity. Field trip. Prerequisite: 256.

371-6 Field Experience. Opportunity for supervised learning experiences in the student's area of concentration. Consent of instructor and chairman.

390-3 Diet Therapy. Study of physiological and biochemical changes in certain diseases with emphasis on those involving nutritional therapy. Prerequisite: 320.

- 320-3 Recent Developments in Nutrition. Critical study of current scientific literature in nutrition. Prerequisite: 320 or equivalent.
- 321-3 Recent Trends in Food. Critical study of current scientific literature in food. Prerequisite: 320 or equivalent.
- 381-2 to 4 Readings. Supervised readings for qualified students. Prerequisites: 320 or consent of chairman and instructor.
- 390-3 Nutrition and Growth. Lectures, readings, and discussions on nutrition in relation to human growth. Prerequisites: 320 or equivalent.
- 390-4 Research Methods.
- 391-5 to 6 Seminar.
- 392-3 Advanced Nutrition.
- 396-4 Advanced Experimental Foods.
- 397-2 to 8 Special Problems.
- 399-1 to 9 Thesis.

Foreign Languages

Professors	Jenaro J. Artiles, Ph.D.	Olga Orehwa, Ph.D.
	D. Lincoln Canfield, Ph.D.	Maurice O'Meara, Ph.D.
	J. Cary Davis, Ph.D. (Emeritus)	Guenter Pfister, Ph.D.
	Hellmut A. Hartwig, Ph.D. (Chairman)	Igor Shankovsky, Ph.D.
	Joseph R. Kupcek, Ph.D.	Marie-Jose Southworth, Ph.D.
	Vera L. Peacock, Ph.D. (Emeritus)	Charles Speck, J.C.D.
Associate Professors	Howard French, Ph.D.	James H-Y Tai, Ph.D.
	David L. Gobert, Ph.D.	Maxine Vogely, Ph.D.
	James A. Kilker, Ph.D.	Instructors
	Helmut Liedloff, Ph.D.	Gwendolyn Brackett, M.A.
	Madeleine M. Smith, Ph.D. (Emeritus)	Jerrilyn Emison, M.A.
	Hensley Woodbridge, Ph.D.	Harold Felty, M.A.
Assistant Professors	Vernon Anderson, Ph.D.	John Gadway, B.A.
	W. L. Meinhardt, Ph.D.	Frank Gunderson, M.A.
	Joan O'Brien, Ph.D.	J. L. Martin, Jr., M.A.
		Mildred Wilkinson, M.A.
		Robert Wosylus, M.A.
		Lecturer
		Arnold Ulner, M.A.
		Visiting Professor
		Albert W. Bork,
		Doctor en Letras

Concentrations are offered in French, German, Latin, Russian, and Spanish.* Qualified students are encouraged to take proficiency examinations for FL 201-9. A student is not eligible to apply for proficiency in 220-6 unless he has passed the corresponding 201. If the student has had 4 years of one foreign language in high school, he is expected to begin with 300 level courses and take more upper level courses.

Bachelor of Arts, COLLEGE OF LIBERAL ARTS AND SCIENCES

General Studies Requirements (Includes GSD 107-8)	67
Supplementary Two-Year College Requirement in FL/Mathematics	
Foreign Languages: GSD FL-9 and 9 hours included below	9
Foreign Language. Includes FL 201-9	52-56 ¹
Secondary Concentration	24 ²
Electives	
Total	192

* Other languages offered are Chinese, Portuguese, Classical Greek, and Italian.

Bachelor of Arts, COLLEGE OF LIBERAL ARTS AND SCIENCES,
(secondary school certification)

General Studies Requirements (Includes GSD 107-8)	67
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Supplementary Two-Year College Requirement in FL/Mathematics

Foreign Languages: GSD FL-9 and 9 hours included below ...	9
Foreign Language. Includes FL 201-9	52-56 ¹
Secondary Education	32
<i>Electives</i>	
Total	192

Bachelor of Science, COLLEGE OF EDUCATION

<i>General Studies Requirements</i>	67
Foreign Language	52-56
Secondary Education	32
<i>Electives</i>	
Total	192

¹ See individual language listings for requirements.² The secondary concentration may be in any field which supports the student's projected career. Among recommended fields are another foreign language, English, linguistics, philosophy, European and Russian studies, history.³ Electives may contribute to a teaching minor. If it is in a second foreign language, state certification requirements may be met by counting GSD-FL courses or by doing additional work.⁴ FL 453-4 must be taken instead of Secondary Education 315.

The student who has completed only one year of foreign language in high school will usually begin with the first quarter of the first-year course in General Studies. The student who has completed two or more years of high-school French, German, Russian, or Spanish is required to take a placement/proficiency examination administered by the Counseling and Testing Service. This will determine at which course level of the language the student will be placed. Students having completed two or more years of high-school foreign language other than French, German, Russian, or Spanish will usually begin with the second-year course.

Secondary Concentration

A secondary concentration in a foreign language is constituted by from 26-30 hours in courses 200 level and above. See individual languages for specific requirements. State certification requirements may be met by counting GSD-FL courses or by doing additional advanced work.

General Foreign Language Courses**Course Descriptions**

410-15 (5,5,5) Uncommon Languages (Intermediate Vietnamese). (See Linguistics 410.)

453-4 Methods in Teaching Modern Foreign Languages. Survey of general principles of second-language teaching, based upon insights of modern linguistics and learning-psychology. Followed by intensive practical work in classroom and language laboratory with teachers experienced in the student's specific language field. Required of prospective teachers of modern foreign languages in secondary schools. Prerequisite: concurrent or prior enrollment in 300-level course in French, German, Russian, or Spanish.

477-3 Contemporary Vietnamese Prose. Open to advanced students. Short stories, novels, and essays (main trends and evolution). Emphasis on works of prominent authors since 1920, such as Nguyen V. Vinh, Pham Quynh, H. N. Phach, Ng. Tr. Thuat, P. K. Binh, Khai Hung, and the recent generation. Prerequisite: Linguistics 410.

497-9 (3,3,3) Survey of Vietnamese Literature. Readings and analysis of selected works of Vietnamese literature from the beginning to the present time. Knowledge of Chinese characters and demotic characters not necessary since all texts will be in Roman script. Presented in Vietnamese. Prerequisite equivalent of two years of Vietnamese.

*Chinese**Course Descriptions*

0-3 (1,1,1) Chinese Conversation. Conversation and oral drill taken with GSD 120 by students who wish additional oral training: elected only by students enrolled in GSD 120.

1-15 (5,5,5) Intermediate Chinese. Designed to give the students a review of the Chinese language and its expansion, a reading ability of modern prose, and practice in conversation and composition. Must be taken in a,b,c sequence. Prerequisite: one year of college Chinese (GSD 120c) or equivalent.

5-2 to 6 Readings in Chinese. Readings in the contemporary Chinese such as the adaptations of the writings of Tsau Yu, Lau she, Hu shih, and Lu Synn. Prerequisite: 201c.

French

At least one course in History of France is recommended for all students majoring in French.

BACHELOR OF ARTS DEGREE, COLLEGE OF LIBERAL ARTS AND SCIENCES

French courses 200 level and above, including the following: 56

0 level: 201a,b,c-9; 220a,b,c-6 recommended 9-15

0 level: 350-4, 352-3, 354-4, 397a,b,c-9 20

0 level: 408-4, 461-4, and at least 3 literature courses 17

French electives: Romance Philology, 410-4, and FL 453-4, are recommended 4-10

BACHELOR OF SCIENCE OR BACHELOR OF ARTS DEGREE WITH TEACHING CERTIFICATE

FL 453-4 is taken in lieu of Sec Ed 315)

French courses 200 level and above, including the following: 56

0 level: 201a,b,c-9; 220a,b,c-6 recommended 9-15

0 level: 350-4, 352-3, 354-4, 397a,b,c-9 20

0 level: 408-4, 461-4, and at least 3 literature courses 17

French electives: Romance Philology, 410 is recommended ... 4-10

SECONDARY CONCENTRATION

French courses 200 level and above, including the following: 26

0 level: 201a,b,c-9; 220a,b,c-6 recommended 9-15

0 level: 350-4 plus 352-3 and FL 453-4, or 350-4 plus 354-4

and any one quarter of 397 a, or b, or c (3) 11

French electives: 0-6

Course Descriptions

3-3 (1,1,1) French Conversation. Conversation and oral drill taken with GSD 123 by students who wish additional oral training: elected only by students enrolled in GSD 123. Parts may be taken singly.

1-0 (0,0) French for Graduate Students. Designed for graduate students acquiring a reading-knowledge of French. (a) Intensive study of grammar. (b) Intensive reading and vocabulary study. Prerequisite: consent of instructor.

5-15 Elementary and Beginning Intermediate French. Intensive training in basic skills of French, with emphasis on the spoken language. Equivalent to GSD 123-9, 123-3, and 201a-3. Thirty hours of instruction and active practice per week. Prerequisite: consent of instructor.

1-9 (3,3,3) Intermediate French. Composition, oral practice, rapid reading of modern authors with special attention to the role of French culture in world civilization. Must be taken in a,b,c sequence. Prerequisite: GSD 123 or two years of high school French, or equivalent.

220-6 (2,2,2) Intermediate French Conversation. Development of oral skill on the intermediate level. Offered for 3 quarters at 2 hours per quarter; may be taken for credit each time. Prerequisite: 201c or concurrent registration in any quarter of 201.

275-12 Intermediate French. Continuation of 175. Equivalent to 201b,c, 22. Prerequisite: 175.

GSC 305-3 Contemporary French Drama.

350-6 (3,3) Advanced Composition and Conversation. Translation and composition. Taken in a,b sequence. Prerequisite: 210c or equivalent.

352-2 French Phonetics. French phonemics and phonetics, involving production of French sounds and English interference, the written representation of French sounds and the teaching thereof. Laboratory and dictation practice. Prerequisite: 201c or equivalent.

354-4 Introduction to Literary Analysis. Practice in rudimentary explication de textes of passages taken from representative works in French literature with a view to developing the students' artistic sensibilities and improving their analytical skills. Prerequisite: 350.

363-1 French Pronunciation and Diction for Singers. Limited to voice major. Aids student singers in pronunciation and in interpretation of the folk song, art song, or aria they are learning.

375-5 Advanced French. Continuation of 275 and taken concurrently with it. Thirty hours of instruction and active practice per week. Equivalent to five hours of 300 level French language courses. Prerequisite: 175.

379-9 (3,3,3) Survey of French Literature. Reading and analysis of selected works of French literature from the beginning to the present time. Presented in French. Should be taken in a,b,c sequence, although not obligatory. Prerequisite: 350 or consent of instructor.

397-9 (3,3,3) Survey of French Literature. Reading and analysis of selected works of French literature from the beginning to the present time. Presented in French. Should be taken in a,b,c sequence, although not obligatory. Prerequisite: 350 or consent of instructor.

401-9 (3,3,3) French Literature of the 17th Century. (a) Tragedy; (b) Comedy; (c) Nondramatic literature. Prerequisite: 354, 397.

402-6 (3,3) Contemporary French Novel. (a) Major themes, forms, and techniques in the novel with particular emphasis on Cide, Proust, Malraux, Sartre, Camus, and Robbe-Grillet. (b) A study of the dramatic masterpiece of Guandoux, Claudel, Anouilh, Sartre, Camus, Ionesco, and Beckett with respect to structure, technique, themes, and language. May be taken out of sequence. Prerequisite: 354, 397.

403-9 (3,3,3) French Literature of the 18th Century. (a) Theater; (b) Novel; (c) Philosophic and Didactic Literature. Prerequisite: 354, 397.

408-4 French Civilization. Society, culture, social institutions, and the art of contemporary France. Lectures, slides, discussion. Prerequisite: 350 or consent of instructor.

409-3 French Romanticism in the Drama, Novel and Poetry. Prerequisite: 354, 397.

419-3 French Poetry from Nerval through Symbolism. Prerequisite: 354, 397.

429-6 (3,3) French Novel and Theatre, 1850-1930. (a) Realism, naturalism, and the reaction to these in the novel, from Flaubert through Barres. (b) Realism, naturalism, and symbolism in the theatre from mid 19th century to 1930. Prerequisite: 354, 397.

430-2 to 6 Travel-Study in France. Comprises part of the travel-study program in France. Prerequisite: participation in the French travel-study program.

461-4 French Stylistics. Aesthetics and theory of French literary expression through examination of various stylistics methods, and through stylistic analyses of excerpts from representative works of great French authors. Prerequisite: 350, 354, or consent of instructor.

498-3 Honors Seminar. Study of an author or a special topic. Restricted to undergraduates. Prerequisite: consent of department.

499-4 Honors Essay. Individual exploration of some question, author, or theme of significance within the field of French literature or language. Restricted to undergraduates. Prerequisite: 498 and consent of department.

501-2 to 6 Seminar on a Selected French Author.

509-2 to 6 Studies in 19th Century French Literature.

515-6 (3,3) Old French.

520-4 Graduate Composition.

- 522-2 to 6 Studies in 20th Century French Literature.
- 523-2 to 6 Studies in Medieval French Literature.
- 524-2 to 6 Studies in French Literature of the Renaissance.
- 526-2 to 6 Studies in 18th Century French Literature.
- 527-3 French Bibliography.
- 536-2 Teaching French at the College Level. Prepares graduate students in French for teaching at the university level. Required of all teaching assistants in French. May not be counted to satisfy secondary certification requirements.
- 543-2 to 6 Research Problems.
- 599-2 to 9 Thesis.

German

At least one course in History of Germany or Central Europe is recommended for all students majoring in German.

BACHELOR OF ARTS DEGREE, COLLEGE OF LIBERAL ARTS AND SCIENCES

German courses 200 level and above, including the following:	55
200 level: 201a,b,c-9; 220a,b,c-6 recommended	9-15
300 level: 301a,b-8 (normally taken in senior year), 304a,b-8, 310a,b-8; 304c-4 is recommended	24-28
400 level: At least three literature courses (6-12); 408-4 is recommended	6-16
German electives: FL 453-4 is recommended	0-16

BACHELOR OF SCIENCE OR BACHELOR OF ARTS DEGREE WITH TEACHING CERTIFICATE

(FL 453 is taken in lieu of Sec. Ed 315)

German courses 200 level and above, including the following:	55
200 level: 201a,b,c-9; 220a,b,c-6 recommended	9-15
300 level: 301a,b-8 (normally taken in senior year), 304a,b-8, 310a,b-8; 304c-4 is recommended	24-28
400 level: 401a,b-4, plus at least two literature courses (4-8); 408-4 is recommended	8-16
German electives	0-14

SECONDARY CONCENTRATION

German courses 200 level and above, including the following:	27
200 level: 201a,b,c-9; 220a,b,c-6 recommended	9-15
300 level: 304a-4, 310a,b-8; 304b-4 or FL 453-4 are recommended	12-16
German electives	0-6

Course Descriptions

- 126-3 (1,1,1) **German Conversation.** Conversation and oral drill taken with GSD 126 by students who wish additional oral training; elected only by students enrolled in GSD 126. Parts may be taken singly. Prerequisite: concurrent enrollment in GSD 126.
- 161-0 (0,0) **German for Graduate Students.** Designed for graduate students desiring a reading-knowledge of German. (a) Intensive study of grammar. (b) Extensive reading and vocabulary study. Prerequisite: consent of instructor.
- 201-9 (3,3,3) **Intermediate German.** Composition, oral practice, rapid reading of modern authors with special attention to the role of German culture in world civilization. Must be taken in a,b,c sequence. Prerequisite: GSD 126 or two years of high school German, or equivalent.
- 220-6 (2,2,2) **Intermediate German Conversation.** Development of oral skill on the intermediate level. Offered for 3 quarters at 2 hours per quarter; may be taken for credit each time. Prerequisite: 201c or concurrent registration in any quarter of 201.

251-4 Scientific German. Study of vocabulary and sentence construction as commonly found in Germanic scientific writings. May be counted as the equivalent of German 201c. Prerequisite: one year college German or its equivalent.

301-8 (4,4) Survey of German Literature to 1800. Historical development of German literature. Should be taken in a,b sequence.

303-4 German "Novelle" in the Nineteenth Century. A study of representative works from 1800 to 1900, with emphasis on the literary movements of that time.

304-12 (4,4,4) Advanced Composition and Conversation. Two quarters in sequence (a,b; b,c; a,c) are required for prospective teachers of German. Prerequisite: 201c.

310-8 (4,4) Introduction to German Literature. Reading, analysis, and discussion of representative works from various periods of German literature. Prerequisite: 201c.

312-4 German Drama in the Nineteenth Century. Kleist, Grillparzer, Hebbel. Reading and discussion of representative works.

315-4 From Rationalism to Realism. Study of German literary works representing 18th Century Rationalism, "Sturm und Drang" and Romanticism leading to the literature of Realism; lectures and reports.

363-1 German Pronunciation and Diction for Singers. Limited to voice majors. Aids student singers in pronunciation and interpretation of the folk song, art song, or aria they are learning.

401-4 (2,2) Goethe's Faust. (a) The Faust legend and early Faust books and plays; the genesis of Goethe's *Faust*: reading of Part I. (b) reading of Part II; study of symbolism such as blending of paganism with Christianity, of ancient Greek culture with Germanic culture. Must be taken in a,b sequence.

402-3 Advanced German Syntax. Descriptive and contrastive study of German syntax, with particular attention to the needs of prospective teachers.

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 Buerger to that of Hesse, Benn, etc. Lectures, recitations.

404-4 Weimar and Its Aftermath. German writings from the inception of the Weimar Republic to the end of World War II, with special reference to the correlation existing between literary expression and social, economic and political conditions.

406-3 The German Comedy. Comic and satirical works in German Literature, with special emphasis on the "Lustspiel" since 1800; lectures, reports.

407-2 Great German Plays of the 20th Century. Study and selective readings of outstanding stage successes; lectures, reports.

408-4 German Civilization. Intensive study of the German speaking areas of the world, with emphasis on the anthropological and sociological aspects of their respective cultures (Austrian, German, Swiss, "Reichs-deutsch," etc.); lectures, reports.

411-6 (3,3) Middle High German. (a) Grammar, and selective readings in both MHG originals and NHG translations of such epics as the *Nibelungenlied* and *Gudrun*. (b) The Courtly epic poetry of such authors as Wolfram von Eschenbach, Gottfried von Strassburg, Hartmann von Aue, the lyric poetry of Walther von der Vogelweide, and didactic prose.

413-6 (3,3) German Linguistics. (a) Introduction to Comparative Germanic Linguistics tracing relationships among Germanic languages on the basis of phonology, morphology, and syntax; (b) History of the German language; a survey of the development of German through the Old-, Middle-, and New-High-Germanic periods; lectures, readings, reports.

497-1 to 2 Readings in 18th Century German Literature. Departmental approval required.

498-1 to 2 Readings in 19th Century German Literature. Departmental approval required.

499-1 to 2 Readings in 20th Century German Literature. Departmental approval required.

500-2 Seminar in Contemporary Literature.

501-2 to 6 Seminar on a Selected German Author.

506-2 Romanticism I.

507-2 Romanticism II.

509-4 (2,2) Old High German.

512-3 19th Century German Novel.

- 513-3 20th Century German Novel.
 514-3 Seminar in Folklore.
 533-3 Gothic.
 536-3 (1,1,1) Teaching German at the College Level.
 543-2 to 6 Research Problems.
 544-12 NDEA Summer Institute for Teachers.
 599-2 to 9 Thesis.

Greek

Course Descriptions

- 201-9 (3,3,3) **Intermediate Greek.** Grammar review and composition. Selected readings. Taken in a,b,c sequence. Prerequisite: GSD 130c.
 301-4 **Greek Historians.** Reading and discussion of selections from the histories of Herodotus, Thucydides, and Xenophon.
 302-4 **Plato.** Reading and discussion of the **Republic**.
 303-4 **Aristotle.** Reading and discussion of the **Ethics**.
 311-8 (4,4) **Homer.** Reading and interpretation of selections from the **Iliad** and the **Odyssey**. Should be taken in a,b sequence.
 313-4 **Greek Tragedy.** Reading of at least two plays from the works of Aeschylus, Sophocles, and Euripides.
 315-2 to 8 **Readings from Greek Authors.** Flexible reading program of works not included in other courses. By special permission only. Prerequisite: 201c.
 GSC 320-3 **Greek Literature in Translation.**
 GSC 330-3 **Classical Mythology.**
 GSC 332-3 **Classical Drama.**

Italian

Course Descriptions

- 144-3 (1,1,1) **Italian Conversation.** Taken with GSD 144 by students who wish additional oral training; elected only by students enrolled in the corresponding beginning sections. Each quarter may be taken separately.
 201-9 (3,3,3) **Intermediate Italian.** Development of listening, speaking, reading, and writing skills on the intermediate level, with special attention to the role of Italian culture in world civilization. Prerequisite: GSD 144 or 2 years of high school Italian or equivalent.
 363-1 **Italian Pronunciation and Diction for Singers.** Limited to voice majors. Aids student singers in the pronunciation and in interpretation of the folk song, art song, or aria they are learning.

Latin

BACHELOR OF ARTS DEGREE, COLLEGE OF LIBERAL ARTS AND SCIENCES

- Latin courses 200 level and above, including the following: 53
 200 level: 201a,b,c 12 hours
 300 level courses including Latin 315-8, and electives totaling 24 hrs., with FL 453-4 recommended 32 hours
 Three of the following: GSC 330, 331, 332, 320 9 hours
 Latin 315 listed above is a supplementary reading course from authors not listed in the undergraduate catalog. This course is offered every quarter. It is to be taken for a minimum of two hours or a maximum of four hours per quarter, with total credit not to exceed eight hours.

BACHELOR OF SCIENCE OR BACHELOR OF ARTS DEGREE WITH TEACHING CERTIFICATE

- FL 453 is taken in lieu of Sec Ed 315)
 Latin courses 200 level and above: 53
 Same program as immediately above for Bachelor of Arts in Latin

SECONDARY CONCENTRATION

Latin courses 200 level and above:	27
201a,b,c	12 hours
300 level: FL 353-4 is recommended	15 hours

Course Descriptions

201-12 (4,4,4) **Intermediate Latin.** Composition and reading from various authors. Should be taken in a,b,c sequence. Prerequisite: GSD 133 or two years of high-school Latin.

301-4 **Cicero's Essays and Letters.** Prerequisite: 201c or equivalent.

302-4 **Vergil's Eclogues and Georgics.** Prerequisite: 201c or equivalent.

303-4 **Tacitus.** Prerequisite: 201c or equivalent.

304-2 **Private Life of the Romans.**

311-4 **Roman Comedy.** Prerequisite: 201c or equivalent.

312-4 **Horace's Odes and Epodes.** Prerequisite: 201c or equivalent.

313-4 **Letters in Pliny.** Prerequisite: 201c or equivalent.

315-2 to 8 **Readings from Latin Authors.** Flexible reading program in works not included in other courses.

326-4 **Ovid's Metamorphoses.**

GSC 331-3 **Latin Literature in Translation.**

GSC 332-3 **Classical Drama.**

335-4 **Vergil's Aeneid.**

342-4 **Advanced Composition.** A careful study based on classic prose-writers.

*Portuguese**Course Descriptions*

135-3 (1,1,1) **Elementary Portuguese Conversation.** Conversation and oral drill taken with GSD 135 by students who wish additional oral training. Elected only by students enrolled in GSD 135. Parts may be taken singly.

201-9 (3,3,3) **Intermediate Portuguese.** Composition, oral practice, rapid reading of modern authors. Must be taken in a,b,c sequences. Prerequisite: GSD 135c or two years of high school Portuguese, or equivalent.

Russian

At least one course in Russian History is recommended for all students majoring in Russian.

BACHEOR OF ARTS DEGREE, COLLEGE OF LIBERAL ARTS AND SCIENCES

Russian courses 200 level and above, including the following:	52
200 level: 201a,b,c-9; 220a,b,c-6 recommended	9-15
300 level: 308a,b,c-9; 330a,b,c-6 (should be taken in a,b,c sequence concurrently with 308-9)	15
400 level: at least three literature courses	12-16
Russian electives: FL 453 is recommended	6-16

BACHELOR OF SCIENCE OR BACHELOR OF ARTS DEGREE WITH TEACHING CERTIFICATE

(FL 453 is taken in lieu of Sec Ed 315)

Russian courses 200 level and above, including the following:	52
200 level: 201a,b,c-9; 220a,b,c-6 recommended	9-15
300 level: 308a,b,c-9; 330a,b,c-6 (should be taken in a,b,c sequence concurrently with 308-9)	15
400 level: At least two literature courses	8-12
Russian electives	10-20

SECONDARY CONCENTRATION

Russian courses 200 level and above, including the following:	26
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200 level: 201a,b,c-9; 220a,b,c-6 recommended 9-15
 300 level: 308a,b,c-9 are required; 330a,b,c-6 are recommended 9-15
 Russian electives: FL 453 is recommended 0-8

Course Descriptions

136-3 (1,1,1) Russian Conversation. Conversation and oral drill taken with GSD 136 by students who wish additional oral training; elected only by students enrolled in GSD 136. Parts may be taken singly.

161-0 Russian for Graduate Students.

201-9 (3,3,3) Intermediate Russian. Composition, oral practice, rapid reading of modern authors with special attention to the role of Russian culture in world civilization. Must be taken in a,b,c sequence. Prerequisite: GSD 136 or two years of high school Russian, or equivalent.

220-6 (2,2,2) Intermediate Russian Conversation. Development of oral skill on the intermediate level. Offered for three quarters at 2 hours per quarter; may be taken for credit each time. Prerequisite: 201c or concurrent registration in any quarter of 201.

308-9 (3,3,3) Survey of Russian Literature. Historical survey of major movements, authors, and works in Russian to the present time. Should be taken in a,b,c sequence. Prerequisite: 201c.

320-2 Readings in Russian Literature. Selected readings in areas not covered in regular course work.

330-6 (2,2,2) Advanced Composition and Conversation. Based on the history of Russia and the cultural heritage of the Russian people. Should be taken in a,b,c sequence concurrently with 308-9.

400-4 Travel-Study in USSR. Specialized course comprising part of the travel-study program in the Union of Soviet Socialist Republics. Prerequisite: 201c or equivalent.

405-4 Translation Techniques. Translation of material from social sciences; discussion of techniques, procedures, methodology, and the art of translation. Prerequisite: 330c or consent of instructor.

408-4 Soviet Civilization. Present-day political, economic, and social institutions of the Soviet Union. Reading and translation from contemporary news media. Prerequisite: 201c.

412-4 Russian Realism. Authors in the 19th century Russian literature. Special attention to stylistic devices. Lectures, readings, and individual class reports. Prerequisite: 308c or approval of department.

413-4 Russian Drama in the Nineteenth Century. Griboyedov, Gogol, Pushkin, and minor dramatists. Prerequisite: 308c or approval of department.

414-3 Russian Poetry from Zhukovsky to 1920. A study of Russian Poetry from Sentimentalism through Symbolism. Prerequisite: 308c or approval of department.

415-3 Russian Phonetics. Analysis of the sounds of Russian and their manner of production; intonation and stress; levels of speech, oral practice. Prerequisite: 308c or approval of department.

416-4 Russian Poetry Since 1920. Literary trends and representative works of Russian poets such as Mayakovsky, Yevtushenko, Voznesensky, and others. Prerequisite: 308c or approval of department.

425-3 Soviet Russian Literature. Major fiction writers and literary trends since 1917. Lectures, readings and reports. Prerequisite: 308c or approval of department.

462-4 Russian Stylistics. Writing style in Russian and its application to the development of skill in writer expression. Advanced work in the principles of Russian grammar and composition. Prerequisite: 308c or approval of department.

500-2 Seminar in Contemporary Russian Literature.

501-2 Seminar on a Selected Russian Author.

503-2 Seminar on 19th Century Russian Literature.

509-3 Russian Literature through the 17th Century.

510-3 Russian Literature of the 18th Century.

514-6 (2,2,2) History of the Russian Language.

520-4 Russian Linguistic Structure.

543-2 to 6 Research Problems.

599-2 to 9 Thesis.

Spanish

At least one course in History of Spain or Latin America is recommended for all students majoring in Spanish. One year of Portuguese is also recommended.

BACHELOR OF ARTS DEGREE, COLLEGE OF LIBERAL ARTS AND SCIENCES . . . 5

Spanish courses 200 level and above, including the following:

200 level: 201a,b,c-9; 220a,b,c-6	15
300 level: 310a,b,c-9; and 333a,b,c-9 (at least 4 of the 6 courses required) 320a,b-6	18-24
400 level: At least three literature or linguistic courses; Romance Philology 410 is recommended	9
Spanish electives: FL 453-4 is recommended	4-10

BACHELOR OF SCIENCE OR BACHELOR OF ARTS DEGREE WITH TEACHING CERTIFICATE 5

(FL 453 is taken in lieu of Sec Ed 315)

Spanish courses 200 level and above, including the following:

200 level: 201a,b,c-9; 220a,b,c-6	15
300 level: 310a,b,c-9; and 333a,b,c-9 (at least 4 of the 6 courses required) 320a,b-6	18-24
400 level: At least three literature or linguistic courses; Romance Philology 410 is recommended	9
Spanish electives	4-10

SECONDARY CONCENTRATION 3

Spanish courses 200 level and above, including the following:

200 level: 201a,b,c-9; 220a,b,c-6	15
300 level: 310a,b,c (or 333a,b,c)-9, (a 400 level course or FL 453-4 may be substituted for one quarter of the 310 or 333 sequence courses.) 320a,b-6	15

Course Descriptions

140-3 (1,1,1) Spanish Conversation. Integrated with GSD 140. Complete sequence not required. Conversation and oral drill for students who wish additional audio-lingual training in small groups. Prerequisite: concurrent enrollment in GSD 140.

161-0 (0,0) Spanish for Graduate Students. Intensive study of grammar essential to a reading knowledge of the language. Adapted to the Graduate School foreign language testing program.

201-9 (3,3,3) Intermediate Spanish. Continuation of grammar. Exercises in language laboratory required. Introduction to cultural reading, plays, and short stories. Prerequisite: GSD 140 or 2 years of high school Spanish, or equivalent.

220-6 (2,2,2) Intermediate Spanish Conversation. Practice in spoken Spanish. Prepared and impromptu group discussions on general topics and everyday situations. Frequent short talks by students. Prerequisite: GSD 140 or 2 years of high school Spanish, or equivalent.

305-3 Advanced Conversation. Improvement of self-expression and oral comprehension. Expansion of vocabulary and idioms emphasized through classroom and language laboratory work. Highly recommended for those students with a concentration in Spanish. Prerequisite: 201c, 220c.

310-9 (3,3,3) Survey of Spanish Literature. The literature of Spain to the present. Should be taken in a,b,c sequence. Offered alternately with 333. Prerequisite: 301-3.

316-3 Civilization 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.

320-6 (3,3) Advanced Grammar and Composition. Required of students with a concentration in Spanish and any student planning to teach the language. Must be taken in a,b, sequence. Prerequisite: 201c or equivalent.

333-9 (3,3,3) Survey of Spanish American Literature. Spanish literature in America from the conquest to modern times. Offered alternately with 310. Prerequisite: 301-3.

360-3 Travel-Study Course in Mexico. Lectures and course work at a Mexican university, in conjunction with the Latin American Institute's Study Abroad Program. Native professors and lecturers on occasion. Individual projects and reports. Prerequisite: advanced standing in Spanish or consent of department.

400-4 Travel-Study in Spain. Course taught as part of the travel-study tour in Spain. Usually given in the summer. Prerequisite: Participation in travel-study tour in Spain.

415-4 The Linguistic Structure of Spanish. Phonology and grammatical structure of Spanish. Examination of the features of the principal dialects. Required of all majors.

425-4 History of the Spanish Language. Survey of development from the Middle Ages to the present day.

490-1 to 6 Readings in Spanish. Directed independent readings in a selected area. Prerequisite: consent of department.

536-3 (1,1,1) Teaching Spanish at the College Level.

IBERIAN

401-3 Spanish Novel of the 19th Century. Study of representative novels of Fernan Caballero, Valera, Pereda, Galdos, etc.

402-3 Spanish Drama of the 18th and 19th Centuries. Reading of representative plays of the chief dramatists from Moratin to the Generation of 1898.

403-3 Spanish Poetry. General survey of Spanish poetry from its beginnings to 1900.

404-6 (3,3) Spanish Literature of the 20th Century. (a) The Generation of 1898. (b) Contemporary Novel and Essay. Main trends of the Spanish novel and essay since 1900.

415-3 Spanish Phonetics. Analysis of the sounds of Spanish and their manner of production; intonation; levels of speech; oral practice.

440-6 (3,3) The Golden Age: Drama. Plays of Lope de Vega, Calderon, Tirso de Molina, Ruiz de Alarcon, and others.

445-4 Cervantes. Don Quijote; other works assigned as collateral readings.

475-3 to 12 General Topics in Spanish. Selected topics in literature or linguistics of special interest for major concentrations in Spanish.

501-2 to 6 (2 per quarter) Seminar on a Selected Spanish Author.

505-3 The Picaresque Novel.

506-3 The Renaissance.

515-6 (3,3) Old Spanish.

520-3 Seminar in Syntax.

525-3 The Spanish Ballads.

543-2 to 6 Research Problems.

560-2 to 4 Spanish and Latin American Bibliography.

575-3 to 12 Advanced Topics in Spanish.

599-2 to 9 Thesis.

AMERICAN

421-3 Survey of Modernism in Spanish American Poetry. Study of its origins, characteristics and achievements.

422-3 Contemporary Spanish American Poetry. Spanish American poetry since modernism.

423-4 The Mexican Novel of the 20th Century. Emphasis on fiction dealing with the Revolution and related social problems.

424-4 Gaucho Literature. Study of the Gaucho as a social class and of the types of literature developed to portray and symbolize his way of life, attitudes and values.

426-3 The Mexican Short Story. Survey of the Mexican short story from pre-Conquest to the present.

- 427-3 Spanish American Drama. Works of Florencio Sanchez, Rodolfo Usigli, Armando Mooock, Samuel Eichelbaum, Xavier Villarrutia, and others.
 478-4 Seminar in Latin American Thought. (See Philosophy 478.)
 500-2 to 6 (2 per quarter) Seminar in Latin American Literature.
 535-3 Mexican Essayists of the 19th Century.
 538-3 Seminar on Spanish American Poetry.
 541-3 Seminar on Spanish American Literary Criticism.
 543-2 to 6 Research Problems.
 560-4 Spanish and Latin American Bibliography.
 599-2 to 9 Thesis.

Romance Philology

Course Descriptions

410-4 Romance Philology I. Survey of phonology, morphology, and syntax changes in Romance languages in general; special attention to the developments in French and Spanish for students with concentration in these fields

Forestry

Professors John W. Andresen, Ph.D.
 (Chairman)

Paul A. Yambert, Ph.D.

Associate Professors Margaret Kaeiser,
 Ph.D.

Dwight R. McCurdy, Ph.D.

Ali A. Moslemi, Ph.D.

Assistant Professors Carl A. Budelsky,
 Ph.D.

Kung H. Fan, Ph.D.

Raymond S. Ferrell, Ph.D.

James S. Fralish, Ph.D.

Daniel B. Houston, Ph.D.

Paul L. Roth, Ph.D.

Instructor Raymond M. Mischon,
 M.A.

Adjunct Professors A. G. Chapman
 Ph.D.

Eugene F. Landt, Ph.D.

Adjunct Associate Professor Loyal A.
 Mehrhoff, M.S.

Robert Phares, Ph.D.

Adjunct Assistant Professors Calvin F.
 Bey, Ph.D.

John K. Brownell, Ph.D.

Ronald D. Lindmark, Ph.D.

Craig Kendall Losche, Ph.D.

Peter Yuen San Chen, Ph.D.

Richard D. Schlesinger, Ph.D.

Adjunct Instructor David Funk, M.A.
 Richard J. Johnson, B.S.

There are two specializations offered by the Department of Forestry. Forest Resource Management includes instruction in forest production, multiple-use resource management, wood utilization science, and specialized courses in forest recreation planning and development. This specialization includes the ten areas of study in the forestry curriculum recommendations of the Society of American Foresters. Outdoor Recreation Resource Management, providing training for management of the nation's outdoor recreation heritage. The courses offered are among those recommended by the National Parks and Recreation Association. One spring quarter of practical field courses is required. During this period, students live in the field and pay living expenses involved. The recreation management student does not attend field camp, but instead travels through selected sections of the United States on a three week field tour of outdoor recreation and park facilities in late August and early September.

Available to the Department of Forestry for teaching and research are the following: the Crab-Orchard National Wildlife Refuge; the Shawnee National Forest; the Union State Tree Nursery and Forest; many state parks and conservation areas; and the Kaskaskia Experimental Forest, together comprising several hundred thousand acres of forest land, all in the vicinity of the University. Also accessible for wood utilization teaching and research is a modern wood products plant located at the Vocational-Technical Institute east of Carbondale. The Southern Illinois University Experimental Forest and Giant City State Park provide additional facilities.

ies for teaching and research, especially during the spring camp. In addition, 30 staff members of the U. S. Forest Service Carbondale Research Center are affiliated with the Department of Forestry and help to enrich the University's forestry program.

Bachelor of Science Degree, SCHOOL OF AGRICULTURE

FOREST RESOURCE MANAGEMENT

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in Forestry</i>	64
GSA 101a, 201a,b, 330	(12) + 3
GSB 102a	(4)
GSD 101, 102, 103, 110	(12)
Agriculture Industries 204	4
Chemistry 121a	4
Economics 215	4
Geography 310a	3
Mathematics 111a,b	10
Forestry 104, 221, 306, 330, 340, 350b, 363a,b, 365a,b, 369, 450, 465, 470a,b, 475, Forestry Electives 10	
<i>Supporting Courses</i>	31
Biology 307	3
Botany 457 plus electives	9
Engineering Technology 363a	4
Geology 220	3
Plant Industries 301	5
Zoology 316, 463	7
<i>Electives</i>	
<i>Total</i>	192

OUTDOOR RECREATION RESOURCE MANAGEMENT

<i>General Studies Requirements</i>	67
<i>Requirements for a Concentration in Forestry</i>	98
GSA 101-8 or Chemistry 121a or b	(8)
GSA 201, 303, 340	(14)
GSB 102, 201b, 211b	(16)
GSC 101	(3)
GSD 103, 110	(3) + 3
Accounting 250	4
Economics 214, 215	8
Finance 371	4
Forestry 350a, 365a, 410, 450, 451	21
Geography 310a	4
Government 360, 440	9
Mathematics 111	(9) + 1
Management 340, 461	8
Plant Industries 301, 304, 306a, 404	15
Recreation 201, 320	6
Technology 101a	3
Zoology 316, 463, 466	12
<i>Electives</i>	
<i>Total</i>	196

Course Descriptions

104-3 Introduction to Forestry. Acquaints students with the broad field multiple-use forestry. Special emphasis is given to forestry as a professional field trips. For students with a concentration in forestry or with instructor consent. Only offered to freshmen or sophomore students.

221-4 Dendrology. Taxonomy and silvics of angiospermous and gymnospermous trees and shrubs. Field trips.

259-3 to 60 Technology in Agriculture. This is a designation for credit earned technical or occupational proficiency when credit is to be established (by departmental evaluation) for work above the high school level. Prerequisite: transfer from two-year program.

301-5 Soil Science. (Same as Plant Industries 301.) Basic concepts of soil formation, classification, characteristics, chemistry, physics, and microbiology and their relation to plant growth. Familiarizes the student with the practical applications of theories. Prerequisite: GSA 101b.

306-3 Silvical Field Studies. The forest as a result of site and biotic factors. Influences of the forest on the site. Taught spring camp only. Prerequisite: GSA 340.

320-4 Wood Technology. Structure, identification, and physical properties of wood. Prerequisite: GSA 201c.

330-2 Harvesting Forest Products. Principles of harvesting and transporting forest products. Field trips.

340-4 Forest Protection. The prevention, suppression, and effects of forest fires. The recognition and importance of insect pests, disease organisms, and other destructive agents in the forest. Taught spring camp only.

350-6 (3,3) Forest and Outdoor Recreation. Recreational use of forest and adjacent lands with emphasis on parks and national forests. Administrative interpretation; trends in use and developments. Field trips.

360-4 Farm Forestry. The management of farm woodlands, measurement of logs, trees, and stands; planting and harvesting methods; improvement cuttings; uses and marketing of woodland products. Field trips. Forestry students not admitted. 104 and 360 mutually exclusive.

363-7 (4,3) Forest Mensuration. (a) Principles and methods of measuring volume of trees, stands of timber, and rough wood products. Preparation of yield tables and growth studies. Field trips. Prerequisite: GSD 109 or 110. (b) Timber cruising, log scaling, and growth studies on Southern Illinois University. Experimental Forest and cooperating forest ownerships. Spring field trips. Prerequisite: 363a.

365-10 (4,3,3) Silviculture. (a) The theory and practice of applying ecological knowledge to economic management of establishment, composition, and growth of forest stands. Field trips. Prerequisites: Botany 320, Plant Industries 301 (concurrent), GSA 340. (b) Student participation in planting, weeding, thinning, pruning and improvement cuttings. Prerequisite: 365a. (c) Applied systems of silviculture to commercially important timber species and types in the U.S. Prerequisite: 365a.

369-3 Forest Photogrammetry. Use of stereoscopic plotting instruments and aerial photos to map and type forest stands.

375-4 Forest Management. Economic and technical principles involved in managing forests. Prerequisite for 365a,b.

381-1 to 2 Agricultural Seminar. (Same as Animal Industries 381, Agricultural Industries 381, and Plant Industries 381.) Discussion of problems in agriculture and forestry. Limited to senior students.

390-1 to 6 Special Problems in Forestry. Research and individual problems in forestry. Prerequisite: consent of department.

391-1 to 6 Honors in Forestry. Independent research sufficiently important to require 3 hrs. per week of productive effort for each hour of credit. Prerequisite: junior standing, GPA of 4.0 with a 4.25 in the major and consent of the department chairman.

401-3 Advanced Forest Mensuration. Theory and practical problems in biometrics to obtain estimates of forest populations. Use of computers and other advanced techniques. Prerequisites: 363-9 or equivalent.

410-3 Forest Management for Wildlife. Interrelations between forest practices and game. Forest protection from mammals and birds. Emphasis is on the treatment of the forest. Prerequisite: Zoology 463 and concentration in forestry or consent of instructor.

420-4 Advanced Wood Technology. The study of wood as an industrial material.

structural material; the botanical, physical, chemical, and mechanical properties are discussed. The advantages and disadvantages of wood as a raw material are analyzed. Prerequisite: 320, Mathematics 111a,b or equivalent.

33-4 Forest Products Industries. Raw material requirements, the processes and the products of forest industries. The past, present, and the future economic status of each industry is briefly examined. Prerequisite: 320 or consent of instructor.

40-4 Ecology of Grasses and Grasslands. (Same as Botany 440.) Structure, analysis, and dynamics and grassland communities; structure and growth of individual species. Field and laboratory work. Prerequisite: GSA 340 or consent of instructor.

50-4 Forest and Park Management. Fundamentals of management and administration of recreation forests. Development of forests and suburban parks under a forest environment. Review of current local, state, and Federal legislation applicable to forest recreation.

51a-3 Forest Park Plans. Fundamental and applied principles and elements involved in site, master, and comprehensive planning for outdoor recreation at the state, metropolitan, and federal level. Prerequisites: 350-6 or consent of instructor.

51b-4 Park Design and Development. Basic planning and design principles of space, scale, and circulation applied to park and recreation areas at the state, metropolitan, and federal levels. Basic elements in park and recreation area site planning, selection and development. Prerequisites: 350-6 or consent of instructor.

60-3 Forest, Park, Field Studies. Park conditions, visitors, and management practices in different county, state, and federal park systems in the United States. Extended field trip. Cost shared by students. Prerequisite: 350a.

65-2 Forest Field Studies. An extended trip to study forest conditions and management practices in different forest regions of the United States. Cost shared by students. Taught spring camp only. Prerequisites: 330, 363a, 365a.

66-3 Forest Watershed Management. Effects of treatment of forested watersheds on quality and quantity of water yield. Consideration of alternatives in water use and flood control. Prerequisites: Plant Industries 301, GSA 330, or consent of instructor.

70-8 (4,4) Economics of Forestry. (a) Production. Introduction to forestry economics; micro-economics of forestry production and conservation. Prerequisite: GSB 211a. (b) Marketing. Marketing in the forestry economy; introduction to aggregate planning in forestry including consumption and production goals. Prerequisite: 470a or consent of instructor.

71-4 Land Resources Economics. (Same as Agricultural Industries 471 and Economics 471.) The use of land as an economic variable in production of goods and services; land markets; group versus individual conflicts; elementary land resources planning techniques. Prerequisites: 470a or Agricultural Industries 350 or Economics 440.

75-4 Forest Management. The application of business procedures and technical forestry principles to manage properties for their resources and benefits. Prerequisite: 363, 365.

83-4 Urban Forest Management. Evaluates urban forests, city forest preserves, and city watersheds. Emphasis on urban environment (soil, water, atmosphere) and tree species adapted to it. Administrative and legislative problems and forestry practices considered. Field trips. Prerequisite: 221.

90-4 to 16 Practicum. Supervised practicum experience in a professional setting. Emphasis on administration, supervision, teaching, and program leadership in community, school, park, forest, institution, and other recreation settings. Prerequisite: consent of department.

90a-1 to 6 Readings in Forestry or Forest Recreation.

90b-1 to 6 Readings in Resource Economics.

90c-1 to 6 Readings in Forest Products or Wood Science.

90-4 Principles of Research.

95-1 to 6 Research.

91-1 to 6 Advanced Forestry Seminar.

99-1 to 9 Thesis.

General Science

<i>General Studies Requirements</i>	67
<i>Requirements for Teaching Area</i>	90

GSA 201a,b, 301, 312	15
Chemistry 121a ¹ , 121b, 305b, 350, 460	29
Physics ² 206a,b,c; 207a,b,c; 300, 309, 310, 311	23
Microbiology 301	5
Botany 300, 301	8
Zoology 102, 103	10
<i>Electives</i>	
<i>Total</i>	19

¹ The prerequisite for Chemistry 121a is high school Chemistry or Chemistry 115.

² Prerequisites: Mathematics 111a, 111b.

Geography

<i>Professors</i> Ronald I. Beazley, Ph.D.	Annemarie E. Krause, Ph.D.
Douglas B. Carter, Ph.D.	(<i>Emerita</i>)
David E. Christensen, Ph.D.	Marjorie Shank, M.A. (<i>Emerita</i>)
Floyd F. Cunningham, Ph.D.	<i>Assistant Professors</i> Duane D. Baumann, Ph.D.
(<i>Emeritus</i>)	Sam B. Hilliard, Ph.D.
Campbell W. Pennington, Ph.D.	Daniel R. Irwin, M.A.
Theodore H. Schmudde, Ph.D.	C. Gary Lobb, M.A.
Frank H. Thomas, Ph.D. (<i>Chairman</i>)	David M. Sharpe, Ph.D.
<i>Associate Professors</i> David L. Jones, Ph.D.	<i>Instructor</i> A. Doyne Horsley, M.A.

The Department of Geography offers three programs to undergraduate students. They are the Bachelor of Science in Education, the Bachelor of Arts degree and the Bachelor of Science degree. A secondary concentration is required of all geography majors and should be arranged in consultation with the department.

Honors in geography is a special program available to the undergraduate student with an overall grade point average of 4.00 or better. During his junior year, the honors candidate should inquire about a three part package of training to develop his geographic research skills in the framework of Geography 487a, honors tutorial; Geography 487b, honors readings; and Geography 487c, honors (supervised) research. This sequence of courses must be supplemented by one advanced sequence of course in 400-level geography. Eligible students must obtain the consent of the department prior to their enrollment in this program.

The core of training for undergraduate concentrations in geography involves 300- and 400-level courses. First, Geography 300 offers the student a basic background in geography. In this initial course, the student becomes acquainted with the viewpoint and methods of geography, with the concepts and theories of physical, economic, and cultural geography, and finally with the basic techniques and tools used by the geographer, namely maps and quantitative methods. In addition, fourteen hours of 400-level courses are required of geography majors. Several 400-level courses, some in sequential order, are offered in advanced physical, economic, regional, and cultural geography. The capstone of the program is Geography 490-tutorial. The tutorial offers the student an opportunity to work intimately with the faculty during the senior year and is required.

A geography major is encouraged to supplement his geographic preparation by taking an interdisciplinary minor by combining other fields of study which are related to his geography concentration. Students who

concentrate in physical geography could select appropriate courses from geology, plant industries, botany, forestry, or physics to fulfill that minor. An official minor from another department is acceptable.

Students minoring in geography must take Geography 300 and 20 hours of electives in geography at the 300- and 400-level. Social studies (12 hours and 24 hours concentration) students must take Geography 300 and complete their concentration with electives from geography.

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i>	67
<i>Supplementary Two-Year College Requirement in FL/Mathematics</i>	
<i>Foreign Language GSD FL-9 and FL 201-9</i>	18
<i>Requirements for Concentration in Geography</i>	42
Geography 300, 490	8
Geography electives to complete 42 hours with at least 14 hours at the 400-level in addition to 490	34
<i>Electives</i>	
Total	192

Bachelor of Science Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i>	67
<i>Supplementary Two-Year College Requirement in FL/Mathematics</i>	
<i>Mathematics: Math 111-10 and 150-10</i>	20
<i>Requirements for Concentration in Geography</i>	42
Geography 300, 490	8
Geography electives to complete 42 hours with at least 14 hours at the 400-level in addition to 490	34
<i>Electives</i>	
Total	192

Bachelor of Science Degree, COLLEGE OF EDUCATION

<i>General Studies Requirements</i>	67
<i>College of Education Requirements for teacher certification</i>	28-36
Guidance 305-4, Secondary Ed. 310-4, Secondary Ed. 315-3 (or Geography 443-4), Secondary Ed. 352- 8-16 ..	20-28
Two electives from a list of 8 courses	8
<i>Requirements for Concentration in Geography</i>	48
GSD FL	(9)
Geography 300, 490	8
Geography electives to complete 48 hours with at least 14 hours at the 400-level in addition to 490	40
<i>Electives</i>	
Total	192

Secondary Concentration

secondary concentration in geography consists of 24 hours and includes geography 300.

Course Descriptions

00-4 Introduction to Geography. The nature of geography, the kinds of

problems which it investigates, the methods which it uses. Preparation for systematic geography.

302-4 Physical Geography. A study of the earth's physical surface, world distribution patterns of the physical elements, their relationship to each other and their importance to man. Field trip and laboratory work. Prerequisite: 300.

304-4 Economic Geography. Study of the spatial distribution and interaction of economic activities. Introduction to locational theory. Prerequisite: 300.

306-4 Cultural Geography. An overview of the geographic viewpoint in the study of the human occupancy of the earth. Aspects of population, settlement and political geography are treated, and a generalized survey of major world cultural areas is used to integrate course elements. Prerequisite: 300.

310-7 (4,3) Cartographic Methods. Properties of maps and air photos, the uses and sources; Map symbols, map projections and map construction. Introduction to the use of quantitative techniques as applied in geographic study. Laboratory. Prerequisite: 300.

324-4 Geographic Basis of Resource Management. 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.

GSA 330-3 Weather.

GSA 331-3 Climate.

GSB 354-3 Industrial Economics Geography.

GSB 356-4 Geography of the Sub-Saharan Africa.

403-7 (4,3) Advanced Physical Geography II. Content drawn from same broad range of topics as 402. To be alternated with 402 to enable student to specialize further in physical geography. Prerequisite: 302 or consent.

404-7 (4,3) Advanced Economic Geography I. Deals with one or more of the following: transportation, manufacturing, agriculture, resources, trade and urban geography; depending on, and varying with, interests of instructor. Thus, a student may register more than one time. Emphasis will be directed at familiarizing the student with techniques of analysis, and at developing concepts and principles that underlie understanding of the phenomena and their geographic significance. Prerequisite: 304.

405-7 (4,3) Advanced Economic Geography II. Content drawn from same broad range of topics as 404. To be alternated with 404 to enable student to specialize further in economic geography. Prerequisite: 304 or consent of department.

406-10 (4,3,3) Advanced Cultural Geography I. Deals with one or more of the following: population, settlement, ethnic characteristics, political factors depending on, and varying with, interests of the instructors. Thus, a student may register more than one time. Emphasis will be directed at familiarizing the student with techniques of analysis and at developing concepts and principles that underlie understanding of the phenomena and their geographic significance. Prerequisite: 306, or consent.

407-7 (4,3) Advanced Cultural Geography II. Content drawn from same broad range of topics as 406. To be altered with 406 to enable student to specialize further in cultural geography. Prerequisite: 306 or consent of department.

410-8 (4,4) Advanced Geographic Techniques. Geographic applications of cartographic and quantitative research techniques. Prerequisite: 310 or consent.

416-8 (4,4) Advanced Cartography. Instruction and practice in the techniques of map-making and problems in map reproduction. Laboratory. Prerequisite: 310 or consent.

421-4 Urban Geography. Emphasis on examination of extra-city relationships theory and structure, intra-city relationships theory and structure, and selected urban problems. Offered once annually. Prerequisite: consent of department.

424-2 to 12 Regional Problems in Conservation. The distribution, use, and interrelationship of the resources of the U.S. and the conservation techniques applied to them.

430-4 Theory of Environment. Exploration of the hypothesis that the physical environment works on local hydrology, soils, natural vegetation, agriculture, and landforms, through energy and moisture exchanges. Emphasis on model building for comparison of subsystems, to rate effectiveness of contrasting environments, and to project these consequences to environmental management questions. Prerequisite: consent of department.

432-12 (4,4,4) (a) Exchanges in environment. (b) Moisture exchanges in the

- environment. (c) Momentum exchanges in the environment. Prerequisite: 02, or 400, or consent of the department.
- 33-8 (4,4) **Advanced Physical Geography.** Topics may include landforms, climate, soil, or water. Varies with the interests of the instructor. Prerequisite: 02.
- 40-2 to 6 **Reading for Majors.** Supervised readings in selected subjects. Prerequisite: advanced standing and consent of department.
- 43-4 **Teaching of Geography.** Presentation and evaluation of methods of teaching geography. Emphasis upon geographic literature, illustrative materials, and teaching devices suitable to particular age levels. Prerequisite: 300.
- 61-7 (4,3) **Regional Geography: Anglo-America.** Deals geographically with present-day United States and Canada. (a) A general survey of the area, open to students without a concentration; (b) Investigates specific topics in depth, for students with a concentration in geography.
- 62-7 (4,3) **Regional Geography: Europe.** See 461.
- 63-7 (4,3) **Regional Geography: Mediterranean Lands and Southwestern Asia.** See 461.
- 64-7 (4,3) **Regional Geography: Soviet World.** See 461.
- 65-7 (4,3) **Regional Geography: Subsaharan Africa.** See 461.
- 66-7 (4,3) **Regional Geography: Eastern and Asia.** See 461.
- 67-7 (4,3) **Regional Geography: Latin America.** See 461.
- 68-7 (4,3) **Regional Geography: Oceania.** See 461.
- 70-16 (4,4,4-8) **Urban Planning.** (Same as Government 470.) (a) Planning concepts and methods. (b) Field problems. (c) Planning and public administration internship. Prerequisite: junior standing.
- 71-7 (4,3) **Regional Planning.** Examination of the viewpoint, methods and techniques of regional planning. Prerequisite: Concentration in Geography or consent.
- 80-4 **Workshop in the Teaching of Geography.** Geographic approach to man and space. Skills and techniques in using maps, globes, pictures, statistics, and graphics and in reading the landscape and literature. Prerequisite: consent.
- 87 (2,4,4) **Honors in Geography.** (a) Honors tutorial (b) Honors reading (c) Honors supervised research a and b may be taken in any order but both must precede c. These three courses must be spread over the last two years of the undergraduate's career. Prerequisite: consent of the department.
- 90-1 to 12 (1 to 4, 1 to 4, 1 to 4) **Tutorial in Geography.** Individual and small group conferences with staff members to examine geographic concepts. (a,b,c) Prerequisite: Senior, concentration in geography.
- 00-4 **Geographic Techniques I.**
- 01-4 **Geographic Techniques II.**
- 05-8 (2,2,2,2) **Pro-seminar in Geography.**
- 11-4 **Philosophy of Geography.**
- 14-2 **Teaching of College Geography.**
- 15-4 to 6 **Field Course.**
- 20-2 to 12 **Seminar in Physical Geography.**
- 21-2 to 12 **Seminar in Economic Geography.**
- 22-2 to 12 **Seminar in Regional Geography.**
- 23-4 to 12 **Seminar in Cartography.**
- 24-2 to 12 **Seminar in Cultural Geography.**
- 27-2 to 8 **Seminar in Urban and Regional Planning.**
- 30-2 to 10 **Independent Studies in Geography.**
- 40a-2 to 36 **Research in Physical Geography.**
- 40b-2 to 36 **Research in Economic Geography.**
- 40c-2 to 36 **Research in Regional Geography.**
- 40d-2 to 36 **Research in Cultural Geography.**
- 99-2 to 9 **Thesis.**
- 00-1 to 48 **Dissertation.**

Geology

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|--|--|
| Professors Russell R. Dutcher, Ph.D.
(Chairman) | Assistant Professors Frank James
Bell, M.S. |
| Stanley E. Harris, Jr., Ph.D. | Arthur Cohen, Ph.D. |
| Associate Professors Jen Ho Fang,
Ph.D. | Richard Davis, Ph.D. |
| William Hood, Ph.D. | Frank Ethridge, Ph.D. |
| John E. Utgaard, Ph.D. | George D. Fraunfelter, Ph.D. |
| | Don L. Sawatzky, B.S. |

In the field of geology a student may work toward either a Bachelor of Arts or Bachelor of Science degree.

The Bachelor of Arts degree requires a concentration in geology and secondary concentration determined by consultation with the geology adviser.

The Bachelor of Science degree requires a concentration in geology and courses in chemistry, mathematics, and physics.

Having obtained a Bachelor of Arts degree, a student may continue his education toward a Master of Science degree although it may be necessary to absolve deficiencies in physics and mathematics.

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i> ¹	6
<i>Supplementary Two-Year College Requirement in FL/Mathematics</i>	
Mathematics: Mathematics 111-10 and 150-10	20
<i>Requirements for Concentration in Geology</i>	68-69
Geology 220, 221, 302, 310a, 310b, 315, 331, 410, 415, 425a, 425b, 450a ²	50
Geology 320 or 400 level course	4
Chemistry 121a,b (Students entering with high school chemistry should begin with 121a)	10
Physics 206a, 207a or 211a	4-5
<i>Secondary Concentration</i>	24
<i>Electives</i>	
<i>Total</i>	192

Bachelor of Science Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i> ¹	6
<i>Supplementary Two-Year College Requirement in FL/Mathematics</i>	
Mathematics: Mathematics 111-10 and 150-10	20
<i>Requirements for Concentration in Geology</i>	89-93
Geology 220, 221, 302, 310a, 310b, 315, 331, 410, 415, 425a, 425b, 450a ²	50
Geology 320 or 400 level course	4
Mathematics 252a, 252b	9
Chemistry 121a, 121b (Students entering with high school chemistry should begin with 121a)	10
Chemistry 235 or 305a	4-5
Physics 206a, 206b, 206c, 207a, 207b, 207c, or 211a, 211b, 211c	12-15
<i>Electives</i>	
<i>Total</i>	192

Secondary Concentration

A secondary concentration consists of 24 hours, determined by consultation with the geology adviser.

¹ Physics 206a, 207a, or 211a is substituted for GSA-101a.

Chemistry 121a or b is substituted for GSA 101b.

² The summer field course in geology, Geology 450a, should be taken between the junior and senior years.

³ A secondary concentration is determined by consultation with the geology adviser. Concentration in chemistry, mathematics, physics, zoology, or biological sciences is recommended. Secondary concentration in other fields require the consent of the chairman of the Department of Geology.

Course Descriptions

220-3 Physical Geology. Introduction to the history of geologic concepts; study of the principal rocks and minerals; development of natural laws pertinent to an understanding of the earth's surface and near surface features, environments, and primitive life forms; introduction to map and air photo reading. Laboratory and field trips required. Prerequisite: high school or college chemistry.

221-3 Historical Geology. Presents 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 and field trips required. Prerequisite: 220 or consent of instructor, elementary course in botany or zoology.

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, Mathematics 111a,b. Recommended: Physics 111a or 211a or concurrent enrollment.

310-8 (4,4) Mineralogy I and II. (a) Non-silicate minerals. Rudiments of crystal structure, morphology, and symmetry. Crystal classes and stereographic projections. (b) Silicate minerals. Aspects of crystal chemistry. Prerequisite: 220, Chemistry 111b or concurrent enrollment.

315-4 Petrology. A study of the characteristics and classification of rocks, their origin and geologic distribution. Laboratory. Prerequisite: 310.

320-4 Economic Geology. Study of the geological aspects and origin, as well as the economic and political importance, of mineral resources. Prerequisite: 302 and 310b.

GSA 321-3 Introduction to Paleontology.

GSA 322-3 Rocks and Minerals.

331-4 Geomorphology and Air Photo Interpretation. A study of land forms and surface conditions, relating topographic features to the underlying rocks and structure and to processes of erosion, deposition, and earth movements. Laboratories consider techniques of observation, description, and analysis including use of many types of maps, air photos, infra-red, radar, satellite and other geophysical sensing devices. Prerequisite: 220.

400-3 Earth Science Seminar. Two classroom meetings per week and two field trips on the observational, interpretive, and communicative aspects of earth science subjects. Prerequisite: 221 or 331; GSA 110b; GSA 330 or 331.

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. Prerequisite: 220, 221, 310a, 315, 425a,b or consent of instructor.

411-3 Mineralogy III. Elementary crystallography. Applications of physical principles to mineralogical problems. Prerequisite: 310a,b.

414-5 Paleobotany. (See Botany 414.)

415-3 Optical Mineralogy. The optical properties of minerals and the use of the petrographic microscope for identification of crystals by the immersion method and by thin section. Laboratory. Prerequisites: 310, Physics 208.

416-4 X-Ray Crystallography. Introduction to the study, measurement, and identification of unknown crystalline materials by X-ray diffraction techniques (especially the Debye-Scherrer methods). Upon request, students may work with unknowns from other fields of study. Prerequisites: 310, Mathematics 150.

420-8 (4,4) Geology of Petroleum. 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.

425-8 (4,4) Invertebrate Paleontology. (a) Principles of paleontology and a survey of important invertebrate phyla and their fossil representatives. (b) Paleocology and continuation of 425a. Laboratory. Must be taken in a,b sequence. Prerequisite: 221 or GSA 201.

430-4 Physiographic Provinces of North America. Designed to give the student an intelligent appreciation of the evolution of land forms in the physiographic provinces of North America and to explain the surface features in a landscape. Prerequisite: 220.

435-8 (4,4) Hydrogeology. Introduces the geological factors in the origin,

distribution, movement, and chemistry of natural water of the earth. Prerequisite: 315, Mathematics 150b and Physics 207.

436-8 (4,4) Elementary Exploration Geophysics. Lectures on theory and interpretation of geophysical exploration methods. Laboratory to involve use of instrumentation and interpretation of field data. Field trips required. Prerequisite: 220, Physics 211 or concurrent enrollment.

440-1 to 4 Independent Study. Prerequisites: 220, 221, advanced standing.

450-12 (9,3) Field Geology. Field mapping including problems in stratigraphy, structure, paleontology, physiography, and economic geology. Requires a written geologic report. Consult the department for dates, cost, and equipment. Prerequisite: 302, 315.

455-3 Engineering Geology. (See Engineering 455.)

460-4 Geological Data Processing. Two lecture and two laboratory periods each week for instruction in computer application to geological problems including the processing and programming of data and the interpretation and evaluation of results. Prerequisite: Engineering 222 or Mathematics 225.

470-9 (3,3,3) Earth Science for Teachers. Earth's dynamic system, and principles of the physical and earth sciences applied to man's environmental problems. Prerequisite: teaching experience.

482-4 Coal Petrology. Structural features and microscopy of coal seams. Origin and alteration of coal constituents. Includes field trips, study of coal specimens, and techniques. Prerequisite: 220 and 221 or consent of instructor.

484-4 Palynology. Taxonomy, morphology, stratigraphic distribution, and ecology of fossil pollen, spores, and associated microfossils. Prerequisite: 220, 221, or consent of instructor.

510-8 (4,4) Sedimentation-Stratigraphy.

513-3 Advanced Geologic Data Analysis.

515-12 (4,4,4) Mineral Deposits.

520-12 (4,4,4) Advanced Petrology.

528-6 (3,3) Micropaleontology.

529-8 (4,4) Advanced Invertebrate Paleontology.

540-1 to 9 Advanced Studies.

541-1 to 9 Research.

582-3 Advanced Coal Petrology.

584-3 Advanced Palynology.

599-2 to 9 Thesis.

Government

Professors Abdul Abbass, Ph.D.

Orville Alexander, Ph.D.

Ikua Chou, Ph.D.

Jack Isakoff, Ph.D.

H. B. Jacobini, Ph.D.

David Kenney, Ph.D.

Frank Klingberg, Ph.D.

Robert McGrath, Ph.D.

Ward Morton, Ph.D.

Randall Nelson, Ph.D. (*Chairman*)

Marian Ridgeway, Ph.D.

Max Turner, Ph.D.

Associate Professors John Baker, Ph.D.

William Garner, Ph.D.

Charles Goodsell, Ph.D.

Earl Hanson, Ph.D.

William Hardenbergh, Ph.D.

Manfred Landecker, Ph.D.

Max Sappenfield, Ph.D.

Stephen Wasby, Ph.D.

Assistant Professors Jnan Bhattacharyya, Ph.D.

Richard Dale, Ph.D.

Robert H. Dreher, LL.B.

John Jackson, M.A.

Egon Kamarasy, Ph.D.

Samuel Long, Ph.D.

Milton Morris, Ph.D.

Joann P. Paine, Ph.D.

Leland Stauber, Ph.D.

Jack Vanderslik, Ph.D.

Instructors Rino Bianchi, M.A.

Mark Levine, M.A.

Roy Miller, M.A.

A concentration in government is recommended for persons preparing to teach social science or government courses, to attend law school, for a position in industry, for the public service, or for graduate study in political science. A concentration in government is also recommended for those students who wish to maintain an active interest in or understanding of the political scene. Students planning to concentrate in govern-

ment should consult with the academic adviser of the department at the time of registration.

Government students should take at least one secondary concentration in a related field and as much work as possible in other social sciences. Students planning to take graduate work in government should acquire a reading knowledge of a foreign language, and a knowledge of mathematics or statistics is highly recommended.

It is recommended that government students meet the second-level requirements in GSB by taking 201-8. In addition, it is recommended that these students also take GSB 211a as an elective in order to acquire the prerequisite for other economics courses. Students should begin their work with Government 231 and 232 which are basic courses and prerequisite for many advanced courses. They may, however, take GSB 211b; in this case they are not permitted to take Government 231 but may take 232.

The department has an Honors Program in government: Government 321, Directed Readings; Government 350, Masterpieces of Political Science; and Government 490, directed research for senior government honor students.

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i>	67
<i>Supplementary Two-Year College Requirement in FL/Mathematics</i>	18-20
<i>Requirements for Concentration in Government</i>	48
Government 231 (or GSB 211b), 232	
Government electives, including GSB 3 courses offered by the department, to total 48 hours distributed as follows:	
Four courses selected from the fields of International Affairs and Comparative Governments. One must be at the 400 level	
Four courses from three of the following fields: American Government and Policy, Political Process, Public Administration and Organizational Behavior, and Political Theory	
Sufficient other courses in government to total 48 hours	
A minimum of 12 hours must be taken at the 400 level.	
<i>Electives</i>	
<i>Total</i>	192

Bachelor of Science Degree, COLLEGE OF EDUCATION

A concentration in government includes 48 hours. The following courses are recommended: Government 231, 232, 305, 315, 330, 340, 360, 371, 379, 380, 420, 466, 467, 472, 487-8, 495-8, GSB 302, 303, 385, 390, and 392.

Course Descriptions

- 200-4 Introduction to Political Science.** Study of politics with emphasis on contemporary theories for ordering political systems, the institutions of government and their processes, and the social roots of political behavior.
- 232-4 State and Local Government.** Structure, functions, and decision-making processes of American governments. Prerequisite: 231 or GSB 211b.
- 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 231 or GSB 211b.
- 301-4 Scope and Methods of Political Science.** Analysis of major problems studied by political scientists and methods and techniques applied to these problems. Prerequisite: 200 recommended.

GSB 303-3 International Relations.

305-4 Development of the American Constitution. The origins and evolution of its fundamental ideas utilizing judicial, legislative, and other documentary sources from Magna Charter to date. Prerequisite: GSB 211b or 231.

306-4 Introduction to Political Theory. For undergraduate students in classical and modern political theory. Prerequisite: 200 recommended.

310-4 The Policy and the Economy. Theories of policy-economy relationship and the policy-making process. U.S. economic policy studied, with special concern for political forces and constraints. Prerequisite: 211b, 231.

315-3 Administration of Justice. The organization and work of the American judicial system. Recommended for prelaw students. Prerequisite: 231 or GSB 211b.

321-1 to 6 Readings in Government. In-depth, introductory and advanced readings in areas not covered in other government courses. The student must submit a statement describing his topic and relevant reading materials to the Department of Government undergraduate adviser for approval before registering for this course.

330-2 Illinois Government. Development and functioning of Illinois state and local governments. Prerequisite: GSB 211b, or 231, or junior standing.

340-3 The Legislative Process. Review of theory and research or representation, demands, support, decision making, outcomes, and other aspects. Emphasis on U. S. Congress and state legislatures. Prerequisites: 231 or GSB 211b.

GSB 345-3 Introduction to American Foreign Policy.

350-4 Masterpieces of Political Science. Honors. Significant topics chosen for discussion by students and instructor. Prerequisite: President's Scholar and junior standing, or a 4.0 cumulative GPA, or consent of instructor.

360-4 Public Administration. Public bureaucracy. Theoretical, political, and practical issues or organization, staffing, financing, and other matters surveyed. U. S. institutions and behavior. Prerequisite: GSB 211b, 231.

361-3 Problems in Public Administration and Policy Formulation. Intensive examination of problem areas illustrating administrative and management practices in public service and demonstrating linkages between politics and administration in our political system. Prerequisite: 360.

371-3 Problems of American Foreign Policy. An analysis of selected problems in the field of American foreign policy. Prerequisite: GSB 345.

380-4 Political Parties. The development and work of American political parties. Prerequisite: 231 or GSB 211b.

381-4 Public Opinion and Electoral Behavior. Nature and function of public opinion as related to electoral behavior. Sociological and psychological bases of voting behavior studied. Prerequisite: 200 recommended.

GSB 390-3 Introduction to Comparative Government.**GSB 392-3 Introduction to Latin American Government and Politics.**

398-4 Government and Law. Legal process in operation, basic procedural elements, and the law of manufacturing liability, contract law, and labor law. Prerequisite: 231 or GSB 211b.

403-4 Introduction to the Theories of International Relations. Systematic analysis of a variety of approaches to explain the actions of nations. The realist and utopian traditions, ecological factors, decision-making processes, theories of conflict and integration, equilibrium and systems analysis, and other topics. Prerequisite: GSB 303 or graduate standing.

406-4 The American Chief Executive: President and Governor. A study of the origin and background of the presidency and the governorship, qualifications, nomination and election, succession and removal, the organization of the executive branch, and the powers and functions of the president and governor. Prerequisites: 231 or GSB 211b.

420-3 Pressure Groups and Politics. An analysis of interest groups and their techniques of political propaganda. Prerequisite: 231 or GSB 211b.

425-4 Blacks and Whites in American Politics. Topics include various forms of political participation, leadership behavior, and analysis of political strategies including the Black Power concept. Prerequisite: 231, or GSB 211b.

430-3 Government and National Security. The role of the military in American society and politics and the development of military and disarmament policy. Comparison made between American developments and those in other countries, including Russia.

436-3 Government and Labor. (See Economics 436.) Prerequisite: 231, or GSB 211a,b, 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.
- 440-4 Public Personnel Administration.** An analysis of some of the central problems encountered by the government executive in recruiting, maintaining, and developing personnel, such as political neutrality, leadership and motivation, career development, security regulations, and the role of personnel in policy planning and execution. Prerequisite: 360.
- 441-4 Philosophy of Politics.** (See Philosophy 441).
- 450-12 (4,4,4) Latin American Governments.** (a) Problem analysis of contemporary Latin American government and politics. (b) Latin American national systems. (c) Hemispheric Relations. No prerequisite but GSB 392 recommended.
- 451-4 International Politics of Europe.** Comparative analysis of foreign policies of major states. Includes nationalism, unification and security, and Western Europe's relations with the developing world, Eastern Europe, the U. S. S. R., and the U. S.
- 452-4 Government and Politics of Sub-Saharan Africa.** Government and politics of French, English, and Portuguese-speaking areas of sub-Saharan Africa. Decolonization process and the relations of African states with each other and non-African powers. Prerequisite: GSB 390, or 391, or consent of instructor.
- 453-12 (4,4,4) Soviet Russia.** (a) Ideological foundations of Soviet politics. (b) Dynamics of Soviet government and economy. (c) Soviet foreign relations. Prerequisite: GSB 390 or consent of instructor.
- 454-8 Development of German Democracy.** Involves a summer's residence in Germany with classroom material supplemented by lectures by German professors and government officials. Prerequisite: consent of instructor.
- 455-4 Major Governments of Western and Central Europe.** A comparative study of the political systems of the major countries of Western and central Europe. Prerequisite: GSB or Government 390 or consent of instructor.
- 456-4 Great Britain and the Commonwealth.** The Commonwealth association and the politics of Great Britain and the "Old Commonwealth" countries: Australia, Canada, New Zealand.
- 457-8 (4,4) Government and Politics in the Near and Middle East.** (a) The Arab states of the Middle East and Israel. Socialization and integration patterns, the traditional and revolutionary regimes, and regional cooperation and conflict. (b) Historical background of the emergence of Turkey, Iran, Afghanistan, and their present governments and politics. Prerequisite: GSB 390 or consent of instructor.
- 458-12 (4,4,4) Government and Politics of Asia.** (a) Politics and governments of Burma, Thailand, Malaysia, North Vietnam, South Vietnam, Cambodia, Laos, Singapore, Indonesia, and the Philippines. (b) Internal political, economic, and social development of China (Taiwan), Japan, and Korea in modern times. (c) Politics in India, Pakistan, Ceylon, Nepal.
- 459-4 Politics of Developing Areas.** A survey, theoretical and descriptive, of the impact upon politics of the process of development, and the role of the governmental system in the direction and control of development. Prerequisite: GSB 390 or consent of instructor.
- 461-4 Organizational Theory and 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 Intergovernmental Relations.** Interaction between governmental units in the American federal system and the impact on the formulation of public policy and the performance of governmental functions. Prerequisite: 231 or GSB 211b.
- 463-3 Government, Social, and Economic Policy.** Explanation of contemporary agencies of policy determination within the national government; attention to methods and devices utilized to effectuate national social and economic policy within the federal system; appraisal of historical developments, trends, and results as they affect American governmental, constitutional, and political philosophy, public administration, and the general welfare. Prerequisite: 231 or GSB 211b.
- 466-3 State Government and Administration.** Emphasis on recent developments and research findings. Prerequisite: 232.

- 467-4 Urban Politics.** Environment, institutions, processes, and functions of government in an urban society. Emphasis on current problems of social control and the provision of services in the cities. 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 U.S. Prerequisite: 232.
- 470-4 Urban Planning.** (See Geography 470).
- 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: 345 or consent of instructor.
- 472-4 International Organization.** Development and organization of international government and administrative systems, with emphasis on the United Nations. Prerequisite: GSB 303.
- 473-3 Law Enforcement Administration.** Development and changing roles of the police; forms of state, local, and municipal control; conflict areas; inter-governmental cooperation, and developing needs for regional law enforcement; structures and internal administration of police departments; the police, organized crime, riots, and minorities. Prerequisite: 360, 467, or consent of instructor.
- 475-8 (4,4) International Law.** (a) Rules and practices governing the nations in their relations in peace and war. (b) Investigation of special problems in international law. Prerequisite: GSB 303 and 475a or consent of instructor.
- 477-4 Governments and Politics of Vietnam: North and South.** Development of nationalist and communist political groupings since the period of French domination. Role of the religious sects and the private armies. Constitutions and the legal and political systems of the two Vietnams.
- 478-4 International Politics.** Alignment and conflicts of the major powers in historical and contemporary perspective. Emphasis on the basic interests of the great powers, regional arrangements, spheres of influence, the use of coercion in world politics. Prerequisite: basic courses, related training, or consent of instructor.
- 480-4 The Pacific and the Far East.** Political and strategic problems and the interplay of the foreign policies of the major powers in this area. Prerequisite: GSB 303 or History 370.
- 484-8 (4,4) History of Political Theories.**
- 485-4 Political Psychology.** Psychological theories as related to the development and change of political attitudes, leadership behavior, and mass political participation. Prerequisite: 200 recommended.
- 487-6 (3,3,) American Political Ideas.** (a) Political ideas which shaped American beliefs and U.S. governmental systems, from pre-Colonial beginnings through the mid-Nineteenth Century. (b) Continuation of a. From the mid-Nineteenth Century to the mid-Twentieth. Prerequisite: 231 or GSB 211b.
- 488-9 (3,3,3) Recent Political Theory.** (a) Outstanding liberal political theorists from John Stuart Mill to the present. (b) Outstanding revolutionary political theorists from Karl Marx to the present. (c) Outstanding idealistic and nationalistic political theorists from Hegel to the present. Prerequisite: senior or graduate standing, or consent of instructor.
- 490-2 to 6 Honors Research.** Not for graduate students. Prerequisite: consent of instructor and chairman.
- 494-4 Law: Comparative Legal Systems.** A comparison of the legal institutions and laws in the United States, Western Europe, South America, and Eastern nations.
- 495-8 (4,4) Constitutional Law.** (a) Constitutional law of the United States with emphasis upon cases dealing with the framework of our federal system; (b) American liberties. Prerequisite: 231 or GSB 211b.
- 496-4 Senior Seminar in Political Behavior.** Examines in depth such topics as political participation and influence (mass and elite), political conflict, political socialization and recruitment, political leadership. Prerequisite: 200 recommended.
- 497-4 Administrative Law.** Law as it affects public officials in carrying out the rights, duties, and necessary functions of the public office. Prerequisite: 360.
- 498-4 Jurisprudence.** (Theories of Law.) Major schools in legal thinking. Positive law and natural law. Idea of justice and concept of natural rights. Prerequisite: GSB 304.
- 500-9 (3,3,3) Methods of Empirical Research.**
- 501-525 Seminars.**

501-2 to 9 Seminar in Contemporary Legislation.
 502-2 to 9 Seminar in Governmental Problems.
 503-2 to 9 Seminar in Pressure Groups.
 504-4 Judicial Process.
 505-2 to 9 Seminar in Political Parties.
 506-2 to 9 Seminar in Political Behavior.
 508-2 to 9 Seminar in International Relations.
 509-2 to 9 Seminar in International Organization.
 510-2 to 9 Seminar in State Government.
 511-2 to 9 Seminar in Local Government.
 512-2 to 9 Seminar in Public Administration.
 513-2 to 9 Seminar in Constitutional Law.
 515-2 to 9 Seminar in Comparative Government.
 516-2 to 9 Seminar in Municipal Administration.
 517-2 to 9 Seminar in Problems in Political Theory.
 520-2 to 9 Seminar in American Foreign Policy.
 521-1 to 12 Readings.
 525-2 to 9 Seminar in International Law.
 530-4 to 12 Internship in Public Affairs.
 531-4 to 12 Seminar in Empirical Theory.
 551-4 Polimetrics.
 582-4 Criminal Law and the Correctional Process.
 584-4 Seminar in Correctional Program Management.
 595-2 to 12 Individual Research.
 599-1 to 9 Thesis.
 600-1 to 48 Dissertation.

Guidance and Educational Psychology

Professors John J. Cody, Ph.D.
 (Chairman)

William Daly, Ph.D.
 Jack W. Graham, Ph.D.
 Francis John Kelley, Ph.D.
 Jefferson F. Lindsey, Ed.D.
 Wayne Ramp, Ed.D.
 Guy A. Renzaglia, Ph.D.
 J. W. Yates, Ed.D.

Associate Professors Michael K. Altek-
 kruse, Ph.D.

Bruce R. Amble, Ph.D.
 Donald M. Beggs, Ph.D.
 Harold L. DeWeese, Ph.D.
 John Grenfell, Ed.D.
 Keith Alan McNeil, Ph.D.
 Clinton Roscoe Meek, Ph.D.

Assistant Professors Glenn Bracht,
 Ph.D.

Richard W. Bradley, Ph.D.

Steve Danish, Ph.D.
 John Deichmann, Ph.D.
 Patricia Elmore, Ph.D.
 John Evans, Ph.D.
 Robert Graff, Ed.D.
 Jack Hiller, Ph.D.
 David Miles, Ph.D.
 John T. Mouw, Ed.D.

Alice Rector, Ed.D.

Beth W. Sulzer, Ph.D.

Tom Tyler, Ph.D.

Reed G. Williams, Ph.D.

Instructors Harold Bardo, M.S.

Harry Denzel, M.A.

David Jolliff, M.A.

Louis Vieceli, M.Ed.

Course Descriptions

305-4 Educational Psychology. Study of the learner and the learning process. Includes study of behavior, discipline, development, the school environment, application of learning theories, and methods of assessment. Prerequisite: PSB 201c and admission to teacher education program.

380-2 to 4 Practicum in Instructional Roles. Emphasizes small group management, classroom logistics, development of objectives, and measurement and evaluation. Class members conduct instructional activities with special groups or small groups of students satisfying requirements of other courses. Prerequisite: 305 and consent of instructor.

312-4 Mental Hygiene. A survey of principles concerning factors and conditions in personal life that tend to facilitate or deter mental health. Mental health viewed as living creatively in an atmosphere of satisfactory interpersonal relations. Prerequisite: 305.

322a-4 Construction and Use of Evaluation Instruments. Theory and techniques of measurement. Construction and use of teacher-made tests. Prerequisite: 305.

- 442-4 Basic Principles of Guidance.** Introductory course on student personnel services. Survey of philosophy, principles, and organization of guidance services. Prerequisite: 305.
- 481-2 to 12 Seminar.** Conducted by staff members and distinguished guest lecturers on pertinent topics. Prerequisite: 305 and consent of instructor and department.
- 501-2 to 12 Special Research Problems.**
- 505-4 Introduction to Statistical Methods.**
- 506-4 Advanced Statistical Methods.**
- 507-4 Design and Analysis of Experiments.**
- 511-4 Educational Implications of Learning Theories.**
- 515-4 Psychological Aspects of Education.**
- 521-8 Analysis of Classroom Behavior.**
- 530-4 Standardized Testing: Theory, Use, and Interpretation.**
- 531-4 Theory of Measurement.**
- 532-8 Individual Measurement Theory.**
- 537-4 Counseling Theory and Practice.**
- 541-4 Occupational Information and Guidance.**
- 543-4 Guidance through groups.**
- 545m-4 Doctoral Seminar in Psychological Foundations of Education.**
- 546-8 Personality Assessment.**
- 548-10 to 40 Practicum in Secondary Guidance.**
- 553-2 to 4 Organization and Administration of Guidance and Pupil Personnel Services.**
- 555-2 to 12 Seminar in School Psychology.**
- 562-8 (4,4) Human Development in Education.**
- 567-2 to 12 Topical Seminar in Educational Psychology.**
- 568-2 to 16 Topical Seminar in Counseling and Guidance.**
- 580-2 to 10 Topical Seminar in Statistics and Measurement.**
- 581-1 to 12 Specialized Practicum in Counseling, Guidance, and Counselor Supervision.**
- 590-2 Seminar in Behavioral Foundations.**
- 596-2 to 12 Independent Investigation.**
- 597-1 to 10 Independent Study.**
- 599-3 to 9 Thesis.**
- 600-1 to 48 Dissertation.**

Health Education

Professors Donald N. Boydston, Ed.D.
(Acting Chairman)
 Deward K. Grissom, Ed.D.
 John R. LeFevre, Ed.D.
 Charles E. Richardson, Ed.D.
 Robert D. Russell, Ed.D.
 Andrew T. Vaughan, Ed.D.
Associate Professors James E. Aaron,
 Ed.D.

A. Frank Bridges H.S.D.
 Leslie Ralph Casey Ed.D.
 Florence E. Denny, M.A. (*Emerita*)
Assistant Professors Eileen M. Harris,
 Ph.D.
 Frances K. Phillips, M.A.
 Dale O. Ritzel, Ph.D.
Instructor Herbert L. Vogel, M.S.

Bachelor of Science Degree, COLLEGE OF EDUCATION

The Department of Health Education offers three concentrations and three secondary concentrations. The three concentrations are:

1. *Health Education in Secondary Schools.* For those individuals planning to teach or to supervise health education in the secondary schools.
2. *Health Education in Elementary Schools.* For those individuals planning to supervise health education in the elementary schools.
3. *Community Health Education.* For those individuals planning to be health educators in community agencies.

The three secondary concentrations are:

1. *Health Education in Secondary Schools.* For those individuals planning to be secondary school supervisors or administrators.

2. *Health Education in Elementary Schools.* For those individuals planning to be elementary supervisors or administrators.
3. *Safety Education.* For those individuals planning to be school administrators, to teach driver education, to teach health education, or to work in any phase of safety education.

These concentrations, in general, constitute minimal preparation for the positions listed. Consequently, all candidates are strongly urged to complete additional work in the field.

<i>General Studies Requirements</i>	67
<i>Requirements for Concentrations</i>	48-49

Health Education in Secondary Schools

Health Education 300, 301, 305, 312, 325, 334s, 400, 405, 471, 491, plus 11 elective hours in Health Education.

Health Education in Elementary Schools

Health Education 300, 301, 305, 312, 325, 334s, 350, 400, 405, 471 plus Elementary Education 100, 203, and 314.

Community Health Education

Health Education 300, 301, 302, 312, 325, 334s, 400, 405, 471, 488, 489, 490, 491.

<i>College of Education Requirements</i>	32
<i>Electives</i>	

<i>Total</i>	193
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Requirements for Secondary Concentrations

Health Education in Secondary Schools

Health Education 300, 305, 312, 334s, 471, 491, plus 7 elective hours in Health Education.

Health Education in Elementary Schools

Health Education 300, 305, 312, 334s, 350, 471, plus 7 elective hours in Health Education.

Safety Education

Health Education 302s, 313s, 323s or 334s, 442s, 443s, 475s, plus 6 hours of electives from the following: Health Education 323s, 334s, 415s, 445s, 480s, Special Education 414, 410A, 410B, Psychology 303, 305, 312, 404, 320, Technical and Industrial Education 465A, 465B, or Instructional Materials 417.

Course Descriptions

30-3 Communicable Disease. A study of the communicable diseases with emphasis on control and principles of prevention, and application of these principles to the individual school and community.

31-4 Health Education Concepts, Advanced. A survey of health sciences applied to healthful living. The dynamics of health and environment, behavior, stress, disease, addiction, habituation and population control.

32-4 Driver and Traffic Safety Education I. Prepares the college student for teaching driver education and training in the secondary school. Prerequisite: valid driver's license.

33-4 Principles and Foundations of Health Education. Introduction to philosophy and history of health education as well as functions of the school health department and voluntary agency interaction in the health education program. Prerequisite for all 300 and above.

34-4 Home Nursing. Theory, practice, and demonstration concerning equipment, care of patient and sick room, maternity and child care, recognition of common symptoms of disease, administration of simple treatments.

35-4 Child Development. Physical development of the child beginning with study of pregnancy, prenatal and maternal care continuing with overview of development from birth through puberty.

312-4 Emotional Health. Concepts of positive emotional health as related to teacher and parent in terms of influences on the child in the classroom and community.

313s-4 Introduction to Safety Education. Prepares for safety education in the public schools. Concerns safety as a social problem, development of safety skills, accident causes, teacher liability, research in the field.

323s-4 Methods and Materials in Safety Education. To acquaint student with material aids and methods, techniques in the teaching of safety education at elementary and secondary school levels.

325-3 Community Health Problems. Problems of a community health nature are treated and methods outlined to meet the problems. Areas include community health organization, problems of the environment, food, sanitation, and disease. Epidemiological process stressed.

330-4 Consumer Health. Legislation on state and federal levels affecting the health of the consumer; official agencies serving as watchdogs of consumer health; non-official agencies (AMA, CU, etc.) doing the same job; health and medical protection in the form of insurance, group practice, prepayment, etc. health hazards of the space age; false and misleading information and advertising in health and medicine; cultists and faddists and their effect on the health of the consumer; media and publications and consumer health.

334s-4 First Aid. Red Cross First Aid Course with lectures, demonstration and practical applications. Red Cross Instructor's Certificate given.

350-4 Health Education Methods and Materials for Elementary Teacher. Designed to show the prospective teacher fundamental processes, technique and material aids involved in elementary school health teaching.

355-4 Introduction to Public Health. Philosophy, organization, administration, and functions of federal, state, and local, official and voluntary public health agencies. Periodic field trips involved.

356-5 Public Health II. An examination of specific public health problems and measures of control. Intended for health science students only.

400-4 Health Appraisal of School Children.

401-3 Disease Prevention and Control. Principles and practices in the prevention and control of communicable, chronic, and degenerative diseases in the school and community.

405-4 Sex Education in Schools. Problems of teaching sex education in schools. Designed to meet state requirements for preparation of teachers.

415s-3 to 4 Workshop in Driver Education and Traffic Safety.

442s-4 Practicum in Driver and Traffic Safety Education II. Provides prospective teachers with dual-control, simulation, and multiple-car laboratory teaching experiences. Teaching beginners, developing programmed lesson methods and materials of instruction included. Prerequisite: 302s.

443s-4 Driver & Traffic Safety Education Program Administration III. Includes a study of program administration, supervision, and planning. Prerequisite: 442s.

445s-4 Driver Simulation. For in-service and pre-service teachers and supervisors of driver and traffic safety education. Includes methods of instruction, equipment familiarization, program development and objectives. Prerequisite: 443s or consent of the instructor.

450-4 Health Education in the Elementary School.

460-4 School Health Programs.

461-4 to 8 Workshop in Health Education.

462-4 Health Education Workshop.

463-1 to 4 Workshop in Health Education with Emphasis in Disaster Preparedness.

464-4 Workshop in Alcohol Education.

470-4 Highway Safety as Related to Stimulants and Depressants. Relationship between alcohol and drugs and traffic accident causes. Concepts and educational programs designed to alleviate alcohol and drug related accidents. Prerequisite: advanced standing or consent of instructor.

471-4 Organization, Administration and Curriculum in School Health.

475s-4 Traffic Law Enforcement and Planning. Acquaints safety and driver education teachers with the purposes of traffic law enforcement and engineering and the methods used to fulfill these purposes. Emphasis on ways improving existing services. Prerequisite: 443s.

480s-4 Workshop in Safety Education.

481s-4 Safety Education Workshop.

5-4 International Health. A survey and analysis of the health beliefs, values, and practices of peoples in other cultures, with particular attention to how these beliefs and practices fit into a total way of life. An international orientation of potential value to both prospective teachers and students in other fields.

8-4 Educational Aspects of Environmental Sanitation.

9-4 Introduction to Vital Statistics.

10-2 to 12 Field work in School and Community Health. Field training, observation, and participation in current public agency and school health programs. Provides practical experience for the health education student. Restricted to majors in the department or by special permission of the instructor.

11-4 Health Teaching Methods in School and Community. An intensive study of and practice at various dimensions of teacher-student relations in the classroom with emphasis on the multiple roles of the teacher. Prerequisites: 15, 471 or consent of instructor.

14s-4 Driver Education for the Handicapped. Methods and techniques designed to teach handicapped persons how to drive. Consideration of programs for EMH and physically handicapped. Familiarization with assistive equipment and program materials. Prerequisite: advanced standing or consent of instructor.

14-4 Community Organization for Health Education.

14-4 Construction of the Curriculum in Health Education and Safety.

15-5 Practicum in Health Education Workshop.

15-4 Review Current Literature in Health Education Public Health and Safety Education.

14-4 to 6 Special Projects in Health and Safety.

15s-4 Organization Administration and Supervision of Safety Education.

16-4 Evaluation in Health Education and Safety.

13s-4 Problems and Research in Accident Prevention.

13-12 (4,4,4) Human Conservation.

16-4 Professional Preparation in Health Education.

10s-1 to 4 Readings in Traffic and Safety Education.

15s-4 Externship in Traffic and Safety Education.

15s-4 Current Developments in Driver and Safety Education.

10-4 to 12 Field Internship.

17-3 (1,1,1) Seminar in Health Education and Safety.

15-3 to 9 Thesis.

16-1 to 48 Dissertation.

Health Science

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in Health Science</i>	72
GSA 101b, 201-8	(12)
GSB 102-8, 201-8	(16)
GSD 108-6, 110, FL-9	(9) + 9
GSE 201	(3)
Chemistry 111b,c	10
Government 231, 360	10
Health Education 300, 325, 355, 356, or 490	15
Microbiology 301, 403	10
Psychology 320, 323	8
Zoology 102, 407	10
<i>Electives</i>	
<i>Total</i>	192

Recommended electives for specialization in sanitation: Botany 404, Health Education 488, Mathematics 111-10 (Alternatives to above GSD requirements), Physics 206-9, Zoology 306, 310, 316, and 406.

Recommended electives for specialization in public health laboratory Botany 405, Chemistry 230, Microbiology 425, 441, and 451, Physiology 315, Zoology 306, 321, and 406.

Higher Education

Professors Oliver J. Caldwell, M.A.
I. Clark Davis, Ed.D.
Jack W. Graham, Ph.D.
John E. Grinnell, Ph.D. (*Emeritus*)
John Hawley, Ph.D.
John E. King, Ph.D. (*Chairman*)

Associate Professors Loren Jun
Ph.D.
Richard M. Thomas, Ed.D.
Donald J. Tolle, Ed.D.
Assistant Professors Bruce Swinburne
Ed.D.
Elwyn E. Zimmerman, Ph.D.

Course Descriptions

402-2 **Principles of Student Personnel Group Work.** Acquaints the student with group work possibilities and functions in higher education.
510-4 **Higher Education in the United States.**
512-4 **Higher Education in Selected Nations.**
513-4 **Organization and Administration in Higher Education.**
515-4 **College Student Personnel Work: Operations and Policies.**
516-4 **College Student and College Culture.**
518-4 **College Teacher and College Teaching.**
522-1 to 12 **Readings in Higher Education.**
523-1 to 12 **Internship in Higher Education.** (Selected areas.)
524-2 to 6 **Individual Study.**
535-2 to 28 **Higher Education Seminar I.**
545-3 to 15 **Higher Education Seminar II.**
551-4 **Curriculum Design and Policy.**
555-4 **Philosophy of Higher Education.**
565-4 **The Community-Junior College.**
578-4 **Economic Aspects of Higher Education.**
589-4 to 6 **Advanced Research.**
595-1 to 12 **Higher Education Seminar III.**
599-1 to 9 **Thesis.**
600-1 to 48 **Dissertation.**

History

Research Professor C. Harvey Gardiner, Ph.D.
Professors George W. Adams, Ph.D.
Harry Ammon, Ph.D.
Harold E. Briggs, Ph.D. (*Emeritus*)
George L. Cherry, Ph.D.
Betty Fladeland, Ph.D.
Ping-chia Kuo, Ph.D.
Associate Professors Howard W. Allen, Ph.D.
H. Arnold Borton, Ph.D.
John Clifford, Ph.D.
David E. Conrad, Ph.D.
Donald S. Detwiler, Ph.D.
Robert L. Gold, Ph.D.
William A. Pitkin, Ph.D. (*Emeritus*)

Lonnie R. Shelby, Ph.D.
John Y. Simon, Ph.D.
Henry S. Vyverberg, Ph.D.
John I. Wright, M.A. (*Emeritus*)
Assistant Professors Michael C. Batischi, Ph.D.
Charles W. Berberich, M.A.
Donald L. Brehm, Ph.D.
Montgomery G. Carrott, Ph.D.
John E. Dotson, Ph.D.
Gossic H. Hudson, Ph.D.
Harold A. McFarlin, Ph.D.
James B. Murphy, Ph.D.
Eugene Trani, Ph.D.
David P. Werlich, Ph.D.
Stanley Zucker, Ph.D.
Instructor Edward J. O'Day, M.A.
Lecturer Clarence Hendershot, Ph.D.

A concentration in history consists of a minimum of forty-eight quarter hours, necessary for certification for secondary school teaching. Students who plan advanced study in preparation for college teaching or other professional careers are advised to take added work. No secondary co

centration is required, though eighteen to twenty-four hours should be taken in related fields approved by the department. The department requires two years of study in a foreign language for candidates for the Bachelor of Arts degree.

Courses should be distributed over at least two fields of history (American, European, Latin-American, Asian, and African) and should include approximately the same number of 400-level as 300-level courses. Students who intend to concentrate in history should consult with the chairman or designated member of the history faculty at the time of registration, in order to plan a course of study. When possible, transfer students should report to the department prior to their first quarter of attendance.

Students with exceptional scholarly promise may be invited into the departmental honors program, which begins with a colloquium in the junior year, and continues with an honors seminar and thesis prepared under the direction of a member of the department in the senior year. Graduation with honors is given to those who successfully complete the program.

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

General Studies Requirements (Including GSD Mathematics) . . .	67
Foreign Language: GSD FL-9 and FL 201-9	18
Requirements for Concentration in History	34
GSB 101-8	(8)
GSB 300-9	(6) + 3
History electives	31-45
Electives (these may include 32 hours Education for teacher certification)	
Total	192

Bachelor of Science Degree, COLLEGE OF EDUCATION

General Studies Requirements (Including GSB 201c)	67
Requirements for Concentration in History	43-44
Two years foreign language or mathematics . . (9-10) + 9-10	
GSB 101-8	(8)
GSB 300-9	(6) + 3
History electives, divided between American and other	
History	31
Requirements in Education (Guidance 305, SEd 310, 315 or 488, 452, and two electives)	31-32
Electives	
Total	192

SECONDARY CONCENTRATION

A secondary concentration in history ordinarily consists of thirty hours, although the field course in social science, College of Education, requires only twenty-four hours. GSB 101b,c and GSB 300a,b,c are required for the program. The student should divide the remainder of his work between American and foreign fields, and take a reasonable portion of his elective courses at the 400 level.

*Course Descriptions***GSB 300-9 (3,3,3) History of the United States.**

303-3 The Great Depression in the U.S. Causes and effects of the great depression and of governmental measures for relief, recovery, and reform during the years 1929-41. Prerequisite: GSB 211a, or Economics 214 and 215, or consent of instructor.

304-9 (3,3,3) History of the Ancient World. (a) The Near East; (b) Greece; (c) Rome. May be taken individually or in any sequence.

308-3 History of Illinois. The history of the state from 1818 to the present. Recommended for students with a concentration in history and those who expect to teach in elementary schools.

309-6 (3,3) Survey of Black American History. The black man's role and contribution in the building of America, and his ongoing fight for equality.

315-6 (3,3) Intellectual History of the Western World. (a) The ancient world; (b) The Middle Ages and Renaissance.

322-12 (4,4,4) English History. (a) Britain to 1603; (b) 1603-1815; (c) since 1815. May be taken individually or in any sequence.

330-3 The Revolution and the Constitution. A study of the conflicting forces which produced the American Revolution, led to the creation of the federal union and shaped the early republic.

332-9 (3,3,3) Medieval History. (a) Early Middle Ages, 500-1000; (b) High Middle Ages, 1000-1300; (c) Late Middle Ages, 1300-1500. Prerequisite: sophomore standing.

333-9 (3,3,3) Modern European History. (a) Early modern Europe. (b) The 18th and 19th centuries. (c) The 20th century.

349-9 (3,3,3) History of Africa. (a) Pre-colonial Africa. Sub-Saharan Africa from earliest times; early empires in East, Central, and West Africa; pre-colonial relationships with Europe and Asia; the slave trade. (b) Africa in the colonial period. Colonial empires in Africa; institutional changes brought by western rule; and nationalistic reaction. (c) Independent Africa. The emergence of modern African states and societies.

352-9 (3,3,3) History of Latin America. (a) Colonial Latin America; (b) 19th century. (c) 20th century. May be taken individually or in any sequence.

365-6 (3,3) History of Chinese Civilization. The march of Chinese civilization from prehistoric times to the present stressing social structure, government institutions, and intellectual movements. (a) Antiquity to 1644; (b) 1644 to present. Offered alternate years with 367. Prerequisite: six hours of 300-level Social Science or consent of instructor.

367-6 (3,3) History of the Far East. (a) Introduction to 1800; (b) 1800-1945. May be taken singly or in either sequence.

GSB 369-3 The Contemporary Far East.**GSB 380-6 (3,3) East Europe.**

398-3 History Honors. For junior honors students concentrating on methodology and directed research. Prerequisite: consent of department.

401-9 (3,3,3) History of the South. Social, economic, political, and cultural developments of the South. (a) To 1850. (b) 1850-1900. (c) Since 1900.

403-6 (3,3) American Economic History. (a) To 1800. (b) 1800-1900.

404-3 Democracy, Nationalism, and Sectionalism, 1790-1828. Issues and conflicts which dominated the American political scene prior to the emergence of Jacksonian democracy. Prerequisite: GSB 300a.

405-6 (3,3) United States History 1850-1896. (a) Civil war. (b) Reconstruction and industrialization. Prerequisite: GSB 300b or consent of instructor.

406-6 (3,3) Diplomatic History of Europe. (a) From the Congress of Vienna to the Fall of Bismarck (1815-1890). (b) From the background of the First World War to the present (since 1890).

408-6 (3,3) Problems in Black American History. Developments which formed the foundation for the "Black Revolution" of the present time. Prerequisite: 6 hours of 300-level social science courses or consent of instructor.

409-9 (3,3,3) United States Constitutional History. Origin and development of the American constitution, from English background through the convention to the present. (a) to 1830. (b) 1830-1912. (c) 1912 to present.

410-2 to 5 Special Readings in History. Supervised readings for students with sufficient background. Registration by special permission only. Offered on demand.

411-9 (3,3,3) Social and Intellectual History of the United States. (a) 1600

- 330; (b) 1830-1900; (c) 1900 to present. The development of American society and a study of various types of economic, social, and political thought that have influenced it.
- 14-9 (3,3,3) **Intellectual History of Modern Europe.** (a) The Enlightenment; (b) The 19th century; (c) The 20th century.
- 16-6 (3,3) **Early Modern Europe.** (a) Renaissance. (b) Reformation. Prerequisite: six hours of 300-level social science or consent of instructor.
- 17-9 (3,3,3) **Advanced English History.** (a) The Empire-Commonwealth; (b) Constitutional History; (c) English Culture in the Age of American Colonization.
- 19-6 (3,3) **Europe in the Age of Absolutism.** (a) 1648-1715. (b) 1715-1789. Prerequisite: six hours of social science at 300 level or consent of instructor.
- 20-3 **The French Revolution.** A sketch of the passing of feudalism in France, the background and development of the revolutionary movement, and the Napoleonic period.
- 25-6 (3,3) **American Colonial History.** (a) Discovery and Settlement; (b) British Imperial structure-American independence.
- 28-3 **The 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 1815-44.
- 30-9 (3,3,3) **Late Modern Europe.** Problems in the political, social, and military history of Europe in the twentieth century. (a) First World War and interwar years. (b) Second World War years. (c) Since 1945. Prerequisite: SB 100b or 333c.
- 34-9 (3,3,3) **Social and Political History of Modern Europe.** (a) 1815-1850 (b) 1850-1885 (c) 1885 to World War I. Changing social structure of Europe caused by industrialization. The consequence of this development in terms of the emergence of new social forces and political problems. Prerequisite: GSB 100b.
- 35-9 (3,3,3) **Twentieth Century United States History.** Important developments. (a) 1896-1919. (b) 1919-1937. (c) 1937 to present. Prerequisite: GSB 100c and or consent of instructor.
- 39-9 (3,3,3) **History of American Diplomacy.** A study of the important treaty relations of the United States and a general consideration of American foreign policies. (a) America in isolation (to 1860). (b) The emerging America (from 1860 to 1920). (c) America on the world scene (1920 to the present). Prerequisite: GSB 300a,b.
- 42-9 (3,3,3) **History of the West.** (a) Colonial; (b) Trans-Allegheny; (c) Trans-Mississippi.
- 48-6 (3,3) **History of Southeast Asia.** (a) To 1900. (b) 1900 to present.
- 49-6 (3,3) **Advanced African History.** (a) Cultural history of traditional states, the slave trade, and the interaction of traditional systems and European culture. (b) Investigations into the most important historical questions and interpretations of the regions covered in (a). Prerequisite: 349a,b or c, or consent of instructor, or graduate standing.
- 51-3 **Great Historians.** Writings of historians from Herodotus to Toynbee. Prerequisite: 6 hours of 300-level social science courses or consent of instructor.
- 52-3 **Methods of Historical Research.** Fundamentals of historical investigation, criticism, and composition. For concentrations in history only.
- 55-3 **History of Inner-Asian Relations.** Tribes, migrations, wars, and power politics in Central Asia and outlying areas of China from Han times through the century rivalries to latest developments along the Sino-Soviet frontier.
- 60-9 (3,3,3) **Social and Institutional History of the Middle Ages.** (a) Ecclesiastical. (b) Seigneurial. (c) Urban.
- 63-6 (3,3) **History of France.** Social, economic, political, and intellectual evolution from medieval origins to the present day. French contributions to western culture. (a) Middle Ages to Absolutism. (b) French Revolution to the 19th Republic. Prerequisite: 6 hours 300-level social science courses or consent of instructor.
- 64-6 (3,3) **History of Germany.** (a) German state and society from the Middle Ages to the early 19th century. (b) Germany since 1815. Prerequisite: six hours of 300-level social science or consent of instructor.
- 65-6 (3,3) **History of Russia.** (a) Traditional Russia to 1905. (b) Revolutionary Russia since 1905. Prerequisite: GSB 101b,c or consent of instructor.
- 70-3 **Argentina and Chile.** A narrative and comparative study of the inde-

pendent era of the history of these two leading states of South America. Prerequisite: 300-level social science or consent of department.

471-6 (3,3) **History of Mexico.** (a) 19th century; (b) 20th century. Significant political, economic, diplomatic, social, and cultural aspects of Mexican life from independence to modern Mexican life.

472-3 **Colonial Latin America.** Policies and practices. Theory and operation of the colonial system. Prerequisite: 6 hours of 300-level social science courses or consent of instructor.

473-6 (3,3) **The Caribbean Area.** (a) In the 18th and 19th centuries, (b) in the 20th century.

474-3 **United States-Mexican Relations.** Relations between the United States and Mexico. Prerequisite: 6 hours of 300-level social science courses or consent of instructor.

475-6 (3,3) **Dictatorships in Latin America.** (a) the 19th century; (b) the 20th century. A political, economic, social and military study of the domestic and international aspects of dictatorship. Prerequisite: Junior standing or higher.

476-3 **Andean South America Since Independence.** A narrative and comparative study of Bolivia, Colombia, Ecuador, and Peru in the nineteenth and twentieth centuries. Prerequisite: 6 hours of 300 level social science or consent of department.

477-3 **Brazil Since Independence.** Cultural, diplomatic, military, political, and socio-economic elements of Brazilian life from independence to the current era. Prerequisite: 6 hours of 300 level social science or consent of instructor.

478-9 (3,3,3) **History of Spain.** Institutional intellectual, socioeconomic, and political history from the middle ages to the present. (a) Medieval Spain (to 1500). (b) The Imperial Period (1469-1825). (c) Modern Spain (since 1808) prerequisite: 6 hrs. of 300-level social sciences courses or consent of instructor.

481-6 (3,3) **History of Rome.** (a) Rome from Republic to Empire, 133 B.C.-A.D. 14. (b) Roman Empire to the death of Constantine. Prerequisite: six hours of 300-level social science or consent of instructor.

482-6 (3,3) **Cultural History of Greece.** (a) Hellenic civilization as reflected in its religious, historical, scientific, and philosophical thought, and in its literature and art. (b) The decline of the Greek city-states in the 4th century B.C., the Age of Alexander, and the political, social, economic, religious, and cultural developments of the Hellenistic period. Prerequisite: 6 hours of 300 level social science or consent of department.

498-6 (3,3) **History Honors.** Study of the great ideas and works of history, for senior honors students and selected graduate students, and directed research for the honors thesis for senior honors students. (a) History honors. (b) Research, honors thesis. Prerequisite: consent of department.

500-8 to 20 (4 to 10 each) **History Seminar.** (a) American history. (c) Latin American history.

509-4 **Studies in Negro History.**

510-2 to 12 **Readings in History.**

514-4 **Studies in Asian History.**

515-8 (4,4) **Seminar in Twentieth Century United States History.**

518-4 **England in the Age of the "Glorious Revolution."**

519-8 (4,4) **The Age of Jefferson.**

520-8 (4,4) **Sectionalism and Reform.**

521-8 (4,4) **Seminar in American Diplomatic History.**

522-8 (4,4) **Seminar in American Economic History.**

523-8 (4,4) **Seminar in American Social History.**

524-8 (4,4) **Seminar in American Constitutional History.**

525-8 (4,4) **Seminar in American Colonial History.**

553-4 **New Viewpoints in American History.**

568-8 (4,4) **Seminar in Illinois History.**

575-12 (4,4,4) **Studies in Latin American History.**

582-4 to 8 (4) **Studies in Medieval and Renaissance History.**

583-8 to 16 (4,4) **Seminar in Medieval and Renaissance History.**

586-4 to 8 (4) **Studies in Early Modern European History.**

587-8 to 16 (4,4) **Seminar in Early Modern European History.**

590-4 to 8 (4) **Studies in Modern European History.**

591-8 to 16 (4,4) **Seminar in Modern European History.**

598-3 (1,1,1) **Teaching History in College.**

599-1 to 9 **Thesis.**

600-1 to 48 **Dissertation.**

Home Economics

The School of Home Economics grants the Bachelor of Science degree in home economics. No secondary concentration is required. The following specializations are offered by the school and the departments indicated:

<i>Specialization</i>	<i>Department</i>
Apparel Design	Clothing and Textiles
Clothing and Textiles	Clothing and Textiles
Merchandising	
Consumer Services in Business	Family Economics and Management
Dietetics	Food and Nutrition
Extension	Home Economics Education
Family Services Consultant	Family Economics and Management
Food and Nutrition Science	Food and Nutrition
Foods in Business	Food and Nutrition
Institution Management	Food and Nutrition
Interior Design	Interior Design
Pre-School Program	Child and Family
Teaching Vocational Homemaking	Home Economics Education

Requirements for each of the specializations are described in this chapter under the listing of the appropriate department.

The Home Economics Honors Program

An Honors Program in the School of Home Economics provides individualized programs for the student with high academic ability.

Selection depends upon (1) recommendations of the faculty members, (2) cumulative grade point average (4.00 is minimum, below 4.25 requires recommendation by the faculty and the Honors Council), (3) a personal interview for measuring other desirable characteristics, and (4) percentile ranks on the University's entrance examinations.

In selecting freshmen for participation in informal group discussions prior to formal honors study, percentile ranks on the University's entrance examinations, high school records, recommendations from the high school faculty, and the personal interview will be utilized.

For admission into the formal program, the student may apply independently to the Honors Council or may be encouraged by any member of the faculty to apply on the basis of his records and staff recommendations.

General Home Economics

These courses emphasize the personal development of the student and preparation to carry the responsibilities of homemaking and citizenship.

General Studies Requirements 67

Requirements for Concentration in Home Economics 66

GSA 101a; GSB 101b,c; 201b,c; GSC 101, 102, 103; GSD
107-8 (29)

Chemistry 110, 240 (4) + 4

Clothing and Textiles 127, 131, 135, 233, 327 16

Food and Nutrition 100, 256, 320, 321, 335 18

Home and Family 227, 237, 323, 324, 331, 332, 341, 345b, 366 28

Electives

Recommended electives for a General Curriculum: Clothing and Textiles 231, 360; Health Education 310; Home Economics Education 111.

Recommended electives for the Child Development Family Relations area: Guidance 412; Home and Family 345a, 407, 456, 466, 471; Psychology 301, 303, 304, 305; Sociology 340.

Recommended electives for the Consumer Services area: Clothing and Textiles 300, 332, 339; Food and Nutrition 356; Home and Family 407, 424, 435, 471; Journalism 331, 360, 370, 391, 397; Radio-TV 161, 257.

Total 192

Course Descriptions

(See also *Child and Family, Clothing and Textiles, Family Economics and Management, Food and Nutrition, Home Economics Education, and Interior Design.*)

259-3 to 80. For credit earned in home economics subjects or home economics occupational proficiency. Credit is established by departmental evaluation. Prerequisite: transfer from two-year programs.

The Home Economics Honors courses are listed below. In each course, the subject matter depends upon the needs and interests of the students.

305-2 to 6 Home Economics Honors Seminar.

306-2 to 6 Home Economics Honors Seminar.

387-2 to 8 Special Problems—Honors.

388-2 to 8 Research and Investigations—Honors.

Home Economics Education

(See also *Home Economics.*)

Professor Anna Carol Fufts, Ph.D.

(Chairman)

Associate Professor Dorothy Keenan,
D.Ed.

Assistant Professors Rose Mary Car-

ter, Ph.D.

Edna J. Eddleman, Ph.D.

Instructors Phyllis Bubnas, M.S.

Violet Moore, M.S.

Teaching Vocational Homemaking

These courses meet the needs of students desiring to teach home economics in school departments maintained according to the provisions of the federal vocational acts. A vocational home economics certificate requires a bachelor's degree in home economics from an institution and in a course of study approved for teacher training by the Vocational Division of the United States Office of Education and by the State Board for Vocational Education and Rehabilitation. Southern Illinois University is so approved for training home economics teachers.

General Studies Requirements 67

Requirements for Concentration in Home Economics 108-109

GSA 201a,b; GSB 102a,b, 201b,c, 211a,b, GSC

101, 102, 103 (33) + 8

Chemistry 110, 240 (4) + 4

Child and Family 227, 237, 345b 9

Clothing and Textiles 127-4, 233, 304 11

Family Economics and Management 323, 324, 331,

332, 341 16

Food and Nutrition 100, 256, 320, 335	15
Guidance 305	4
Home Economics Education 111, 309a,b, 310	12
Interior Design 131, 327	6
Secondary Education 310, 352b	16
Elective in Home Economics	3-4
(select from Child and Family 366, Clothing and Textiles 360, Food and Nutrition 321 or advanced home economics course)	
Elective in Education	4
(select from Education Administration 355, Guid- ance 422, Instructional Materials 417, Secondary Education 407, or Secondary Education 440)	
Electives	
Total	192

Extension

These courses prepare students for positions as Home Advisers, 4-H Club Agents or Advisers, and, with further training, extension specialists.

General Studies Requirements	67
Requirements for Concentration in Home Economics	100
GSA 201a,b; GSB 201b,c, 211a,b; GSC 101, 102, 103 .. (33) + 8	
Chemistry 110, 240	(4) + 4
Child and Family 227, 237, 345b	9
Clothing and Textiles 127b-4, 233, 304	11
Family Economics and Management 323, 324, 331, 332, 341	16
Food and Nutrition 100, 256, 320, 321, 335	18
Guidance 305	4
Home Economics Education 111, 370, 371	13
Interior Design 131, 327	6
Journalism 393	3
Speech 102 or 303	4
Elective—advanced course in Home Economics	4
Electives	
Total	192

Course Descriptions

111-2 Home Economics Orientation. Surveying professional opportunities in home economics; planning for the development of personal and professional proficiencies.

306-2 Seminar and Readings in Home Economics Education. A philosophical approach to the field of home economics. Social, psychological, anthropological, economic considerations as held by home economists and others in relation to the professions in the field of home economics and for homemaking in a democratic society. Offered alternate years.

307-3 Methods of Teaching for Dietetics Majors. Designed as preparation for the teaching role of the dietitian. Selection and organization of materials. Practice in using a variety of techniques and teaching aids. Offered alternate years.

309a-3 Program Planning in Home Economics. Philosophy; the total vocational program in home economics education; developing files. Student should register for 313-1 concurrently or prior to 309 for the pre-student teaching and September Field Experience. Prerequisite or concurrently Guidance 305; Secondary Education 310.

- 309b-3 Methods of Teaching in Home Economics.** Curriculum, unit and lesson planning, methods, techniques, and teaching aids; completing files. Prerequisite: 309a. To be taken the quarter preceding student teaching.
- 310-4 Evaluation and Adult Education.** Using and developing instruments for evaluation with respect to goals of a family-community centered home-making program and preparing students to carry on adult education. Prerequisites: 309 and Secondary Education 352b concurrently.
- 313-2 to 4 Special Problems.** For students recommended by the chairman of their department and the instructor in charge for independent, directed study.
- 370-5 History, Development, and Principles of Extension Work.** A study of the history, development, organization, and purposes of extension work. Discussion of problems and principles of conducting and administering extension work in home economics. Field trips. Offered alternate years.
- 371-6 Field Experience.** Six weeks of observing and assisting a county home adviser. Opportunity for supervised learning experiences in various phases of extension work. Prerequisite: 370.
- 414-4 Home Economics for Elementary Teachers.** Units of work in nutrition, school lunches, family and social relationships, textiles, and clothing.
- 415-1 Introduction to Graduate Study.** Seminar to orient the student to graduate work through relation of courses to goals of program, standards of work, habits of thinking, communication of ideas, uses of professional materials and publications. Required. Students should take at first opportunity.
- 481-2 to 6 Readings.** Supervised readings for qualified students. Prerequisite: consent of instructor and chairman of department.
- 485-3 Principles and Philosophies of Vocational and Technical Education.** (See Technical and Industrial Education 485.)
- 500-4 Research Methods.**
- 505-4 Home Economics in Secondary Schools.**
- 506-4 Evaluative Procedures in Home Economics.**
- 507-2 to 8 Workshop.**
- 510-4 Supervision of Home Economics.**
- 510a-1 to 4 Practicum in Supervision.**
- 515-4 Trends and Issues.**
- 516-4 Advanced Methods of Teaching Home Economics.**
- 517-4 Methods and Materials for Adult Programs in Home Economics.**
- 525-4 Interrelated Vocational Cooperative Education.**
- 571-4 Recent Research.**
- 572-2 to 8 Special Problems.**
- 573-1 to 6 Seminar: Research in Home Economics.**
- 599-2 to 9 Thesis.**
- 600-3 to 48 Dissertation.**

Industrial Technology

(See *Technology*)

Instructional Materials

- | | |
|--|---|
| <i>Professors</i> Gordon K. Butts, Ed.D. | <i>Assistant Professors</i> Doris Dale, Ph.D. |
| (Acting Chairman) | Kathleen Fletcher, M.S. |
| Ralph McCoy, Ph.D. | Fred Jurgemeyer, Ed.D. |
| Paul R. Wendt, Ph.D. | Carl Planinc, Ed.D. |
| <i>Associate Professors</i> Donald A. Ingli, | Donald Winsor, Ed.D. |
| Ph.D. | <i>Instructor</i> Dorothy Cox, M.A. |
| Irving Spigle, Ed.D. | |

Courses in the utilization and administration of teaching materials are designed to train both audio-visual coordinators and librarians to become fully qualified instructional materials specialists who can administer all teaching materials.

Secondary Concentration

Persons trained primarily as teachers may qualify for part-time profes-

sional service in a school library by completing 24 hours of work in approved courses which are 308, 403, 405, 406, 407, and 420.

Course Descriptions

308-4 Introduction to Cataloging. Organization of library materials for effective service. Acquisition, classification, cataloging, preparation, preservation, and circulation. Laboratory assignments.

400-2 Library Research Methods. Introduction to the use of library materials in graduate research. Includes a survey of scholarly publishing and the use of reference works in various subjects.

403-4 School Library Functions and Management. Effective library services in relation to the educational objectives of elementary and secondary school programs: organization, supervision, finance, housing, equipment, standards, and evaluation.

405-4 Library Materials for Children. Study of the aids, methods, and criteria for the selection and use of books and other instructional materials for children in the elementary schools. Open to juniors with consent of instructor.

406-4 Library Materials for Adolescents. A study of the aids, methods, and criteria for the selection and use of books and other instructional materials for students in the high school. Open to juniors with consent of instructor.

407-4 Basic Reference Sources. Evaluation, selection, and use of reference sources for elementary and secondary school libraries. Principles and methods of reference service.

410-4 Public Library Administration. The administration of municipal, county, and regional libraries, both large and small, with emphasis on meeting the needs of different types of communities.

413-4 Cataloging of NonBook Materials. The classification, cataloging, preparation and circulation of all types of nonbook materials such as films, filmstrips, slides, realia, etc. Prerequisite: 308.

417-4 Audio-Visual Methods in Education. Selection and utilization of instructional materials in the learning environment, elementary through adult levels. Audio and visual materials and procedures are emphasized with some attention given to bibliographies and reference books for teachers.

420-4 School Library Activities and Practice. Supervised practice and observation integrated with instruction in the typical activities of school librarianship: storytelling, publicity, developing units of library instruction, and work with students. Prerequisites: 308, 403, 405, or 406, 407.

440-4 Photography for Teachers. Photography as a tool of communication in the modern school. Techniques of camera handling, visually planning a story, macrophotography, color slides, and other processes.

445-4 Preparation of Teacher-Made Audio-Visual Materials. Laboratory practice in the preparation of bulletin boards, opaque materials, models, slides, recordings, feltboards, and other graphic materials. Prerequisite: 417 or consent of instructor.

448-4 Supervision and Administration of an Audio-Visual Program. Provides professional information and training for anyone who has administrative responsibilities for an audio-visual program. For teachers, coordinators, or directors. Prerequisite: 417 or consent of instructor.

450-4 Classroom Teaching with Television. Classroom utilization of open and closed circuit television. Emphasis is placed on the changed role of the classroom teacher who uses television. Evaluation of programming, technicalities of ETV, and definition of responsibilities are included. Demonstration and a tour of production facilities are provided.

457-4 Radio and Television in the Classroom. Educational programs and their value to the teacher in the classroom. Sample tapes of radio programs and kinescopes are used.

458-4 The Medium of the Motion Picture. A study of the full range of expression by motion pictures including the documentary, theatrical, educational, experimental, and industrial films. Representative films are screened.

470-4 Program Automated Instruction. The principles and practices of writing both linear and intrinsic types of programmed instruction with emphasis on pictorial and performance branches. Individual experience in planning and producing programs.

505-3 Literature of the Humanities.

506-3 Literature of the Social Sciences.

- 510-4 Mass Communications in Education.
 514-4 Survey of Research and Development in Instructional Materials.
 523-4 Seminar on Junior College Librarianship.
 530-4 History of Books and Libraries.
 546-4 Integration of Audio-Visual Materials in the Classroom.
 547-4 School Film and Filmstrip Production.
 549-4 Visual Learning.
 554-4 Administration of an Instructional Materials Center.
 560-4 Seminar in Instructional Materials.
 576-2 to 8 Problems in Instructional Materials.
 599-5 to 9 Thesis.
 600-1 to 48 Dissertation.

Inter-American Studies

The Inter-American Studies program, under the direction of the Latin American Institute, was initiated in 1958 to meet the ever-increasing demand for personnel qualified to deal with questions related to Mexico and the countries in Central America, the Caribbean, and South America. Government, business, and other interests require the services of individuals who have a general comprehension of the problems and potentialities of the area, plus the necessary language skills to make possible graduates' highest-level performance in the field. Thus, the course of studies for this program is necessarily interdisciplinary. The student is given a firm general background in the history, geography, economics, anthropology, language, and literature of the English, Portuguese, and Spanish speaking countries in the New World. Further, special emphasis is placed upon the students' acquiring a working knowledge of Spanish and Portuguese. This level of linguistic skill is essential to permit a clear understanding of Latin Americans of all levels and backgrounds and as an indispensable skill or tool for anyone who intends to work in any professional capacity in Latin America regardless of an individual's specialized field of interest in business, government, agriculture, teaching, research, etc.

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i> (Includes GSD 107-8)	67
<i>Supplementary Two-Year College Requirement in FL/Mathematics</i>	
Foreign Language: GSD 140-9; 201-9	(18)
<i>Requirements for Concentration in Inter-American Studies</i>	92
GSB 303, 392	(6)
GSD FL	9
GSD 135-9, Portuguese	9
Anthropology 305a, 306a	6
Economics 419, 429	8
Foreign Languages: Spanish 201-9, 220-6, 320-6, 333-9 ...	30
Geography 467	7
Government 450, 459	6
History 352a,b, and 3 hours chosen from 352c, 471, 473	9
Philosophy 340; 477 or 478	8
<i>Electives</i>	
<i>Total</i>	192

Students coming to Southern Illinois University without any foreign language must take GSD 140-9 and Spanish 140 as prerequisites to the specified courses in the language. If their special interests demand, they

should expect also to take such additional courses as desired in psychology, sociology, economics, or business administration.

Interior Design

Associate Professors Walter Moran, M.S. (Chairman)
Dezso Sekely, M.S. Assistant Professor Lucy Stewart, M.S.
Instructor Nancy D. Greene, M.S.

These courses prepare students for the professional practice of interior design in the residential, commercial, and contract design fields. Employment opportunities for the graduate designer exist with architectural firms as well as a variety of retail organizations and furnishing manufacturers.

General Studies Requirements	67
Requirements for Concentration in Home Economics	97
GSC 340, 341, 342	(6) + 3
Architectural Drafting 110a,b, 121b, 146b, 150, 151, 250a	26
Art 100	4
Child and Family 227, 237	6
Clothing and Textiles 104	3
Family Economics and Management 341	4
Interior Design 231a,b, 300, 331, 380, 381, 389, 390, 391a,b,c, 394, 491	51
Electives	
GSC 205; Accounting 250; Art 385; Art History—choice; Family Economics and Management 331; Finance 371; Interior Design 371; Journalism 331, 393; Management 170; Photography 320.	
Total	192

Course Descriptions

- 131-3 Introduction to Design.** Analysis of the visual environment, principles and elements of design. Laboratory. Not open to interior design majors.
- 231-6 (3,3) Basic Interior Design.** Design principles and elements applied to two- and three-dimensional space problems. Open to interior design majors only.
- 300-2 to 4 Display and Exhibition Design.** Application of design principles and the use of graphics. Two- and three-dimensional display and exhibit design problems. Laboratory problems. Emphasis on model-making techniques. Prerequisite: 131 or 231.
- 327-3 Home Furnishings and Interiors.** Principles and elements of design related to selection and arrangement of furniture and the use of fabrics, accessories, and other media utilized in furnishing homes and their interiors. Prerequisite: 131, or equivalent, or consent of instructor.
- 331-3 Textile Design.** Laboratory experiences in applying the principles and elements of design to textiles. Linoleum block printing, silk screen printing, contemporary embroidery, batik, tie-dye, and other techniques. Prerequisite: 231a, or equivalent, or consent of instructor.
- 371-6 Field Experience.** Supervised learning experience with a firm. Summer quarter only. Open to interior design majors within three quarters of graduation.
- 380-4 History of Interior Design Through the 19th Century.** Furnishings and interiors from antiquity to the late 19th century. Prerequisites: 110b and 231a,b or consent of instructor.
- 381-4 20th Century Interior Design.** Furnishings and interiors from the late 19th century to the present. Prerequisites: 110b and 231a,b or consent of instructor.
- 389-4 Furniture Design.** Anthropometrics and systems analysis in the design

of several original furniture pieces. Emphasis on production of construction drawings and model-making techniques. Prerequisite: 381 or consent of instructor.

390-5 Interior Design. Design residential and commercial interior space. Includes designing for individual and small group activities such as a typical office task, residential group conversation, televueing, dining, and food preparation. Prerequisites: 110a or equivalent. May be taken concurrently.

391-15 (5,5,5) Intermediate Interior Design. Analysis and design of interior space. (a) Residential interiors, complete design and specifications for large and small-scale housing, based upon family needs. (b) Commercial interiors such as restaurants, hotels, and motels. (c) Commercial interiors, large and small scale office and transportation facilities. Must be taken in a,b,c sequence. Prerequisite: 390.

394-4 Professional Practice. Techniques and methods of an interior design business. Includes contract specifications, customer relations, professional ethics. Prerequisite: 391c, or consent of instructor.

396-2 to 5 Special Problems. Directed independent work and study in areas determined by the students interests and needs. Prerequisite: consent of instructor.

418-2 to 8 Workshop. Current problems facing the professional interior designer. Discussion, reports, lectures, design solution presentations and other methods of analyzing and working on design problems. Prerequisite: consent of chairman.

470-4 Interior Design Seminar. Development of systematic approach involving systems analysis, human factors engineering, environmental variables. Prerequisite: consent of chairman.

481-2 to 6 Readings. Individual interests in design-related research. Prerequisite: consent of chairman.

491-4 Advanced Interior Design. Systematic analysis of human factors as determinants of design solutions for large-scale interiors. Prerequisite: consent of instructor.

Journalism

Professors Charles C. Clayton, B.J.

James L. C. Ford, Ph.D.

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

Ralph E. McCoy, Ph.D.

Willis Moore, Ph.D.

Bryce W. Rucker, Ph.D.

Associate Professor Jim A. Hart, Ph.D.

Assistant Professors L. Erwin Atwood, Ph.D.

C. Richard Gruney, LL.B.

William H. Lyons, M.A.

John Matheson, Ph.D.

William Manion Rice, M.A.

Instructor Clifton O. Lawhorne, Ph.D.

Lecturers William M. Epperheimer, B.S.

Mary K. Frazer, M.S.

Journalism courses are designed to give thorough professional training in both theory and practice in a number of fields of journalism. The areas include daily and weekly newspapers, advertising, periodicals, radio and television news, education, free lance writing, industrial publications, news agencies, public relations, and research. In addition to courses, professional conferences, field trips, aid to high school newspapers and year-books are offered.

Bachelor of Science Degree, SCHOOL OF COMMUNICATIONS

Journalism students must demonstrate a working knowledge of typewriting based upon a minimum straight copy rate of thirty words per minute. This proficiency must be demonstrated by the end of the junior year. Secretarial and Business Education 201a for no academic credit is an acceptable substitute for the proficiency examination.

Subject to the approval of the department chairman, undergraduate students may receive as much as 12 hours of journalism credit toward their degree for work not taken in residence on the Carbondale campus.

With the exception of Journalism 345, 346, and 370, admission to all

Journalism courses must be approved by the chairman or his representative.	
General Studies Requirements	67
Requirements for Concentration in Journalism	48
Journalism 345, 346, 203, 301, 302, 370, 383-6, 399	25
One of the five specializations below	15-18
Advertising: 371, 372, 373, 374, 376	18
Community Newspaper: 303, 330, 350, 351, 371, 442 ..	18
Magazine: 303, 369, 397, 398, 442	15
News and Editorial: 303, 330, 390, 391, 442	15
Radio and Television: 303, 310, 442, R-T 161, 251 ...	16
Journalism electives to complete 48 hours	5-9
Electives	
At least 40 hours of upper class course work in the departments of Anthropology, English, Economics, Foreign Languages, Government, History, Philosophy, Psychology, Sociology, or other areas as approved by the chairman. Exceptions may be made to meet the requirements of students preparing to teach high school journalism.	
al	192

Bachelor of Science Degree, COLLEGE OF EDUCATION

Requirements for Concentration in Journalism:	
Journalism 101, 102, 103, 201, 202, 303, 390, 421, 422	28
Recommended electives are Journalism 214, 260a, 370, 391.	

Secondary Concentration

The 24-hour concentration in journalism consists of English 300, 392, and elective in journalism.

Course Descriptions

- 1-1 to 6 (1,1,1,1,1) **Current Events.** Contemporary events and their treatment in the newspaper and periodical press. May not be counted toward the journalism concentration. Any combination of 100 and GSB 310 may be taken for a total of six hours credit.
- 3 **The News.** Study of the newspaper story with experience in writing and rewriting news; the fundamentals of copyreading. Prerequisite: 345, 346.
- 3, 302-3, 303-3 **News Writing and Editing I, II, III.** How to cover assignments and write news stories; preparation of copy for publication; writing headlines; laboratory exercises. Must be taken in I, II, III sequence. Prerequisite: 203.
- 3 **Radio-TV News.** (See Radio-Television 310.)
- 3 **Editorial Writing.** The work and responsibility of the editor and editorial writer with emphasis upon editorial writing and thinking. Editorial problems, methods, policies, and style. Prerequisite: 303.
- 3 **History of Journalism.** Development of American journalism with emphasis upon the struggle for freedom of the press, leading editors, outstanding newspapers and periodicals.
- 3 **Mass Media and Modern Society.** Newspaper, radio and television, magazines and specialized publications, films, books, press associations, and feature syndicates. Their relationship to the institutions of modern society: government, church and school, and business and labor, with particular reference to economic and social factors.
- 3 **The Community Newspaper.** The small newspaper recognized as a distinct medium, performing a specialized function for its readers. Equal emphasis given to the problem of news presentation and to leadership with careful examination of news and editorial policies of representative newspapers.

351-3 Community Newspaper Management. Organization, operation, a policy of the revenue departments of the weekly and small daily newspaper with special attention to the circulation procedures, retail, general, and classified advertising problems, and other phases of management. Prerequisite: 3.
359-3 Magazine Careers and History. Consideration of various divisions general circulation, specialized publications, and professional-technical journals. Magazine staff activity in editorial, layout, production, research, a promotion; free-lance writing.

369-3 Magazine Writing. The writing of magazine articles by the free-lance and staff member. Prerequisites: 203, 301, 302.

370-3 Principles of Advertising. Advertising fundamentals in relation modern business activities; economic and social aspects, research, media appeals, production, schedules.

371-3 Advertising Salesmanship. Practical application of the principles advertising copy and layout as related to the mechanics and psychology space selling. Students engage in daily work with newspaper advertising handling specific assignments in various lines of business. Prerequisite: 3.

372-5 Advertising Copy, Layout, and Production. The principles and practices in the preparation of copy and layout for all types and forms of advertising, as well as study of the processes involved in the production of advertising. Prerequisite: 345, 346, and 370.

373-3 Advertising Media and Markets. Manufacturers' advertising procedures related to campaigns, markets and market research, media, and organization of the advertising function. Prerequisite: 372.

374-3 Advertising Policies and Problems. Application of advertising principles to merchandising, sales, promotion, research. Prerequisite: 373.

376-4 Advertising Campaigns. Application of advertising principles and skills to the solution of a specific problem; coordination of strategy and technique. Prerequisite: 374.

382-3 Newspaper Promotion and Circulation. Prerequisite: senior standing.

383-6 (3,3) Newspaper Production Management. (a) Photography and typography in publication. Includes photography and printing processes, analysis photographs, writing cutlines, preparation of picture pages, cropping and scaling. (b) The makeup of newspapers, copyfitting, head schedules, and the organization of newspaper production. Must be taken in a,b sequence. Prerequisite: taken concurrently with 345 or 346.

385-1 to 2 Radio-TV Special Events. Prerequisite: 310.

389-3 Basic Research in Journalism. Introduction to the language of communication research and the relationship of research to the practice of journalism. Includes a survey of frequently used research techniques and examination of current research reports. Prerequisite: senior standing.

390-3 Advanced Reporting. Covering city council meetings, courthouse, city hall, courts, society, and other special assignments. Prerequisite: 303.

391-3 Feature Writing. How to plan and write newspaper features and special articles. Prerequisite: 303.

393-3 Publicity Methods. Not open to students with concentration in journalism. Designed for students who do not plan a career in writing, but desire guidance and practice in writing for newspapers and magazines about the fields of specialization.

395-3 Introduction to Mass Communication Theory. Acquaints the student with current concepts in mass communication theory and empirical evidence derived from investigations generated by the theory. Contains three areas: the communication process, social and psychological effects on the new process and mass communication and political behavior. Prerequisite: senior standing.

397-3 Special Publications. The function and operation of industrial, trade, and business publications. Relationships of management and personnel through the editorial policies and practices of such special publications. Prerequisite: 369.

398-3 Magazine Production and Layout. The editorial and production functions of the magazine. Application of the principles of article layout and makeup to editorial content. Printing production. Prerequisite: 383.

399-1 Senior Seminar. Contemporary newspaper policies as related to professional journalism. Prerequisite: last quarter majors.

401-3 International Journalism. A study of the history, development, current status and implications of the press and news services of other countries, and their relationship to the international communications system. Prerequisite: senior standing.

-4 School Publications. Designed for the prospective journalism teacher high school publication director. Deals with practical production problems newspapers and yearbooks.

-3 Teaching High School Journalism. Teaching methods of journalism in secondary schools, organization and course of study, bibliography, use of journalism courses for school publications production.

-3 Public Relations. Study of current methods of planning and executing public relations policies; evaluation of media; preparation of campaigns. Prerequisite: senior journalism majors only.

-3 Foundations of Mass Communications Theory. Construction of communication theory, development of communication models, and relation of empirical investigations to theories of mass communication. Prerequisite: undergraduates 395, graduates 433a or consent of instructor.

-6 (3,3) Research Theory and Design. (a) Research design, sample selection, and methods appropriate to field, experimental, and survey research. (b) Research Methods. Series of research projects utilizing a variety of research methods. Class discussion precedes and follows each project. Prerequisite for 432.

-3 The Law of Journalism. Legal limitations and privileges affecting publishing, fair comment, criticism, contempt of court, right of privacy, copyright, and legal provisions affecting advertising. Prerequisite: senior journalism majors only.

-4 Specialized Writing. Researching and writing about areas of special interest such as education, mental health, and home economics. Prerequisite: consent of instructor.

-2 to 8 Practicum. Study, observation, and participation in publication supervision. Work required on *The Egyptian* newspaper. Prerequisite: consent of department.

-3 Mass Media Management. Basic economic theory of the firm. Management science. Operations research. Computer utilization. Media production technology. Readings and seminar discussions. Prerequisite: 370, 383, GSB 211a or equivalent, or consent of instructor.

-3 Seminar on Media Problems. Readings and weekly seminar discussions the role of the journalist in seeking solutions to the problems of mass media. Prerequisite: senior standing and consent of instructor.

-3 Role of Advertising in our Society. An exhaustive analysis of the literature covering such topics as: definitions and scope of advertising; advertising and the press; advertising as a social and economic force; evaluation of advertising, policies as related to the practices of specific business firms.

-3 Publicity Methods II.

-3 Criticism and Reviewing. Theory and practice of the critical analysis literature and other arts.

-1 to 12 Readings. Supervised readings. Not more than 6 hours may apply toward the master's degree. Prerequisite: consent of instructor.

-3 Literature of Journalism.

-2 Seminar in Press Freedom.

-3 Seminar: Public Relations.

-4 Seminar: Mass Communication Theory.

-1 to 4 Research Problems in Journalism.

-3 Philosophy of Journalism.

-3 Studies in Journalism History.

-3 Seminar in Journalism History.

-0 Graduate Seminar.

-1 to 12 Readings.

-1 to 8 Thesis.

-1 to 48 Dissertation.

Liberal Arts and Sciences

Course Descriptions

-3 to 80 Transfer Credit. For transfer of elective credits in Liberal Arts and Sciences subjects when credit is to be established by department evaluation. Prerequisite: junior standing.

-1 to 4 Individual Interdisciplinary Readings. Advance support and approval of at least two faculty sponsors from different departments and the approval of the dean are required for enrollment in this course.

301-1 to 4 Individual Interdisciplinary Research. Advance support and approval of at least two faculty sponsors from different departments and the approval of the dean are required for enrollment in this course.

302-1 to 4 Individual Interdisciplinary Field Study. Advance support and approval of at least two faculty sponsors from different departments and the approval of the dean are required for enrollment in this course.

Linguistics

Secondary Concentration

The secondary concentration in linguistics (a minimum of 28 hours) draws on the offerings of a number of departments. It introduces the student to the structure of language, the historical development of language, and the relation of language to the rest of the culture.

Required Core Courses

Linguistics 401a,b, 405, 408, 402a

Electives

Anthropology 401, 418 8

Engineering 222 3

English 300a,b, 403 10

French 352 3

GSC 363a,b 6

German 413a,b 6

Linguistics 402b, 404, 430, 450 4-12

Mathematics 426a,b 6

Philosophy 320, 420, 425, 482 14

Psychology 315, 407 8

Romance Philology 410 4

Spanish 415 3

Speech Pathology and Audiology

Total

The elective courses for the minor must be worked out with an advisor in the Department of Linguistics.

Course Descriptions

401-8 (4,4) Introduction to Linguistics. (a) General linguistics, fundamentals of the nature, structure, and functioning of language. (b) Structural linguistics, methods of descriptive linguistics, and analytical procedures. May be taken singly.

402-9 to 12 (4,4,1-4) Phonetics. (a) Theory and practice of articulatory phonetics. (b) Theory and practice of instrumental phonetics. (c) Transcription laboratory.

403-4 English Phonology. Analysis of spoken English, American, and British. Prerequisite: 401a, or b, or equivalent.

404-4 American Dialects. Phonemics of American English. Emphasis in the major American dialects. Prerequisite: 401b, 402a, or equivalent.

405-4 Structural Phonology. Survey of phonological theory (phonemic and distinctive feature theory); examination of various phonological systems. Prerequisite: 402a.

408-4 Introduction to Transformational Syntax. Basic concepts and formalism of transformational generative grammars. Prerequisite: 401b or consent of instructor.

410-15 (5,5,5) Uncommon Languages (Intermediate Vietnamese.) (Same as Foreign Languages 410.)

420-12 (4,4,4) Uncommon Languages. (Advanced Vietnamese). (Same as Foreign Languages 420.) Reading of third-year level materials in preparation for classes conducted in Vietnamese. Review of grammar. Prerequisite: 410 or equivalent.

- 30-20 (4,4,4,4,4) **Grammatical Structures.** Detailed analysis of the structure of particular languages. Prerequisite: 401a,b, or equivalent.
- 50-12 (4,4,4) **Language Families.** Synchronic survey of language families or sub-families. Prerequisite: 401a.
- 00-8 (4,4) **Pro-seminar in Linguistics.**
- 01-4 **Contrastive Linguistics.**
- 04-4 **Dialectology.**
- 05-4 **Generative Phonology.**
- 06-8 (4,4) **Historical Linguistics.**
- 08-4 **Advanced Transformational Syntax.**
- 10-4 **History of Linguistics.**
- 30-4 to 12 **Historical Grammatical Structures.**
- 40-2 to 8 **Studies in Linguistics.**
- 50-8 (4,4) **Pro-seminar in Linguistics.**
- 69-4 **Seminar in Special Problems of English as a Foreign Language.**
- 70-3 **Classroom Techniques in Teaching English as a Foreign Language.**
- 71-3 **Language Laboratories.**
- 72-3 **Preparation of Teaching Materials in English as a Foreign Language.**
- 73-3 **Practicum in EFL Materials Development.**
- 80-4 **Seminar in Special Problems of English as a Foreign Language.**
- 85-2 **Teaching College Composition to Foreign Students.**
- 88-9 (3,3,3) **Methods of Teaching English as a Foreign Language.**
- 96-4 **Stylistics.**
- 97-2 to 12 **Readings in Linguistics**
- 99-2 to 9 **Thesis.**

Management

- Professors* Henry J. Rehn, Ph.D.
R. E. Schellenberger, Ph.D. (*Emeritus*)
John W. Scott, Ph.D. (*Emeritus*)
William C. Westberg, Ph.D.
- Associate Professors* John M. Fohr, Ed.D.
Floyd A. Patrick, Ph.D.
- Assistant Professors* Ronald C. Bishop, Ph.D. (*Chairman*)
R. Ralph Bedwell, M.S.
James G. Hunt, Ph.D.
- Instructors* David N. Bateman, M.A.
Bud D. Cross, M.S.
George A. Flummer, M.S.

Management is the activity which provides organizational direction. The resources which are directed are human or physical. The Management program provides an understanding of the factors necessary for effective management and some managerial skills. The list of required courses reflects the philosophy that a major in management needs a balanced program of liberal and professional education. The specialization courses should be taken only after consulting with a faculty member in Management.

Bachelor of Science Degree, SCHOOL OF BUSINESS

<i>General Studies Requirements</i>	67
<i>Professional Business Core</i>	52
Mathematics 111a, 111b, GSB 201b, 201c	(18)
GSD 110, and Mathematics 150a	8
Accounting 251a,b; 261	12
Economics 214, 215, and 308 or 408	12
Finance 320, and 371 or 473	8
Management 340, 481	8
Marketing 301	4
<i>Requirements for Concentration in Management</i>	35-36
Uniform Department Core: Management 345 or Accounting 315, Management 361 or Marketing 390, Management 341, Management 479, or Economics 440, Management 385, 452, 474	28

Specialization (One from below)**Management Science—Management Systems:**

Two courses from the following: (7-8) Management 380; Management 382; 483; Management 350; or one from the preceding and one from the following: Engineering 422; APS 422; Accounting 475

Behavioral Science—Personnel Management:

Two courses from the following: (8) Management 431 or 382 or 485; Economics 310 or 411 or Management 480; or one from the preceding and one from the following: Psychology 320 or 465; Sociology 301; Sociology 332 or 338 or 438

Electives

Unless approved otherwise by Business Advisement, the 19 or 20 hours of electives are to be taken outside of the Department of Management and at the junior and senior level. No restrictions apply to hours taken in excess of 192.

Total 19

Course Descriptions

170-4 Introduction to Business Administration. Survey of business. General knowledge of the modern business world, the composition and functions of the business organization, as well as business as a social institution. Open only to freshmen and sophomores. Does not satisfy a School of Business requirement.

301-4 Management and Supervision. Functions of management, requisite for effective supervision, and human relations training. For non-business majors who expect to assume a supervisory position. Concentrates upon means of dealing with employees as human beings. Not open to students enrolled in School of Business. Prerequisite: GSB 201c, or equivalent, or consent of instructor.

302-4 Administrative Communications in Business. Creating and managing interpersonal business communications. Analysis, planning and practice in composing different types of internal and external communications in the various business contexts. Prerequisite: GSD 102; Management 170, or 340 or equivalent, or Accounting 250 or 251a, or consent of instructor.

340-4 Business Organization and Management. Business organization, management theory, and practice. Prerequisite: GSB 201b,c or equivalent and junior standing or consent of instructor.

341-4 Organizational Behavior I. The study of human problems in administration; individual, group, intergroup, and organizational behavior under dynamic environment conditions. Theory and case analyses. Prerequisite: 340, GSD 110 or equivalent, or consent of instructor.

345-4 Information Systems and Computer Fundamentals. Structure and nature of information systems. Includes information processing, elementary computer programming in FORTRAN IV or other appropriate language, the nature and use of the digital computer. Prerequisite: 340, or Finance 320, or Marketing 301; Accounting 261; or consent of instructor.

350-4 Management Systems. Organizational activities and informational requirements of management viewed as systems modeled for systematic investigation leading to effective management and decision making. Representative management systems studied, charted, and manipulated. Prerequisite: 340, 345, or consent of instructor.

351-4 Methods of Quantitative Analysis. Introduction to modern mathematical technologies applicable to calculus, matrix algebra, and probability theory. Not open to students who have taken Mathematics 150a or equivalent.

361-4 Research in Business Administration. Design of research to assist managerial decision-making. Concepts, tools, sources, and methods of business research. Planning, collecting, organizing, evaluating, and presenting research data. Prerequisite: 340, GSD 102, 103; GSD 110, or equivalent, or consent of instructor.

- 30-4 Production Management.** Plant location, design, and construction; internal organization for operations, production control, stores control, routing of materials, job analysis, and time study; wage systems, subdivision of executive responsibilities and duties; methods of coordination and planning. Prerequisite: 340, 345, Mathematics 150a or equivalent, or consent of instructor.
- 32-4 Performance Standards and Methods Improvement.** Concepts, methods, and principles for analyzing industrial operations with the objective of simplifying, improving, and reducing the cost of these operations. Use of process charts to increase productivity. Development of industrial performance standards. Prerequisite: 340 or consent of instructor.
- 35-4 Personnel Management.** Development, application, and evaluation of policies, procedures, and programs for the recruitment, selection, development and utilization of human resources in an organization.
- 36-4 Organizational Behavior II.** A study of classical and modern theories concerning complex organizations. Particular emphasis on processes and issues in dividing work, achieving coordination, and organizational change and adaptation. Prerequisite: 341, or consent of instructor.
- 39-4 The Management Process.** Analysis of management theories and the administrative process. Specific managerial activities are analyzed and discussed. Functional relationships in administered organizations are explored. Restricted to graduate students who have not taken 340 or equivalent.
- 42-4 Business Operations Analysis.** Analysis of business operations and management problems emphasizing problem formulation, performance measures, decision criteria and various mathematical models and their application; linear programming, game theory. Prerequisite: 340; 351, or Mathematics 150a or equivalent.
- 43-4 Work Measurement for Wage and Salary Control.** Research design and methodology for wage and salary administration in an organization; fundamental considerations in evaluating jobs and positions; compensation methods and wage incentive systems. Prerequisite: 385.
- 44-4 Management Responsibility in Society.** Analysis of the political, social, and economic environments in which the manager must function and the manner in which the executive has both adapted to and influenced his environment. Prerequisite: 340, senior standing, or consent of instructor.
- 49-4 Problems in Business and Economics.** Application of economic theory and tools of analysis to practical business problems. Cost and demand functions are analyzed from a policy standpoint. Prerequisite: 340; Economics 305, 308, or 408, or equivalent; Marketing 301 or equivalent; senior standing; or consent of instructor.
- 50-4 Recent Problems in Labor Law.** Social, economic, and legal evaluations of recent labor problems, court decisions, and legislation. Concern is on long-range legislative impact on manpower planning, dispute settlement, and utilization of employment resources. Prerequisite: Finance 371, or Economics 310, or consent of instructor.
- 51-4 Administrative Policy.** Integration and analytical application of business core courses to comprehensive business cases. Emphasis on policy issues, the identification and resolution of business problems. Methods of providing simulated experience such as business gaming will be used where appropriate. Prerequisite: 340, Finance 320, Marketing 301 or equivalent.
- 53-4 Advanced Production Management.** Internal problems of managerial control of production including recent developments in theory and techniques: case material will be utilized for the development of analytical ability. Prerequisite: 380.
- 55-4 Problems in Personnel Management.** Analysis of problems in personnel administration arising from current developments in organization; case problems and special reports; and personnel practices. Prerequisite: 361, 385, Economics 308 or 408.
- 59-1 to 8 Special Topics in Management.** Utilizes special faculty resources. Prerequisite: 16 hours in business and consent of department chairman.

Marketing

- Professors R. Clifton Anderson, Ph.D. Charles H. Hindersman, D.B.A.
 (Chairman) Associate Professors Kendall Adams,
 William P. Dommermuth, Ph.D. Ph.D.
 Robert S. Hancock, Ph.D. John R. Lowry, Ph.D.

Assistant Professors Gary F. McKinnon, Ph.D.
Donald L. Perry, Ph.D.

Instructors Raymond LaGarce, M.S.
Charles E. Rosenbarger, M.B.A.

Marketing consists of the performance of those activities associated with the flow of goods and services from producers to consumers and business users. The program is designed to provide the student with an understanding of the role of marketing in an economic system and in a business organization. Emphasis is upon the development of an analytical approach to the creative solution of marketing problems.

General Studies Requirements 6

Professional Business Core 5

GSB 201b, 201c, Mathematics 111a-5 (or GSD 107 and Mathematics 108) (13)

Mathematics 150a-5 or 140a,b-6 5

Accounting 251a,b, 261 12

Economics 214, 215, 308 or 408 12

Finance 320, 371 or 370 or 473 8

GSD 110 3

Management 340, 481 8

Marketing 301 4

Requirements for a Concentration in Marketing 3

Accounting 315 or Management 345 4

Economics 440 or 441 or Management 479 4

Marketing 363, 390, 493 12

Marketing Electives 12

*Electives (Junior-Senior level) ** 19

Total 19

Course Descriptions

301-4 Marketing Fundamentals. Management of a firm's marketing function within a dynamic operating environment. The role of marketing within the firm and its relationship to the economy. Prerequisite: Accounting 251a, Economics 214.

326-4 Quantitative Techniques in Marketing. An introduction to and survey of, mathematical tools of decision making in marketing situations. Application of these techniques to the analyses of marketing problems is emphasized. Prerequisite: 301, Mathematics 150a.

329-4 Retail Management. This is a course designed to present the basic principles and decision areas such as location, layout, organization, personnel, merchandise control, sales promotion, advertising, etc., of retail and wholesale merchandising through an inter-related and managerial perspective. Prerequisite: 301.

335-4 International Marketing. Analysis of international operations. Emphasis on the factors influencing marketing to and within foreign countries and the alternative methods of operations open to international firms. Prerequisite: 301.

341-4 Transportation. Transportation in business. Organization and economic aspects of the United States transportation system including rail, highway, air, pipeline, and water transportation. Regulatory problems of transportation. Current transportation developments and situations. Prerequisite: 301, Economics 215.

363-4 Promotional Concepts. The role of promotional activities in the firm's marketing function. Advertising, personal selling, and sales promotion. The relationship of consumer behavior to the area of promotion. Prerequisite: 301.

* Any exceptions to this requirement subject to prior approval of the Chairman of the Department of Marketing. At least twelve hours must be outside the School of Business. None of the electives are to be in Marketing Courses.

90-4 Marketing Research and Analysis. The basic procedures and theory appropriate to solving various types of marketing problems in the context of business organization and decision models. Prerequisite: 301.

01-4 Problems of Retailing. This course is an analysis of current problems and trends in distribution systems and in the marketing of consumer goods. Emphasis is placed upon economic and legal aspects of the retail competitive environment, channels of distribution, retail store operation, and nonstore retailing. Prerequisite: 363.

38-4 Sales Management. Developing and training a sales force. The different types of sales forces. Managing sales functions; determining salesmen's territories, quotas, compensation. Budget preparation. Developing and implementing the merchandise plan. Prerequisite: 363.

39-4 Industrial Marketing Management. Designed to give an over-all view of the field of industrial marketing. Additional emphasis is to be placed on decision criteria. Prerequisite: 363.

50-4 Introduction to Managerial Marketing. Designed to give an over-all view of the field of marketing and the field of marketing policy decisions. Cases are used to illustrate theory covered. Prerequisite: Restricted to MBA students.

52-4 Physical Distribution Management. Integration of physical distribution activities of the firm into a system. Transportation and location as elements of the system. Inventories and service as constraints upon the system. Planning, operation, organization, and management of the system. Prerequisite: 01, Economics 215.

63-4 Advertising Management. The effective use of advertising by business management. An understanding of what advertising can be expected to accomplish under different sets of marketing factors and products. The selection of advantageous advertising programs under different marketing mixes. Prerequisites: 363 and 390.

93-4 Marketing Policies. A comprehensive and integrative view of marketing policy formulation. Marketing decisions analyzed and discussed. Prerequisites: 363, 390, and 4 additional hours in Marketing, and Accounting 261.

99-4 Undergraduate Seminar in Marketing. Aspects and issues in the field of marketing. Enrollment limited to senior students of high academic standing. Prerequisite: invitation; completion of 16 hours of Marketing.

Mathematics

Professors Nicolas Artemiadis, D. Sc.

Amos H. Black, Ph.D.

Neal E. Foland, Ph.D.

Lauwerens Kuipers, Ph.D.

Carl E. Langenhop, Ph.D. (*Chairman*)

Abraham M. Mark, Ph.D.

Charles Maxwell, Ph.D.

Wilbur C. McDaniel, Ph.D.

John M. H. Olmsted, Ph.D.

Joseph C. Wilson, Ph.D.

Associate Professors Herman Biesterfeldt, Ph.D.

Ward D. Bowsma, Ph.D.

Theodore A. Burton, Ph.D.

Elbert Fulkerson, M.A. (*Emeritus*)

Leslie Dean Gates, Jr., Ph.D.

Dilla Hall, Ph.D. (*Emeritus*)

Robert A. Moore, Ph.D.

Michael Skalsky, D.N.Sc.

Herbert H. Snyder, Ph.D.

Thomas H. Starks, Ph.D.

Carl Townsend, Ph.D.

Assistant Professors Alphonse H. Baartmans, Ph.D.

James Allen Crenshaw, Ph.D.

Kenneth Danhoff, Ph.D.

Robert Dressler, Ph.D.

Ronald C. Grimmer, Ph.D.

John W. Hooker

Worthen Hunsaker, Ph.D.

Ronald Brian Kirk, Ph.D.

Charles F. Koch, Ph.D.

Harold Niederreitor, Ph.D.

Thomas B. Paine, Ph.D.

S. Panchapakesan, Ph.D.

Franklin D. Pedersen, Ph.D.

Katherine Pedersen, Ph.D.

Michael Poole, Ph.D.

Jonathan Selden, Ph.D.

Robert Shock, Ph.D.

Chi Song Wong, Ph.D.

Alice K. Wright, M.A. (*Emerita*)

Instructors Imogene C. Beckemeyer, M.A.

John Samuel Brown, M.S.

J. Howard Crenshaw, M.S.

George Elston, M.S.

James L. Slechticky, M.S.

Larry L. Wimp, M.A.

Students intending to concentrate in mathematics must plan schedules of

mathematics courses numbered above 299 with a mathematics advisor. Mathematics grade must be at least C in courses numbered 150 or above.

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i>	6
<i>Requirements for Concentration in Mathematics</i>	6
GSD FL (French, German, or Russian recommended)	(9)
Mathematics 111-10 or advanced standing	10
Mathematics 150-10, 252-7 (A student may take any of these by proficiency examination or he may substitute any course in honors calculus, which allows extra credit, for any of these.)	17
Mathematics 221	3
Mathematics electives numbered above 299, excluding 310, and 410, but including at least 9 hours in courses numbered above 399	30
Physics 211 and 212a (211b,c and 212 b,c recommended) ...	4
Engineering 222	3
<i>Electives</i>	
<i>Total</i>	19

Bachelor of Science Degree, COLLEGE OF EDUCATION

<i>General Studies Requirements</i>	6
<i>Requirements for Concentration in Mathematics</i>	6
GSD FL (French, German, or Russian recommended)	(9)
Engineering 222	3
Mathematics 111-10 or advanced standing	10
Mathematics 150-10, 252-7, (or honors calculus or by proficiency) 221	20
Mathematics electives numbered above 299, excluding 310 and 410, but including at least 9 hours in courses numbered above 399.	30
Physics 211a (211b,c recommended)	4
Other requirements are listed under Secondary Education. Mathematics 311 may be substituted for Secondary Education 315.	

Honors Work

Mathematics 159 and 259 provide honors material in calculus and analytic geometry for properly qualified freshman and sophomore students. Mathematics 395 is used for individual honors work for upper level undergraduates in mathematics.

Secondary Concentration

A secondary concentration in mathematics must include Mathematics 252a and at least 12 hours of courses numbered above 252a other than 310, 311, or 410. At least a C is required in all mathematics courses numbered 150 and above.

Course Descriptions

108-3 Basic Transitional Mathematics. Intermediate topics in algebra and principles of trigonometry, for students of at least C ability in mathematics who intend to study calculus or to take 111b later. Prerequisite: GSD 10

11-10 (5,5) College Algebra and Trigonometry. For students who have had intermediate algebra and plane geometry in high school. Students who have had some college algebra, but no trigonometry, may enter 111b after first taking 108 in place of 111a, if they have approval of General Studies Advisement. Must be taken in a,b sequence. Prerequisite: GSD 106.

40-6 (3,3) Short Course in Calculus. Limits, derivative, applications of derivative, max-min problems from business, economics, and physics; including discrete problems via continuous models, definite integral, use of tables, functions of two variables, partial derivatives, max-min problems, Lagrange multipliers. Prerequisite: 111a.

50-10 (5,5) Elementary Calculus and Analytic Geometry. Elementary differential and integral calculus with analytic geometry and applications. Definite integral and differentiation of transcendental functions. High ability students, in particular, entering freshmen qualified to start calculus and analytic geometry, should seek advice in the Department of Mathematics concerning the advantages of taking 159. Must be taken in a,b sequence. Prerequisite: 111b.

59-14 (7,7) Elementary Calculus—Honors. An honors version of 150 covering the topics of 150 as well as additional selected topics. No student receives credit for both 150a and 159a or for both 150b and 159b. Must be taken in a,b sequence. Prerequisite: consent of department.

21-3 Introduction to Linear Algebra. Vector spaces, linear dependence, systems of linear equations, linear transformations, matrices, and inner products. Examples and elementary problems. Credit is not given for both 221 and 321. Prerequisite: 150b.

52-7 (4,3) Intermediate Calculus and Analytic Geometry. Continuation of 50. Includes differential and integral calculus, applications, introduction to solid analytic geometry, infinite series. Must be taken in a,b sequence. Prerequisite: 150b, 159b.

59-11 (6,5) Intermediate Calculus—Honors. Covers topics of 252 and additional selected topics. Either part of this course may be substituted for the corresponding part of 252. Credit is not given for corresponding parts of both courses. Must be taken in a,b sequence. Prerequisite: 150b or 159b, and consent of department.

01-3 Fundamental Concepts. A treatment of selected basic topics from set theory, logic, and the real number system. Prerequisite: 150b or consent of department.

05-6 (3,3) Applied Mathematics for the Physical Sciences. (a) Ordinary differential equations, and applications; (b) Additional topics in applied mathematics such as finite difference methods, Laplace transforms, and Fourier series. Must be taken in a,b sequence. Prerequisite: 252b.

10-4 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 concentration only. Prerequisite: GSD 107.

11-3 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. Does not count toward a mathematics concentration for Bachelor of Arts degree students. Prerequisite: 301.

19-3 Introduction to Abstract Algebra. The basic abstract algebraic structures. Prerequisite: 301 or consent of department.

21-3 Elementary Matrix Algebra. Matrix operations, determinants, matrix inversion, rank and equivalence, linear equations. Prerequisite: 140b or 150a.

25-3 Introduction to Number Theory. Properties of integers. Primes, divisibility, congruences, and Diophantine equations. Prerequisite: 301 or consent of department.

35-6 (3,3) Concepts of Geometry. An elementary introduction to various geometric systems to acquaint the student with the interrelationship between geometries of current interest. Topics include axiom systems, absolute plane geometry, Euclidean geometry, and non-Euclidean geometry. Must be taken in a,b sequence. Prerequisite 252a and 301 or consent of instructor.

52-3 Introduction to Analysis. Examination of such concepts as continuity and limit and their negations, in the context of elementary calculus, in relation to the operations of addition, multiplication, and composition of functions,

and to the structure of a vector space of functions. Prerequisite: 301 or consent of department.

395-2 to 12 Readings in Mathematics. Supervised reading in selected subjects. Prerequisite: 4.00 grade point average in mathematics and consent of chairman.

400-3 History of Mathematics. An introduction to the development of major mathematical concepts. Particular attention given to the evolution of the abstract concept of space, to the evolution of abstract algebra, to the evolution of the function concept, and to the changes in the concept of rigor in the development of mathematics from 600 B.C. to the present time. Prerequisite: 301 or consent of instructor.

401-3 Set Theory. Ordinal numbers, transfinite induction, cardinal number and their arithmetic properties, Cantor theorem, Schroeder-Berstein theorem, the axiom of choice and its equivalent forms, the continuum hypothesis. Prerequisite: 301 or consent of instructor.

410-16 (4,4,4,4) Statistical Analysis. For students in fields using statistical methods but who are not required to take calculus. Includes (a) elements of probability, estimation, and testing hypotheses; (b) the general linear model (multiple linear regression, analysis of variance, analysis of covariance) and nonparametric statistics; (c) design of experiments; (d) sample survey techniques. May not be used to satisfy requirements for a mathematics concentration. Three lectures and two laboratory hours per week. Must be taken in either a,b,c,d or a,b,d,c sequence. Prerequisites: 111b or consent of instructor.

419-6 (3,3) Algebraic Structures. A study of the properties of such basic algebraic structures as groups, rings, fields. Must be taken in a,b sequence. Prerequisite: 301 or consent of department.

421-6 (3,3) Linear Algebra. The theory of determinants and systems of linear equations; vector spaces, linear independence, bases, dimension; linear transformations, change of base, similarity; quadratic and Hermitian forms, orthogonal and unitary transformations; triangular and diagonal form; eigenvalue and eigenvectors; normal matrices; nilpotent and idempotent matrices, the spectral theorem. Must be taken in a,b sequence. Prerequisite: 252b and 301 or consent of department.

425-3 Theory of Numbers. Selected topics from number theory. Prerequisite: 325 or consent of instructor.

426-6 (3,3) Introduction to Mathematical Logic. Classical propositional calculus and functional calculi of first and second order from the primitive basis. Consistency and completeness. Validity and satisfiability. Must be taken in a,b sequence. Prerequisite: 301 or consent of department.

428-3 Discrete Structures. (Same as Computer Science 442.) Review of sets, functions, and relations. Algebraic structures including semi-groups, groups and Boolean algebras. Subalgebras, congruence relations, homomorphisms and direct products. Elements of graph theory. Applications to various areas of computer science. Prerequisite: 301.

429-3 Applied Boolean Algebra. (Same as Computer Science 445.) Application to switching circuits and propositional logic. Circuit simplification, logical circuits, and sequential circuits. Prerequisite: 428 or Computer Science 442.

430-4 Projective Geometry. Introduction to the fundamental concepts of projective geometry. Topics usually include the study of conics, polar systems of conics, homogeneous coordinates, cross-ratio, harmonic sets, duality, projectivities, and involutions. Prerequisite: 252a and 301 or consent of instructor.

433-6 (3,3) Introduction to Topology. Topological spaces, continuity and homeomorphisms, construction of topologies, separation, compactness, connectedness, completeness. Must be taken in a,b sequence. Prerequisite: 301 or consent of department.

440-2 to 4¹ Modern Algebra for Teachers. An introduction to algebra as a logical system, including groups, rings, and fields. Prerequisite: consent of instructor.

442-2 to 4¹ Survey of Geometry. A survey of geometry, including projective geometry, topology, etc. Prerequisite: consent of instructor.

444-2 to 4¹ Sets, Functions, and Relations. Basic ideas of sets, set algebra, elementary logic, relations and functions, graphing. Prerequisite: consent of instructor.

445-2 to 4¹ Fundamental Concepts of Calculus. A careful study of the basic concepts of calculus. Prerequisite: consent of instructor.

452-9 (3,3,3) Advanced Calculus. Fundamental concepts of analysis: limits, continuity, differentiation, and integration. Major topics include partial differentiation, vector analysis, Riemann-Stieltjes integrals, multiple integrals, in

- nite series, improper integrals, uniform convergence, Fourier series, and line and surface integrals. Must be taken in a,b,c sequence. Prerequisite: 252b.
- 55-9 (3,3,3) **Advanced Mathematics for the Physical Sciences.** (a) Theory of functions of complex variable, analytic functions, contour integration, and conformal mapping. (b) Differential equations; existence and uniqueness for initial value and boundary value problems, oscillation, stability. (c) Introduction to vector fields, line integrals, divergence and curl, integral theorems, the one-dimensional wave and heat equations, and separation of variables technique. May be taken individually or in any sequence. Prerequisite: to 455a, 52b; to 455b, 305b; to 455c, 305b; or consent of instructor.
- 60-4 **Modern Geometry.** Advanced topics in Euclidean geometry by the synthetic method. Topics include the nine-point circle, Simson line, theorems of Ceva and Menelaus, coaxial circles, harmonic section, poles and polars, similitude, and inversion. Prerequisite: 20 hours of college mathematics.
- 72-3 **Introduction to Mathematical Programming.** (Same as Computer Science 72.) Linear programming, game theory, and dynamic programming. Prerequisite: 421a.
- 75-6 (3,3) **Numerical Analysis I.** (Same as Computer Science 464.) Theory and practice of computation. Emphasis on methods useful with high speed digital computers. Includes the solution of nonlinear equations, interpolation and approximation, numerical differentiation and integration, differential equations, matrix calculations, and the solution of systems of linear equations. No credit for both 475 and Computer Science 461. Must be taken in a,b sequence. Prerequisite: 305a, Computer Science 202, 221 or 421a.
- 80-9 (3,3,3) **Probability.** Introduction to probability theory. Includes the algebra of possibilities; discrete and continuous distributions, limit theorems, generating functions, and some elements of stochastic processes. Must be taken in a,b,c sequence. Prerequisite: 252b.
- 83-9 (3,3,3) **Introduction to Mathematical Statistics.** A mathematical development of the elements of statistical theory. (a) Probability distributions, generating functions, and limit theorems; (b) Statistical inference: estimation, tests of hypotheses, general linear hypothesis; (c) Design of experiments—a mathematical model approach. Must be taken in a,b,c sequence with the exception that 480a, 421a, and consent of instructor may replace 483a. A student will not be allowed university credit for both 480a and 483a. Prerequisite: 52b.
- 95-1 to 10. **Special Topics in Mathematics.** Individual study or small group discussions in special areas of interest under the direction of a member of the faculty. Prerequisite: consent of chairman and instructor.
- 101-9 (3,3,3) **Real Variables.**
- 102-3 to 18 **Advanced Topics in Ordinary Differential Equations.**
- 105-9 (3,3,3) **Theory of Ordinary Differential Equations.**
- 107-9 (3,3,3) **Partial Differential Equations.**
- 110-9 (3,3,3) **Mathematical Logic.**
- 112-3 to 18 **Advanced Topics in Mathematical Logic.**
- 120-9 (3,3,3) **Modern Algebra.**
- 122-3 to 18 **Advanced Topics in Algebra.**
- 125-3 to 18 **Advanced Topics in Number Theory.**
- 127-3 **Formal Languages.**
- 128-3 **Automata Theory.**
- 129-3 **Theory of Computability.**
- 130-9 (3,3,3) **General Topology.**
- 131-9 (3,3,3) **Algebraic Topology.**
- 132-3 to 18 **Advanced Topics in Topology.**
- 136-3 **Differential Geometry.**
- 140-4' **Groups and Linear Transformations.**
- 143-4' **Probability for Teachers.**
- 145-4' **Intermediate Analysis for High School Teachers.**
- 148-2 to 4' **Trends in School Mathematics.**
- 150-1 to 10 **Seminar.**
- 151-9 (3,3,3) **Functional Analysis.**
- 152-3 to 18 **Advanced Topics in Analysis.**
- 155-9 (3,3,3) **Complex Variables.**
- 160-6 (3,3) **Calculus of Variations.**
- 172-6 (3,3) **Numerical Analysis II.**
- 180-9 (3,3,3) **Mathematical Methods of Statistics.**
- 181-9 (3,3,3) **Advanced Probability Theory.**

592-2 to 4¹ Research in Mathematics Education.

595-1 to 10 Special Project.

599-1 to 9 Thesis.

600-1 to 48 Dissertation.

¹These courses are open to candidates for the Master of Science in Education degree in mathematics, to National Science Foundation Institute participants, and to those who have received the consent of the chairman of mathematics or the director of the institute.

Microbiology

Professors Carl C. Lindegren, Ph.D.

(*Emeritus*)

Dan O. McClary, Ph.D.

Maurice Ogur, Ph.D. (*Chairman*)

Hassan Rouhandeh, Ph.D.

Isaac L. Shechmeister, Ph.D.

Associate Professor Richard Gilmore
Ph.D.

Microbiology deals with the study of micro-organisms, examining various forms, their classification, growth, reproduction, heredity, biochemistry, ecology, and their relationship to other living organisms including man. The following program of study prepares one for laboratory or teaching positions after the bachelor's degree or for graduate study leading to advanced degrees.

Opportunities for specialized training in diagnostic bacteriology, virology, immunology, genetics, biochemistry and industrial processes are available.

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements*</i>	6
<i>Supplementary Two-Year College Requirement in FL/Mathematics</i>	18-24
<i>Requirements for Concentration in Microbiology</i>	83-88
Biology 305, 306, 307, 308	16
Microbiology 301, 302	10
Microbiology electives including a minimum of 9 hours in 400-level laboratory courses in microbiology	25
Chemistry 121, 305 or 341	20-25
Physics 206, 207	12
<i>Electives</i>	
<i>Total</i>	192

Secondary Concentration

A secondary concentration in microbiology consists of 24 hours, to include 301, 302, and other courses determined by the student in consultation with his microbiology adviser.

Course Descriptions

301-5 Principles of Microbiology. A survey of morphology, structure, metabolism, population dynamics, and heredity of the microbial agents, with particular emphasis on pure culture methods of study of the bacteria, viruses, and related organisms. Four hours lecture, 5 hours laboratory. Prerequisite: one year of college chemistry and GSA 210a or equivalent.

302-5 General Microbiology. Differentiation and classification of the bacteria and other microorganisms; their biochemical activities; genetics; biological and physical interrelationships; their prevalence and importance in air, water, foods, and soil; and their economic exploitation by man. Three hours lecture, 5 hours laboratory. Prerequisite: 301.

390-2 to 5 Undergraduate Research Participation. Faculty directed individual

* Recommended substitutions Physics 206, 207 for GSA 101a, Chemistry 121 for GSA 101b. Advanced standing possible in GSA 201.

r group research. Prerequisites: 4.00 grade point average in microbiology or consent of the department.

01-1 Undergraduate Seminar. Prerequisite: senior standing and consent of instructor. This course may be taken for credit once only.

03-3 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 infections of man. Three hours lecture. Prerequisite: 302.

04-2 Medical Bacteriology Laboratory. Procedures for the collection and handling of medical specimens for microbial examination and for cultivation and identification of the pathogenic organisms by their morphological, biochemical, and serological characteristics. Five hours laboratory. Prerequisite: or corequisite 403.

21-3 Microbiology of Foods Lecture. 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. Three hours lecture. Prerequisite: 301.

22-2 Microbiology of Foods Laboratory. Methods for preservation, sanitary inspection, and microbiological examination of foods. Four hours laboratory. Prerequisite: or corequisite 421.

23-3 Industrial Fermentation. The application of the chemical activities of microorganisms to the industrial production of beverages, foods, antibiotics, and various commercial chemicals. Prerequisites: 301 and organic chemistry.

25-3 Biochemistry and Physiology of Microorganisms. The chemical basis of physiological functions in microbial cells. Three hours lecture. Prerequisites: 01 and organic chemistry.

26-3 Biochemistry and Physiology of Microorganisms. Four hours laboratory and one hour discussion. Prerequisite: or corequisite 425.

41-3 Virology Lecture. General properties; classification and multiplication of bacterial and animal viruses; lysogeny; immunological and serological reactions; relation of viruses to cancer; and consideration of selected viral diseases of animals. Four hours lecture. Prerequisite: 302.

42-3 Virology Laboratory. Tissue culture methods, multiplication and assay of animal and bacterial viruses, purification, electron microscopy, interference, immunity. Six hours laboratory. Prerequisite: or corequisite 441.

51-3 Immunology Lecture. Antigens, antibodies, and antigen-antibody reactions in vitro and in vivo, natural and acquired immunity. Four hours lecture. Prerequisite: 302.

52-3 Immunology Laboratory. Natural defense mechanisms and immune response, preparation of antigens and antibodies, serologic reactions, conjugated antibodies, electrophoresis, anaphylaxis. Six hours laboratory. Prerequisite: or corequisite 451.

60-3 Genetics of Bacteria and Viruses Lecture. Genetic mechanisms, mutation, transformation, recombination, transduction, lysogeny, phenotypic mixing, and reactivation phenomena. Three hours lecture. Prerequisite: 302.

61-3 Genetics of Bacteria and Viruses Laboratory. Six hours laboratory. Prerequisite: or corequisite 460.

62-3 Fungal Genetics Lecture. Mendelian and molecular genetics of neurospora and yeast. Mutant induction, sexual crosses, tetrad analysis, linkage, and mapping. Three hours lecture. Prerequisite: Biology 305.

63-3 Fungal Genetics Laboratory. Six hours laboratory. Prerequisite: or corequisite 462 and consent of instructor.

00-1 Seminar.

02-4 Evolution of Genetic Thought.

03-2 Cytology of Microorganisms.

04-5 Methods of Microbiological Research.

11-1 to 15 Research.

25-3 Biochemistry and Physiology of Microorganisms.

26-3 Biochemistry and Physiology of Microorganisms.

28-1 to 10 Readings in Microbiology.

41-6 Advanced Virology.

42-3 Molecular Virology.

43-3 Molecular Virology Laboratory.

62-3 Molecular Genetics.

99-3 to 9 Thesis.

00-3 to 48 Dissertation.

Music

Research Professor Marjorie Lawrence
Professors Steven Barwick, Ph.D.

Fred H. Denker, Ph.D.

Roderick Gordon, Ph.D.

Robert Mueller, Ph.D.

Robert W. House, Ed.D. (*Chairman*)

Associate Professors Will Gay Bottje,
D.M.A.

Lawrence Intravaia, D.M.A.

David McIntosh, M.S. (*Emeritus*)

Wesley K. Morgan, Ph.D.

Phillip H. Olsson, M.M.

Robert Resnick, M.M.

Charles D. Taylor, Ed.D.

William K. Taylor, M.M.

John Wharton, M.M.

Assistant Professors Mary Jane Griz
zell, M.M.

Elisabeth Hartline, M.M.

George Hussey, M.A.

Myron H. Kartman, D.M.A.

Robert Kingsbury, M.M.

Nicholas Koenigstein, M.M.

Herbert Levinson, M.M.

Melvin Siener, M.A.

Marianne Webb, M.M.

W. Kent Werner, Ph.D.

Instructor Helen M. Vogler, (*Emerita*)

During each academic year, a series of distinguished musicians join the faculty and students for a period of workshops, seminars, and performances. The roster for the past few years has included the following: Carl Weinrich, organist; Ernest and Lory Wallfisch, viola and piano duo; Will Apel, Louis Cuyler, and Nicholas Slonimsky, musicologists; Joseph Szigeti, violinist; Robert Goldsand, pianist; and Reginald Kell, clarinetist; and Nadia Boulanger.

In addition, artists from related fields have included Katherine Dunham, dancer; Edith Lutyens Bel Geddes, costume supervisor; and Max Kaplan, musicologist-sociologist.

General Requirements

The requirements for entrance and for graduation as set forth in this bulletin are in accordance with the published regulations of the National Association of Schools of Music, of which the Department of Music is a member.

Each resident music student must maintain a satisfactory membership in either a university band, orchestra, or chorus every quarter he is enrolled at Southern Illinois University, with the exception of the student teaching quarter. Concurrent membership in three university performing groups is the maximum.

Each student with a concentration or secondary concentration in a field of music and enrolled in at least two credits of applied music must participate in the regular music convocations and studio classes held on Mondays at ten o'clock; such a student must also attend five approved campus recitals or concerts, in which he is not a participant, each term. A deficiency attendance will result in the student's being given a grade of incomplete in his applied music.

Bachelor of Music candidates specializing in performance must complete at least one quarter in their principal field of applied music at the 400 level and must present a half recital in their junior year and a full recital in their senior year. Those specializing in another area of music or music education must complete at least one term in applied music at the 300 level and may elect, with their teacher's consent, to substitute single solo appearances on group recitals for the half and full recital requirement.

Bachelor of Music Degree, SCHOOL OF FINE ARTS

General Studies Requirements	67
Requirements for concentration in music	111
Music (theory) 105-12; 205-9; 326-6; 441-6	(3) + 30
Music (history) 106-3 and 357-9	(4) + 8
Music 010E-6 Class Piano or proficiency and sec- ondary instrument	6
Music (applied) 12 quarters of ensemble	12 ²
One of the specializations listed below	55-61 ¹
Performance	
Music 140-440 principal field, 12 quarters ...	42
Music 365-6 or 341-6	6
Music 461 and 462	4
Music electives (voice students take second foreign language)	9
Music Theory-Composition	
Music 140-440, principal field, 12 quarters ...	24
Music 309-4, 312-6, and 409-2	12
Music 365 or 341	3
Music 444-6 or 481-6	6
Music electives	10
Music History-Literature	
Music 140-440, principal field, 12 quarters ...	24
Music 365 or 341	3
Music 411a,b,c	9
Music electives	10
Second year of foreign language	9
Total	192

Music Education

The following requirements may be satisfied in twelve quarters; they meet the requirements for the State Special Teaching Certificate.

General Studies Requirements	67
Requirements for concentration in music education	111
Music (theory) 105-12; 205-9; 309A-2 and 326-4 or 441-4	(3) + 24
Music (history) 106-3 and 357-9	(4) + 8
Music (applied) 11 quarters of ensemble	11
Music 140-440 principal applied field (9 quarters)	18
Music 010F-1 Class Voice	1
Music 365-3 or 341	3
Music 318a,b,c-4	4
Sec. Ed. 310-4; Guid. 305-4; Ed. Ad. 355-4	12
El. Ed. 351-4 to 8; Sec. Ed. 352-4 to 8	12
One of the specializations listed below:	18
Instrumental Music Education	
Music 010A,B,C,D-6	6
Music 010E-3 or proficiency and additional class	

¹ Before the end of his sophomore year the student should choose an area of specialization. This choice is subject to approval by the faculty adviser and the chairman.
² For students combining this specialization with the prescribed courses for state certification in education, the applied specialization will be elected for 2 hours per quarter, totaling 24 hours.

instrument	3
Music electives	3
Music 305i-3	3
Music 305v-3 or 451-3, or choral ensembles-3	3
<i>Choral Music Education</i>	
Music 010E-6 proficiency and secondary instrument	6
Music electives	6
Music 305v-3	3
Music 300A-3 or 451-3	3
<i>Total</i>	192

Double Specialization in Music and Music Education

The following is a five year baccalaureate program allowing a full emphasis in applied music, or music theory-composition, or music history-literature, plus meeting requirements for the State Special Teaching Certificate.¹

<i>General Studies Requirements</i>	67
<i>Requirements for concentration in music and music education</i>	156
Music (theory) 105-12; 205-9; 309A-2; 326-6; 441-6 .. (3) +	32
Music (history) 106-3 and 357-9	(4) + 8
Music 140-440 principal applied field	28
Music 010A,B,C,D-6 or 300A-3 and 451	6
Music 010E-6	6
Music 010F-1	1
Music (applied) 14 quarters of ensemble	14
Music 365-6 or 341-6	6
Music 318a,b,c	4
Music 305i or v	3
Sec. Ed. 310-4; Guid, 305-4; Ed. Ad. 355-4	12
El. Ed. 351-4 to 8; Sec. Ed. 352-4 to 8	12
Music electives to increase specialization in applied music, theory-composition, or history-literature	24
<i>Total</i>	223

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

These courses are for students who wish to specialize in music as part of their general cultural education. They may also be taken as background training by those who may plan to pursue advanced studies in such fields as music criticism and aesthetics.

Required courses are 105-12, 106-3, 140-6, 205-9, 240-6, 357-9, 001 or 002 or 003-6 and electives in music to complete a total of 60 hours. Students must comply with the studio hour and recital attendance requirements listed above under General Requirements in Music.

Secondary Concentration

The secondary concentration in music includes 105-12, 106-3, 140-6, 357-9, 001 or 002 or 003-3 for a total of 33 hours. Students must comply with the studio hour and recital attendance requirements listed above under General Requirements in Music.

¹ As a prerequisite to teaching in the public schools, an individual must pass a test on State Constitution and History or successfully complete either GSB 211b or Government 300.

Course Descriptions

001-5 (1,1,1,1,1) Band. (a) Saluki Marching Band, (b) Symphonic Band, (c) Stage Band, (d) Laboratory Band, and (e) Wind Ensemble. Prerequisite: c,e by audition; a,b,d by consent of instructor.

002-4 (1,1,1,1) (a) University Choir, (b) University Singers, (c) Male Glee Club, and (d) Women's Choral Ensemble. (e) Angel Flight Angelaires. May be taken in any sequence. Any part may be repeated for 12 quarters. Prerequisites: Auditions required for a,c,d,e, consent of instructor.

003-2 (1,1) Chamber Orchestra. (a) University orchestra, (b) Southern Illinois Symphony orchestra. Prerequisite: audition, consent of instructor.

010-7 (1,1,1,1,1,1) Class Applied Music. Offered in all areas of applied music except organ. These courses include the minimum instruction required for passing the proficiency examinations in piano and voice and they offer practical training in the basic principles of playing the instruments of the orchestra and band. They also include introductory techniques and methods for teaching instrumental and choral groups in the elementary and secondary schools.

- | | |
|---------------|-----------|
| a. Strings | e. Piano |
| b. Woodwinds | f. Voice |
| c. Brass | g. Guitar |
| d. Percussion | |

May be taken in any sequence. Prerequisite: concentration or secondary concentration in music or elementary education, or early childhood, or consent of instructor.

105-12 (4,4,4) Theory of Music. Fundamentals of music in sight singing, ear training, harmony, and keyboard harmony.

106-3 Survey of Music Literature. Characteristic forms and styles. Analysis and listening. Examples from the leading compositions of each era. Prerequisite: concentration in music.

140, 240, 340, 440, 540-1 to 4 Private Applied Music. Offered at 5 levels in the areas listed below. Prerequisite for 140: concentration or secondary concentration in music, or consent of instructor. Those with concentration or secondary concentration register for 2 credits unless previously approved for emphasis in applied music by their applied jury's; all others register for 1 credit. Requirements include weekly lesson time and studio hour, regular practice periods, and attendance at a specified number of recitals. May be repeated for three quarters at each level, unless applied jury requires additional quarters.

- | | |
|----------------|----------------|
| a. Violin | k. Piano |
| b. Viola | l. French Horn |
| c. Cello | m. Trumpet |
| d. String Bass | n. Trombone |
| e. Flute | o. Tuba |
| f. Oboe | p. Baritone |
| g. Clarinet | q. Voice |
| h. Bassoon | r. Organ |
| i. Saxophone | s. Harpsichord |
| j. Percussion | |

200-3 Fundamentals of Music. Rudiments of music for those with little or no musical background. Recommended as a course preliminary to 300 (not for music concentrations). May be taken concurrently with 010e.

205-9 (3,3,3) Theory of Music. Advanced harmonic techniques, modulation, altered chords, chromatic harmony, counterpoint, and introduction to contemporary harmonic principles. Must be taken in a,b,c sequence. Prerequisite: 105c.

240-1 to 4 Private Applied Music. (See Music 140).

300-9 (3,3,3) Music Education—Elementary. Teaching music in the elementary grades. (a) For music concentrations only; (b) For nonmusic concentrations only, emphasizing work in grades 4-6; (c) For nonmusic concentrations only, emphasizing work in grades K-3. Prerequisite: for a, 105c; for b, 200 or equivalent; for c, 010e.

302-6 (3,3) Music Education. (a) Music in Special Education. For non-music concentrations only. Prerequisite 200 or equivalent. 010G, class guitar recommended as an elective. (b) Music in Early Childhood. For non-music concentrations only. Prerequisite: one quarter of class piano or equivalent.

3051-3 Instrumental Problems and Materials. Administration of the school instrumental music program. Emphasis on library, physical facilities, organi-

zation of the marching band, arranging music for out-of-door performances. **305V-3 Vocal Problems, Materials, and Conducting.** Vocal and psychological problems in handling choral groups, reading and acquaintance with a variety of choral materials at the high school level, and interpretation through conducting techniques.

306-3 Music for Primary Children. Activities, materials, and methods. For early childhood and elementary education majors.

309-6 (2,2,2) Arranging. (a) Rudiments of arranging, choral and instrumental. (b) Techniques of arranging for the small ensemble. Must be taken in a sequence. Prerequisite: 105c.

312-6 (2,2,2) Composition. Original composition in the smaller forms for piano, voice, string quartet, and other small combinations. Prerequisite: 205c.

315-2 Opera Repertory.

318-6 (2,2,2) Conducting. (a) Basic conducting techniques; (b) Choral or instrumental conducting techniques. (c) Conducting. Prerequisite: 318a.

326-6 (2,2,2) Analysis. The element of structure, form, and design in musical composition. Prerequisite: 205c.

340-1 to 4 Private Applied Music. (See Music 140.)

341-1 to 6 Accompanying Lab. A performance laboratory for students whose principal instrument is piano and who have attained sufficient skill to accompany the music soloist or performing group.

346-2 to 36 Opera Workshop. May be repeated for credit.

347-2 to 36 Music Theater Workshop. May be repeated for credit.

365-5 (1,1,1,1,1) Chamber Music. (a) Vocal; (b) String; (c) Woodwind; (d) Brass; (e) Percussion. Any part may be repeated twelve quarters.

405-3 Seminar in Instrumental Music Education. Advanced problems of administration and supervision of public school instrumental music programs, selection of appropriate materials for study and development, rehearsal techniques, preparation and techniques for performances of all types. Prerequisite: 305I.

409-2 Band Arranging. Advanced methods and techniques in arranging for the concert and marching bands from public school to collegiate level. Includes methods of transcribing from orchestral, organ, and piano literature. Prerequisite: 309a or equivalent.

411-9 (3,3,3) (a) Symphonic Literature. Development of the symphony and the symphonic poem to 1900; (b) **Choral Literature.** The literature of the larger vocal forms such as the cantata and oratorio to 1900; (c) **Chamber Music Literature.** Chamber music literature from the Renaissance to the present.

414-2 to 6 Collegium Musicum. Practicum in the preparation and performance of music from early times to the classical period. Prerequisite: Music Concentration and/or consent of the department.

420-1 to 3 Music Education Practicum. A shop-laboratory course dealing with the selection, adjustments, maintenance, and repair of musical instruments.

430-2 Stage Band Arranging. The study and analysis of jazz harmony, melody, and rhythm as applied to modern instrumentation. Workshop wherein arrangements are written and played. Prerequisite: 309a.

431-2 Organization and Development of the High School Stage Band. The relationship of the stage band to the overall music program; instrumentation; sources of music; types of presentation; rehearsal techniques; study of the effective application of dynamics, phrasing, intonation, and balance for improved performance. Prerequisite: 430.

441-6 (2,2,2) Counterpoint. (a) 16th Century Counterpoint. Special counterpoint and creative writing in the style of Palestrina and his contemporaries. Prerequisite: 105c; (b) 18th Century Counterpoint. Analysis and creative writing in the contrapuntal-harmonic technique of Bach and his contemporaries. Prerequisite: 105c; (c) Canon and Fugue. Analysis and creative writing of the larger imitative forms. Prerequisite: 441b.

444-6 (2,2,2) Intermediate Composition. Required of undergraduates with concentration in theory-composition, culminating with original works in contemporary idioms. Taught by individual instruction. Prerequisites: 312c and consent of department.

451-2 to 3 Teaching General Classroom Music.

453-2 to 6 Choral Materials and Techniques. Demonstration and performance of choral rehearsal procedures; developing tone, diction, blend, and balance; concert production; performance of selected choral materials appropriate for junior and senior high school. Prerequisite: consent of instructor.

454-2 to 6 Instrumental Materials and Techniques. Demonstration and performance of instrumental music rehearsal procedures; developing tone, articulation, blend, and balance; concert production; performance of selected materials appropriate for junior and senior high school. Prerequisite: consent of instructor.

455-2 to 6 Elementary Music Education Workshop.

460-3 Teaching Music Appreciation. Principles and methods for secondary schools and colleges; theories upon which various methods and principles are based.

461-2 Teaching Techniques and Materials for the Beginning and Intermediate Levels. Designed to meet the needs of applied students in the Bachelor of Music or Master of Music degree programs in which the problems of private studio teaching and college-level teaching are discussed.

462-2 Teaching Techniques and Materials for the Advanced Student. Prerequisite: 461.

465-9 (3,3,3) Development and Teaching of Strings. Place and function of string education in the elementary and secondary schools. Techniques of heterogeneous and homogeneous string teaching. Developing and sustaining interest in the string program. Resource aids. May be repeated for a total of 9 hours credit. Prerequisite: senior standing.

468-2 to 12 Music Productions. Study of the techniques involved in staging operas and musicals.

471-6 (3,3) Ethnomusicology. (Same as Anthropology 471) A survey of theory, method, and form in ethnomusicology, with concentration on selected geographical areas. (a) Oceania, Asia, and Africa. (b) Middle East, Europe, and the New World.

481-2 to 6 Readings in Music Theory.

482-2 to 6 Readings in Music History and Literature.

483-2 to 6 Readings in Music Education.

499-1 to 12 Independent Study. Opportunity for the capable student to engage in original investigations with faculty specialists. May be repeated for credit. Prerequisite: consent of instructor.

501-3 Introduction to Graduate Study in Music.

502-6 (2,2,2) Analytic Techniques.

503-3 to 4 Objective Research Techniques in Music Education.

504-3 Music of the Middle Ages and Renaissance.

505-3 Music of the Baroque Period.

506-3 Music of the Classical Period.

507-3 Music of the Romantic and Impressionistic Periods.

508-3 Music of the Twentieth Century.

509-3 The History and Philosophy of Music Education.

512-3 History of Opera.

522-3 Seminar: Music History and Literature.

531-2 to 9 Advanced Composition.

535-3 Contemporary Idioms.

540-1 to 4 Private Applied Music. (See Music 140.)

545-3 to 9 Philosophy of Music Theory.

546-3 Musical Aesthetics.

550-3 Administration and Supervision of Music.

556-2 to 6 Advanced Conducting.

560-2 to 3 Seminar in Music Education.

566-1 to 12 Instrumental Ensembles.

567-5 (1,1,1,1,1) Vocal Ensembles.

568-2 to 12 Opera Workshop.

598-6 Graduate Recital.

599-3 to 9 Thesis.

Nursing

The Nursing Division of Southern Illinois University at Edwardsville, offers an educational program leading to a Bachelor of Science degree in Nursing. The curriculum is designed to prepare qualified individuals to function competently as beginning professional nurse practitioners; to participate in providing a broad scope of health care in a variety of settings; to obtain a foundation for continued growth and graduate educa-

tion. The curriculum assists students in developing the behaviors and abilities necessary to function therapeutically with people while achieving greater self-direction, self-realization and professional identity in an era characterized by change.

The first two years of the four-year program may be completed at the Carbondale Campus of Southern Illinois University. During the first two years, the student must successfully complete all courses prerequisite to the nursing major. The student must then transfer to the Edwardsville campus of Southern Illinois University at the beginning of the summer quarter of the sophomore year. Completion of Nursing 280a,b,c during the summer quarter of the sophomore year is required for the student to enroll in the nursing major in the junior year.

<i>General Studies Requirements (Waive GSA-3)</i>	84
<i>Prerequisite to Nursing 280a</i>	30
GSA 101a	4
GSA 201a-4, 201b-4	8
GSD 107a	5
Chemistry 110-4, 240-4	8
Microbiology 301-5	5
<i>Divisional Requirements</i>	66
GSA 301-4	4
GSB 102a-4, 102b-4	8
GSB 201b-4, 201c-4	8
GSB 321-4, 341-3	7
GSC 100-3 or 101-3	3
GSC 102-3, 103-3	6
GSC 200-3 or 206-4	3 or 4
GSC 208-4	4
GSD 101-3, 102-3, 103-3	9
GSD 110-3	3
GSE 1-1-1	3
Chemistry 350-4	4
Physiology 300b-4	4

All students are strongly urged to seek quarterly academic advisement based on the sequence of the revised four-year curriculum plan. The grade of C or above is required in all nursing courses and general studies area A.

Occupational Education (*See Technical and Industrial Education*)

Philosophy

Research Professor Lewis Hahn, Ph.D.

Professors S. Morris Eames, Ph.D.

John Frank Hayward, Ph.D.

Wayne Leys, Ph.D.

Willis Moore, Ph.D.

George K. Plochmann, Ph.D.

Charles D. Tenney, Ph.D.

Associate Professors James Diefenbeck, Ph.D.

Elizabeth Eames, Ph.D.

John Howie, Ph.D.

George McClure, Ph.D.

Assistant Professors Michael Andj, Ph.D.

David Clarke, Ph.D.

Garth Gillan, Ph.D.

Richard Howard, Ph.D.

Matthew Kelly, Ph.D.

Shu-Hsien Liu, Ph.D.

Visiting Professor Paul A. Schilpp, Ph.D.

General Studies courses in philosophy are available at each level for use in partial satisfaction of the requirements in Area C. The prospective philosophy student is advised to elect at least one such course at each of the first two levels.

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i>	67
<i>Supplementary Two-Year College Requirement in FL/Mathematics</i>	18
(All philosophy majors, except those planning to emphasize logic, should take two years of a foreign language.)	
<i>Requirements for Concentration in Philosophy</i>	35
GSC 381, 382, 383 plus any two of the following courses:	
Philosophy 300, 306, 320, GSC 386, 387	(6) + 9
Philosophy electives to complete 45 hours, 3 or 4 of which may be selected from philosophy courses in the first two levels of GSC	(4) + 26
<i>Secondary Concentration</i> (consult with philosophy department chairman)	24
<i>Electives</i>	
<i>Total</i>	192

SECONDARY CONCENTRATION

A secondary concentration in philosophy requires 24 hours, 6 or 7 of which may be selected from philosophy courses offered at the first two levels of General Studies and Philosophy and 12 of which should be selected from the courses listed above for the major concentration.

HONORS

Honors in philosophy will be granted to eligible majors who successfully complete three honors courses in philosophy (one in their junior year and two in their senior year, or *vice versa*), maintain a 4.25 average in Philosophy and a 4.000 overall grade point average, and have their written work in honors courses accepted by the departmental Honors Committee. These honors courses may be elected for credit by non-majors, but only by students approved by the department.

Course Descriptions

- 200-4 **Types of Philosophy: An Introduction.** Survey of the traditional branches and problems of philosophy, such as religion, metaphysics, epistemology, ethics, political theory, aesthetics, and history.
- 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.
- 306-4 **Nineteenth Century Philosophy.** Survey of European philosophy from Kant to the end of the 19th century. Prerequisite: 383 or consent of department.
- GSC 310-3 **Religious Foundations of Western Civilization.**
- GSC 311-3 **Philosophies and Religions of India.**
- GSC 312-3 **Philosophies and Religions of the Far East.**
- 320-4 **Deductive Logic.** Main forms of deductive inference. Emphasis on the use of the symbolism of modern logic to evaluate inferences.

- 340-4 Ethical Theories.** Nature of ethics and morality, ethical skepticism, emotivism, ethical relativism, and representative universalistic ethics. Bentham, Mill, Aristotle, Kant, Blanshard, and Brightman.
- 342-4 Social Philosophy.** One or more major social philosophies influential in present-day society, e.g., laissez-faire liberalism, Marxism, and socialism.
- 345-3 Black Social Philosophy.** Investigation of the social philosophy of such thinkers as Martin Luther King, Jr., Malcolm X, and Eldridge Cleaver. Emphasis on concepts and issues of particular relevance for Black Americans. Prerequisite: junior standing or permission of department.
- 355-4 Philosophy of Education.** (See Educational Administration and Foundations 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.
- GSC or GSA 363-6 (3,3) Philosophy of Science.**
- GSC 381-3 Greek Philosophy.**
- GSC 382-3 Graeco-Roman and Medieval Philosophies.**
- GSC 383-3 Early Modern Philosophy.**
- GSC 386-3 Early American Philosophy.**
- GSC 387-3 Recent American Philosophy.**
- 389-3 Existential Philosophy.** Surveys the two main sources of existentialism, the life philosophies of Kierkegaard and Nietzsche and the phenomenology of Husserl, and introduces the major philosophical themes of representative thinkers: J. P. Sartre, M. Heidegger, G. Marcel, and others.
- 400-4 Contemporary Mind.** Analysis of thought-patterns and motivations dominating the American mind during the present decade of the 20th century.
- 406-4 Philosophy of Biology.** Leading concepts of biological sciences: species, evolution, life, organism and part, etc. Abstract ideas of biology are related, wherever possible, to specific experiments recorded in scientific literature. Prerequisites: 300 or 320, and three laboratory or field courses in the biological sciences or consent of instructor.
- 415-3 Logic of the Social Sciences.** Logical and epistemological examination of the social studies as types of knowledge. Basic problems in philosophy of science with major emphasis upon social science: relationship of theory to fact, nature of induction, nature of causal law, testability, influence of value judgments, etc. Intended for students with considerable maturity in a social science or in philosophy.
- 420-4 Theory of Logic.** Propositions, analysis of terms, theory of inference, both formal and material. Prerequisite: 320.
- 424-3 Advanced Formal Logic.** Special relevance to philosophy students. Includes logical principles, many-valued logics, modal logics, and the logic of imperatives. Prerequisite: 320.
- 425-3 Philosophy of Language.** Method, logical syntax, ideal language, and ordinary language analysis. Prerequisite: consent of department.
- 441-4 Philosophy of Politics.** (Same as Government 441.) Some of the central problems of modern political life, such as sovereignty, world government, authority and consent, the relations of economics and social studies to political theory. Prerequisite: GSC 102 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: GSC 207 or 360, and six courses in music, painting, sculpture, literature, or drama.
- 465-3 British Moralists.** Texts and commentaries for 17th and 18th centuries. Moral philosophy of Hobbes, Locke, Cudworth, Hutcheson, Butler, Price, and Hume. Prerequisite: 340 or consent of department.
- 471-8 (4,4) The Classic Greek Philosophers.** (a) Plato. (b) Aristotle. Prerequisite: 381 or consent of department.
- 472-12 (4,4,4) Seventeenth Century Philosophers.** (a) Descartes. (b) Locke. (c) Spinoza. Prerequisite: 383 or consent of department.
- 473-8 (4,4) Eighteenth Century Philosophers.** (a) Hume. (b) Kant. Prerequisite: 383 or consent of department.
- 474-12 (4,4,4) Nineteenth Century Philosophers.** (a) Hegel. (b) J. S. Mill. (c) Marx. Prerequisite: 306 or consent of department.
- 477-4 Latin American Philosophy.** A survey of philosophic thought in Latin

America from colonial times through nineteenth century positivism and the reactions against it, up to recent trends. Reading of original texts in English translations. Discussions and reports.

478-4 Seminar in Latin American Thought. (See Spanish 478.)

482-3 Recent European Philosophy. Phenomenology, Positivism, Linguistic Analysis, and Existentialism.

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.

497-12 (4,4,4) Honors. Topic varies. Enrollment restricted to undergraduates. Prerequisite: consent of department.

500-4 Metaphysics.

501-4 Philosophy of Religion.

503-4 Philosophical Ideas in Literature.

505-4 Philosophy of Science.

510-4 Indian Philosophy.

511-4 Chinese Philosophy.

512-4 Philosophy of Culture.

515-4 Theory of Nature.

520-4 Logic.

524-4 Analytic Philosophy.

530-4 Theory of Knowledge.

531-4 Whitehead.

540-4 Philosophy of Journalism.

542-4 Political and Legal Philosophy.

545-4 Ethics.

550-4 Theory of Value.

555-4 Philosophy of Higher Education.

560-4 Aesthetics.

570-4 American Idealism.

572-4 Twentieth Century Philosophers.

575-8 (4,4) Phenomenology and Existential Philosophy.

577-12 (4,4,4) Dewey.

579-4 Bertrand Russell.

581-4 Plato.

582-4 Aristotle.

584-4 Medieval Philosophy.

585-4 British Empiricism.

586-4 Spinoza.

587-4 Hegel.

588-12 (4,4,4) Kant.

590-2 to 16 General Graduate Seminar.

591-1 to 5 Readings in Philosophy.

599-2 to 9 Thesis.

600-3 to 48 Dissertation.

Physical Education

These courses are intended to qualify young people for positions as teachers, coaches, or specialists in public and private elementary or secondary schools, colleges, and universities as well as other social agencies which promote physical activity programs. They have been designed to meet the requirements of state departments of education and other agencies which have adopted professional standards.

Complete and integrated experience in teaching physical education and assisting in coaching under qualified supervisors is provided in the co-operating schools of the area. Added experiences are gained through membership in the Physical Education Club; membership in professional associations; participation on intramural teams; assisting in service class testing; professional journals; and working with recreational and school groups in teaching techniques of various activities.

*Physical Education—Men**Professors* John LeFevre, Ed.D.Edward J. Shea, Ph.D. (*Chairman*)*Associate Professors* Ronald G. Knowlton, Ph.D.

Glenn Martin, M.S.

Assistant Professors Kenneth J. Ackerman, M.S.

Peter J. Carroll, M.S.

C. C. Franklin, M.S.

Larry A. Good, Ed.D.

Norman C. Greene, M.S.

Lynn C. Holder, M.S.

William T. Meade, M.S.

Ted Okita, M.A.

Robert R. Spackman, M.S.

John W. Stotlar, D.P.Ed.

*James J. Wilkinson, P.E.D.**Instructors* Larry Bell, M.S.

Bill Brown, M.S.

Donald Devine, M.S.

William Dodd, M.S.

Walter T. Ellis, M.S.

Raymond B. Essick, M.S.

Robert Hailey, M.Ed.

Lewis Hartzog, M.S.

George Iubelt, M.S.

Richard C. Jones, M.S.

Paul Lambert, M.Ed.

Linn L. Long, M.S.

Robert W. Mazie, M.S.

Richard E. Towers, M.S.

Lecturer Karl W. Bookwalter, Ed.D.*Bachelor of Science Degree, COLLEGE OF EDUCATION—MEN*

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in Physical Education</i>	58
GSA 301	3
Physical Education for Men 100-16, 101, 220, 221, 303A, 303B, 305, 320, 341, 350, 354, 355, 370, 376	(3) + 48
Physiology 300	4
<i>Professional Requirements</i>	20
<i>Secondary Concentration</i>	24
<i>Electives</i>	
Recommended are Health Education 460, and Recreation and Outdoor Education 365.	
<i>Total</i>	192

Secondary Concentration—Men

A secondary concentration is 40 hours and must include 100-16, 220, 221, 303-6, 305, 350, 354, 370, 376, Physiology 300, and GSA 301.

Course Descriptions

100a-2 Methods of Teaching Swimming. Stresses techniques and methods of teaching applied to individual and group instruction. Basic strokes, underwater swimming, elementary diving, body and breath control, self support, and watermanship. Prerequisite for nonswimmers: audit beginner's swimming course.

100b-1 Methods of Teaching Golf. To prepare the student to teach the fundamental aspects of golf, with emphasis on adaptation to varied approaches in teaching.

100c-1 Methods of Teaching Tennis. Enables the student to acquire, through practice, the knowledge and skills necessary to teach this activity; include consideration of desirable teaching materials to enhance instruction.

100d-1 Methods of Teaching Individual and Team Activities.

100e-1 Methods of Teaching Basic Rhythms.

100f-2 Methods of Teaching Exercise.

100g-2 Methods of Teaching Football. Individual instruction and practice in all the fundamentals of the game such as passing, kicking, blocking, tackling, running. Emphasis on effective methods of teaching and coaching.

100h-2 Methods of Teaching Basketball. Deals with individual and team fundamentals with special emphasis on passing, pivoting, shooting, dribbling, and variety of play patterns concerned with offense and defense. Basic methods of teaching and coaching.

100i-2 Methods of Teaching Baseball. Development of the practical skills and

ability to teach and coach the techniques of batting, fielding, and playing the various positions in the game.

100j-2 Methods of Teaching Track and Field. Students gain practical experience as a foundation for learning the techniques of teaching the running and field events. Emphasis on individual analysis of movement.

100k-2 Methods of Teaching Gymnastics. To develop individual techniques in stunts and tumbling, calisthenics, parallel bars, side horses, trampoline, and high bar; fundamental skills, individual and group methods of instruction.

100m-2 Methods of Teaching Wrestling. Enables the student to master the fundamental skills of wrestling as well as to teach the individual and group methods of wrestling instruction.

101-2 Orientation Practicum in Physical Education. To introduce the student to his professional field, to enable him to secure a concept of the role of physical education in total education, and to crystallize his thinking in relation to vocational objectives. The significant historical aspects of physical education and its role in the broad cultural heritage in order to provide an interpretation and perspective to contemporary issues and developments. Freshman year.

170-2 Varsity Football.

171-2 Varsity Basketball.

172-2 Varsity Track.

173-2 Varsity Tennis.

174-2 Varsity Gymnastics.

175-2 Varsity Baseball.

176-2 Varsity Golf.

177-2 Varsity Swimming.

178-2 Varsity Cross Country.

179-2 Varsity Wrestling.

220-1 Recreational Activities and Games (Outdoor).

221-1 Recreational Activities and Games (Indoor).

230A-2 Classical Ballet. (See Theater 230A.)

230b-2 to 22 Intermediate and Advanced Ballet. (See Theater 230A.)

303-6 (3,3) Kinesiology. (a) Force system, its relation to the mechanics of muscle action. Analysis of muscular-skeletal forces involved in physical education activities. (b) Applied body mechanics with the application of mechanical laws and principles to performance in physical activities. Must be taken in a,b sequence. Prerequisite: Physiology 300, GSA 101a and 301.

305-3 Physical Education for the Atypical Student. Deals with the recognition of physical deviations from the normal student and with the provisions of special or modified physical education or recreational activities for such students. Prerequisites: Physiology 300 and GSA 301.

306-1 Advanced Stunts and Tumbling.

307-1 Advanced Apparatus.

315-2 Scuba Diving. Includes elementary through advanced underwater swimming techniques and an openwater diving experience when weather permits. Leads to YMCA certification. Prerequisite: GSE 101b or consent of instructor.

317-1 Life Saving and Water Safety.

318-1 Water Safety Instructor. Methods and techniques of teaching swimming, diving, and life saving. Techniques approved by the YMCA and the American Red Cross. Leads to certification as a leader-examiner by the YMCA and as water safety instructor by the ARC. Prerequisite: senior standing.

320-4 Physiology of Muscular Activity. Immediate and long range effects of muscular activity on body systems. Integrative nature of body functions and environmental influences on human performance efficiency. Laboratory to be arranged. Prerequisite: GSA 301.

330a-2 Theory of Basketball Coaching. Different types of offense and defense studied; special emphasis given to early season conditioning and practice, offensive and defensive drills, team strategy, rules of the game. Prerequisite: 100h.

330b-2 Theory of Football Coaching. Deals with all phases of the game; offensive and defensive formation analyzed; strengths and weakness of each studied; various types of individual plays analyzed; rules discussed. Prerequisite: 100g.

331a-2 Theory of Swimming Coaching. Treatment of foundations and principles underlying coaching methods; comparative study differences in prevailing theories and methods; development of programs of training in pre-season, mid-season, and post-season of competition. Prerequisite: 100a.

331b-2 Theory of Baseball Coaching. A study of the strategy of the game; the conduct of daily practice; analysis of the rules and their application to play

situations. Also effective methods of coaching for best results. Prerequisite: 100j.
331c-2 Theory of Track and Field Coaching. Theoretical concepts dealing with the effective performance in running and field events; special emphasis on methods of training for such events; methods of organizing and conducting track and field meets. Prerequisite: 100j.

331d-2 Theory of Wrestling Coaching. Prepares students to develop program of wrestling; includes comparative knowledge of problems, techniques, materials, and systems in coaching wrestling as well as the organization and administration of the wrestling program. Prerequisite: 100m.

331e-2 Theory of Tennis Coaching. Theory of advanced strokes, strategy and tactics, scheduling and conducting matches, tournaments, exhibitions and clinics; officiating; organizing and promoting development programs. Prerequisite: 100c.

331f-2 Theory of Gymnastic Coaching. Deals with all phases of gymnastics organization of dual meets, championships, and exhibitional teams; practice schedules; care and purchase of equipment; development and evaluation of exercises and routines; techniques of judging. Prerequisite: 100k.

335-2 Administration of Aquatics. The organization, administration, and supervision of aquatic programs in institutional and community swimming pools and camp waterfronts; the construction, operation, and maintenance of pools and waterfronts; personnel and program problems.

341-3 Principles of Physical Education. An understanding of the scientific foundations of physical education as implied by the accepted principles of psychology, physiology, sociology, biology, educational method of philosophy anatomy, kinesiology, and related areas. Senior year.

345a-1 Officiating of Fall Sports. Interpretation of rules in football, cross country, and soccer; techniques of officiating; code of ethics, for officials and players; problems of officiating. Officiating practice required.

345b-1 Officiating of Winter Sports. Interpretation of rules in basketball, wrestling, and swimming; techniques of officiating; code of ethics for officials and players; problems of officiating. Officiating practice required.

345c-1 Officiating of Spring Sports. Interpretation of rules in baseball, track and field, tennis and golf; techniques of officiating; code of ethics for officials and players; problems of officiating. Officiating practice required.

350-Methods and Materials for Teaching Physical Education Activities in the Elementary School. The organization and conduct of the program with special emphasis on program planning, evaluation of materials, observation and practice in creative rhythms, singing games, folk dancing, and games of low organization. Two hours lecture; 2 hours laboratory.

354-3 Organization and Administration of Physical Education and Athletics. The organization and conduct of the total program of physical education including interscholastic athletics based upon accepted educational policies and practices. Emphasis on problems of administration.

355-2 Assisting Techniques.

370-4 Tests and Measurements in Physical Education. Measurements as an aid in determining student needs, curriculum construction, teaching effectiveness, and the attainment of educational objectives. Includes the selection, administration, and interpretation of tests. Three hours lecture; 2 hours laboratory.

376-3 Care and Prevention of Athletic Injuries. The theoretical and practical methods of preventing and treating athletic injuries; techniques of taping and bandaging; emergency first aid; massage; use of physical therapy modalities. Two hours lecture; 2 hours laboratory. Prerequisite: Physiology 300 and GSA 301.

377-1 Horseback Riding. Fee required and self transportation.

378-1 Canoeing and Boating.

400-4 Evaluation in Physical Education. Historical background of measurement in physical education; selection and evaluation of contemporary testing devices; structure and use of tests; administering the testing program; and interpretation and application of results. Fulfills the tests and measurement course requirements for the Master of Science degree.

402-4 Organization and Administration of Intramural and Extramural Activities. Planning intramural programs of sports; planning and coordinating extramural activities commonly associated with physical education.

403-4 The Adaptation of Physical and Recreational Activities to the Handicapped Individual. Recognition of postural deviations; devising and planning programs for the physically atypical.

- 404-2 to 4 The Teaching of Sports.** Teaching methods, officiating, organization, safety precautions, and selecting equipment for sports.
- 406-4 Basic Concepts of Physical Education.** The place of physical education in the school program, and the concepts underlying the program. (Required of all students not presenting the undergraduate courses 354 or 340.)
- 407-2 to 4 Advanced Theory and Techniques in the Prevention and Rehabilitation of Athletic Injuries.** Theoretical and practical methods of preventing and treating athletic injuries.
- 408-2 to 4 Workshop: Physical Fitness—Its Role and Application in Education.** Improvement of programs and teaching techniques involved in the development of various aspects of physical fitness. Units on postural status; body weight control; tension factors, causes, and control; exercise tolerance; and general body mechanics and control.
- 410-4 Behavioral Foundations of Coaching.** Behavioral problems of the athlete and coach and possible solutions to such problems. Application of behavioral principles and theories as a basis for understanding the interaction between coach and student in the athletic environment. Prerequisite: Guidance 305 or consent of instructor.
- 416-4 Current Theories and Practices in the Teaching of Dance.** (Same as Physical Education—Women 416 and Theater 416.) History and evolution of dance; place of dance in education.
- 475-2 to 4 Individual Research.** (Selected areas with 2 to 4 hours in each.)
- 500-4 Techniques of Research.**
- 501-4 Curriculum in Physical Education.**
- 502-4 Foundations of Motor Skills.**
- 503-4 Seminar in Physical Education.**
- 504-4 Research Project in Physical Education.**
- 508-3 Administration of Interschool Athletics.**
- 509-4 Supervision of Physical Education.**
- 510-4 Motor Development.**
- 511-4 Analysis of Human Physical Movement.**
- 513-4 Perceptual Motor Learning of Physical Skills.**
- 514-4 Advanced Laboratory Techniques for Physical Exercise.**
- 515-4 Body Composition and Human Physical Performance.**
- 517-4 Athletic and Physical Education Facility, Design, Construction, and Maintenance.**
- 520-4 Metabolic Analysis of Human Activity.**
- 525-1 to 6 Readings in Physical Education.**
- 599-1 to 9 Thesis.**
- 600-2 to 48 Dissertation.**

Physical Education for Women

Professors Dorothy Davies, Ed.D.
(Chairman)

Helen Zimmerman, Ph.D.

Associate Professors Marjorie Bond
Potter, Ph.D.

JoAnne Thorpe, Ph.D.

Charlotte West, M.Ed.

Assistant Professors Dorothy Muzzey,
M.S.

Jean Stehr, M.A.

Winston G. Gray, Ph.D.

Instructors Claudia Blackman, M.S.

Kay Brechtelsbauer, M.S.

Carol Cooper, M.S.

Sarah Davidson Cotten, M.S.

Elleva Davidson, M.A.

Janis Feters, M.S.P.E.

Julee Illner, M.S.

Patricia Kuhajda, M.S.

Nancy Lewis, M.F.A.

Barbara Meier Litherland, M.S.

Herbert Vogel, M.S.

Assistant Instructor Margaret Cle-
mens, Diploma

Lecturer Shirley Wood, M.S.

Bachelor of Science Degree, COLLEGE OF EDUCATION—WOMEN

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in Physical Education</i>	58
Physical Education for Women 113, 114, 211, 212, 222, 224, 228, 242, 244, 303, 304-10, 309, 350, 351, 352, 353, 354, 355, 370, plus three terms of pre-student teaching laboratory experience	50
Health Education 334, 460	8

<i>Secondary Concentration</i>	24
(Required for Standard High School Certificate; not required for Standard Special Certificate)	
<i>Professional Education Courses</i>	29
<i>Electives</i>	
Physical Education for Women 317, GSE 144a,b,d,e,i,m,p ..	3
Physical Education for Women 311, 374, 376, GSE 113e	2
<i>Total</i>	192

Anyone who transfers from another university and wants to concentrate in physical education for women must complete a minimum of 15 hours in physical education senior college courses at Southern Illinois University.

Secondary Concentration—Women

<i>Requirements for a Secondary Concentration in Dance</i>	30
Physical Education for Women 309, 312, 213, 416, 273 (Public performance required)	18
One of Physical Education for Women 374, 222, GSE 113b, P.E. 232 or GSE 113a	3
Electives GSE 113e, P.E. 212, 230A, 230B, 240 or additional hours of 273; P.E. 304d, 379, 444, GSE 114p, GSC 203, 207, Theater 305, Music 346	9
<i>Requirements for a Secondary Concentration in Physical Education for the High School Teacher</i>	30
Health Education 334s	
Physical Education for Women 113, 222, 224, 228, 242, 304-8, 309, 353, 354, plus 2 additional activity courses and three terms of pre-student teaching laboratory experience.	
<i>Requirements for a Secondary Concentration in Physical Education for the Elementary School Teacher</i>	30
GSE 112, 113b,d	
Health Education 334s	
Physical Education for Women 304a,d, 309, 350 or 319, 353, 354, plus 3 additional activity courses and two terms of pre-student teaching laboratory experience.	

Course Descriptions

Basic Movement: 113.
 Team Sports: 114, 224, 244.
 Aquatics: 211, 271, 316, 317, 378.
 Individual Sports: 216, 218, 228, 229, 328, 377.
 Dance: 212, 222, 242, 272, 374, 376.
 Officiating: 311.
 Teaching Physical Education in Elementary School: 319, 350.
 Teaching Physical Education in Secondary School: 301, 304, 360, 361, 362, 363
 Camping: 348.
 Professional Courses: 303, 308, 351, 352, 353, 354, 355, 370.

113-1 Basic Movement.

114-1 Speedball. Techniques and team tactics.

211-1 Intermediate Swimming. Prerequisite: pass beginning swimming test.

212-1 Beginning Contemporary Dance. Fundamentals of movement and composition. A basic course culminating with experiences in contemporary dance composition.

216-1 Archery.

- 218-1 Intermediate Fencing. Prerequisite: GSE 114m.
- 222-1 Folk Dancing.
- 224-1 Basketball.
- 228-1 Tennis.
- 229-1 Intermediate Golf. Prerequisite: GSE 114e.
- 230A-2 Beginning Techniques of Classical Ballet. (See Theater 230A.)
- 230B-2 to 22 Intermediate and Advanced Ballet. (See Theater 230B.)
- 240-2 to 24 Theory and Technique of Contemporary Dance. Study of contemporary dance including muscular sensitivity, control of the dance instrument, exploration of time, space, shape, and motion leading to the development of aesthetic perception.
- 242-1 Square and Social Dance.
- 244-1 Hockey.
- 271-1 Sailing.
- 272-1 Tap Dance.
- 273-1 to 6 Dance Workshop.
- 301-2 Techniques of Teaching Recreational Sports. Analysis and methods of teaching badminton, deck tennis, volleyball, table tennis, and other recreational sports.
- 303-5 Kinesiology. The mechanical analysis of physical education activities through the study of joint and muscle action. Prerequisite: Anatomy.
- 304-10 (2,2,2,2,2) Techniques of Teaching Sports. Methods of teaching, construction of daily lesson plans, and analysis of techniques. (a) soccer and volleyball; (b) hockey and speedball; (c) basketball; (d) tumbling, stunts, and gymnastics; (e) softball and tennis. Assistantship required during a,b,c,d, and e. Prerequisite: 114, 224, 228, or equivalent.
- 309-5 Methods of Teaching Dance. A course dealing with each of the various types of dance, including fundamental progressions, and composition in each type. Prerequisites: 212, 222 or equivalent.
- 311-2 (1,1) Theory of Officiating Basketball. Study of requirements of a nationally-rated official as set up by the Division for Girls' and Women's Sports. Must be taken in sequence.
- 312-4 History and Philosophy of Dance. The history and development of dance from primitive to contemporary forms.
- 313-4 Dance Production. Advanced dance techniques and choreography. Choreographic emphases including staging and production of dance. Prerequisite: GSE 113e or consent of instructor.
- 316-1 Advanced Swimming. Prerequisite: 211.
- 317-1 Life Saving and Water Safety. Techniques of Red Cross Life Saving and Water Safety. Prerequisite: pass intermediate swimming test.
- 318-1 Water Safety Instructor. Development of personal skills and methods of teaching swimming and lifesaving. American Red Cross water safety instructor certification may be earned. Prerequisite: senior standing.
- 319-4 Teaching Elementary School Group Activities. Study of age characteristics; planning of activity programs for all grade levels; techniques of teaching activities for elementary grades; fulfillment of the Illinois requirements for elementary school teachers. Prerequisite: Psychology 301 or Guidance 305.
- 328-1 Intermediate Tennis. Prerequisite: 228.
- 348-2 to 4 Camp and Community Leadership. Fundamentals of scouting, camping, and counseling. A weekend camping trip required.
- 350-5 Materials and Methods in Elementary Schools. For supervisors and teachers of physical education. Curriculum planning based on grade characteristics and educational philosophy, presentation of skills including skill tests, lead-up games, stunts and tumbling, games of low organization, creative rhythms, singing games, and folk dance.
- 351-4 Recreation and Physical Education for Atypical Handicapped Individuals. Techniques of physical examination; postural defects and their correction; activities suitable for the atypical; program building; and correlation of this program with the physical education curriculum.
- 352-2 History of Physical Education. A study of the background and development of physical education.
- 353-4 Organization and Administration of Physical Education. Criteria for the selection of activities; the organization of classes, the policies and the personnel; the physical plant and its upkeep; the planning, utilization, and care of equipment in the physical education program. Prerequisite: 354.
- 354-2 Principles of Physical Education. The scientific foundations applied to physical education.

- 355-3 Techniques of Teaching Swimming.** Methods of teaching, analysis of strokes, and devices for teaching swimming and life saving. Prerequisite: 211 or equivalent.
- 360-4 The Physical Education Program for Girls in Junior and Senior High Schools (workshop).** Program planning, source materials, and selected physical activities.
- 361-1 to 4 The Teaching of Team Sports and Dance to Junior and Senior High School Girls (workshop).** Techniques of teaching volleyball, basketball, soccer, and dance.
- 362-1 to 4 Teaching Basic Activities to Junior and Senior High School Girls.** Teaching badminton, softball, basic movement, and recreational games.
- 363-1 to 4 Teaching a Sports Program for High School Girls (workshop).** Designed for teachers in service who have provisional certificates.
- 369-4 Improving Teaching Through Testing (workshop).** Teaching aids, diagnostic measures, practice and standardized tests for a variety of physical skills. Principles of programmed learning applied to psychomotor tasks.
- 370-3 to 4 Tests and Measurements in Physical Education.** The theory of measurement in health and physical education, the selection and administration of appropriate tests, and the interpretation of results. Projects required.
- 374-1 Advanced Folk Dance.** Prerequisite: 222.
- 377-1 Horseback Riding.** Fee required and self transportation.
- 378-1 Canoeing and Boating.** Prerequisite: pass swimming test (fee required).
- 379-3 Preclassic Dance Forms.** (Same as Theater 379.) Lectures and readings in dance of the 16th, 17th, and early 18th centuries. Study and execution of representative preclassic dances. Prerequisite: 230 or 240.
- 400-4 Evaluation in Physical Education.** Historical background of measurement in physical education; selection and evaluation of contemporary testing devices; structure and use of tests; administering the testing program; and interpretation and application of results. Fulfills the tests and measurements course requirements for the Master of Science degree.
- 402-4 Organization and Administration of Intramural and Extramural Activities.** Planning intramural programs of sports; planning and coordinating extramural activities commonly associated with physical education.
- 403-4 The Adaptation of Physical and Recreational Activities to the Handicapped Individual.** Recognition of postural deviations; devising and planning programs for the physically atypical.
- 404-4 The Teaching of Sports.** Teaching methods, officiating, class organization, analysis of skills, and application of the principles of motor learning.
- 406-4 Basic Concepts of Physical Education.** The place of physical education in the school program, and the concepts underlying the program. (Required of all students not presenting the undergraduate courses 354 or 340.)
- 407-2 to 4 Advanced Theory and Techniques in the Prevention and Rehabilitation of Athletic Injuries.** Theoretical and practical methods of preventing and treating athletic injuries.
- 408-2 to 4 Physical Fitness—Its Role and Application in Education.** Improvement of programs and teaching techniques involved in the development of various aspects of physical fitness. Units on postural status; body weight control; tension factors, causes, and control; exercise tolerance; and general body mechanics and control.
- 410-4 Behavioral Foundations of Coaching.** Behavioral problems of the athlete and coach and possible solutions to such problems. Application of behavioral principles and theories as a basis for understanding the interaction between coach and student in the athletic environment. Prerequisite: Guidance 305 or consent of instructor.
- 415-4 Workshop in Gymnastics for Women.** For undergraduates and graduates. Techniques and theory of teaching, coaching, judging official performances, conducting gymnastic meets, clinics, and demonstrations. Spotting and analysis of performance.
- 416-4 Current Theories and Practices in the Teaching of Dance.** (See Physical Education—Men 416.)
- 420-4 Physiological Effects of Motor Activity.** The general physiological effects of motor activity upon the structure and function of body organs; specific effect of exercise on the muscular system. Prerequisite: Physiology 209 or equivalent.
- 444-2 to 8 Contemporary Dance Workshop.** Dance technique and theory, composition, improvisation, and production. Advanced study of the problems of choreography and production in their presentation as theater. Public per-

formance is required. Prerequisite: 1 year of technique and theory or equivalent.

75-2 to 4 **Individual Research.** The selection, investigation, and writing of a research topic under supervision of an instructor. (a) dance; (b) kinesiology; (c) measurement; (d) motor development; (e) physiology of exercise, and (f) history and philosophy.

00-4 **Techniques of Research.**

01-4 **Curriculum in Physical Education.**

02-4 **Foundations of Motor Skills.**

03-4 **Seminar in Physical Education.**

04-4 **Research Project in Physical Education.**

08-3 **Administration of Interschool Athletics.**

09-4 **Supervision of Physical Education.**

10-4 **Motor Development.**

11-4 **Analysis of Human Physical Movement.**

13-4 **Perceptual Learning of Physical Skills.**

14-4 **Advanced Laboratory Techniques for Physical Exercise.**

15-4 **Body Composition and Human Physical Performance.**

17-4 **Athletic and Physical Education Facility, Design, Construction, and Maintenance.**

25-1 to 6 **Readings in Physical Education.**

99-1 to 9 **Thesis.**

00-2 to 48 **Dissertation.**

Physics and Astronomy

Professors Martin J. Arvin, Ph.D.
Charles J. Brasefield, Ph.D.
(*Emeritus*)

Richard Watson, Ph.D.
Otis Young, Ph.D. (*Emeritus*)
John R. Zimmerman, Ph.D.
(*Chairman*)

Associate Professors Mario E. Foglio,
Ph.D.

Walter Henneberger, Ph.D.

William Nickell, Ph.D.

Harry H. Nickle, Ph.D.

Mykola Saporoschenko, Ph.D.

Richard C. Schlecht, Ph.D.
Robert N. Zitter, Ph.D.
Assistant Professors Brent W. Benson,
Ph.D.

J. Craig Carrell, Ph.D.
John Daniel Cutnell, Ph.D.

Kenneth W. Johnson

Gerald Lefebvre, M.S.

Richard Linster, Ph.D.

Edward F. Pearson

John J. Sullivan, Ph.D.

Charlotte Zimmerschied, (*Emerita*)

Physics

The undergraduate concentration in physics leading to the Bachelor of Arts degree provides for a mastery of basic principles and methods of classical and modern physics and for flexibility in application through breadth of coverage of the field. Students considering a concentration in physics are urged to consult with the undergraduate adviser of the physics department.

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i> (Advanced Standing assumed.) . . .	59
<i>Supplementary Two-Year College Requirement in FL/Mathematics</i>	
Mathematics: Mathematics 111-10 (or advanced standing) and	
Mathematics 150-10	20
<i>Requirements for Concentration in Physics</i>	87-88
GSD-FL (French, German, or Russian recommended) . . . (9)	
Chemistry 115-5 ¹ and 121a-5, or 121a-5, and 121b-5, or	
240-4	9-10
Mathematics 252-9, 305-6, 455c-3	18

For students who do not pass a proficiency examination in chemistry.

Physics 111-9 and 112-3, or 206-9 and 207-3, or 211-9 and 212-3; 301, 304, 305, 307, 309, 310, 401, 404, 410a, 415-12, plus 4 hours from 311, 312, and 418	60
<i>Electives</i>	
Recommended: Applied Science 300, 401, 418, 421, 422; Chemistry 235, 305, 460 or 461; Engineering 222, 313, 334, 352, 412a, 420, 459, 461; GSB 211, 311, 354, 361; Geology 416, 435; Mathematics 421, 452, 455, 475, 480, 483; Physics 405, 410b	
<i>Total</i>	12

Bachelor of Science Degree, COLLEGE OF EDUCATION

For this degree the requirements differ from those for the Bachelor of Arts degree in the following respects: No foreign language is required. Thirty-three hours of 300 or above physics courses, including 301, 304, 415-12 and 6 hours of laboratory courses selected from 307, 311, 312 and 418.

Secondary Concentration

A secondary concentration in physics requires 24 hours and must include Physics 111-9 and 112-3, or 206-9 and 207-3, or 211-9 and 212-3 and two of the following: 300-4, 310-3 and 311-1, or 309-3 and 312-2 (no calculus prerequisite). Students having completed calculus may select 304-3, and those taking differential equations may select from 301-3 and 305a,b to meet requirements.

Course Descriptions

111-9 (3,3,3) College Physics-Honors. Restricted to freshmen. May be taken beginning with either the fall or the winter quarter. Prerequisite: advanced standing in Mathematics 111a and consent of department.

112-3 (1,1,1) College Physics Laboratory. Three hours of laboratory per week. Prerequisite: concurrent enrollment in 111.

206-9 (3,3,3) College Physics. Designed to meet preprofessional requirements and the needs of all students in the sciences, except physics and engineering. Must be taken in a,b,c.

207-3 (1,1,1) College Physics Laboratory. One 3-hour laboratory period per week, taken concurrently with 206.

211-9 (3,3,3) University Physics. Calculus for science, mathematics, and pre-engineering students. Laboratory. (a) Mechanics. (b) Mathematics and pre-engineering. (c) Electricity and magnetism. Must be taken in a,b,c sequentially. Prerequisite: Mathematics 150b or concurrent enrollment.

212-3 (1,1,1) University Physics Laboratory. Three hours per week. Prerequisite: concurrent enrollment in 211.

300-4 Introduction to Modern Physics. Continuation of 211. Three lectures, one recitation, and one three-hour laboratory per week. Prerequisite: 111 or 206, or 211.

301-3 Mechanics. Intermediate theoretical particle mechanics using vector analysis. Prerequisites: 111a, 206a, or 211a; Mathematics 305a, or concurrent enrollment, or consent of instructor.

302-3 Astronomy-Honors. Current knowledge of the universe and the gathering of that knowledge. Includes properties of the solar system and theories of its origin, the structure and evolution of stars. Supplemented by occasional hours of evening observation. Prerequisite: Mathematics 150b and one of GSA 10a, Physics 111a, 206a, or 211a, or consent of instructor.

304-3 Thermodynamics. A macroscopic study of the thermal properties of matter and the laws of thermodynamics. Prerequisites: 111b, 206b, or 211b and Mathematics 252b.

305-6 (3,3) Introduction to Electric Theory. Vector treatment of the theory of electrostatics in vacua and in matter, steady currents, electromagnetism and quasi-steady currents. Prerequisites: 111, 206, or 211; Mathematics 305a, or concurrent enrollment, or consent of instructor.

07-2 Electrical Measurements. A laboratory course illustrating basic electrical and magnetic properties and emphasizing precision in their measurement. Prerequisite: 305b or concurrent enrollment.

09-3 Electric Circuits. Electron tube and transistor circuit principles with applications to radio receivers, transmitters, and power supplies. Prerequisite: 1c, 206c, or 211c.

0-3 Light. Light propagation and optical instruments: reflection, refraction, interference, diffraction, and polarization of light. Prerequisite: 111b, 206b, or 1b.

1-1 Optics Laboratory. Advanced experiments in geometrical and physical optics. Three laboratory hours per week. Prerequisite: 310 or concurrent enrollment.

2-2 Electric Circuits Laboratory. Laboratory studies of properties of electron tubes and transistors and basic circuits employing them in power supplies, amplifiers, and oscillators. Prerequisite: 309 or concurrent enrollment.

1-3 Mechanics. Rigid body mechanics, normal coordinates, mechanics of continuous media, and advanced principles. Prerequisites: 301, Mathematics 455c or consent of instructor.

4-6 (3,3) Physical Electronics. Kinetic theory and statistical mechanics with applications to electronic conduction in solids, vacuum, and gases, electron emission and ballistics; Bose-Einstein and Fermi statistics, electron theory of metals; semiconductors; quantum physical phenomena of the solid state. Prerequisite: 304, 305, 401 (or consent of instructor).

5-3 Electronics. Advanced theory and application of vacuum tubes and semiconductor devices as circuit elements in power supplies, oscillators, amplifiers, and shaping circuits. Prerequisites: 305 and 309 or consent of instructor.

0-6 (3,3) Introduction to Electromagnetic Wave Theory. A theoretical study of electromagnetic wave generation, propagation, and detection, with applications to microwaves and modern optics. Prerequisites: 305, 310.

5-12 (3,3,3,3) Modern Physics. Elements of wave mechanics, special relativity, atomic, molecular, and nuclear physics. Prerequisites: 301, 305, Mathematics 455c or consent of instructor.

8-1 to 4 Modern Physics Laboratory.

0-2 to 5 Special Projects. Each student is assigned to a definite investigative topic. Adapted to advanced undergraduate students. Prerequisite: 301, 305.

07-5 Topics in Classical Physics. Assists experienced teachers to improve their understanding of classical physics and the strategy of presenting it. Emphasis on demonstration of phenomena as basic strategy in the introduction of new material. Attention given to the design of demonstration apparatus. Related laboratory experience is an integral part of the course. Prerequisite: consent of department.

08-5 Topics in Modern Physics. Assists experienced teachers to extend their understanding of modern physics. Lectures and demonstrations aim at improvement of the means of presenting the ideas of modern physics. Related laboratory experience is an integral part of this course. Prerequisite: consent of department.

09-3 (1,1,1) In-Service Institute for Teachers of Physics. A series of lectures, demonstrations, discussions, and films to assist teachers of high school physics in meeting their classroom problems and responsibility. Prerequisite: consent of department.

04-12 (4,4,4) X-Ray Diffraction and Lattice Dynamics.

0-9 (3,3,3) Classical Mechanics.

1-9 (3,3,3) Mathematical Methods of Physics.

0-2 to 5 Special Projects.

0-9 (3,3,3) Electromagnetic Theory.

1-9 (3,3,3) Quantum Mechanics.

2-9 (3,3,3) Advanced Quantum Mechanics.

0-9 (3,3,3) Nuclear Physics.

0-9 (3,3,3) Atomic and Molecular Spectra.

0-9 (3,3,3) Statistical Mechanics.

0-9 (3,3,3) Solid State Physics.

5-1 to 4 Graduate Seminar.

0-3 to 6 Selected Topics in Physics.

0-1 to 9 Thesis.

2-1 Colloquy in Molecular Science.

07-3 to 45 Special Topics in Molecular Science.

08-3 to 25 Special Projects in Molecular Science.

599-1 to 9 Thesis.
600-1 to 48 Dissertation.

Physiology

Professors Florence M. Foote, Ph.D. George H. Gass, Ph.D. Harold M. Kaplan, Ph.D. (Chairman) Alfred Richardson, Ph.D. Associate Professors Tom T. Dunagan, Ph.D.	Richard V. Lee, M.D. Joseph P. Miranti, M.D. Assistant Professor Donald M. Mil Ph.D. Alexander C. Warner, Ph.D. Adjunct Professor Eli L. Borkon, M.
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Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

General Studies Requirements	7
Supplementary Two-Year College Requirement in FL/Mathematics 18-10	18-10
Mathematics 111-10, and 150-10	
or	
GSD FL-9, and FL 201-9	
Requirements for Concentration in Physiology	2
Physiology electives selected in consultation with the chairman to total at least 48 hours	48
A background of basic courses in chemistry, mathematics, physics, and zoology is required. Core courses in Biology 305, 306, 307, 308 involving 16 hours as part of the 48 hour concentration are required	30
Electives	12
Total	12

Secondary Concentration

A secondary concentration in physiology requires a minimum of 24 hours.

JUNIOR-SENIOR HONORS PROGRAM

Students who, as sophomores, have shown outstanding ability in GSA 21 series or core curriculum in biological sciences may be accepted into the Honors Program in their junior year. Honors students engage in independent research in Physiology 456 during their junior and senior year.

Course Descriptions

200-3 Occupational Therapy Orientation. A survey and history of the field. The uses, techniques and philosophies of occupational therapy and its role in the treatment of disease and in rehabilitation. Three hours lecture per week.
300-4 to 5 Human Anatomy. Lectures, demonstrations, and periodic observation of the dissected body. Lectures confined to bones, joints, muscles, and nerves. Primarily for students in physical education. Four hours lecture per week for 4 quarter hours of credit. One section, 300b, is reserved chiefly for nursing, mortuary science, and some biology students. All bodily systems are reviewed. Four lecture and 2 laboratory sessions per week earn 5 quarter hours in the 300b section.
GSA 301-4 Principles of Physiology.
GSA 302-3 Psychobiological Foundations of Behavior.
410-15 (5,5,5) Advanced Anatomy. Dissection of the human body. Primarily for students with a concentration in physiology and other biological sciences. Not a premedical course. Two hours lecture, 6 hours laboratory. Prerequisite: consent of instructor.
414-4 Anatomy and Physiology of Speech and Hearing Mechanisms. The anatomy and physiology of the vocal apparatus. Primarily for students with a

- concentration in speech pathology. Three hours lecture, 2 hours laboratory.
- 15-8 (4,4) Experimental Animal Surgery.** Preparation of animals for surgery. Anesthesia, instruments, care of animal quarters, selected exercises. Two hours lecture, 4 hours laboratory. Part b may be elected independently of a.
- 17-6 (3,3) 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, chemo-therapy, toxicology, and therapeutics. Prerequisites: basic courses in chemistry and biological sciences. Two hours lecture, 2 hours laboratory.
- 30-12 (3,3,3,3) Cellular Physiology.** The nature and mechanism of the living cell. Chemical and physical aspects of vital activity.
- 33-4 Comparative Physiology.** Fundamental physiological processes and the manner in which they vary in various groups of animals. Recommended for a concentration in physiology and for students in other biological sciences. Three hours lecture, 2 hours laboratory.
- 40-3 Electron Microscopy.** Lectures, demonstrations, and practical experience with the electron microscope. Fundamentals of specimen preparation. Open to students with advanced knowledge of any natural or physical sciences. Two hours lecture, 2 hours laboratory.
- 50-4 to 16 Special Problems in Physiology.** Selected problems in various aspects of physiology. Eight hours laboratory. Prerequisite: consent of department.
- 60-15 (5,5,5) Mammalian Physiology.** Function and biochemical organization in mammals, especially man. Open to students with adequate courses in biological sciences and chemistry. (a) blood, circulation, respiration; (b) digestion, excretion, endocrines; (c) nervous system sense organs. Three hours lecture, 4 hours laboratory.
- 65-9 (3,3,3) Biophysics.** Fundamentals including physics in biological systems and the effects of the physical environment on living organisms. Prerequisite: 3 terms biology, 3 terms physics.
- 71-9 (3,3,3) Biophysical Instrumentation.** Principles of electronics, accenting solid state circuit designs that apply to biophysics. Includes circuit construction for biophysical instruments. Prerequisite: 1 year of physics and consent of instructor.
- 80-1 to 9 Advanced Seminar.**
- 19-3 Experimental Endocrinology.**
- 20-9 (3,3,3) Physiological Technics.**
- 21-1 to 6 Readings in Current Physiological Literature.**
- 40-8 (4,4) Advanced Comparative Physiology.**
- 50-3 Radiation Biology.**
- 65-3 Biophysics.**
- 99-3 to 9 Thesis.**
- 00-4 to 36 Doctoral Dissertation.**

Plant Industries

Professors Alfred B. Caster, Ph.D.	Jesse M. Rawson, Ph.D.
J. K. Leasure, Ph.D. (<i>Chairman</i>)	Lowell R. Tucker, Ph.D. (<i>Emeritus</i>)
James B. Mowry, Ph.D.	Assistant Professors Donald M. Elkins,
Herbert L. Portz, Ph.D.	Ph.D.
Joseph P. Vavra, Jr., Ph.D.	James A. Tweedy, Ph.D.
Associate Professors Gerald D. Coorts,	Instructor George Kapusta, M.A.
Ph.D.	
Irvin G. Hillyer, Ph.D.	Adjunct Professors Roland C. Blake,
Joe H. Jones, Ph.D.	Ph.D.
Oval Myers, Jr., Ph.D.	John W. Hull, Ph.D.

The Department of Plant Industries includes crop production, horticulture and soils. There are many widely varied opportunities for students with an interest in plants or soils. A student may choose a general option within the department and select most of his upper division credits from a wide choice of electives throughout the School of Agriculture and the University. If his interests are more specialized, he may elect the science option and concentrate in one particular area, or he may elect

an option which permits him to combine a broad background in plant and soils with selected business courses and business related electives. A course of study in international agriculture can be taken in any of these options if the student so desires.

Opportunities for individual studies, work in special problems, and seminars are available and students in all options are urged to make use of them to meet the goals and needs of their respective programs.

Bachelor of Science Degree, SCHOOL OF AGRICULTURE

<i>General Studies Requirements</i>			
<i>Requirements for a Concentration in Plant Industries</i>			60-
	GENERAL	SCIENCE	BUSINESS
Agricultural Industries 204, 350 ..	9	—	—
Animal Industries 121, 315	9	—	—
Courses in two other departments			
in agriculture	—	7	7
Plant Industries 109, 264, 301 ...	13	13	13
Other Plant Industries courses ..	14	14	14
Other agriculture electives	15	8	8
Mathematics, physical sciences, or			
biological sciences	—	24	—
Accounting 250; Management 271,			
301, or 340; Marketing 301, or			
Agricultural Industries 354 ...	—	—	11-12
Business electives and supporting			
courses	—	—	12-13
<i>Electives</i>			
<i>Total</i>	192	192	192

Course Descriptions

109-4 Principles of Field Crop Production. Plant development and production of important field crops emphasizing crops of the midwestern United States; plant classification and botanical structure; essential plant processes; crop ecology; crop improvement; seeds and seeding; crop production practices. Field trip.

259-3 to 60 Technology in Agriculture. This is a designation for credit earned in technical or occupational proficiency when credit is to be established (by departmental evaluation) for work above the high school level. Prerequisite: transfer from two-year program.

264-4 General Horticulture. General principles of plant propagation, vegetable growing, fruit growing, landscape gardening, and floriculture. Field trip. Seniors cannot enroll without consent of department.

301-5 Soil Science. (See Forestry 301.)

302-3 to 4 Advanced Soil Science. Basic principles of soil physics, chemistry, and fertility as they relate to plant production. Prerequisite: 103 or 301.

304-5 (3,2) Landscape Design. (a) Introduction to theory and principles of landscape design as applied to the modern home. Property selection and climate control. (b) Laboratory. Practical application in modern methods of property planning including the individual components of the complete landscape plan and selection of plants.

306-5 (3,2) Soil and Water Conservation. (Same as Agricultural Industries 306.) (a) The study of the theoretical factors affecting soil erosion and excessive water run-off, including practices of water management and soil conservation. Prerequisite: 301. (b) Laboratory. Practical structure methods of controlling water run-off and soil erosion. Prerequisite: 306a or concurrent enrollment.

309-4 Field Crop Production. Principles of growth and production of common field crops: cereals, forages, and miscellaneous crops; growth characteristics;

adaptation; improvement; culture; diseases and insects and their control; utilization. Field trip. Prerequisite: GSA 201b.

10-4 Morphology of Crop Plants. Cellular structure, vegetative and reproductive development, and gross morphology of the major crop plants. Utilization of crop plant parts. Prerequisite: GSA 201b or equivalent.

15-4 Plant Genetics. Principles of genetics and evolution of plants. Prerequisite: GSA 201b.

16-4 Small Fruits. Production of strawberries, brambles, grapes, and miscellaneous small fruits. Field trips. Prerequisite: GSA 201b or concurrent enrollment or consent of department.

17-4 Insect Pests and Their Control. (See Zoology 316.)

24-4 Orchardring. Commercial tree fruit growing, physiology, orchard practices, pest control, harvesting, and marketing. Field trips. Prerequisites: 264, SA 201b or concurrent enrollment.

44-4 General Floriculture. Principles governing production, timing, and marketing of the major floricultural crops grown in the greenhouse. Field trips. Prerequisite: 264.

SA 345-3 Economic Botany.

17-3 Garden Flowers. Culture, identification, and use of flowering bulbs, annuals, biennials, and perennials in the home flower garden. Prerequisite: SA 201b or consent of department.

59-3 to 5 Intern Program. Work experience program in either an agricultural agency of the government or agri-business. Prerequisite: junior standing.

31-1 to 2 Plant Science Seminar. Recent scientific developments in the field of plant science. Limited to senior students.

30-1 to 6 Special Studies in Plant Industries. Assignments involving research and individual problems. Prerequisite: consent of chairman.

31-1 to 6 Honors in Plant Industries. Independent undergraduate research sufficiently important to require 3 hours per week of productive effort for each credit hour. Prerequisite: junior standing, GPA of 4.0 with a 4.25 in the major, and consent of department chairman.

31-4 Soil Physics. Physical properties of the soil; factors affecting them, their measurements, evaluation, and influence in determination of soil productivity. Prerequisite: 301.

32-4 Soil Morphology and Classification. Morphology and soil formation, description and identification of soil profiles, classification of soils, techniques of soil mapping, and interpretation of survey data. Field trips cost approximately \$6.00. Prerequisite: 301.

33-4 Soil Chemistry. Inorganic and organic colloids, ionic exchange, oxidation-reduction processes, acidity, alkalinity, and salinity, and how each relates to plant nutrition and growth. Prerequisite: 301.

34-3 Turf Management. Principles and methods of establishing and maintaining turf for homes, recreational areas, and public grounds. Study of basic plant and soil materials, fertility, culture, water management, and pest control related to turf-grasses in variable environments. Field trips. Prerequisite: SA 201b or equivalent; course in soils recommended.

36-5 Radioisotopes, Principles, and Practices. Principles of radioisotope technology as applied to agricultural and biological sciences. Prerequisite: general chemistry and biochemistry or equivalent.

37-5 (3,2) Fertilizers and Soil Fertility. (a) Lecture. The uses of fertilizer material; effects of various fertilizers on soils and crops; fertility maintenance and soil management. Prerequisite: one course in soils; **(b)** Laboratory. The laboratory study of the chemistry and fertility of soils. Parallels the theoretical presentation given in 407a. Prerequisite: 407a or concurrent enrollment.

38-4 World Crop Production Problems. Ecological and physiological factors influencing production in various areas of the world. Natural limitations on crop production. Non-agricultural factors influencing world crop output. Prerequisite: 109.

35-4 Plant Breeding. Principles of plant breeding emphasized together with their application to the practical breeding of horticultural, agronomic, and forest plants. Prerequisite: any course in genetics.

38-4 Weeds and Their Control. Losses due to weeds, weed identification and distribution, methods of weed dissemination and reproduction. Mechanical, biological, and chemical control of weeds. State and federal legislation pertaining to weed control herbicides. Herbicide commercialization. Field trips. Prerequisite: GSA 201b or concurrent enrollment.

39-4 Forage Crop Management. Forage crop production and utilization; for-

age crop characteristics, breeding, and ecology; grasslands as related to animal production, soil conservation, crop rotation, and land use. Field trip cost approximately \$3.00. Prerequisite: GSA 201b.

424-5 (3,2) Soil Microbiology. (a) Lecture. A study of the numbers, characteristics, and biochemical activities of soil micro-organisms, with particular consideration of their role in the transformations of organic matter, nitrogen and minerals as related to soil fertility and management. Prerequisite: one course in Microbiology or soils; (b) Laboratory. Experiments designed to determine numbers, and to study the characteristics and biochemical activities of the soil microflora as related to fertility. Prerequisites: 424a, or concurrent enrollment, Microbiology 301.

437-4 Commercial Vegetable Production. Culture, harvesting, and marketing of commercial vegetables. Field trips cost approximately \$3.00. Two hours laboratory. Prerequisite: 264 or consent of department.

438-3 Advanced Studies in Vegetable Crops. Genetics, morphological, and physiological factors influencing the production of vegetable crops. Offered in alternate years. Prerequisite: 264, Botany 320 or consent of department.

440-5 Plant Propagation. Fundamental principles of asexual and sexual propagation of horticultural plants. Actual work with seeds, cuttings, grafts, and other methods of propagation. Prerequisite: 264.

506-2 Laboratory Methods for Radioisotopes.

507-3 Advanced Soil Fertility.

518-4 Principles of Herbicide Action.

520-1 to 6 Readings.

533-3 to 4 Growth and Development in Plants.

575-1 to 6 Research.

581-1 to 6 Seminar.

590-1 to 4 Special Studies in Plant Industries.

599-1 to 9 Thesis.

President's Scholars

Course Descriptions

111-0 Freshman Honors Colloquium. Open to freshman in the 90th percent on SIU predicted grade point average.

251-12 (3,3,3,3) Honors Seminar. Prerequisite: President's Scholar status.

351a-3 to 12 (3,3,3,3) Honors Seminar. Credit earned for these seminars may be used to satisfy the 300-level requirement for General Studies Area A.

351b-3 to 12 (3,3,3,3) Honors Seminar. Credit earned for these seminars may be used to satisfy the 300-level requirement for General Studies Area B.

351c-3 to 12 (3,3,3,3) Honors Seminar. Credit earned for these seminars may be used to satisfy the 300-level requirement for General Studies Area C.

399-2 to 15 Honors Project. Preparation of honors paper or comparable project under joint supervision of President's Scholar Program and a faculty member of a subject-matter department. Prerequisite: consent of President's Scholar Program.

499-3 to 9 Undergraduate Honors Thesis. Preparation of honors thesis under supervision of a committee consisting of one or more faculty members in appropriate disciplines and a representative of the President's Scholar Program. Prerequisite: consent of department and the President's Scholars Program Committee.

Psychology

Research Professor Noble Kelley, Ph.D.

Professors Gene Jerome Brutten, Ph.D.

Neil A. Carrier, Ph.D.

David Ehrenfreund, Ph.D. (*Chairman*)

Jack W. Graham, Ph.D.

Alfred Lit, Ph.D.

Janet E. Rafferty, Ph.D.

James H. McHose, Ph.D.

Guy A. Renzaglia, Ph.D.

Donald J. Shoemaker, Ph.D.

William C. Westberg, Ph.D.

Associate Professors Sheldon Alexander, Ph.D.

Vincent A. Harren, Ph.D.

Clayton E. Ladd, Ph.D.

Jefferson F. Lindsey, Ed.D.

Donald Meltzer, Ph.D.

Gordon F. Pitz, Ph.D.

Gordon Rader, Ph.D.

Robert C. Radtke, Ph.D.	James Hill, Ph.D.
Eugene L. Ringuette, Ph.D.	Robert A. Levitt, Ph.D.
Thomas R. Schill, Ph.D.	Donald MacLean, Ph.D.
Assistant Professors Stanley L. Brodsky, Ph.D.	James P. O'Donnell, Ph.D.
Jacob T. Evanson, Ph.D.	Thomas Purcell, Ph.D.
Dorothy Gampel, Ph.D.	Instructor Richard Raynard, B.S.

The undergraduate concentration in psychology is primarily aimed at providing broad general education rather than specialized professional training in psychology; to become a professional psychologist the student must usually complete from two to four years of postgraduate study.

<i>Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES</i>	
General Studies Requirements	67
Supplementary Two-Year College Requirement in FL/Mathematics	18-20
Mathematics 111-10, and 150-10	
or	
GSD FL-9, and FL 201-9	
Requirements for Concentration in Psychology	40
GSB201c, GSA301	(8)
Mathematics 111	(10)
Psychology 211	8
Psychology electives: At least two courses from 301, 303, 304, 305, 307, 320, 322; any two courses from 311, 312, 313, 314, 315; any two courses from 404, 407, 408, 421, 431, 440, 451, 461, 465, 467, 479, 490; and any two additional courses from those listed above	32
Electives	
Total	192

Secondary Concentration

Twenty-four hours are required for secondary concentrations.

Junior-Senior Honors Program

A small number of students are selected each year for the honors program. Selection criteria are promising academic performance (4.0 overall GPA and 4.25 psychology GPA minimum), expressed interest, and recommendation of department adviser. Students selected register for 399a (junior honors) or 399b (senior honors) during each quarter in the program. Emphasis on small seminar and individual research work by the student.

- Course Descriptions*
- 1-4 **Developing Effective Relationships.** Literature relevant to human interaction. Personalized learning experience. Student is encouraged to make immediate use of relevant information in developing more effective relationships with peers, parents, and significant others. Examination of personal beliefs and values.
 - 2-8 (4,4) **Principles and Methods of Psychology.** An introduction to the experimental methods utilized in the study of behavior. (a) The application of methods to the study of sensation, perception, and learning; (b) the analysis and interpretation of data. Lecture and laboratory. Prerequisite: GSB 201c.
 - 3-4 **Child Psychology.** A study of the biological and psychological development of the child from birth through puberty, and of relevant research methods and results. Prerequisite. GSB 201c.
 - 4A 302-3 **Psychophysiological Foundations of Behavior.**

303-4 Adolescent Psychology. Examines the physical and psychological development of the adolescent, and the relevance of childhood development to adolescent problems. Prerequisite: GSB 201c.

304-4 Psychology of Maturity and Old Age. A consideration of psychological factors in later maturity and old age and their concomitant problems, both individual and societal. Prerequisite: GSB 201c.

305-4 Psychology of Personality. A study of the inferred patterns underlying an individual's unique reactions to his environment. Investigates the motivations, development, and methods of changing these patterns, and how personality processes are studied. Prerequisite: GSB 201c.

307-4 Social Psychology. Introduction to the study of the individual's interaction with his social environment. Considers problems of social learning, attitude formation, communication, social influence processes and group behavior. Prerequisite: GSB 201c.

311-4 Experimental Psychology: Learning. Investigates the processes governing behavioral change. Experimental studies of conditioning, memory, and forgetting will be emphasized. Laboratory work will include the design and conduct of experiments with humans and animals. Lecture and laboratory. Prerequisite: 211a,b.

312-4 Experimental Psychology: Perception. Investigates the variables influencing an organism's stimulation by his environment. The structure and operation of the sense organs as well as complex perceptual phenomena are examined in lectures and laboratory. Prerequisite: 211a,b.

313-4 Experimental Psychology: Motivation. An examination of both biological and social variables influencing the activation, direction, and maintenance of behavior. Laboratory work will examine the effects of motivation upon behavior. Lecture and laboratory. Prerequisite: 211a,b.

314-4 Experimental Psychology: Physiological. The role of the nervous and endocrine systems in the behavior of organisms. Lecture and laboratory. Prerequisite: GSA201, or GSB201c, or GSA 301.

315-4 Experimental Psychology: Cognitive Processes. Considers the human being as an information-processing and decision-making device and examines ways in which information is selected, stored, retrieved, and translated into behavior. Lectures, demonstration experiments, and original research. Prerequisite: 211b.

320-4 Industrial Psychology. A study of the use of psychological methods in the analysis of human factors problems in business and industry. Prerequisite: GSB 201c.

322-4 Personnel Psychology. A study of the use of psychological methods in the selection, placement, and evaluation of personnel in business and industry. Prerequisite: GSB 201c.

323-4 Psychology of Employee Relations. Job satisfaction and morale, psychological aspects of labor relations, interviewing methods, and human relations training. Lecture. Prerequisite: GSB 201c.

399a-1 to 9, 399b-1 to 12 Research and Investigation: Honors. Intensive study in selected areas for students qualified for honors work in psychology. A research paper or equivalent will be required. Prerequisite: consent of chairman. (a) For juniors. (b) For seniors.

404-4 Theories of Perception. An examination of the different theories concerned with an organism's sensory contact with his environment. Physiological, social, and organizational theories of perception will be considered. Prerequisite: 312 or consent of instructor.

407-4 Theories of Learning. Consideration of contemporary theories and the relation to experimental data. Prerequisite: 211a, b or consent of instructor.

408-4 Theories of Motivation. Systematic analysis of the concept of motivation with emphasis on its utility as an explanatory component of general behavior theory. Prerequisite: 211b or consent of instructor.

414-4 Advances in Physiological Psychology. Reading and discussion of articles dealing with recent significant advances in the neuroendocrine bases of behavior. Prerequisite: 314 or consent of instructor.

421-4 Psychological Tests and Measurements. Principles of psychological measurement, including errors of measurement, techniques for estimating reliability and validity, techniques of test construction, and problems in assessment and prediction. The laboratory will include the use of selected instruments. Lecture and laboratory. Prerequisite: 8 hours of psychology.

425-4 Mathematical Psychology. Survey of mathematical models of behavior.

lementary models of learning, perception, and decision making. Prerequisite: Mathematics 480a, 421a, 410a or consent of instructor.

31-4 Psychopathology. Classification, description, etiology and treatment of the disorders of personality organization and behavioral integration. Observations in a state mental hospital setting. Prerequisite: 305 or consent of instructor.

40-4 Theories of Personality. A review and critical evaluation of major personality theories and their supporting evidence. Prerequisite: 305 or consent of instructor.

51-4 Advanced Child Psychology. An examination of the concepts, methods, and problems of human development with consideration of both its psychological and psychosocial aspects. Prerequisite: 211b, 301 or consent of instructor.

59-4 Theory and Practice in the Preschool. Designed for those in nursery education and related fields. Examines the variety of topics and provides lectures, demonstrations, and practicum experience in the child study cooperative nursery. Prerequisite: consent of instructor.

61-4 Advanced Social Psychology. Examines current areas of interest in the study of social behavior: language behavior, communication, social influence, attitude change, interpersonal perception, etc. Emphasis is on the individual in the social context. Prerequisite: 307 or consent of instructor.

65-4 Group Dynamics and Individual Behavior. Examination of research and theory in the area of small-group interaction. Examines such topics as group structure and function, group-solving, leadership, etc. Prerequisite: 307 or consent of instructor.

67-4 Psychology of Black Americans. Critical examination of the issues in research and theory. Psychological differences between Black and white Americans. Includes self-concept, personality and temperament, intellectual functioning, behavioral genetics, socialization practices, and intergroup and intragroup relations. Prerequisite: 307 and GSB 201c.

79-4 Animal Behavior. (See Zoology 479.)

90-1 to 16 Independent Projects. Independent readings and projects in psychology. Prerequisite: consent of instructor and chairman.

95-1 to 18 Seminar: Selected Topics. Varied content. To be offered from time to time as need exists and as faculty interest and time permit. Prerequisite: consent of department.

99-4 Instrumentation in Behavioral Science.

10-4 History and Systems.

12-4 Sensory Processes.

14-8 (4,4) Physiological Psychology.

16-4 Learning Processes.

22-4 Research Design and Inference III.

23-2 Research Seminar.

24-4 Multivariate Methods in Psychology.

25-4 Mental Test Theory.

26-4 Experimental Design in Psychology.

30-4 Personality Theory and Dynamics.

31-8 Advanced Psychopathology.

32-2 Experimental Approaches to Personality.

33-3 Experimental Approaches to Psychopathology.

36-4 Fundamentals of Counseling.

37-4 Counseling and Psychotherapy.

38-2 Group Psychotherapy.

39-4 Experimental Approaches to Psychotherapy.

41-4 Psychodiagnostics I.

43-6 (4,2) Psychodiagnostics II.

45-2 Psychodiagnostics III.

47-4 Assessment Procedures in Counseling.

52-4 Experimental Child Psychology.

54-2 Developmental Theory.

56-2 Psychological Treatment of the Child.

61-4 Social Influence Processes.

62-4 Observational Techniques and Content Analysis.

64-4 Communication and Group Behavior.

71-4 Industrial Motivation and Morale.

72-4 Industrial Training.

73-2 Selection and Placement.

574-2 Psychology of Industrial Relations.
 576-2 to 4 Human Engineering.
 581-4 Psychophysical Methods.
 590-1 to 16 Readings in Psychology.
 591-1 to 36 Research in Psychology.
 593-1 to 18 Practicum in Psychology.
 595-1 to 18 Advanced Seminar.
 598-2 Ethical and Professional Problems in Psychology.
 599-1 to 9 Thesis.
 600-1 to 45 Dissertation.

Radio-Television

Associate Professor Thomas Olson,
 Ph.D.
 Buren C. Robbins, M.A.
 Assistant Professors Homer Eugene
 Dybvig, M.F.A.
 John L. Kurtz, M.A.

Charles T. Lynch, M.A.
 E. Walter Richter, M.A.
 Lecturers Byron Bartlett, M.A.
 W. Edward Brown, B.A.
 Richard Hildreth, M.S.
 David Terwische, M.A.

Bachelor of Science Degree, SCHOOL OF COMMUNICATIONS

General Studies Requirements	67
Requirements for Concentration in Radio-Television	48
Radio-Television 161, 251, 252, 260, 351, 352, 363, 364, 373, 374 (8-12), 383, 393, and electives to total 48 hours	
Secondary Concentration in a Related Area	24
Electives	
Total	192

Each student with a concentration in Radio-Television must by the end of his sophomore year:

1. Either achieve a grade of *B* in both GSD 101 and 102 or a grade of *C* in English 390.
2. Either demonstrate proficiency in typing at 30 words per minute by passing a test administered by the Department of Secretarial and Business Education, or pass Secretarial and Business Education 201a with a grade of *B*.

Course Descriptions

251-3 Survey of Broadcasting. Examinations of the history of the American system of broadcasting, including discussions of the industry, network structure, and local station, organization and economics. Similar examination of various systems of foreign broadcasting.

260-1 Audio Control Room Practices. Familiarization with and operation of Radio and Television Audio Control Room equipment, such as audio control consoles, turntables, tape recorders and microphones (types, and proper placement). This course also includes familiarization and operation of remote broadcasting equipment and facilities. Preparation for FCC Third Class License with broadcast endorsement. Recommended for Radio-TV Concentrations only.

300M-5 Radio-Television Performance/Production Techniques. Performance and production for both radio and television. Performance sequence emphasizes both speaking and writing techniques. Production sequence introduces students to basic radio and television production and equipment.

300P-5 Programming and Analysis. Examination of the structure of broadcast programming and audience analysis. Included are criteria for the evaluation of program content.

300S-5 Foundations of Radio-Television. History and governmental control of American Broadcasting. Includes discussion of the industry, network structure, and local station organization and economics.

301-2 Broadcast Equipment. Familiarization with and operation of equipment. Includes audio consoles, turntables, tape recorders, microphones, cameras,

witchers, teleprompters, electronic special effects. Preparation for FCC third class license with broadcast endorsement. Recommended for radio-television concentrations only.

10-3 Radio-TV News. (Same as Journalism 310.) The basic techniques of writing, re-writing, and editing news from local and wire service sources, for presentation on radio and television. Actual practice with the WSIU and WSIU-TV facilities are stressed. Prerequisite: Journalism 203, 301, 302, and 303.

51-5 Programs and Audiences. The structure of broadcast programs, programming objectives, audience characteristics, analysis methods, preparation of station program schedules. Development, organization and planning of new programs within limitations of budgets and local situations. Program revising. Prerequisite: 251.

52-4 Broadcast Laws and Policies. Legal aspects of broadcasting in America. Precedent legal cases and actions by the Federal Communications Commission. Industry and network codes. International agreements. Prerequisite: 251.

60-3 Radio Announcing. Radio Announcing techniques and extensive practice for various announcing situations. Emphasis is placed on vocal development and interpretation. Numerous audio recordings. Two 1-hour lectures and 2-hour laboratory each week. Prerequisite: minimum grade of B in 161.

61-3 Television Announcing. Television announcing techniques for such situations as voice-over-film, special events, on-camera studio programs, and commercial presentations. Television studio facilities and video tape facilities for practice and performance. Prerequisite: minimum grade of B in 161.

63-4 Radio Program Production. Techniques of producing and directing radio programs with emphasis on creative use of sound effects and music. Two hours of lecture and 4 hours of lab each week. Lab hours are devoted to actual production of radio programs for use on WSIU. Prerequisite: 260.

64-4 Television Production. The principles and procedures of television production. An examination of the various studio and control room personnel and their functions in production. An analysis of purposes, theories, and techniques that lead to excellence in quality television production. Prerequisite: 252.

69-4 Television Directing. Instruction and practical experience in the directing of television programs. Techniques of directing all types of programs including news, instructional, remotes, panel and music. Two 1-hour lectures and one 4-hour laboratory each week. Prerequisite: 364.

70-2 Films for Television. The use of films and video tape in the television industry. Included are sections on local film production as well as programming and securing syndicated programs from outside sources. This course is designed for the student concentrating in television interested in programming and management.

71-3 Techniques of Staging, Lighting and Graphics for Television. A study of television studio set design, the various techniques of studio lighting, and the special demands of the graphic arts in television production. Prerequisite: 364 or consent.

373-1 to 2 Advanced Radio Production Laboratory. Staff work on WSIU-FM including actual production of radio programs from conception through completion. May be repeated. Must be repeated by students concentrating in radio-television for a total of 4 hours minimum, 8 hours maximum, but combined total of 373 and 374 cannot exceed 12 hours. Prerequisite: 363 or concurrent, FCC third phone license with broadcast endorsement necessary, or consent of instructor.

374-1 to 2 Advanced Television Production Laboratory. Staff work on WSIU-TV and Closed Circuit Television operations, including actual production of television programs from conception to completion. May be repeated. Must be repeated by students concentrating in radio-television for a total of 4 hours minimum, 8 hours maximum, but combined total of 373 and 374 cannot exceed 12 hours. Prerequisite: 364.

375-1 to 4 Problems in Radio-television Programming.

375j-1 to 2 Individual Research Problems. May be repeated, but for no more than a total of 4 hours. Assignments made in consultation with the chairman.

377-3 Radio and TV Advertising. Study and practical radio-television experience in designing and developing promotional and publicity campaigns for the radio and television media. Scope of study includes radio and television advertising and sales techniques, methods and skills. Prerequisite: Journalism 370 and 371, or consent.

383-4 Broadcast Writing. Various forms for radio and television including continuity, spot, feature, and program. Prerequisite: 363, 364.

390-5 Broadcast Station Management. Objectives, procedures, equipment costs, and policies in radio and television station development, management and operation. Prerequisites: 251, 351, 352.

393-3 Radio, Television, and Society. The interrelation of radio and television with social habit patterns and with economic and political systems. International broadcasting. Prerequisite: 251, 351, 352.

430-3 Public Affairs and the Radio-TV Establishment. Interdisciplinary examination of selected current major public issues and study of broadcast management's responses to those issues. Operational organization and reorganization, policy development, and procurement and allocation of personnel and other resources as responses to the developing public affairs commitment.

453-3 Radio-TV in Education. History and role of radio and television in education. Philosophies for education by radio and television. Analysis of types of educational broadcasting, including in-school broadcasting, adult education, and service programs.

464-3 Instruments of Public Affairs, Television Programming. Study and practice of sophisticated film and studio tools and techniques necessary for creation of public affairs television programming. Prerequisite: consent of instructor.

467-3 Radio-Television Production Survey. Production problems including writing, announcing, production, direction, sales, and management. For nonmajors only.

475-1 to 4 Individual Production Problems. May be repeated for a total of 4 hours. Assignments made by radio-television instructors.

481-4 ITV Administration, Production, Utilization. Analysis of production capabilities and needs for the area served, concentrating on research and evaluations of currently available productions and those being produced in regard to their use within school systems, commercial organizations, and other institutions. Utilization factors in instructional use of TV and other electronic media.

Recreation and Outdoor Education

Associate Professors William H. Freeberg, D.Rec.

Loren E. Taylor, Ed.D.

Assistant Professor William E.

O'Brien, Ph.D. (*Chairman*)

Instructors William R. Abernathy

M.S.

Because of its relatedness to many academic fields, the recreation curriculum at Southern Illinois University builds its foundation on a good General Studies program and draws from several colleges and departments in the preparation of leaders for the many positions concerned with the recreative use of leisure time.

The curriculum emphasizes the practical as well as the theoretical aspects of recreation leadership. In addition to the General Studies requirements, several special courses are required in the student's professional field.

Each student is expected to choose courses which will give him a broad background in recreational activities and skills. These courses may be selected from such areas as music and dance, arts and crafts, drama sports and games, and nature and conservation.

Students with a concentration in Recreation must complete 16 hours of practicum in his area of interest, have 37 hours of professional recreation courses, and work closely with the department chairman in choosing related courses in other departments of the University, according to the student's chosen area of specialization.

The Department of Recreation offers courses leading to leadership specialization in (1) school and community recreation, (2) recreation for special populations, (3) outdoor recreation, and (4) commercial recreation.

Those students who wish to pursue a concentration in recreation and

desire to teach must fulfill the course requirements in the College of Education, including a teaching concentration and practice teaching.

Students who have a concentration in recreation and do not fulfill the requirements in the College of Education for teaching must sign a statement indicating that they understand that they do not meet the state and college requirements for teaching and intend to work in recreation positions.

Students concentrating in recreation are encouraged to obtain the following certificates: American Red Cross Life Saving and Water certificate, American Camping Association Campcraft certificate. Other certificates in the activity and instructional areas are also available.

Bachelor of Science Degree, COLLEGE OF EDUCATION

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in Recreation</i>	85-107
Government 232	5
Guidance 305	4
Health Education 334	4
Management 340	4
Psychology 305, 307	8
Recreation 201, 202, 310, 315, 320, 325, 330, 365, 425, 490 . .	40
Sociology 308 or equivalent	5
Speech 303	4
One of the Following Four Specializations:	24-46
<i>Community Recreation</i>	
Accounting 250	4
Forestry 350a	3
Government 360	5
Recreation 302, 340, 425	9
<i>Recreation for Special Populations</i>	
Accounting 250	4
Psychology 301, 303, or 304	4
Recreation 302, 340, 425	9
Sociology 301	4
Special Education 200, 410-8	11
<i>Management</i>	
GSA 312, 340	(6)
Botany 313, 341	6
Forestry 350a, 410	6
Geology 221	5
Plant Industries 301, 304, 306a	10
Zoology 102, 103, 310, 303	19
<i>Outdoor Education</i>	
Students who plan to teach, with an area of concentration in outdoor education, should choose their electives from the courses listed below:	
Recreation and Outdoor Education 301	4
GSA 312, 340	(6)
GSB 321	(3)
Education Administration 355	4
Guidance 442	4
Psychology 301, 303	8
Instructional Materials 417	4

<i>Electives</i>	
<i>Total</i>	192

Students concentrating in recreation are encouraged to obtain the following certificates: American Red Cross First Aid certificate, American Red Cross Life Saving and Water certificate, American Camping Association Campcraft certificate and other certificates in instructional areas.

Course Descriptions

201-3 Leisure and Recreation. Basic philosophical and historical foundations and development of leisure and recreation in light of economic, political, and social change.

202-3 Programs in Recreation. A study of essential elements and basic principles involved in the organization and administration of various types of recreation programs with emphasis on leadership processes. Prerequisite: 201.

301-4 Outdoor Education. To acquaint students with the philosophy and techniques of teaching in the out-of-doors. Ways and means of various outdoor learning experiences.

302-3 Institutional Recreation. An introduction to the philosophy, objectives, and basic concepts of therapeutic recreation. Emphasis on rehabilitation needs and "team" approach within institutional and community setting. Prerequisites: 201, 202.

310-3 Social Recreation. Acquaints the student with the various recreation skills and leadership techniques in activities suitable for a variety of recreation settings and population groups. Prerequisite: 201, 202.

315-3 Dramatics in Recreation. Principles, materials, and techniques of producing all types of dramatic activities for recreation with emphasis upon impromptu and informal dramatics. Prerequisite: 201, 202.

320-3 Nature Interpretation. Acquaints the student with opportunities for the interpretations of the natural phenomenon. Avocational as well as the vocational aspects of natural resources.

325-3 Leisurecrafts. Methods and materials in arts and crafts projects suitable for playgrounds, recreation centers, clubs, and camps. Emphasis on use and care of simple tools, use of native and inexpensive materials, and creativity. Prerequisite: 201, 202.

330-3 Campcraft. Leadership skills in the use of native materials and simple tools; identification and dietary use of wild fruits, berries and plants; outdoor cooking; construction of shelters and camp facilities; and other campcrafts.

335-3 Music and Dance in Recreation. Acquaints the student with methods, materials, and leadership techniques in music, dance, and rhythmic activities for a variety of recreation settings and population groups. Prerequisite: 201, 202.

340-3 Recreation Activities. Methods, materials, and leadership techniques for conducting social recreation for the physically handicapped, the mentally retarded, the aged, and other special populations. Prerequisite: 302.

360-4 Playground Administration.

365-4 Recreation Administration. Administrative procedures in park and recreation departments—organization, finance, personnel, facilities, program, public relations, and other areas of administration. Prerequisites: 201, 202, and 15 hours of recreation.

368-4 Camp Management. Principles and procedures of selection and supervision of personnel, program planning, food preparation, health and safety, camp maintenance, evaluation, and other responsibilities of camp administration. Prerequisites: 201, 202, and 15 hours of recreation.

380-1 to 4 Field Work. Supervised leadership experience in a public or private agency with emphasis on recreation activities common to such organizational programs. Prerequisite: 20 hours in recreation.

390-16 Practicum. Supervised practicum experience in a professional setting. Emphasis on administrative, supervisory, teaching and program leadership in community, school, park and forest, institutional, and other recreation settings. Prerequisite: consent of department.

425-4 Recreation Areas and Facilities. Principles of planning, construction,

management, and maintenance of shelters, utilities, sanitation structures, erosion control, and other related problems. Prerequisites: 201, 202, and 15 hours of recreation.

470-4 School and Community Recreation. The role of the public schools in community recreation. Emphasis on current practices and trends in curriculum content, adult education, extracurricular activities, after-school and vacation programs, and cooperative programs with other agencies.

490-12 to 16 Internship in Recreation and Outdoor Education. Experience in a professional setting. Emphasis on administrative, supervisory, teaching, and program leadership. School, community, industrial, agency, park and forest, and other situations. Will not be counted toward requirements of a graduate program. Prerequisite: 20 hours recreation courses.

500-4 Principles of Recreation.

510-4 Outdoor Education Workshop.

520-4 Recreation Administration Workshop.

525-3 Special Population Workshop.

530-4 Recreation Program Workshop.

540-4 Survey and Planning of Facilities.

570-4 Seminar in Recreation and Outdoor Recreation.

596-2 to 9 Independent Study.

Rehabilitation

Professors Nathan H. Azrin

John E. Grenfell

Guy A. Renzaglia (*Director*)

Associate Professors Robert L. Campbell

Martin Groder

Robert E. Lee

Joseph P. Miranti

Richard M. Sanders

Brockman Schumacher

Assistant Professors Harry A. Allen

Margaret S. Gardner

Don F. Hake

Roger Poppen

Harris B. Rubin

Louis Viececi

414-1 to 16 Developing Employment Opportunities. Trains rehabilitation personnel in the attitudes, methods, and skills pertinent to placement of handicapped persons in competitive and other occupations. Prerequisite: consent of instructor.

417-4 Rehabilitation of the Economically Deprived. Analysis of employment problems of the economically deprived with attention to training, counseling, and programs for rehabilitation.

420-3 to 4 Human Development and Behavior. Consideration of human development from the framework of the major theories. Acquisition and maintenance of diverse behavior patterns. Prerequisite: advance standing.

480-2 to 4 An Introduction to Rehabilitation. The philosophy, procedures, and practices underlying the rehabilitation movement, including the history and legislation that have contributed to its rapid development.

481-2 An Introduction to Employment and Developmental Services. The development and growth of employment services and special youth centers, current social needs and trends, and the organizational patterns in such centers.

485-4 Scientific Methods in the Behavioral Sciences. Scientific methods as an approach to the investigation of human behavior including consideration of various systems of behavior theory and practice.

486-4 Introduction to Behavior Modification. Overview of the field of behavior modification, its procedures, techniques, and methods. A survey of current literature examining the various populations being utilized.

490-1 to 6 Readings in Rehabilitation. Select readings in rehabilitation supervised by the staff. Prerequisite: consent of instructor.

501-6 (2,2,2) Rehabilitation Administration.

503-2 Case Management in Rehabilitation.

511-2 to 4 Vocational Developments and Occupational Choice.

519-2 to 3 Selection, Placement, and Follow-up.

520-4 Functional Analysis of Behavior.

521-4 Child Behavior.

526-4 Complex Human Behavior.

531-2 to 4 Vocational Appraisal.

532-3 to 4 Assessment Procedures in Rehabilitation.

533-4 Measurement in Behavior Change.

535-4 Schedules of Reinforcement.

- 536-4 Individual Assessment in Rehabilitation.
- 537-4 Diagnostic Procedures for Special Populations.
- 539-1 to 6 Behavioral Programming.
- 541-1 to 6 Medical Aspects of Rehabilitation.
- 543-4 Structural Basis of Behavior.
- 551-3 to 4 General Rehabilitation Counseling.
- 552-4 Rehabilitation Counseling Research.
- 555-2 Rehabilitation Counseling with Mentally Retarded.
- 556-2 to 4 Group Procedures in Rehabilitation.
- 558-4 Programed Instruction and Behavior.
- 561-2 to 3 Psycho-social Aspects of Disability.
- 563-4 to 8 Aversive Control and Aggressive Behavior.
- 564-4 Sexual Behavior.
- 565-4 Verbal Behavior.
- 567-4 School-Related Behavior.
- 571-1 to 6 Seminar in Selected Topics.
- 576-1 to 12 Seminar in Behavior Modification.
- 578-1 to 6 Seminar in Correctional Rehabilitation Counseling.
- 585-0 to 24 Practicum in Rehabilitation.
- 589-0 to 12 Internship in Rehabilitation.
- 590-1 to 16 Independent Projects.
- 591-1 to 16 Research in Rehabilitation.
- 599-1 to 9 Thesis.

Religious Studies

Secondary Concentration

The secondary concentration in religious studies (30 hours) draws on the offerings of several departments and programs. Each student is required to take 18 hours from a common core of courses in the phenomena of religion east and west. In addition, he must take 12 hours of related courses in some other department of the University. Students are encouraged to tailor the 12 hour elective side of this secondary concentration to their own academic interests, subject to the approval of the religious studies director.

- The Phenomena of Religion East and West.* 18
- GSC 307-3, 310-3, 311-3, 312-3, 333-3
 - Philosophy 301-4 and Soc 351-4
 - Religious Studies 301-3, 320-6, 330-9

- Departmental Sequences* 12

This work may commonly be done in English, history, philosophy, psychology, or sociology, the details of which are subject to the approval of the religious studies director. A student may petition for an elective sequence in some department other than those here listed.

Course Descriptions

- 301-3 **Contemporary Western Religious Thought.** A critical evaluation of current religious thought and movements.
- 320-6 (3,3) **Biblical Studies.** (a) Old Testament History and Literature; (b) New Testament History and Literature. Prerequisite: junior standing or consent of instructor.
- 330-9 (3,3,3) **History of Western Religious Thought.** (a) Early and Medieval; (b) Reformation Era; (c) Post Reformation and Modern. Prerequisite: junior standing or consent of instructor.
- 340-3 **History of Ideas in Judaism.** Ancient and modern developments in Jewish law, cult, prophetism, sects, mysticism, realism, and utopia. Prerequisite: GSC 215, or 310, or 333, or consent of the instructor.
- 341-4 **Themes in Greek Tragedies and the New Testament.** (Same as Greek 341) Greek tragedies and passages from the Synoptic Gospels and the Letters

of Paul showing similarities and differences in their treatment of such themes as freedom, law, love, and justice.

Secondary Education

Professors Robert L. Buser, Ed.D.

Claude J. Dykhouse, Ph.D.

Troy W. Edwards, Ed.D.

John H. Erickson, Ed.D.

William H. Evans, Ed.D.

Ross Jean Fligor, Ph.D.

Daryle E. Keefer, Ph.D.

John D. Mees, Ed.D.

Peter F. Oliva, Ed.D. (*Chairman*)

Ronald W. Stadt, Ed.D.

Clarence W. Stephens, Ed.D.

John Richard Verduin, Ph.D.

Associate Professors Frank C. Adams,
Ph.D.

Bruce C. Appleby, Ph.D.

James C. Redden, Ph.D.

Assistant Professors Arthur L. Aik-
man, Ph.D.

Roderic C. Botts, Ph.D.

Raymond P. DeJarnett, Ph.D.

Billy G. Dixon, Ph.D.

Helen H. James, Ph.D.

Roland Keene, Ed.D.

Harry G. Miller, Ed.D.

Instructor Harold R. Hungerford,
M.S.

One who is preparing to teach in junior high school, high school, or junior college does not concentrate in secondary education but must concentrate in any of the areas listed below.

The Department of Secondary Education concerns itself with the sequences of professional education courses that lead to certification for teaching in the junior high school, the high school, and the junior college. In addition, it advises students concerning areas of academic concentrations.

Bachelor of Science Degree, COLLEGE OF EDUCATION

A student in the College of Education who is preparing to teach in junior high school or high school may select areas of concentration in any of the following:

Agricultural Education

Art Education

Biological Sciences

Business Education

Botany¹

Chemistry

Economics

English

English Language Arts

Foreign Languages

General Science

Geography

Government

Health Education

History

Home Economics

Journalism

Mathematics

Music Education

Physical Education

Physics

Social Studies

Speech

Technical and Industrial
Education

Theater²

Zoology¹

Secondary Concentration

With the consent of an academic adviser, a secondary concentration may be selected from the following:

Biological Sciences

Black American Studies

Botany¹

Business Education

Chemistry

Driver Education

Earth Sciences

Economics

English

Foreign Languages

Geography

Government

Health Education

History

Home Economics

Education

Instructional Materials

Journalism

Mathematics

Microbiology

Music

Philosophy

Physical Education

Physics

Physiology

Psychology

Sociology

Speech

Technical and Industrial
Education

Theater

Zoology¹

¹ A student with a concentration in botany or zoology should have a secondary concentration in the other in order to meet certification standards for teaching biology at the high school level.

² In choosing this concentration, the number of hours required is 36; a second concentration of 36 hours must also be chosen; a secondary concentration of 27 hours is also required.

Standard High School Certificate

A student may enter the Secondary Education program of the College of Education by transfer (1) from the General Studies program (provided he has attained 64 quarter hours), (2) from other academic units, or (3) from other institutions. In each case, he is subject to the following requirements.

1. He must meet the requirements related to the state and federal constitutions satisfied by either Government 231, 300 or one of the following: GSB 211b, 300a.

2. There is no general requirement in foreign language in the Department of Secondary Education except in those situations where the student must meet a foreign language requirement as part of his major academic concentration.

3. He must complete either one area of concentration of at least 48 hours or one area of concentration of 36 hours and two minor areas with a sufficient number of hours to meet the teaching requirements for each. (Certain broad areas including biological sciences, English language arts, physical education, physical sciences, and social studies have special certification requirements. Students electing to work in these areas should adhere closely to the course of study presented through the designated academic adviser.)

4. He must, if working for certification at the secondary level, complete the following sequence of professional education courses, for at least 32 hours.

Guidance 305	4
Secondary Education 310, 315; 352-12 to 16 Student Teaching .	19-23
Select at least two courses from the following:	6-8
Agricultural Industries 311	
Art 308	
Educational Administration 355	
Guidance 422a	
Home Economics Education 310	
Technical and Industrial Education 408	
Instructional Materials 417	
Secondary Education 407, 440	

5. He must satisfy the Student Teaching prerequisites. Anyone who wishes to qualify for the Standard Special Certificate for grades K through 12 should see below.

A student in an academic unit other than the College of Education who desires to obtain a Standard High School Certificate should follow the teacher preparation program as described in this bulletin.

Standard Special Certificate

The Standard Special Certificate is valid for four years for teaching the special subject or subjects named on the certificate in grades kindergarten through 12. This certificate may be issued to one who has a bachelor's degree and presents certified evidence of having earned credit as follows:

<i>General Studies Requirements</i>	67
<i>Professional Education Requirements</i>	32
Guidance 305	4
Secondary Education 315 or Special Methods	3

Secondary Education 310, 352, and Elementary Education 351	16-20
Two of the following courses:	6-9
Agricultural Industries 311	
Art 308	
Educational Administration 355	
Guidance 422	
Home Economics Education 310	
Instructional Materials 417	
Secondary Education 407, 440	
Technical and Industrial Education 408	
Area of Specialization	48
Electives	
Total	192

Course Descriptions

01-2 Early Fall Field Experience. Acquaints prospective secondary teachers early in their professional program with the teaching-learning process in relevant classrooms. Minimum period of two weeks in early September.

10-4 History and Principles of Secondary Education. This course presents the nature, objectives, and current practices found in secondary schools throughout America. Prerequisite: Guidance 305 or Psychology 303, admission to the teacher education program, completion of 18 or more quarter hours in a declared concentration.

12-2 to 8 Instructional Analysis and Field Work. Analysis of classroom interaction in public schools. Allows the teacher education student to move into classrooms for direct observation and participation. May be taken in two hour blocks up to eight hours credit. Prerequisite: admission to teacher education program.

15-4 High School Methods. Various types of procedures used for effective classroom teaching constitute the basis of study and discussion. The problem approach and unit method are stressed. Prerequisite: 310.

40-4 Teaching Reading in High School. A foundation course in how to teach reading in junior and senior high school: developmental and corrective reading programs; appraisal of reading abilities; methods and materials of instruction. Prerequisite: Guidance 305.

52-8 to 16 Secondary Student Teaching.

75-2 to 4 Individual Research. Selection, investigation, and writing of a research topic, in one of the following areas: (a) Curriculum. (b) Instruction. (c) Language arts. (d) Science. (e) Reading. (f) Social studies. (g) Problems in secondary education. (h) Junior high school methodology. Prerequisite: consent of department.

02-4 Aerospace Education Workshop. Teachers learn about current developments in this area and how to incorporate aerospace information into existing curricula. They study in some detail the social, political, and economic consequences of this era.

07-8 (4,4) The Middle and Junior High School. (a) Organization, administration, and curriculum. (b) Workshop. Enables teachers to discover and evaluate new content, methods, and materials available and develops teacher-made functional instructional models. Must be taken in a,b sequence. Middle or junior high school teaching experience may be substituted for a as a prerequisite to b.

10-4 Teaching Consumer Education. For prospective secondary school and junior college teachers. Emphasis on meeting the state requirements for teachers of consumer education in Illinois. Includes selection and study of course content; preparation of instructional materials; organization and arrangement of units of study; planning an evaluation program. Prerequisite: PSB 346, or Finance 305, or equivalent.

27-4 Records Administration. Requisites for records administration. The value of files, their creation, control, retention, and disposition. Application to such records as medical, legal, educational. Prerequisite: 407.

- 485-3 Principles and Philosophies of Vocational and Technical Education.** (See Technical and Industrial Education 485.)
- 487-4 Teaching the Natural Sciences in Secondary Schools.** Objectives of science education; instruction methods and techniques appropriate for teaching science; desirable equipment, audio-visual aids, and instructional material; development of a course outline and at least one instruction unit. Prerequisite: 310 or concurrent.
- 488-3 Teaching Social Studies in Secondary Schools.** Deals with objectives, scope and sequence of curriculum, methods of teaching different courses and age groups, materials and evaluation. Prerequisite: 310 or concurrent.
- 490-4 Workshop in Economics Education.** (See Economics 490.)
- 495-2 to 4 Seminar in Problems Related to Teaching Disadvantaged Youth.**
- 498-2 to 6 Field Study Abroad.** Orientation and study before travel; readings, reports, and planned travel. Includes visits to cultural and educational institutions. Prerequisite: consent of instructor.
- 506-4 Reading in the Secondary School.**
- 507-2 to 4 Readings in Reading.**
- 508-4 Current Developments in Selected Subject Areas in Secondary Schools.**
- 509-4 to 8 Practicum in Reading.**
- 510-4 to 8 Seminar: Problems in Reading.**
- 514-4 Organization and Administration of Reading Programs.**
- 516-4 to 12 Internship in Reading.**
- 518-2 Supervision of Student Teachers.**
- 521-12 (4,4,4) Diagnosis and Correction of Reading Disabilities.**
- 560-2 to 12 (2 to 8 per quarter). New Developments in Occupational Education.**
- 561-4 Curriculum.**
- 562-4 Secondary School Curriculum.**
- 564-4 Secondary Principalship.**
- 566-4 Seminar in Instruction.**
- 570-4 Student Activities.**
- 571-4 Seminar in Curriculum.**
- 572-4 Seminar: Research and Evaluation in Secondary Education.**
- 575-2 to 4 Individual Research.**
- 588-4 Social Studies Education.**
- 591-4 Workshop in Secondary Education.**
- 596-5 to 9 Independent Investigation.**
- 597-4 Seminar in Proposal Development.**
- 598-2 to 12 Practicum.**
- 599-3 to 9 Thesis.**
- 600-1 to 48 Dissertation.**

Secretarial and Business Education

(See also *Business Teacher Education*.)

Professors Harry B. Bauernfeind, M.A. Assistant Professor Van A. Buboltz,
Harves C. Rahe, Ed.D. (Chairman) M.A.
Associate Professor Viola DuFrain, Instructor O. June Burger, M.S.
Ph.D. (Emerita)

Course Descriptions

Tests are given during the first week of all shorthand and typewriting courses to insure the correct placement of students in classes.

201-9 (3,3,3) Typewriting. Mastery of the keyboard, speed and accuracy in the touch operation of the typewriter, and skill and knowledge needed for vocational and personal uses. Must be taken in a,b,c sequence. (a) May not be taken for credit by students who have had previous high school or other formal instruction in typewriting; (b) Prerequisite: 201a or one semester of other formal instruction in typewriting and the ability to type at least 30 words per minute; (c) Prerequisite: 201b or two semesters of other formal instruction in typewriting and the ability to type at least 40 words per minute and to prepare simple business correspondence, tables, manuscripts and forms.

221-12 (4,4,4) Shorthand and Transcription. The Gregg shorthand system and the development of skill and knowledge required in taking dictation and

transcribing it on the typewriter. Must be taken in a,b,c sequence. (a) May not be taken for credit by students who have had previous high school or other formal instruction in shorthand; (b) Prerequisite: 221a or one semester of other formal instruction in shorthand-transcription; (c) Prerequisite: 221b or two semesters of other formal instruction in shorthand-transcription and the ability to take sustained, new-matter dictation at 60 words per minute.

241-1 Duplicating. Skills and knowledges in (1) the preparation of master copies and stencils and (2) the operation of liquid and stencil duplicating machines. Prerequisite: 201 or equivalent.

242-1 Calculating Machines for Accountants. Fundamental knowledges and skills needed by accountants in the selection and use of calculating machines. Emphasis on special problems encountered by accountants.

243-1 Key punch. Emphasis on special problems, such as setting up program cards, determining fields, and tabulating numerical copy. Prerequisite: 201a or equivalent.

259-3 to 80 Business Subjects. For business credits earned when credit is to be established by departmental evaluation. Prerequisite: junior standing.

304-3 Advanced Typewriting. Advanced Typewriting skills and theory in problem situations. Office style production assignments. Special statistical reports, tabulation of arranged materials; business correspondence; legal, medical, governmental, and technical typewriting problems; and accounting reports. Competency on the dictaphone. Prerequisite: 201.

324-8 (4,4) Advanced Shorthand and Transcription. The development of high-level dictation and transcription skills and knowledges. Must be taken in a,b sequence. Prerequisites: (a) 221-12 or three semesters of other formal instruction in shorthand-transcription and the ability to transcribe on the typewriter sustained, new-matter dictation taken at 80 words per minute. (b) 324a or four semesters of other formal instruction in shorthand-transcription and the ability to transcribe on the typewriter sustained, new-matter dictation taken at 100 words per minute.

326-4 Executive Secretarial Procedures. An advanced course for secretaries, covering such topics as personality and human relationships, office mail, office equipment, travel, sources of information, communications, and business reports. Prerequisite: 304.

341-4 Office Calculating Machines. Operation of basic types of office calculating machines, emphasizing the characteristic uses of each kind of machine in the office. Laboratory practice required.

403-3 Teaching Typewriting. Methods of instruction, skill-building principles and techniques, selection and preparation of instructional materials, standards of achievement, and evaluation of pupil performance. Prerequisite: 201c or equivalent.

404-3 Teaching Shorthand and Transcription. Methods of instruction, skill-building principles and techniques, selection and preparation of instructional materials, standards of achievement, and evaluation of pupil performance. Prerequisite: 324a or equivalent.

405-3 Teaching General Business Subjects. Instructional methods and materials for, and the evaluation of pupil progress in, such basic business subjects as general business, consumer education, economic geography, business law.

406-4 Teaching Office Practice and Office Machines. Instructional methods and materials for, and the evaluation of pupil performance in, office practice and office machines. Prerequisite: 341 or equivalent.

408-3 Teaching Bookkeeping and Accounting. Instructional methods and materials for, and the evaluation of pupil progress in, bookkeeping and accounting. Prerequisite: Accounting 251b or equivalent.

409-4 Teaching Distributive Education. For prospective teacher-coordinators of vocational cooperative or in-school distributive education programs. Includes planning of facilities; selection and review of course content; preparation of instructional materials; organization and arrangement of units; related instruction; simulated, block, and project plans; and student evaluation. Prerequisite: Marketing 301.

411-1 to 6 Workshop in Business Education. Major issues in business teacher education. Offered during one or two weeks of the summer session. Prerequisite: senior standing.

414-6 (3,3) Organization and Administration of Cooperative Vocational Business Education Programs. Prepares teachers and coordinators in accordance with the requirements of the Illinois State Plan for the Administration of Vocational Education. Philosophy and objectives of cooperative vocational

programs, methods of selecting students and work stations, placing and supervising students on part-time jobs, preparation of instructional materials, job analyses, conducting related information courses, evaluating workers and work stations, advisory committees, public relations aspects of cooperative programs. Prerequisite: consent of instructor.

415-6 Supervised Business Experience and Related Study. Prepares teachers and coordinators in accordance with the requirements of the Illinois State Plan for the Administration of Vocational Education. Classroom study of the principles and problems of coordinating in-school and cooperative vocational business education programs; supervised occupational experience; classroom analysis and evaluation of on-the-job experiences of the members of the class in relation to their future work as coordinators and vocational teachers. Prerequisite: consent of instructor.

417-4 Applications and Fundamentals of Data Processing in Business Education. Acquaints business teachers with data processing applications in high school business classes. Emphasis on vocabulary development, unit record equipment, concepts of programming, and fundamentals of computer application. Approximately one-third of the course is spent in machine operation.

426-4 Office Management. The principles of management as applied to office problems. Emphasis on the role of the office in business management; office organization; physical facilities and layout of the office; office services, procedures, standards, and controls.

427-4 Records Administration. The requisites for records administration. The value of files, their creation, control, retention, and disposition. Applications to such records as medical, legal, educational. Prerequisite: 407.

485-3 Principles and Philosophies of Vocational and Technical Education. (See Technical and Industrial Education 485.)

500-4 Principles and Problems of Business Education.

502-4 Research in Business Education.

503-4 Tests and Measurements in Business Education.

505-1 to 6 Workshop in Business Education.

508-4 Administration and Supervision in Business Education.

509-4 Improvement of Instruction in General (Basic) Business Subjects.

510-4 Improvement of Instruction in Secretarial Subjects.

525-4 Cooperative Vocational-Technical Education.

590-2 to 5 Readings in Business Education.

591-2 to 5 Individual Research in Business Education.

599-1 to 9 Thesis.

Secretarial Studies

Secretarial and related office service positions today encompass a wide variety of duties, responsibilities, and rewards. Business, governmental agencies, and educational institutions recruit college graduates to fill executive and administrative secretarial positions. College graduates in these positions are responsible for planning and executing office work, managing the office, and supervising the work of stenographers and other office workers. The secretary's position is distinguished from that of a stenographer in that the secretary spends less time performing routine duties than does the stenographer and more time performing jobs requiring initiative and judgment. Her salary is normally higher than that of the stenographer.

Bachelor of Science Degree, SCHOOL OF BUSINESS

General Studies Requirements 67

Professional Business Core 52

GSB 201b, 201c, Mathematics 111a-5 (or GSD 107 and Mathematics 108) (13)

Mathematics 150a-5 or 140a,b-6 5

Accounting 251a,b, 261 12

Economics 214, 215, 308 or 408 12

Finance 320, 371 or 370 or 473	8
GSD 110	3
Management 340, 481	8
Marketing 301	4
Secretarial Studies	45
Accounting 309, 315	6
Data Processing 101a	3
Management 271	4
Secretarial and Business Education 241, 304, 324-8, 326, 341, 426, 427	32
Electives	
Total	192

Social Studies

General Studies Requirements	67
Requirements of a Concentration in Social Studies	96 ¹
<i>Required Courses</i>	
U.S. History GSB 300,a,b,c	9
World History GSB 100a,b	8
Economics GSB 211a; 214; 215	12
Geography 300	4
Sociology GSB 201b; 301	8
Government GSB 211b (or Govt. 231); 232	8
Electives	
Total	192

Social Welfare

Assistant Professor Joseph C. Eades, Instructors Martha E. Brelje, M.A.
Ph.D. (Director) Foster S. Brown, M.S.W.

An interdisciplinary curriculum is offered which leads to a Bachelor of Science degree in social welfare. The basic courses in this curriculum are listed below. Information on the specific requirements of this program may be obtained by contacting the director.

Course Descriptions

- 375-4 Social Welfare as a Social Institution. Interdependence of social, cultural, political and economic factors in the history, theory and practice of social welfare, with special reference to development of the social work profession in response to welfare problems. Prerequisite: GSB 201b or 301.
- 383-4 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: GSB 201b or 301.
- 396-1 to 6 Readings in Social Welfare. Varying topics not ordinarily covered

¹ The 96 required hours are obtained by taking a minimum of 12 hours in U.S. History and 12 hours in World History; 24 hours in each of two of the other fields; and 12 hours in each of the remaining two fields. Choices of 24 hours and 12 hour concentration remain with the student.
² The hours of electives needed will depend upon the student's choice of 24 hour and 12 hour concentrations.
³ The total hours in an area will also depend upon the student's choice of 24 hour and 12 hour concentrations.

in depth in regular courses and of specific interest to advanced students. Prerequisite: consent of instructor.

481-8 (4.4) Processes in Social Work (a) Analysis of generic base of social work and of theory, rationale and practice of casework (b) Analysis of social group work, community welfare organization methods and interventive techniques. Prerequisite: 375 or consent of instructor.

482-10 Social Work in Selected Agencies. At least 16 hours per week of supervised experience in a social agency with concurrent weekly seminar. Prerequisite 481 and consent of instructor.

490-4 Seminar on Problems and Issues in Social Welfare. Critical evaluation of contemporary social work practice, innovations, social policy and planning. Prerequisite: 481.

Sociology

Professors Charles Royce Snyder,
Ph.D. (*Chairman*)

Thomas Grant Eynon, Ph.D.

Elmer Hugh Johnson, Ph.D.

Herman R. Lantz, Ph.D.

Peter Andreas Munch, Ph.D.

Associate Professors Ernest Kahlar
Alix, Ph.D.

Melvin Schubert Brooks, Ph.D.

Frank Comstock Nall, II, Ph.D.

Robert Denton Rossel, Ph.D.

Assistant Professors Jerry Collins
Gaston, Ph.D.

Roland Kenneth Hawkes, Ph.D.

Charles Clay Lemert, Ph.D.

Thomas Walter Martin, Ph.D.

Edward James McGlynn, Ph.D.

Michael Larimer Rainey, Ph.D.

Erling Ribbing, Ph.D.

Donald Eugene Voth, Ph.D.

Instructors Paul S. Denise, M.A.

Paula Jo Dubeck, M.A.

Stephen Francis Hall, M.A.

Lewellyn Hendrix, M.A.

James Daniel McMillin, M.A.

Elizabeth Williams Nall, M.A.

Edgar Ivan Patterson, M.A.

Visiting Professor Magdalena Soko-
lowska, M.D. and Ph.D.

Adjunct Professor Gunnar Boalt,
Ph.D.

Research Associate Raymond E.
Wakeley, Ph.D.

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

General Studies Requirements 67

Supplementary Two-Year College Requirement in FL/Mathematics 18-20

Mathematics: 111-10, and 150-10 20

or

GSD FL-9, and FL 201-9 18

Requirements for Concentration in Sociology 42

GSB 201-8 (4 hours count towards the concentration) (4) + 4

Sociology electives in courses whose second digit is not 8, to
complete 42 hours 38

Electives

Total 192

Secondary Concentration

A secondary concentration in sociology consists of a minimum of 24 hours.

HONORS PROGRAM

The department offers an honors program for academically outstanding sociology majors. Qualifications for acceptance into this program consist of: (1) an overall grade point average of at least 4.00, (2) completion of 12 hours in sociology courses with a grade point average of at least 4.25. Three honors courses are offered at the junior and senior class levels. For details, qualified students interested in this program should consult the director of undergraduate studies in the sociology department.

Course Descriptions

Courses in sociology are listed according to numerical order. However, the second digit in the 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
- 60-69 Social Disorganization and Deviance
- 70-79 Special Fields
- 80-89 Applied Field

301-4 Principles of Sociology. The structure and functions of social relationship systems, both simple and complex. Analysis of processes of social differentiation, integration, and disorganization. Prerequisite: junior standing.

302-4 Contemporary Social Problems. Discussion and analysis of selected contemporary social problems with consideration of alternative courses of action. Prerequisite: one sociology course.

305-4 Social Institutions. Concepts of institutions; origins, development, and variability of institutions; lag and change. Prerequisite: GSB 201b or 301.

306-4 Social Control. The means and principles of social controls; social institutions as factors in control; techniques of directing social action. Prerequisite: GSB 201b or 301.

308-4 Statistics for Social Science. Methods and application of statistics in the social sciences. Statistical methods in demography, ecology, testing and guidance, social problems. Examination of empirical studies in these and related areas. Prerequisite: 301, or GSB 201b, or consent of instructor.

312-4 Elements of Sociological Research. Types of research. Principles and steps in research procedure. Selected techniques. Prerequisite: 308, or equivalent, or consent of instructor.

GSB 321-3 Socialization of the Individual.

GSB 325-3 Race and Minority Relations.

332-4 Social Organization. An examination of the determinants of social organization; intensive analysis of institutional configurations, social stratification, and systems of social control; review of writings. Prerequisite: 301.

333-4 Community Organization. Factors involved in community organization; types, aims, and objectives; community diagnosis; individual case study of specific community. Prerequisite: 301 or GSB 201b.

335-4 Urban Sociology. The rise, development, structure, culture, planning, and problems in early and modern cities. Prerequisite: 301 or GSB 201b.

338-4 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: GSB 201b or 301.

340-4 The Family. The family in historic and contemporary society; evolution of the modern family; changes in family functions, structures, and roles. Prerequisite: GSB 201b or 301.

GSB 341-3 Marriage.

351-4 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: GSB 201b or 301.

371-4 Population and Migration. Characteristics of population, problems of growth, composition, distribution, differential fertility, international and internal migration. Prerequisite: 301 or consent of instructor.

372-4 Criminology. The nature of crime; criminal statistics; casual factors; theories and procedures in prevention and treatment. Prerequisite: GSB 201b or 301.

374-4 Sociology of Education. Methods, principles, and data of sociology applied to the school situation; relation of the school to other institutions and groups. Prerequisite: consent of instructor, or GSB 201b or 301.

396h-1 to 4 Honors Readings in Sociology. Topics selected jointly by student and instructor which ordinarily are not covered in depth in regular course offerings. Prerequisite: consent of department.

397h-3 to 6 Honors Seminar in Sociology. Varying sociological topics studied

in depth and breadth. Maximum opportunity for student participation in the exploration of the subject. May be repeated for a total of two quarters. Prerequisite: consent of department.

406-4 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: two sociology courses or consent of instructor.

415-3 Logic of the Social Sciences. (See Philosophy 415.)

424-4 Collective Behavior. The behavior of people in large groups; collective interstimulations and emotions; crowds, audiences, and publics; mass stimuli and mass response. Prerequisite: GSB 321 or consent of instructor.

426-4 Social Factors in Behavior and Personality. How group situations and values affect behavior and shape personality; development of concepts, role-concepts, attitudes, values; theories of motivation; self-concepts; conflicting social values in relation to individual motivation. Prerequisite: GSB 321 or Psychology 305, or consent of instructor.

427-4 Personality and Social Adjustment. Basic mechanisms of adjustive behavior; concepts and criteria of personal integration and social adjustment; varieties of adjustive and nonadjustive behavior; theories of personal organization and disorganization; selected problems. Prerequisite: GSB 321 or Psychology 305 or consent of instructor.

435-4 Social Stratification. A comparative study of social class systems, with emphasis on the American systems. Relationships of class position to behavior in family, religion, politics, etc. Prerequisite: two sociology courses or consent of instructor.

437-4 Sociology of Rural Development. Development in the United States and other countries. Conceptions of rural, urban, developed, and underdeveloped considered. Analytic frames of reference for treating these phenomena compared. Prerequisite: two sociology courses or consent of instructor.

438-4 Sociology of Occupations and Professions. Natural history and institutional aspects of occupations in our society, cultural context of occupations in both primitive and modern society, preparation for jobs, human values in work, promotion and discharge, mobility, retirement. Prerequisite: two sociology courses or consent of instructor.

450-4 Social Thought I: Before 1800. The ideological basis of Western society. The classical foundations. Trends of thought from the Renaissance to the Enlightenment. Prerequisite: two sociology courses or consent of instructor.

451-4 Social Thought II: The Sociological Movement. From Romanticism to Realism; rise and development of scientific social thought. Prerequisite: two sociology courses or consent of instructor.

452-4 Black Social Thought. Original works of black writers from the standpoint of problems and prospects of black people in America, and the social context in which these works developed. Relevance of these writings to understanding the current racial situation in the United States considered. Prerequisite: one sociology course and consent of instructor.

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: two sociology courses or consent of instructor.

454-4 Sociology of Science. Emphasis on the origins and growth of science in historical perspective, reciprocal relations between science and society in the twentieth century, science as a social system, differentiation within and relations between disciplines, and implications of the social organization of scientific research and funding. Prerequisite: two sociology courses or consent of instructor.

460-4 Sociology of Medicine. Man and his adaptation to illness, the sick role, the doctor patient relationship, the organization of medical care and health institutions in the United States, and the role of the sociologist in the health fields. Prerequisite: two sociology courses or consent of instructor.

471-4 Principles of Demography. Techniques in analyzing and evaluating data on human population; composition, birth and death rates, life tables, migration data, estimates of future trend. Practical uses of demographic techniques. Prerequisites: consent of instructor.

472-4 The American Correctional System. (See Administration of Justice 472.)

473-4 Juvenile Delinquency. (See Administration of Justice 473.)

483-4 Current Problems in Corrections. An exploration of contemporary prob-

- lems in control and treatment of sentenced offenders, and a review of research trends in corrections. Prerequisite: 472 or consent of instructor.
- 489a-4 Probation, Classification, and Parole.** An introduction to the structure and function of those elements of the correctional process primarily concerned with the evaluation, treatment, and control of offenders with particular attention to the casework components of the process. Prerequisite: 481 or consent of instructor.
- 489e-2 to 4 Independent Study in Corrections.** Supervised readings or independent investigative projects in the various correctional aspects of crime control, institutional management, and specific correctional programs. Prerequisite: consent of instructor.
- 497-4 Senior Seminar.** Contemporary issues in sociology and the analysis of these issues. Prerequisite: senior standing with 20 hours in sociology or consent of instructor.
- 498-8 (4,4) Individual Research.** With a faculty member the student arranges a research topic resulting in a paper or report. Prerequisite: senior standing with 20 hours of sociology and consent of instructor.
- 498h-1 to 4 Honors Independent Research.** Advanced research study of a problem. Not for graduate students. Prerequisite: consent of department.
- 499-4 Special Projects.** The class works in groups or in concert in the development and completion of a theoretical or applied project. Prerequisite: 308, 312, and senior standing with 20 hours of sociology or consent of instructor.
- 501-4 Survey of Sociological Theory.**
- 502-4 Seminar in European Sociological Theory: 1800-1910.**
- 503-4 Seminar in European Sociological Theory: 1910 to the Present.**
- 504-4 Seminar in American Sociology.**
- 506-4 Seminar in Contemporary Sociological Theory.**
- 512-4 Sociological Research.**
- 513-2 Supervised Research.**
- 518-10 to 20 Workshops in Special Education.**
- 519-4 Methodological Foundations of the Social Sciences.**
- 521-4 Seminar in Social Psychology.**
- 522-4 Sociology of Small Groups.**
- 526-4 Quantitative Methods in Sociology I.**
- 527-4 Quantitative Methods in Sociology II.**
- 528-4 Quantitative Methods in Sociology III.**
- 529-4 Sociological Measurement.**
- 530-4 Research Design.**
- 531-4 Research Analysis.**
- 532-4 Urban Social Structure.**
- 533-4 Ecology of Human Communities.**
- 534-4 Seminar in Intergroup Relations.**
- 537-4 Sociology of Law.**
- 538-4 Seminar in Industrial Sociology.**
- 539-4 Sociology of Bureaucracy.**
- 542-4 Seminar on the Family.**
- 543-4 Seminar in Family Variability.**
- 544-4 Seminar in Family Research.**
- 545-4 The Family and Social Change.**
- 551-4 Seminar in the Sociology of Religion.**
- 561-4 Alcohol and Society.**
- 562-4 Deviance and Disorganization.**
- 563-4 Research Problems in Deviance and Disorganization.**
- 564-4 Social Factors in Mental Disorders.**
- 566-4 Community Organization and Disorganization.**
- 572-4 Seminar in Criminology.**
- 583-4 to 12 Supervised Field Work in Corrections.**
- 591-2 to 6 Individual Research.**
- 596-2 to 12 Readings in Sociology.**
- 599-2 to 9 Thesis.**
- 600-1 to 48 Dissertation.**

Special Concentration

In addition to the regular areas of concentration, the University encourages a student with special needs and interests to design his own

area of concentration. He may develop a special concentration in the following manner:

1. The student should consult a faculty member about a possible program.
2. The student should draft a program which is coherent and unified, showing the courses he plans to take, and explaining the purpose of his program.
3. The completed program should have the support of at least one faculty sponsor and the dean or deans of the academic units involved.
4. Final approval including the title designation of the concentration must come from the chancellor or his representative.

Approval of a special area of concentration does not exempt a student from any University requirements or from any of the requirements of the academic unit from which his degree will be awarded.

Special Education

Professor James M. Crouner, Ph.D.
(Chairman)

Kristen Juul, Ed.D.

Associate Professors John P. Casey,
Ph.D.

Marvin Lee Joiner, Ph.D.

B. Elizabeth McKay, Ph.D.
(Emerita)

Howard Morgan, Ed.D.

Wyatt Stephens, Ph.D.

Assistant Professors John Jacobs,
Ed.D.

Marjorie Stull, M.S.

Instructor Anne Campbell, M.S.

Adjunct Professor Khatchadour Pal-
andjian, M.D.

Visiting Professor Alice Thompson,
Ph.D.

Each area of concentration in special education leads to certification for teachers of a specific kind of exceptional child.

Students who are concentrating in other areas of education may qualify for the above mentioned special certificate for teachers of exceptional children by taking variable hours of additional course work in a specific area of exceptionality. Usually this course work can be taken in place of regular electives, and can be obtained in the junior and senior years. This permits a student, by time of graduation, to qualify for both his regular teaching certificate and the special certificate.

Bachelor of Science Degree, COLLEGE OF EDUCATION

Students may pursue a concentration in special education with program emphasis in either of two areas of specialization: the emotionally disturbed (maladjusted), and the educable mentally retarded. A new area of emphasis, the education of learning disordered children, is currently being developed. Students are urged to contact the department concerning possible revisions of the program.

<i>General Studies Requirements</i>	67
<i>Requirements of a Concentration in Special Education</i>	39
GSA 110, 210	(16)
GSB 102a,b, 201b,c, 300b,c	(22)
GSC 100 or 101, 102, and 103	(6) + 3
Any one of GSC 200, 201, 203, 204, 205, 206; and any one of GSC 202, 209, 210	(7)
GSD 101, 102, 103, Mathematics 107a,b	(9) + 8
Art 300 or Technical and Industrial Education 303	4
Government 300 or GSB 211b	4
Mathematics 310	4

Music 300b or c	3
Physical Education for Women 319	4
Three elective hours of Physical Education Activity ...	3
<i>Elementary Education</i>	35-36
GSB 331 or Educational Administration 355	3-4
Elementary Education 314, 337, and 351-1	24
Guidance and Educational Psychology 412 (Winter Quarter)	4
Psychology 301	4
<i>One area of Specialization</i>	52-60
EDUCATION OF MALADJUSTED CHILDREN	60-64
Elementary Education 351, 437	12-16
Guidance 422a	4
Psychology 305, 307, 431, 465	16
Rehabilitation 486	4
Special Education 410a, 411a 413a, 414, 420a	20
EDUCATION OF THE MENTALLY RETARDED	48
Special Education 410b, 411, 413b, 414, 420b	20
Speech Pathology and Audiology 428	4
Elementary Education 351b	12
Guidance 422a	4
Electives (300 level or above) may be chosen from the following areas: guidance and educational psychology, audio-visual aids, related courses in sociology, psychology, economics, or health education, rehabilitation, related courses in other areas of special education	8
Students in secondary education who wish to qualify for this certification must have the above courses and may need to take additional courses which are required in the elementary education program but which are not required in the secondary program.	
EDUCATION OF THE ACOUSTICALLY HANDICAPPED	62
Instructional Materials 417	2
Psychology 301	8
Guidance 422a	4
Physiology 414	4
Special Education 410d, 411, 414, 415, 420d, 421	24
Speech Pathology and Audiology 200, 405a, 406, 416, 419	20
One hundred twenty additional clock hours of supervised practicum and clinical practice in the areas of Hearing, Speech and Speech-reading are required for an Illinois Certificate—Teacher of the Deaf.	
<i>Total</i>	192-196

Course Descriptions

200-2 Orientation to the Education of Exceptional Children. A survey of exceptional children. Program modification by regular classroom teachers is stressed.

- 406-4 Techniques and Interpretation of Hearing Tests.** (See Speech Pathology and Audiology 406.)
- 410a-4 Problems and Characteristics of the Emotionally Disturbed Child.** Diagnosis, screening, classroom management, placement considerations, goals, and the effective use of ancillary services. Emphasis on the understanding of maladaptive behavior through principles of learning and behavior dynamics. Prerequisite: 414 or consent of instructor.
- 410b-4 Problems and Characteristics of the Mentally Retarded Child.** Objectives, curriculum, methods, and materials of instruction for slow learners. Emphasis upon the principles of learning as they can be applied to this group. Observations. Prerequisite: 414 or consent of instructor.
- 410c-4 Problems and Characteristics of the Gifted Child.** Designed to help teachers in the identification of and programming for gifted and talented children. Prerequisite: Psychology 301 or 303, or consent of instructor.
- 410d-4 Problems and Characteristics of the Acoustically Handicapped Child.** Consideration of psycho-social and educational aspects of deafness. History and attitudes of society. The impact of auditory impairment on language development, education, and adjustment. Prerequisite: Psychology 301 or 303, or consent of instructor.
- 410e-4 Problems and Characteristics of Children with Specific Learning Disabilities.** Behavioral, emotional, physical, and learning characteristics of children with learning disabilities. Emphasis on receptive and expressive modalities for learning; theories dealing with etiology and treatment. Prerequisite: 414. Consent of instructor.
- 411-4 Assessment and Remediation of Learning Disabilities.** (Same as Guidance 411.) Special tests and remedial programs designed for children with specific learning disabilities of a perceptual, or coordination nature and who may demonstrate related adjustment problems. Prerequisite: 414 and consent of instructor.
- 413a-4 Directed Observation of Emotionally Disturbed Children.** Student observation and participation in group and individual work with emotionally disturbed children. Often taken concurrently with 410a. Prerequisite: consent of instructor.
- 413b-4 Directed Observation of Mentally Retarded Children.** Student observation and participation in group and individual work with mentally retarded children. Prerequisite: 414, 410b or concurrent, and a concentration in special education.
- 413d-4 Directed Observation and Practice with Hard-of-Hearing Children.** Student observation and participation in group and individual work with hard-of-hearing children. Often taken concurrently with 515. Prerequisite: consent of instructor.
- 414-4 The Exceptional Child.** Physical, mental, emotional, and social traits of all types of exceptional children. Effects of handicaps in learning situations. Methods of differentiation and techniques for rehabilitation. Individual case studies used; observations and field trips. Prerequisites: Psychology 301 or 303, or consent of instructor.
- 415-4 Education of Acoustically Handicapped Children.** Comparison of language development in hearing and acoustically handicapped children. Survey of established systems of teaching language to the deaf. Principles and techniques in developing concepts, vocabulary, and basic English structures; receptive and expressive oral and written language. Prerequisite: consent of instructor.
- 416-4 Introduction to Audiology.** (Same as Speech Pathology and Audiology 416.)
- 419-4 Communication Problems of the Deaf and Hard of Hearing.** (Same as Speech Pathology and Audiology 419.) Objectives and techniques for the teaching of lip reading, speech conservation, and auditory training. Prerequisite: 406 or consent of instructor.
- 420a-4 Methods and Materials for Teaching Emotionally Disturbed Children.** Prerequisite: 410a and consent of instructor.
- 420b-4 Methods and Materials for Teaching Mentally Retarded Children.** Usually offered in conjunction with practice teaching. Prerequisite: 410b and consent of instructor.
- 420d-4 Methods and Materials for Teaching Acoustically Handicapped Children.** Methods, materials, and techniques of teaching reading and elementary subjects to acoustically handicapped children in special education programs. Prerequisite: 410d and consent of instructor.

- 20e-4 **Methods and Materials for Teaching Children with Learning Disabilities.** Techniques for implementing educational therapy and remediation for children with learning disabilities. Emphasis on visual, auditory, tactile, and fine and gross motor problems. Prerequisite: 411, 414.
- 21-4 **Speech for Acoustically Handicapped Children.** A survey of methods in teaching oral language skill to acoustically handicapped children. Emphasis on use of visual, tactile, and kinesthetic sensory avenues in developing intelligible articulation, voice and sentence rhythm. Consideration of auditory training techniques in relation to speech development. Prerequisite: Speech Pathology and Audiology 200.
- 23-4 **Speech Correction for the Classroom Teacher.** (Same as Speech Pathology and Audiology 428.)
- 26-2 to 8 **Readings and Independent Study in Special Education.** Study of highly specific problem area in the education of exceptional children. Open only to selected seniors and graduate students. Prerequisite: 414 and consent of staff.
- 31-8 (4,4) **Special Research Problem.**
- 33-4 **Organization, Administration, and Supervision of Special Classes.**
- 35-4 **Itinerant Teaching of Exceptional Children.**
- 37-4 **The Atypical Child and Social Agencies.**
- 38-4 **Workshop in Special Education.**
- 37-4 to 12 **Practicum in Special Education.**
- 30a-4 **Seminar: Education of Maladjusted Children.**
- 30b-4 **Seminar: Education of Mentally Retarded Children.**
- 30d-4 **Seminar: Education of Acoustically Handicapped Children.**
- 30-4 **Seminar: Education of Children with Mental Deviations.**
- 31-4 **Seminar: Education of Physically Handicapped Children.**
- 32-4 **Seminar: Education of Children with Learning and Behavioral Disorders.**
- 36-5 to 9 **Independent Investigation.**
- 39-2 to 9 **Thesis.**
- 40-1 to 48 **Dissertation.**

Speech

Professors Earl Edsel Bradley, Ph.D.	Dorothy C. Higginbotham, Ph.D.
Ralph A. Micken, Ph.D. (<i>Chairman</i>)	Marion Kleinau, Ph.D.
David Potter, Ph.D.	Thomas Pace, Ph.D.
C. Horton Talley, Ph.D.	William D. Smith, Ph.D.
Associate Professors Lester R. Breniman, Ph.D.	Assistant Professor Keith Sanders, Ph.D.
Cameron W. Garbutt, Ph.D.	Instructors Marvin D. Kleinau, M.A.
Richard P. Hibbs, M.A.	Eunice Beverly Goodiel, M.A.
	Raymond D. Wiley, M.S.

Bachelor of Science Degree, SCHOOL OF COMMUNICATIONS

60 HOUR CONCENTRATION

General Studies Requirements	67
Requirements for Concentration in Speech	54
GSC 200, GSD 103	(6)
Speech 102, 201, 202, 205, 209, 300 or 104, 301, 313, 407a, 407b or 417 or 418, 408 and 16 additional hours	54
Lectives	
Total	192

48 HOUR CONCENTRATION

General Studies Requirements	67
Requirements for Concentration in Speech	42
GSC 200, GSD 103	(6)

Speech 102, 200, 201, 202, 205, 209, 313, 407-4	26
Speech electives	16
<i>Secondary Concentration</i>	
<i>Electives</i>	
<i>Total</i>	1

Interpretation

<i>General Studies Requirements</i>	
<i>Requirements for Concentration in Speech (Communications)</i>	
GSC 200, GSD 103	(6)
English: A course of study of 16 hours of English will be worked out on an individual basis.	16
Speech 102 or 313, 104, 202, 209, 309, 323, 301, 408, 434, and any two of 422, 423, 424, (4 hours elective)	43
<i>Electives</i>	
<i>Total</i>	1

If a teaching certificate is desired the following changes are necessary

1. The 10 hours of electives allowed in this course of study should be taken in Interpretation.
2. The secondary concentration should be the regular English secondary concentration.

*Bachelor of Science Degree, COLLEGE OF EDUCATION OR
Bachelor of Science Degree, SCHOOL OF COMMUNICATIONS*

<i>General Studies Requirements</i>	
<i>Requirements for a Concentration in Speech</i>	
GSC 200, 203	(7)
GSD 103	(3)
Radio-TV 467	3
Speech 102, 104 or 200, 202, 205, 209-1, 323, 427	23
Speech Pathology and Audiology 428	4
Theater 111-3, 208-1, 402a	8
Electives in speech and/or theater	10
<i>Professional Education Requirements</i>	
Guidance 305 or Psychology 303	4
Education: two courses ¹	8
Secondary Education 310, 352	16
Speech 406	4
<i>Secondary Concentration</i>	
One secondary concentration is required in a separate area with a sufficient number of hours to meet the teaching re- quirements for that area. A secondary concentration in Eng- lish or social sciences is recommended.	
<i>Electives</i>	
<i>Total</i>	12

Public Relations

The public relations specialization consists of an integrated program designed by an interdisciplinary committee. The curriculum has been

¹ The Education courses referred to above are Educational Administration 355, Guidance Instructional Materials 417, Secondary Education 407, 440.

reviewed and approved by the Public Relations Society of America and is supervised by the director of public relations in the department of speech. Building upon the Liberal Arts and Sciences and General Studies requirements, the curriculum is designed to provide fundamental knowledge of communication and social science, and the organization and functions of business and government. The broad coverage of these areas in nine academic departments provides a sound preparation for both a career in public relations and for graduate work in the field of communication. Students who have areas of special interest may work out minimal deviations from this curriculum with the concurrence of the director. Membership in the SIU chapter of the Public Relations Student Society of America provides opportunities for field trips, internships, placement, involvement in student and university public relations activities, and association with prominent practitioners.

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in Speech</i>	99
GSB 211A, 211B	(8)
GSC 200	(4)
GSD 103, 110	(6)
Speech 203, 301, 303, 331	15
Journalism 345, 370, 393, 397, 431	15
Radio-Television 251, 252, 351	11
Cinema and Photography 311, 350	8
Psychology GSB 201C, Psychology 307 and 323	12
Sociology GSB 201B or Sociology 301, and 302, GSB 325	11
Management 340, 341	8
Marketing 301, 363	8
Government 360, 361	7
Research Methods: Sociology 312 or Marketing 390	4
<i>Electives</i>	
Total	192

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in Speech</i>	42
GSC 200	(3)
GSD 103	(3)
Speech 102, 202, 304	10
Speech electives to complete 48 hours	32
<i>Secondary Concentration</i>	24
<i>Electives</i>	
Total	192

Secondary Concentration

A 30-hour secondary concentration in speech should be planned in consultation with the chairman of the department or the director of speech education. Students electing speech as a secondary concentration to a teaching concentration must include Speech 406.

Course Descriptions

General Speech: 408, 429, 440, 449, 450-12, 520, 530-1 to 4, 532, 599-2 to 9, 600-3 to 48.
 Formal Interpretation of Poetry: 423, 424, 434, 523, 530-1 to 4, 599-2 to 9.

Rhetoric and Public Address: 407-8, 417, 418, 425, 500, 504, 505, 508, 510, 525-30-1 to 4, 599-2 to 9.

Speech Education: 402, 410, 427, 511, 530-1 to 4, 599-2 to 9.

102-4 Public Speaking. Analysis of audience motives and reactions stressed in the approach to speech preparation for typical public speaking situations. Prerequisite: GSD 103.

104-4 Training the Speaking Voice. Designed for those students who desire to improve their voice and articulation. Prerequisite: GSD 103.

200-4 Phonetics. Instruction on the use of phonetic symbols to record the speech sounds of midland American English, with emphasis on ear training and a description of place and manner of production of these sounds.

201-2 Parliamentary Law. How to conduct a meeting. Study and practice of the rules of parliamentary procedure.

202-3 Principles of Discussion. Principles and methods of group discussion. Current problems used as materials for discussion.

203-4 Introduction to Interpersonal Communication. Interpersonal communication as a psycho-social-political process. Emphasis on examination of transactional behavior as a facet of interpersonal and intergroup relations.

205-4 Argumentation and Debate. Principles of argument, analysis, evidence, reasoning, fallacies, briefing, and delivery.

209-1 to 3 Forensic Activities. Not more than 3 hours of credit, and no more than 2 each year, to be secured for participating in forensic activities. Note: maximum of 5 hours of 209 and 309 may be applied on a concentration in speech. A maximum of 8 hours of 209 and 309 may be applied toward graduation. Prerequisite: consent of instructor.

211-4 Teaching Oral Language at the Pre-School and Early Elementary Level. Designed for teachers of culturally disadvantaged children. Emphasis on environmentally derived language problems of the young child. Included a theory of language development, relationships between language and learning, and practice in constructing ameliorative language experiences needed in the child's successful intellectual and social development.

300-4 Phonemics of American English. Study of the phonemics of American English with particular emphasis in the major American dialects. Course designed especially for concentrations in speech, theater, and radio-TV. Prerequisite: 200 or consent of instructor and chairman.

301-4 Persuasion. Psychological principles involved in influencing individuals and groups.

303-4 Business and Professional Speaking. Speaking needs of business and professional people. Technical reports and lighter types of speaking included in the types studied. Primarily for adult and extension classes.

304-3 Great Speeches in American and British History. Speakers as they dealt with historic issues in America and Britain.

309-1 to 4 Forensic Activities. Not more than 4 hours, and no more than 2 each year, to be secured for participation in forensic activities. Note: A maximum of 5 hours of 209 and 309 may be applied on a concentration speech. A maximum of 8 hours of 209 and 309 may be applied toward graduation. Prerequisite: junior standing and consent of instructor.

311-4 Communication and Social Process. Communication theory and its relation to social process.

313-4 Speech Composition. Rhetorical techniques of public address. One major speech prepared, with every possible refinement. Prerequisite: 102.

323-4 Oral Interpretation II. A basic course in the oral interpretation of literature with emphasis on vocal techniques in relation to literary analysis. Prerequisite: GSC 200 or consent of instructor.

331-3 Public Relations Policies and Practice. Philosophy, principles, policies and practice of public relations. Historical review of industrial, institutional, governmental, and service agency PR; managerial and communicative functions; internal and external publics. Lecture, audio-visual media, and guided public relations practitioners. Prerequisite: junior standing.

401-4 Creative Dramatics. (Same as Theater 401.) Materials, techniques, and procedures for conducting sessions in informal drama with emphasis on contribution to the total growth and development of the child. Lectures, observations, student participation, and practice.

406-4 Teaching Speech in Secondary Schools. Philosophy of speech education and effective teaching of speech through curricular and extra-curricular work. Prerequisite: 16 hours of speech.

407-8 (4,4) American Public Address. Critical studies of American speakers; selected speakers and speeches which reflect the dominant social and political ideas in American history. A lecture, reading, and discussion course. Parts may be taken independently.

408-4 Psychology of Speech. Nature and development of speech, its basic psychology, and the part speech plays in personality development.

417-4 Contemporary Public Address. A critical study of speakers and speeches selected to present the characteristic ideas of leading social and political developments in national and international affairs since 1918. A lecture, reading, and discussion course.

418-4 British Public Address. Critical study of British speakers to c. 1920. Selection of material will be governed both by men and the issues that moved men throughout British history.

422-4 Oral Interpretation of Prose. The study of reading of prose literature emphasizing the specific problems posed for the oral reader by this form. Prerequisite: GSD 200, 323, or consent of instructor.

423-4 Oral Interpretation of Poetry. The reading of poetry and the interpretation of the thought and emotional content of the poetry to the audience. Prerequisite: GSD 200, 323.

424-4 Oral Interpretation of Dramatic Literature. Reading, selecting, cutting, and presenting various types of dramatic literature. Each student gives a final recital program of readings. Prerequisites: GSD 200, 323.

425-3 Techniques of Discussion Leadership. Studies in the field of group discussion designed to clarify the functions and concepts of the leader in democratic society.

427-4 Secondary School Forensic Program. Coaching and organizational methods for extracurricular and curricular forensic programs in the secondary schools.

428-4 Communication Theories and Models. Survey, analysis, and criticism of contemporary theories and models of human communication with an emphasis on behavioral theories and models.

429-4 Experimental Studies in Oral Communication. Principles of research design accompanied by a critical examination of research in oral communication. Prerequisite: 428.

430-2 to 4 Independent Study. Creative project to be completed in one quarter. Nature of assignment determined by student and instructor and approved by department chairman. Prerequisite: 12 hours speech courses and consent of instructor.

431-2 to 12 Internship or Practicum in Public Relations. Students compete for a professional quarter under the supervision of the director of PR instruction and the PR group of a corporation, institution, agency, or counseling firm. Credit depends upon the demands and complexity of the work which the student performs. Evaluation is a joint function of the group professionals and the director. Prerequisite: 331; Marketing 340; Management 301, 363; Journalism 370, one or more Journalism courses in newswriting; and one or more courses in research methods.

434-8 (4,4) Workshop in Group Performance. (a) Professional work on the public platform. Lecture or recital of a professional nature. (b) Oral performance of children's literature. Chamber theater, reader's theater, choral speaking, and story dramatization emphasized. Minimum of individual performance. Prerequisite: 323, GSC 200, and 12 hours of public speaking, interpretation, or theater.

435-4 Studies in Organizational Communication. Communication systems and behavior within formal organizations. Focused on theory and research of informational and directive communication as related to channels, structures, status, involvement, morale, and leadership. Prerequisite: 303.

440-4 Advanced Phonetics. Phonetic theory. Materials and methods of linguistic geography. Prerequisite: 200.

441-4 Teaching Speech in Elementary Schools. Study of oral language development in children, analysis of their speech needs, and methods of teaching speech in elementary schools with emphasis on speech improvement and development of basic speech skills.

445-12 (4,4,4) Language Behavior. Psycholinguistic approach to language learning and the use of language. Relation of language to other developing behaviors. Applicability of psychological and linguistic theories to social psychological aspects of language communication.

449-4 General Semantics. Means of changing implications so that language, in spoken or written form, describes the life facts.

450-12 (4,4,4) **Laboratory in Interpersonal Communication.** Communicative behavior viewed as a process of relating and evaluating. Applications of general semantics and related philosophy, methodology, and research to the functioning of the class itself through various speech activities. The course encompasses the common core of communication behaviors relevant to the chief communicative specialties.

500-4 **Survey of Classical Rhetoric.**

504-4 **Medieval and Renaissance Rhetoric.**

505-4 **Modern Rhetorical Theory.**

507-6 (3,3) **Studies in Public Address.**

508-4 **Seminar: Studies in Discussion.**

510-4 **Seminar: Persuasion and Social Control.**

511-4 (2,2) **Teaching the College Speech Course.**

520-3 **Philosophical Foundations of Speech.**

522-4 to 12 **Studies in Interpretation.**

523-4 **Seminar: Problems in Interpretation.**

524-6 (3,3) **Seminar: Rhetoric and Public Address.**

525-4 **Seminar: Speech Education.**

526-4 **Language Behavior Seminar.**

527-3 **College Forensic Program.**

530-1 to 4 **Research Problems.**

532-4 (2,2) **Areas and Techniques of Research in Speech.**

540-4 **Seminar: Experimental Communications Research.**

542-4 **Seminar in non-Quantitative Research Methods.**

599-2 to 9 **Thesis.**

600-1 to 48 **Dissertation.**

Speech Pathology and Audiology

Professors John O. Anderson, Ph.D.

I. P. Brackett, Ph.D. (*Chairman*)

Eugene J. Brutten, Ph.D.

Herbert Koopp-Baker, Ph.D.

Michael S. Hoshiko, Ph.D.

Donald J. Shoemaker, Ph.D.

son, Ph.D.

Cameron W. Garbutt, Ph.D.

Ronald G. Hansen, Ph.D.

Alfred B. Copeland, Ph.D.

Assistant Professor Sue Ann Paulson, Ph.D.

Associate Professors Chester J. Atkin- *Adjunct Professor* Fred Nolen, D.D.

Speech pathology and audiology is an area which has as its objective the training of qualified personnel to work with people impaired in either speech or hearing. Positions in this field are available in the public schools, colleges, and universities, and in highly specialized public and private clinics.

Clinical experience is obtained through work at the University's Speech and Hearing Clinic, which is one of the participating agencies in the Cooperative Clinical Services. Additional practicum experience is available at the University School; a six-week summer camping program in cooperation with the Division of Services for Crippled Children and the Easter Seal Society; the Marion V. A. Hospital; A. L. Bowen Children's Center; the Anna State Hospital; and rehabilitation work sponsored by the Division of Vocational Rehabilitation.

Programs of study lead to the academic and practicum requirements for the Certificate of Clinical Competence of the American Speech and Hearing Association. Certification by ASHA requires a master's degree or its equivalent, and students are encouraged to attain this level.

Bachelor of Science Degree, SCHOOL OF COMMUNICATIONS

A student in the School of Communications who plans to be a speech clinician in work environments other than the public school, thereby not seeking the requirements for a teaching certificate, should follow the plan listed below.

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in Speech Pathology and Audiology</i>	60-62
GSB 201c	(4)
Psychology 301	4
Guidance 412, Psychology 305 or Health Education 312 ...	4
Guidance 422a	4
Special Education 200 or 414	2-4
Speech Pathology and Audiology 200, 203 or 409, 212, 318, 319, 405, 406, 412 or 415, 414, 416, 419	46
<i>Electives</i>	
<i>Total</i>	192

Bachelor of Science Degree, SCHOOL OF COMMUNICATIONS

A student in the School of Communications who plans to be a public school speech clinician in Illinois, thereby needing to meet the requirements for a Limited Special Teaching Certificate should follow the plan listed below.

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in Speech Pathology and Audiology</i>	86-94
GSB 201c	(4)
GSB 331, Educational Administration 355, or Instructional Materials 417	3-4
GSB 211b, 300a, or Govt. 300	3-4
GSD 103 with grade of C	(3)
Psychology 301	4
Guidance 412, Psychology 305 or Health Education 312 .	4
Guidance 422a	4
Special Education 200 or 414	2-4
Elementary Education 314 and 337	8
Elementary Education 351b	12-16
Speech Pathology and Audiology 200, 203 or 409, 212, 318, 319, 405, 406, 412 or 415, 414, 416, 419	46
<i>Electives</i>	
<i>Total</i>	192

For certification, students must accumulate two hundred clock hours—75 ASHA—of supervised case work in a teacher-training center. The requirement is satisfied by Elementary Education 351b or Speech Pathology and Audiology 405.

Bachelor of Science, COLLEGE OF EDUCATION

A student in the College of Education who wishes to become a speech clinician in the public schools should follow the plan listed immediately above, in addition to any special requirements of the College of Education.

Course Descriptions

00-0 to 2 Speech Clinic. For students with speech and hearing deviations who need individual help.

04-4 Training the Speaking Voice. For those students who desire to improve their voice and articulation.

00-4 Phonetics. Instruction in the Use of phonetic symbols to record the speech sounds of midland American English, with emphasis on ear training, and a description of place and manner of production of these sounds.

003-4 Introduction to Speech Science. An introduction to the science of gen-

eral speech including the history of research in the field and significant experimental trends in the future. Open to all students.

212-4 Articulatory Problems and Delayed Speech. Acquaints the student with articulatory speech defects. Diagnostic and therapeutic techniques stressed. Prerequisite: 200 or concurrent.

318-4 Voice and Cleft Palate. Voice disorders including cleft palate. Prerequisite: 212, or consent of instructor.

319-4 Stuttering. Deals with diagnostic and therapeutic techniques for the understanding and treatment of stuttering. Prerequisite: 212, or consent of instructor.

400-1 to 4 Independent Study in Speech Pathology and Audiology. Activities involved shall be investigative, creative, or clinical in character. Must be arranged in advance with the instructor. May be repeated for up to 4 hours.

405-12 (4,4,4) Practicum in Speech and Hearing Therapy. Clinical and school procedures in speech pathology and audiology. One hour of class per week, and 2 hours of clinical activity or work on clinically related projects for each hour of credit. (a) emphasizes therapeutic procedures; (b) emphasizes diagnostic techniques; (c) emphasizes the utilization of forms and the preparation of reports. Prerequisite: junior standing.

406-4 Techniques and Interpretation of Hearing Tests. Principles and techniques of testing the hearing and interpreting those tests in terms of the individual's needs. Prerequisite: 416 or consent of instructor.

409-4 Research Techniques in Speech Science. A presentation of the research techniques used in speech science with particular emphasis on equipment, experimental design, and study of significant research contributions to the field. Open to advanced students in speech or those with consent of instructor.

412-4 Cerebral Palsy. An investigation of the etiology, problems, and therapy of cerebral palsy. Prerequisite: 212, 414 or consent of instructor.

414-4 Anatomy and Physiology of Speech and Hearing Mechanisms. (See Physiology 414.)

415-4 Aphasia. An investigation of the etiology, problems, and therapy of aphasia. Prerequisite: 412, 414 or consent of instructor.

416-4 Introduction to Audiology. Provides the student with a basic orientation to the professional field of audiology, its history and its goals. Basic acoustics, the phylogeny, anatomy and physiology of the human ear, and significant pathologies of the ear are presented. Prerequisite: junior standing or consent of instructor.

419-4 Communication Problems of the Deaf and Hard of Hearing. (Same as Special Education 419.) Objectives and techniques for the teaching of reading, speech conservation, and auditory training. Prerequisite: 406 or consent of instructor.

420-4 Advanced Clinical Audiometry. Principles and procedures for advanced audiometric testing, advanced problems in bone conduction measurements, evaluation of loudness recruitment, in topodiagnostic audiometry, and nonorganic hearing loss are presented. Practical techniques include speech audiometry, Bekesy audiometry, conditioned pure tone electrodermal audiometry and use of the Zwislocki Acoustic Bridge. Prerequisite: 416 and 406 or consent of instructor.

421-4 Speech for Acoustically Handicapped Children. (See Special Education 421.)

428-4 Speech Correction for the Classroom Teacher. (Same as Special Education 428.) Etiology and therapy of common speech defects. Open to in-service teachers, seniors, and graduate students in education.

515-1 to 4 Readings in Speech Pathology and Audiology.

516-4 Seminar in Psychoacoustics.

520-4 Seminar in Physiological Acoustics.

521-1 to 4 Seminar in Articulation and Delayed Speech.

522-16 (4,4,4,4) Seminar in Organic Speech Problems.

524-4 Seminar in Language Disorders.

528-4 Seminar in Experimental Audiology.

529-12 (4,4,4) Seminar in Stuttering Behavior.

530-1 to 4 Research Problems in Speech Pathology & Audiology.

531-1 to 4 Seminar in Experimental Phonetics.

533-1 to 4 Seminar in Speech Science.

534-1 to 4 Seminar in Instrumentation.

36-1 to 4 Seminar in Administration of Speech and Hearing Problems.
 99-2 to 9 Thesis.
 00-1 to 48 Dissertation.

Student Teaching

Supervised student teaching is conducted in cooperating public schools in Southern Illinois and the Chicago city schools. The College of Education requires 16 hours of student teaching for the Bachelor of Science degree. Students are expected to enroll for the entire 16 hours during one quarter.

One of the following professional-quarter plans of student teaching must be pursued by the student with the approval of the chairman of student teaching.

The student teacher, under either plan, must follow the same daily schedule as the supervisor. This means that the student teacher is to remain in school for an entire day.

Student Teaching is a full professional commitment on the part of the student and is considered a professional quarter of experience in the field carrying 16 hours of credit. Additional hours can be taken only on a regular overload basis with special permission.

Elementary Professional Quarter

The student-teaching quarter is devoted to full-time student teaching in an approved off-campus center. The student teacher earns 16 hours of credit and is expected to participate in the teaching program for the entire school day, following exactly the schedule of the cooperating teacher.

The University supervisor calls a meeting of student teachers planning to do elementary student teaching at least one quarter in advance of the student teaching quarter. The purpose of this meeting is to complete plans and answer questions pertaining to the professional quarter.

Elementary Education 351 (student teaching) grants 16 hours of credit.

Early-Childhood Education Professional Quarter

The early-childhood education professional quarter is essentially the same as the one described for elementary student teachers with this exception: student teachers in this area teach full time for a quarter in either kindergarten or one of the primary grades. Students must indicate their preference at the time of filing the final application for student teaching.

Elementary Education 350 (student teaching) grants 16 hours of credit.

Secondary Professional Quarter

(EXCEPT VOCATIONAL AGRICULTURE AND VOCATIONAL HOME ECONOMICS)

This professional-quarter plan is designed for secondary student teachers in the College of Education and for other student teachers desiring to student teach in any one of the secondary schools which cooperates with Southern Illinois University during any one quarter.

Secondary Education 352 (student teaching) grants 16 hours of credit. This program does not permit additional hours to be earned without the approval of the Chairman of Student Teaching and the Director of Student Personnel Services.

Vocational Agriculture Professional Quarter

Seniors preparing to be teachers of vocational agriculture do their student teaching in a professional quarter. The first week of the quarter is spent in an approved public school center. The 2nd and 3rd weeks of the quarter are spent on-campus in an intensive study of methods. Weeks 4 through 11 are given to supervised teaching in the same public school center. The last week of the quarter is spent on-campus for further intensive work in the evaluation of the student teaching experience.

Student teaching is done either Fall or Winter quarters. For the professional quarter the student registers for Agricultural Industries 309-4312-12.

The student is responsible for transportation to and from the center and also housing. It is recommended but not mandatory that the student teacher reside in the community while teaching. He is expected to remain on duty as long as the supervising teacher requires. He makes necessary visits after school hours to the homes of students to observe supervised farming programs. This may be true also for Saturday mornings. The student teacher is expected to attend all evening meetings such as the FFA PTA, and adult farmer classes.

Vocational Home Economics Professional Quarter

A professional-quarter student preparing to teach home economics should register for Secondary Education 352-12, Home Economics Education 310, 311.

For three-fourths of the quarter (approximately 9 weeks), the student does full-time student teaching in an approved off-campus center. During the first week of the quarter, the student reports for prestudent-teaching day and to the Department of Home Economics Education for intensive work in the courses listed above. Likewise, at the end of the off-campus student-teaching period the student reports for the remainder of the quarter including the examination period to the Department of Home Economics Education for further intensive work in the evaluation of student teaching.

In the off-campus student-teaching centers, students are assisted in locating housing by the university supervisors of home economics education and the local public school teacher. Students who live in University Housing should indicate to the coordinator of housing the time when they will be off-campus for student teaching or Home Management House residence so that adjustments in contracts can be made. Students living in housing other than university housing should make arrangements directly with those involved.

The Department of Home Economics Education calls a meeting of students planning to do student teaching at least one quarter in advance of the student teaching period to plan for the professional quarter.

The Professional Quarter Committee

A representative from the College of Education, College of Liberal Arts and Sciences, School of Agriculture, School of Business, College of Communications and Fine Arts, School of Home Economics, and School of Technology serve on the professional quarter committee. The purposes of this committee are as follows:

1. To recommend to the chairman of student teaching regulations

and procedures applying to all student teachers working on the professional quarter plan.

2. To review petitions for special student teaching consideration where a student feels that he is an exception to the rules and regulations pertaining to the professional quarter. In most cases final reviewing is made from a written request form known as the *Petition for Special Student Teaching Consideration*. However, the committee as a whole feels that students should not be denied an opportunity of presenting their own cases in person to the committee.

3. To afford each college or school that is concerned with student teaching a personal representative.

No student may pursue a student teaching assignment other than one described previously under one of several professional-quarter plans, unless approved by the professional quarter committee. To request such approval, the student must complete the forms known as the *Petition for Special Student Teaching Consideration*. These forms may be secured from the office of the chairman of student teaching, Room 135. Wham Education Building. Petitions will be accepted for review by the professional quarter committee no later than the end of the second week of the quarter preceding the student teaching quarter. However, petitions may be filed as early as the filing of the final application for student teaching.

Since student teaching is designed in terms of the needs of beginning teachers for complete and integrated experience, and since more than one supervisor may be in charge of the work done by the student teacher, no part of the work may be dropped by the student teacher with the expectation of continuing the remainder of the work for credit. Furthermore, if one supervisor finds it necessary to drop a student teacher from a part of the program, the College of Education reserves the right to require such student teacher to drop all of his program of assigned student teaching rather than merely a part of it.

If one wishes to student teach during the Fall, Winter, or Spring quarters of the academic year, it is necessary that his application be submitted prior to March 15 of the academic year preceding the quarter in which he wishes to student teach. Announcements will appear in the *Daily Egyptian*; major departments and all academic advisement units will be notified. Students are scheduled for either fall, winter, or spring quarter of the following year on the basis of information given on the application.

Application for student teaching by in-service teachers for the summer sessions should be made not later than February 1 of the year they want an assignment. Application blanks may be secured from the office of the chairman of Student Teaching.

Student Teaching Prerequisites

1. Formal application for student teaching should be made by March 15 of the year prior to the actual experience. All students desiring student teaching for either fall, winter, or spring quarters of an academic year must submit their applications by March 15 of the prior year. Applications for summer school student teaching must be submitted by February 1 prior to the summer quarter.

2. Each student must have made formal application for entrance into a teacher education program and must present his copy of application when applying for student teaching.

3. A student must have 128 quarter hours of credit with a minimum

of a 3.25 cumulative average before beginning work in student teaching.

4. The student is responsible for having all transcripts of credit earned at colleges or universities other than Southern Illinois University on file in the office of the chairman of student teaching. (This requirement does not apply for hours of credit earned at Southern Illinois University.)

5. Before student teaching, the student in secondary education must have at least 30 quarter hours in the subject which he proposes to teach. Such credit must meet the approval of the respective department chairman. Each secondary student must have major academic training in a public school teaching subject.

6. Each student must have at least 11 quarter hours in professional education courses prior to doing student teaching. He must have successfully completed a course in each of the subjects listed under the appropriate heading below:

Secondary: general, educational, or adolescent psychology, secondary teaching methods (a special secondary methods course is accepted only for teaching in the respective major teaching area), and history and principles of secondary education.

Elementary: general, educational, or child psychology, reading methods, general elementary methods, and two additional special methods courses in elementary education.

Early Childhood Education: general, educational, or child psychology, reading methods, kindergarten primary methods, Elementary Education 203, and 309. Each student in early childhood education must also be approved in class piano and must take Secretarial and Business Education, 241.

7. At the end of the fall quarter, 1966, English 391 and the Undergraduate English Qualifying Examination were replaced with a new General Studies series. Students majoring or minoring in English must complete English 300a and 300b securing a grade of C or better. All other students must have completed GSD 101, 102, and GSC 103 with a composite average of C or better. Students who have a C average in the former English series (GSD 101a, 101b, and GSC 103) will have met the English proficiency requirement. Students who failed to receive a C average or better in the old English composition series, will need to contact the director of English for General Studies, to determine how the English proficiency requirement is to be satisfied. In no case can a student receive credit for both GSC 103 (old content) and GSC 103 (new content). An alternate procedure for meeting the English prerequisite will be to have attained a grade of C in GSC 103 (new content).

8. The student must have established at least one quarter of residence at Southern Illinois University, earning a minimum of 16 quarter hours of credit, prior to any student teaching assignment.

9. Every student teacher must have a health clearance from the University Health Service. The health clearance consists of a tuberculin test. If it is not convenient to come to the Health Service in Carbondale, the student may have a tuberculin test by his own medical doctor. The report must be filed with the Health Service.

Standards for Admission to a Teacher Education Program

UNCONDITIONAL ADMISSION

A student may apply for admission to a teacher education program with a minimum of 64 quarter hours of academic work. To be eligible for uncon-

ditional admission a student with from 64 to 102 quarter hours must have a cumulative grade point average of at least 3.00 on a 5.00 scale. A student applying for admission with 103 to 143 quarter hours must have at least a 3.10 cumulative grade point average. A student with more than 143 quarter hours at the time of application for admission must have at least a 3.20 cumulative grade point average. To apply for a student teaching assignment, a student must have been unconditionally admitted to a teacher education program. Before beginning a student teaching assignment, the student must have at least a 3.25 grade point average.

PROVISIONAL ADMISSION

A student may seek provisional admission to a teacher education program under the following conditions:

1. If he has 103 to 143 quarters hours of credit with a cumulative grade point average between 3.00 and 3.09 provided the grade point average in his teaching specialization is at least 3.20.
2. If he has more than 143 quarter hours of credit with a cumulative grade point average between 3.10 and 3.19 provided the grade point average in his teaching specialization is at least 3.30.
3. For a student planning to teach at the secondary level, the teaching specialization will include the subject matter concentration plus all education courses.

Procedure for Admission to a Teacher Education Program

Any student who expects to complete a program of teacher education at Southern Illinois University must be officially admitted to a teacher education program.

Application forms must be completed by the student and then given to (1) his academic advisor, (2) the chairman of the department of his major teaching area, for secondary and special education students only, (3) either the chairman of the Department of Elementary Education or Secondary Education, and (4) the assistant dean for undergraduate studies, College of Education, for the review and recommendation for approval (or disapproval). The forms must then be returned to the assistant dean for undergraduate studies for the official record of approved students in teacher education programs. This entire transaction must take place prior to entrance into the professional sequence of education coursework. The professional education coursework starts with Elementary Education 314 or 316 for elementary, special, and early childhood education students. For secondary Education and some special education students it starts with Secondary Education 310.

NEW ADMINISTRATION PROCEDURE

When a student decides on the teacher education program of his choice, he may make application according to the regulations stated herein. Formal application for admission to a teacher education program must be made through the assistant dean's office of the College of Education and approval must be granted prior to entrance into professional education coursework (either Elementary Education 314 or Elementary Education 316 for elementary, early childhood, and special education students; Secondary Education 310 for secondary and some special education students).

Application forms for admission to a teacher education program at

Southern Illinois University, Carbondale Campus, may be secured at the dean's office, College of Education, Wham Education Building, Room 111.

Technical and Industrial Education

Professors John H. Erickson, D.Ed.
Wayne S. Ramp, Ed.D.
Ronald W. Stadt, Ed.D. (*Chairman*, Dept. of Occupational Education)
Associate Professors Raymond E. Bittle, Ed.D.
Richard F. Bortz, Ph.D.

James Jenkins, Jr., D.Ed.
James A. Sullivan, Ed.D.
Assistant Professors Larry J. Bailey, Ed.D.
Dennis G. Nystrom, Ed.D.
Instructors Richard G. Howson, M.S.
John F. Huck, M.S.
Bill J. Shields, M.S.

Programs are designed to prepare persons for teaching, supervisory, and leadership roles in occupational education in schools, colleges, and in industry. Students are made aware of and become knowledgeable about roles, relationships, and expertise in a variety of enterprises.

Enterprise teaching (formerly industrial arts) encompasses a broad area of study in elementary and secondary schools. It involves the study of (1) technological aspects of productive society under the headings: visual communications; energy conversion and power transmission; materials and processes; and electronics and instrumentation and (2) human aspects of the world of work in courses such as industrial sociology, industrial psychology, management and economics.

Trades and industries teaching concerns specialized instruction in the vocational-technical occupations of machine-tool, electronics, drafting, and other trade or technical occupations. Persons following this program are prepared to teach in high schools, area vocational schools, industry private schools, and community junior colleges.

Technical teaching involves instructing youth and adults in highly skilled occupational areas such as, dental hygiene, electronics, practical nursing, automotives, aviation, health, and commercial art, which require basic and intermediate knowledge of science and mathematics as well as advanced knowledge of applications in a defined line of endeavor.

Manual arts therapists supervise rehabilitation activities involving tools, machines, and materials in hospitals and other centers.

Persons who wish to complete a degree immediately after high school are advised to prepare for enterprise teaching. People with work experience or post-secondary technical or vocational education in a technical institute or junior college are advised to prepare for trades and industries or technical teaching.

Bachelor of Science Degree, SCHOOL OF ENGINEERING AND TECHNOLOGY

<i>General Studies Requirements</i>	67
Guidance and Educational Psychology 305	4
Mathematics 111-10	(9) + 1
Technical & Industrial Education 408, 491	3
<i>Major Groupings</i>	92
<i>Enterprise Teaching:</i> GSA 358-6; 100-2, 201-6, 305-8, 207, 307, 310, 420-8, 421, 422; Sociology 338 or Psychology 323; Psychology 320; Economics 214, 215; Management 340, 431; Educational Administration 355; Secondary Education 310, 352.	
<i>Trades and Industries Teaching:</i> GSA 358-6; 100-2, graphics-6,	

259 or concentration specialty—45, 319–12, 485, 488, 489, 490; Educational Administration 355; Secondary Education 310, 352. *Technical Teaching*: 259 or concentration specialty—60, 319–12, 419–8, 488, 489, 490.

Manual Arts Therapy: Psychology 307, 465, Health Education 334s, Physiology 300, 455, GSA 358–6, Technical and Industrial Education 100–2, graphics–6, laboratory electives.

Electives
Total 192

Course Descriptions

00–4 Orientation to Enterprise. Classroom, laboratory, and library. Emphasis on instructing children and youths in career opportunities.

01–6 (3,3) Visual Communications. (a) Introduction to the language of industry involving technical sketching, projections and developments, graphic symbolism, printing, duplicating, photography, and copying. (b) Advanced concepts and techniques involving graphic projections, intersections, and developments; relief, offset, and silk screen printing; mimeograph, xerography, photography, and other processes.

07–3 Energy Conversion & Power Transmission I. Introduction to energy conversion and power transmission, including a brief review of the mechanical laws of physics.

259–3 to 80 Shop and Drafting Subjects. (Same as Engineering 259.) This is a designation for shop or drawing credit earned, or for trade proficiency, when credit is to be established by departmental evaluation. Prerequisite: junior standing.

302–4 Construction Methods for Primary Teachers. Various media such as wood, metal, and paper. Acquainting the primary teacher with the materials, tools, and processes which students at the primary level can manipulate and use in the classroom. Laboratory.

303–4 Diversified Crafts for Teachers and Recreational Leaders. Experience in constructional activities involving the use of wood, metals, leathers, plastics, reed, raffia, clay, and other materials adaptable to the needs and interests of camp counselors and elementary school leaders. Laboratory.

305–8 (4,4) Materials and Processes. (a) The nature of industrial materials, their physical properties, structure, natural state, extraction, and processing. Emphasis on testing, joining, and the industrial applications of various wood, metal, plastic, and ceramic materials. (b) Concepts and techniques in cutting, shaping, forming, treating, polishing, finishing, and testing various wood, metal, plastic, and ceramic materials.

307–3 Energy Conversion & Power Transmission II. Principles, operation, and application of power generating equipment. Reciprocating, gas and steam turbines, jet, and other internal combustion engines, atomic, solar, and chemical power sources, and mechanical, pneumatic, and hydraulic transmission systems are treated from the general education standpoint. Prerequisite: 207.

310–8 (4,4) Electronics & Instrumentation. (a) Introduction to electron theory, optics and sound, electrostatics, circuit theory, control instrumentation, and automation. (b) Principles and applications of circuit theory, control instrumentation in open and closed systems, computer language, computer graphics, and numerical control, from the general education standpoint.

319–3 to 24 (3 per quarter). Occupational Internship. Occupational skills, work processes, technical information, personnel relationships, supervised instruction, conferences and examinations. Prerequisite: consent of coordinator.
380–1 to 12 Special Skills in Teaching Technological Subjects. Develops new and special industrial skills for teaching industrial and technological subjects. For advanced students and teachers to develop new but basic manipulative skills and understandings in selected areas. Prerequisite: 12 hours in Technical and Industrial Education.

419–8 to 16 Student Teaching in Technical Programs. Experience in working with special and post-high school technical training programs in approved centers. The student teacher will follow the program of the supervisors of the primary specialization in both regular and extra-class activities. Prerequisite: 9 quarter hours professional courses.

420–8 (4,4) Enterprise: The Man-Machine System. Classroom, laboratory,

and library study of man-machine systems in a variety of industries and institutions with emphasis on teaching children and youth to understand the world of work. For advanced students and experienced teachers. Must be taken in a,b sequence. Prerequisite: 20 hours in Technical and Industrial Education.

421-4 Principles of Enterprise Teaching. Problems and special methods of teaching in enterprise education programs. Prerequisite: 16 hours technical and industrial education courses.

425-2 to 8 Practicum. Cooperative arrangements with selected private and public agencies. Provide opportunity to study problems under the direction of specialists in the student's area of expertise. Prerequisite: consent of coordinator.

430-2 to 8 Special Problems. Assistance and guidance in the investigation and solution of a library, laboratory, or field problem within existing or projected areas of expertise. Prerequisite: consent of coordinator.

435-6 to 18 Manual Arts Internship. Supervised hospital experience featuring various applications of manual arts therapeutical treatments. Prerequisite: consent of coordinator.

450-1 to 12 (1 to 4 per quarter) Advanced Skills in Technical Subjects. Modern industrial practices and techniques in various selected technical fields. For experienced persons seeking an opportunity to develop advanced techniques and to increase understanding in specialized industrial fields. Emphasis on modern industrial processes, methods, materials, and techniques used in schools, shops, drafting rooms, and industrial organizations. Prerequisite: basic training in area selected for study. Limited to certified teachers.

485-3 Principles and Philosophy of Vocational and Technical Education (Same as Agricultural Industries 485, Home Economics Education 485, Secondary Education 485, Secretarial and Business Education 485.) Team teaching used. Gives an understanding of the nature and purpose of practical arts, vocational and technical education, their relationships and differences, and the place of each in preparing people for the world of work. Prerequisite: Student teaching or consent of department.

488-3 Analysis for Occupational Education. Fundamentals of analyzing occupations and careers for establishing units of instruction for occupational education courses. Required for occupational teachers, coordinators, and supervisors. Prerequisite: 12 hours in teaching specialty.

489-3 Organization of Subject Matter. Course and unit construction, preparation of materials for distribution to students, preparation of teacher-made tests, course evaluation and updating. Prerequisite: 488.

490-3 Principles of Occupational Teaching. Methods of teaching in occupational education programs. Required for occupational teachers, coordinators, and supervisors. Prerequisite: 12 hours in teaching specialty.

493-3 Audio-Visual Media for Occupational Education. Selection, development, analysis, and use of commercial and self-made software systems.

500-8 (4,4) Legislation, Organization, and Administration of Occupational Education.

502-6 (3,3) Measurements and Evaluations of Products and Procedures.

505-4 Administration and Supervision of Occupational Education.

506-4 Cooperative Programs.

510-4 Planning Occupational Education Facilities.

525-4 Cooperative Vocational-Technical Education.

540-4 Research in Occupational Education.

541-4 Occupational Information and Guidance.

550-4 College Teaching of Occupational Education.

560-2 to 12 (2 to 8 per quarter) New Developments in Occupational Education.

570-2 to 6 Special Investigations.

580-1 to 9 Seminar.

599-1 to 9 Thesis.

Technology

Professors E. Leon Dunning, Ph.D.
(Chairman)

Marvin E. Johnson, Ed.D.

Associate Professor Clifford M. Moeller, M.S.

Assistant Professors Joseph E. Barbay, Ph.D.

Dale Besterfield, M.S.

Mark E. Klopp, M.Ed.

Carlyle G. Ott, M.S.

Instructors Murray Brian, M.S.	Glenn L. Kaffenberger, M.S.
Robert R. Ferketich, M.S.	John R. Novy, M.S.
C. Stuart Ferrell, M.S.	Jan R. Sonner, M.S.
Willard C. Hart, B.S.	Lecturer Paul E. Andrews, M.S.
Kenneth B. Jordan, M.S.	

Two degree programs are available in technology. One program leads to the B.S. degree in engineering technology with options in one of three areas; civil engineering technology, electrical engineering technology, or mechanical engineering technology. The other program leads to the B.S. degree in industrial technology.

Engineering technology courses consist of topics related to the design and development of products. Whereas, industrial technology courses consist of topics related to the manufacture and distribution of products.

The present technological society has increased the demand for new types of personnel known as technologists. A technologist utilizes established techniques, methods, and procedures to achieve improvements in existing designs and systems. Technologists should be knowledgeable in the "state of the art" of a particular technology, capable of utilizing handbooks and other forms of codified information with skill and discrimination, and sufficiently versed in mathematics and the sciences to recognize sound procedures.

The technologist should stress applied design—the use of already engineered components and methods. The technologist should not be expected to conceive wholly new designs and design procedures, but should contribute to the technical solution of the overall problem.

Students planning to transfer from junior colleges, technical institutes, or occupational programs should make inquiry regarding opportunities in and specific requirements of the various technology programs. The technology programs are designed to provide the necessary training for entry into employment upon the completion of the baccalaureate degree. Opportunities for advanced study are available in business-related fields or education.

Bachelor of Science Degree, SCHOOL OF ENGINEERING AND TECHNOLOGY

Engineering Technology

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in Engineering Technology</i>	108
GSA 358	(6)
GSB 361	3
Engineering 222	3
Engineering Technology 100-0, 102-9, 260-9, 304-6, 311a-3, 313A-4, 318-6, 342-3	40
Mathematics 111, 150, 252a	(9) + 16
Optional Groupings	43
<i>Civil: Engineering Technology 310-6, 311b-3, 314-3, 363-8, 364-6, 426-3, technical electives-14.</i>	
<i>Electrical: (Waive 311b) Engineering Technology 303-9, 304c-3, 332-6, 336-3, 338-8, 437-9 technical electives-8.</i>	
<i>Mechanical: Engineering Technology 301-3, 303-3, 308-9, 311b-3, 313b-4, 320-3, 322-3, 340-4, technical electives-11.</i>	
<i>Total</i>	192

Course Descriptions

100-0 Orientation. (Same as Engineering 100, Industrial Technology 100.) Introduction to engineering and technology. Develops an understanding of the role of engineering and technology in industry and guides thinking in relation to occupational goals.

102-9 (3,3,3) Graphic Communication. (a) Basic principles of graphic communication including orthographic (multiview) projection; sections and conventions; charts and graphs; pictorial drawing. (b) Principles of graphic communication. The graphical solution of problems involving the spatial relationships of points, lines, and planes. (c) Principles and practice of graphic communication including auxiliary views; dimensioning and tolerancing; applications in technology. Five hours lecture-laboratory per week for each section. Must be taken in a,b,c sequence.

260-9 (3,3,3) Statics and Dynamics. (a) Principles of forces, moments, and static equilibrium. (b) Moments of inertia and kinematics of particles and rigid bodies. (c) Dynamics, work, energy, impulse, and momentum. Must be taken in a,b,c sequence. Prerequisite: Mathematics 150b or concurrent enrollment.

301-6 (3,3) Refrigeration and Air Conditioning. (a) Discussion of refrigerating cycles. Refrigeration at more than one level. Operation and ratings of various types of compressors, evaporators, condensers, and automatic controls used in commercial refrigerating systems. Heat flow problems in condensers, evaporators, and cooling towers. (b) Control of temperature and humidity in buildings, or other large areas. Air handling equipment, duct systems, and air distribution within the space. Fundamental principles and techniques for cooling and dehumidification for comfort. Equipment and control systems. Must be taken in a,b sequence. Prerequisite: 313b or concurrent.

303-9 (3,3,3) Electronics Technology. A study of the fundamentals of vacuum tubes and transistors, including application of these devices in electronic circuits. Laboratory. Must be taken in a,b,c sequence. Prerequisite: 304-9.

304-9 (3,3,3) Electrical Circuits. (a) Foundations of electrical theory, solutions to D.C. steady state networks by the branch method, equivalent circuits, loop currents, and node voltages. Study of network theorems and dependent sources. Prerequisite: Mathematics 150a. (b) A.C. circuit theory by phasor transform method, complex power, three phase sources, mutual coupling, transformers. Prerequisite: 304a and Mathematics 150b. (c) Complex frequency, frequency response from pole-zero plots, Bode plots, transient analysis, introduction to Laplace transform methods. Laboratory. Prerequisite: Mathematics 150b or concurrent enrollment.

308-9 (3,3,3) Machine Design. (a) Applications of the principles of mechanics to problems of design and development, mechanisms for specific functions, dynamic effects and friction in mechanisms. (b) Strength and safety considerations in design of machine parts. Fatigue and stress concentrations; power transmissions, bearings, brakes, clutches, and springs. (c) Combined stresses; helical, bevel, and worm gearing; curved beams, thick cylinder and flat plates; high-speed cams. The student puts previous studies into practice by design of a complete machine. Laboratory. Must be taken in a,b,c sequence. Prerequisite: 260-9.

310-9 (3,3,3) Construction Mechanics. (a) A study of construction methods, the forces involved in the management of machinery and manpower. (b,c) The dynamics of estimating, scheduling and controlling procedures. Must be taken in a,b,c sequence. Prerequisite: 260-9.

311-6 (3,3) Strength of Materials. (a) Stress and strain in elastic and plastic states. Failure theories; elastic torsion; thick cylinders; energy methods. (b) Mechanics of elastic and plastic materials, applications to brittle, ductile, and transitional modes of fracture and fatigue. Laboratory. Prerequisite: 260b.

313-8 (4,4) Elementary Heat Power. (a) The fundamental laws of heat power, properties of systems, liquids, vapors, and liquid-vapor mixtures. (b) Engine cycles and applications. Prerequisite: Mathematics 150a.

314-9 (3,3,3) Soil Mechanics. (a) Mechanics of soil masses; soils as engineering materials. Soil identification and testing. (b) Shearing resistance and consolidation of soils, deformations with an analytical review of the theoretical concepts, results of laboratory materials, including cement, foundation, and surfacing materials. Use of X-ray diffraction and Debye-Scherrer camera

- equipment. Influence of mineral constituents on soil behavior and design. Laboratory. Must be taken in a,b,c sequence. Prerequisite: 311b.
- 315-3 Elementary Structural Analysis.** Application of the principles of mechanics to the determination of forces and deflections in statically determinate structures for fixed and moving loads. Prerequisite: 311b.
- 318-9 (3,3,3) Hydraulics.** (a) Fundamentals of fluid statics, basic fluid flow concepts for idealized fluids with applications, and introduction to viscous fluids. Laboratory. (b) Viscous fluid flow in open and closed conduits including multi-reservoir and conduit systems. Experimental techniques including hydraulic modeling. Basic hydraulic machinery and fluid power systems. Laboratory. (c) Hydrology. Flood routing and flood control. Fundamental principles of sediment transport and the collection and analysis of field data. Field trip. Must be taken in a,b,c sequence. Prerequisite: 260-9.
- 320-9 (3,3,3) Mechanical Laboratory.** (a) A study of various types of measuring instruments. (b) Fuels and lubricants testing and exhaust gas analysis. (c) A study of the characteristics of internal combustion engines, steam turbines, compressors, pumps, fans, and refrigeration systems. Report writing. Laboratory. Must be taken in a,b,c sequence. Prerequisite: 313a.
- 322-6 (3,3) Power Plants.** (a) The design and principles of operation of internal combustion engines. The Otto, Diesel, and Brayton cycles and the fundamental thermodynamic laws involved. (b) Theories of combustion and detonation, combustion charts, fuels, and air tables. Effects of chemical equilibrium and variable specific heats. Cetane and octane numbers; carburetion and injection. Must be taken in a,b sequence. Prerequisite: 313a.
- 332-9 (3,3,3) Electrical Machinery.** (a) Introduction to direct and alternating current machinery. Theory and operating characteristics. (b) Advanced studies on polyphase alternators, motors, machinery, and power generation. Laboratory. Must be taken in a,b,c sequence. Prerequisite: 304b.
- 336-3 Electrical Measurements.** Theory and use of D.C. and A.C. instruments; analysis of sensitivity, accuracy, precision, and error. Prerequisite: 304-9.
- 337-3 Material and Energy Balances.** Application of physical and chemical principles in the solution of industrial process problems. Introduction to equilibrium and rate relations. Prerequisite: Chemistry 121a.
- 338-12 (4,4,4) Electrical Instrumentation.** (a) A discussion of the basic operating principles of control instruments and their applications to industrial processes. (b) The application of commercially available instruments to research problems. Dynamic and static calibration of instruments. (c) Control elements and techniques for devices and processes, dynamics of open and closed cycles control systems. Laboratory. Must be taken in a,b,c sequence. Prerequisite: 304, 332a.
- 340-4 Mechanisms.** Design and analysis of machine elements. Analysis of the motion of rigid bodies in space and design of linkages, gears, and cams. Includes analytical and graphical techniques. General methods and parametric studies. Laboratory. Prerequisite: 260c and Engineering 222.
- 342-3 Technology Design.** An elective project on any engineering subject selected by the student with advice from the instructor. Stimulates original thought and creativity. Laboratory. Prerequisite: senior standing.
- 347-3 Foundations.** Subsurface investigation, theory of consolidation and settlement, strength theory and conditions of failure due to stresses imposed by engineering structures on foundation materials. Laboratory. Prerequisite: 311b and 314b.
- 349-9 (3,3,3) Unit Operations.** (a) Heat, mass and momentum transfer in processing industries. Empirical correlations of experimental data. Equipment design. (b) Stagewise operations, graphical solutions of mass and heat transfer problems. Applications in evaporation, drying and distillation. Process design. (c) Two phase separations, gas absorption, solvent extraction and leaching. Experimentation. Prerequisite: 337.
- 363-12 (4,4,4) Surveying.** (a) Use and care of surveying instruments; principles of surveying; computations; concepts and applications of advanced surveying. (b) Route surveying; field astronomy; land surveying; state coordinate systems; construction surveying; geodesy. (c) Precise surveying; topographic surveying; least squares adjustment methods; other surveying applications and geodetic principles. May be taken in a,b, or a,c, or a,b,c sequence. Prerequisite: 102b and Mathematics 111b.
- 364-6 (3,3) Highway Engineering.** (a) Highway administration, planning, economics and finance. Highway surveys, plans and computation. Traffic en-

gineering. (b) Highway design, drainage, roadside development and subgrade structure. Instruction in all types of base courses, surfaces and paving. Highway construction and maintenance. Preferred in sequence but not required. Prerequisite: 314a, 363a and senior standing.

426-9 (3,3,3) Photogrammetry. (a) Cameras and photography; flight planning; mathematical principles of vertical and tilted aerial photographs; ground control methods; extension of control; stereoscopy and parallax; basic instruments, stereo plotters, and latest developments. (b) Rectification of tilted photographs; stereoscopic plotting instruments; principles and use of oblique photography; analytic photogrammetry and new concepts. (c) Analysis of aerial photographs to determine soil and rock formations and their properties; interpretations for engineering and regional planning purposes. Laboratory. May be taken in a,b, or a,c, or a,b,c sequence. Prerequisite: 363 or consent of instructor.

430-2 to 8 Special Problems in Industry and Technology. Special opportunity for students to obtain assistance and guidance in the investigation and solution of selected technical problems. Prerequisite: consent of coordinator.

437-9 (3,3,3) Industrial Electronics and Communications. (a) Design of matching networks, impedance-admittance locus diagrams, transmission line equations, transmission line charts, stub matching. Prerequisite: 303a. (b) Electromagnetic fields in rectangular and circular wave guides, microwave techniques, antennas. (c) Unified treatment of various types of transmission systems with emphasis on the role of system bandwidth and noise in limiting the transmission of information.

440-8 (4,4) Design and Analysis of Industrial Organizations and Productivity. Case studies of industrial production methods and the process of industrial decision making; determinants of manpower utilization; transfer and processing of information, determinants of productivity levels. Prerequisite: consent of instructor.

441-6 (3,3) Intermediate Mechanics of Vibrations. (a) Equations of motion applied to systems with free and forced vibrations, damping, and multiple-degrees of freedom; Euler equations; introduction to Lagrange's equations and orbital mechanics. (b) Lograngian equations for conservative and non-conservative systems; eigenvalues and natural modes; numerical methods for eigenvalue determination in higher order systems; special functions.

526-9 (3,3,3) Surveying and Photogrammetry.

527-9 (3,3,3) Transportation and Highway Engineering.

Industrial Technology

<i>General Studies Requirements</i>	67
<i>Requirements for Concentration in Industrial Technology</i>	108
GSA 358	(6)
GSB 361	3
Mathematics 111-10	(9) + 1
Engineering 222	3
Engineering Technology 102-9	9
Industrial Technology 100-0, 300-4, 307-5, 317-5, 318-3, 325-5, 343-3, 358-5, 365-4, 375-4, 465-4	42
Management 340-4, 382-4	8
Psychology 320, or Management 301, or 385	4
Optional Groupings	38
Electives should be chosen from the following areas: Industrial Technology, Engineering Technology, Management, Economics, Marketing, Accounting, Finance, Psychology, Mathematics, or approved by the curriculum adviser. Suggested groups of electives are as follows: <i>Industrial Design</i> (IT 342, 359, 362, 369), <i>Manufacturing</i> (IT 300b, 335, 340, 341, 342), <i>Supervision and Personnel</i> (IT 340, MGT 385, Psych 305, 322, 323), and <i>Technical Sales</i> (MKT 301, 363, 439).	

Graduates of two-year occupational programs may receive credit toward the above requirements.

Course Descriptions

100-0 Orientation. (See Engineering Technology 100.)

259-3 to 80 Occupation Credit. For occupational credit earned at junior colleges or technical institutes when credit is to be granted by departmental evaluation.

300-8 (4,4) Plastic Process. (a) Polymeric synthesis systems of manufacturing plastic materials and of the properties of plastics. Includes design analysis of commercial plastic products. (b) Study of thermosetting plastics as to composition, properties, and methods of manufacture. Includes commercial applications for tooling and consumer products and design with all kinds of plastics. Lecture, laboratory. Prerequisite: GSA 101b.

302-3 Non-Metallic Processes. Non-metallic and non-plastic processes such as paper, wood, glass, rubber, textiles.

307-5 Analytical Problems in Technology. Methods of formulation and solution of special problems encountered in industry and technology using advanced techniques. Prerequisites: Mathematics 111a,b or equivalent.

317-5 Casting and Metal Forming Process. Analysis of metal casting processes, testing instruments, and production equipment. Analysis of metal forming techniques and the newer techniques of explosive, electro-discharge, and ultrasonic forming. Powder metallurgy. Lecture, laboratory. Prerequisite: Mathematics 111a.

318-3 Materials Joining. Welding processes including design, strength, and production equipment, and other metal joining techniques such as metal fasteners, adhesive bonding, brazing, and soldering. Lecture, laboratory.

319-3 to 24 (3 per quarter) Industrial Internship. Industrial experience includes job skills, manufacturing processes, technical information, and labor-management relationships with supervised instruction, conferences and examinations. Prerequisite: consent of instructor.

325-5 Metal Removal Processes. Metal removal theory, cutting economics, and properties of cutting materials. Conventional production equipment and newer techniques; chemical, electro-discharge, and ultrasonic. Lecture, laboratory. Prerequisite: Mathematics 111a.

335-3 Metallurgy and Heat Treatment. Analysis of metal structures and principles of heat treatment. Lecture, laboratory. Prerequisite: Mathematics 111a.

340-3 Automatic Process Control. Principles of numerical control process and introduction to numerical control programming. Lecture, laboratory. Prerequisite: 325a and Engineering Technology 102a.

341-3 Maintenance. Preventive maintenance procedures, maintenance shop organization, and equipment maintenance problems.

342-3 Industrial Finishes. Analysis of methods and equipment of industrial finishing processes including electrostatics, enameling, anodizing, and other protective and decorative coatings.

343-6 (3,3) Electricity Electronics. (a) Introduction to electricity and electronics. (b) Introduction to vacuum tube and solid state circuits with application to processes. Must be taken in a,b sequence. Prerequisite: Mathematics 111b.

351-3 Product Control. Control of size and geometric specifications. Emphasis on comparative gauges, work holding devices, and tolerance charts. Prerequisite: 325.

358-5 Materials Handling and Plant Layout. Methods and equipment. Plant layout methods and techniques. Prerequisite: 325 and 317.

359-4 Design Illustration. Theory and practical applications of axonometric and perspective projection techniques including the theory and application of rendering techniques; lecture, laboratory. Prerequisite: Engineering Technology 102b.

362-3 Industrial Packaging. Analysis of packing principles, equipment, and processes.

365-4 Quality Control. Analysis of control charts, military sampling procedures, and inspection systems. Prerequisite: junior standing.

369-8 (4,4) Industrial Design. (a) Introduction to the basic design concepts

including design process developments, design phases, and communications. Concentration on factors influencing design, design analysis and creative thinking. (b) Environmental and human factors in design. Student is required to complete a design project. Must be taken in sequence. Prerequisite: 358, 359, Management 382.

375-4 Production and Inventory Control. Production and inventory control systems with emphasis on cost analysis. Prerequisite: Engineering 222.

465-8 (4.4) Industrial Safety. (a) Principles of industrial accident prevention; accident statistics and costs; appraising safety performances; industrial hazards and safeguards; fire control. (b) Effective industrial safety organizations, management and supervision; safety psychology and training programs; health safeguards; occupational diseases and other industrial hazards. Prerequisite: senior standing.

Theater

Professors Archibald McLeod, Ph.D.

(Chairman)

Christian H. Moe, Ph.D.

Associate Professor Charles Zoeckler,
B.A.

Assistant Professors Winston G. Gray,
Ph.D.

Phillip R. Hendren, M.A.

Darwin R. Payne, M.A.

Eelin S. Harrison, M.A.

Instruction and training in all phases of dramatic production for the stage and in basic techniques for dramatic production in television, radio, and motion pictures are provided.

Education for dramatic production entails (1) training and practice in acting, directing, and technical production (stage management, crew work, the planning and execution of costumes, lighting, and scenery); (2) understanding of the essential nature of theater art through study of theater esthetics, history, and criticism; (3) a survey of theater management practices; (4) a study of the principles and techniques of playwriting and; (5) a knowledge of dramatic literature.

The courses are designed to achieve the following objectives: (1) to teach the theory and practice of play production; (2) to provide a foundation for graduate study, in dramatic production, theory, and history; (3) to provide basic professional training in all phases of dramatic production for stage, screen, radio, and television; (4) to provide the general college student with opportunities to participate on an extracurricular basis in a cooperative artistic enterprise, and with courses which will contribute to a broad liberal arts education; (5) to provide the student of general speech with training and experience in an important type of speech activity; (6) to provide campus, city, and area with live theater performances of the best plays, including children's plays and operas, of past and present; and (7) to permit students some degree of specialization in any one of four areas of theater production: acting and directing; scenic/costume design and technical direction; playwriting and dramatic literature; and dance; and to provide a foundation in theater history and theory.

The Southern Players, under the supervision of the Theater faculty, produce each year five full-length plays, three plays for children, five student-directed full-length plays, and three programs of original one-acts. Each fall the Touring Theater, a troupe composed of students registered in 322 tours Southern Illinois for several weeks, performing daily a full-length play for adults and a play for children. Each summer a resident stock company produces a five-production playbill in the air-conditioned University Theater.

Bachelor of Science Degree, SCHOOL OF COMMUNICATIONS

The following requirements are established for four areas of concentration: Acting-Directing, Design-Technical, Playwriting-Dramatic Literature, and Dance. Each area of concentration has a core curriculum (common in the first three areas), a specialized curriculum, and a limited number of electives. Since the core curriculum for Dance is somewhat different from that of the other three areas, it is listed separately.

General Studies Requirements 67

Core Curriculum in Theater for following 3 Areas 59-60

 GSC 203, 354a,b, 365 or English 471a or b..... 12-13

 English 460a,b,c, or d, or 464, or 468 4

 Theater 111a,b,c, 207, 217, 311, 308 and 322 (Tour or Summer Theater), 402a, 403 43

One of the following Three Specializations 29-30

Acting-Directing

English 460a,b,c,d, or 464, 471a,b, or 468 (any one course) 4

Theater 203, 213, 305, 317, 402b, 417 21

Theater Electives 4-5

Total (with Core) 89-90

Design-Technical

Clothing and Textiles 380 or 433 4

Theater 406, 412, 414, 415, 432, 438 21

Theater Electives 4-5

Total (with Core) 89-90

Playwriting-Dramatic Literature

English 460a,b,c,d, or 464, or 471a,b, or 468 (any two courses) 8

Psychology 305 4

Theater 402b, 411, 438 12

Theater Electives 5-6

Total (with Core) 89-90

Dance

Core Curriculum for Dance 42

 GSC 203, 354a,b 9

 Theater 111a,b,c, 217, 322, 402a, 403 33

 Theater 230, 240, 273, 313, 312, 416 42

 Theater Electives 5

Total (with Core) 89

Electives

Total Credit Requirements for All 4 Areas 192

Bachelor of Arts Degree, COLLEGE OF LIBERAL ARTS AND SCIENCES

General Studies Requirements 67

Requirements for Theater Concentration 78

 GSC 201, 203, 354a, 354b 12

 English 460a,b,c,d, 464, 468, 471a,b (any three courses) 12

Theater 111a,b,c, 217, 311, 402a, 403, 438	33
Theater Electives	21
<i>Electives</i>	
<i>Total</i>	192

Secondary Concentration

Required courses are Theater 111a, 217, 207, 311, 402a, GSC 354a,b, (Total: 25) for students in the School of Communications; GSC 203, 354a,b, Theater 111a, 217, 402a, 438 (Total: 24) for students in the College of Liberal Arts and Sciences; GSC 203, Theater 230, 240, 313, 312, 416 (Total: 36) for students with a secondary concentration in Theater-Dance.

Course Descriptions

111-9 (3,3,3) Staging Techniques. All phases of dramatic production in connection with departmental public presentations. Lectures and laboratory.

203-4 Voice and Diction. Principles and practice in personal vocal and articulatory development and control. General group drills in phonation, resonance and vocal variety; drills for clarity and ease in articulation. For specific vocal needs; individual exercises, coaching and critical comment; leading to increased effectiveness in formal reading and speaking situations.

207-4 Fundamentals of Theatrical Design. Graphic media and workshop exercises acquaint students with the problems encountered by the director, scene designer, costumer, and lighting director in providing a suitable environment, by visual means, for the actor.

208-1 to 9 Dramatic Activities. Credit to be earned by participation in public performances.

217-4 Acting. Basic techniques of acting in all dramatic media. Emphasis on expression through bodily action and movements. Develops the actor's fundamental tools: motivation, sensory perception, voice, bodily action, movement, and a working vocabulary. Exercises.

230A-2 Beginning Techniques of Classical Ballet. (Same as Physical Education for Women 230A.) Basic ballet and introduction to centre work.

230B-2 to 22 Intermediate and Advanced Ballet. (Same as Physical Education for Women 230B.) Intermediate and advanced ballet including barre and centre combinations. Prerequisite: 230A or consent of instructor.

240-2 to 24 Theory and Technique of Contemporary Dance. (See Physical Education—Women 240.)

305-2 Stage Make-up. Theory and technique of various types of make-ups.

308-1 to 9 Dramatic Activities. Same as 208.

311-4 Introduction to Playwriting. The preparation of a one-act play from germinal idea to completed script. Those scripts indicating a certain level of artistry and technical control to be produced in a laboratory theater program. Course includes the analysis of dramaturgical technique and theory through the study of selected plays and criticism. Prerequisite: one course in dramatic literature and consent of instructor.

317-4 Intermediate Acting. Practical application, through various scenes and exercises, of the elements of concentration, emotional recall, rhythm, observation, characterization, and rehearsal methods. Prerequisite: 217.

322-2 to 14 Practicum in Theater. Practical experience in acting, directing, and associated theater work in area tours and summer stock. Credit may be earned for the course both on tour and in stock.

GSC 354-6 (3,3) History of the Theater.

379-3 Preclassic Dance Forms. (Same as Physical Education—Women 379.) Lectures and readings in dance of the 16th, 17th, and early 18th centuries.

Study and execution of representative preclassic dances. Prerequisite: 230.

400-0 Theater Problems. Group discussion of current problems, productions, and developments in the university theater. Includes special lectures, symposiums, production critiques. One hour weekly non-credit course required for 6 quarters for all majors, and for 3 quarters for all theater graduate students.

401-4 Creative Dramatics. (See Speech 401.)

402-8 (4,4) Play Directing. (a) The principles and procedures of play

direction including play selection, interpretation, and the patterning of auditory and visual stimuli; (b) Continuation of 402a emphasizing rehearsal procedures, control of tempo and mood, styles of presentation and performance, and other techniques in the direction of plays.

403-4 Aesthetics of the Drama and the Theater. Principles and practice of modern dramatic production in the light of modern aesthetic theory. A course attempting to formulate an aesthetic judgment of the theater.

404-4 Theater Management. Theater operational procedure, including both fundamental structuring and house management. The former aspect includes administration, purchasing, and accounting practices, ticket sales, publicity, promotion, and public relations. The latter aspect covers the management of box-office and ushering.

405-8 (4,4) The Scenic Imagination. (a) A study of the purely creative side of stage production. It includes an analysis of the script and its meaning for an audience; a poetic evaluation of the setting, costumes, and lighting; and the blocking out of the stage action; (b) Theater research and documentation; an approach to sketches and models; a review of the historic forms of staging, with emphasis on the modern styles from naturalism to epic theater.

406-1 American Professional Theater Procedures and Practices. An introduction to the everyday realities of a professional stage career, including problems of survival, professional ethics and protocol, personal relations, and the function of stage unions.

409-4 High School Theater and Its Production Problems. Consideration of stage machinery, equipment, light controls and instruments, production, and techniques. Analysis of basic needs of the high school theater.

410-3 Children's Theater. Creative dramatics; dramatization of children's literature; play production for elementary schools. Recommended for education concentrations.

411-4 Playwriting. The writing of a full-length play, a children's play, or a historical pageant-drama forms the basis of the course. Students may elect to write two one-act plays. Individual conferences supplement the class discussion and analysis of student writing. Prerequisite for graduate students: consent of instructor.

412-4 Stage Design. The design of settings for the stage and other dramatic media. Prerequisite: 207.

414-4 Costume Design. History of western costume from Greek to Renaissance and its adaptation to stage use. Theory and principles of theatrical costuming. Application of principles of design and colour. Designs for single scenes.

415-4 Costume Design. History of costume, Renaissance through 19th Century. Style, fantasy, and the comic in costume design. Principles of dramatic theory and criticism as applied to costume design. Evaluation of research tools. Methods and procedures in designing costumes for a complete show. Prerequisite: 414.

416-4 Current Theories and Practices in the Teaching of Dance. (See Physical Education 416.)

417-4 Advanced Acting. Lectures, readings, and practical application dealing with advanced studies of characterizations and acting styles on an individual basis. Prerequisite: 217, 317.

432-4 Stage Lighting. Instruments and control equipment; principals and techniques of lighting dramatic productions.

438-4 Contemporary Developments in the Theater. Critical study of theory and practice in acting, directing, production, and architecture in the modern theater. The rise and development of the film, radio, and television as dramatic media.

502-4 Advanced Directing.

503-12 (4,4,4) Advanced Technical Problems.

504-4 The Comic Theater.

505-4 The Tragic Theater.

506-4 The American Theater.

509-4 The High School Theater and its Production Problems.

518-4 Theater Audience.

519-1 to 12 Theater Practicum.

526-3 to 12 Seminar in Theater Arts.

530-1 to 4 Research Problems in Theater.

599-1 to 9 Thesis.

University Courses

200-3 (1,1,1) University Convocation. Speakers, concerts, dramatic performances, and other events of cultural value and general interest to campus and local community. Attendance at each individual event open to all without charge. Students may register for up to three quarters for a total of three quarter-hours of credit. To gain credit in any quarter, the student must attend eight events.

300-9 (3,3,3) Independent Studies in Student Governance. For holders of major campus student offices. Discussion sessions arranged with the assistant to the chancellor for student relations. Pass-Fail grades only.

Zoology

Professors Richard E. Blackwelder, Ph.D.

Harvey I. Fisher, Ph.D. (*Chairman*)

Edwin C. Galbreath, Ph.D.

William M. Gersbacher, Ph.D. (*Emeritus*)

Herman J. Haas, Ph.D.

Willard D. Klimstra, Ph.D.

William M. Lewis, Ph.D.

Associate Professors Ronald A. Brandon, Ph.D.

DuWayne C. Englert, Ph.D.

George Garoian, Ph.D.

Jan Martan, Ph.D.

Howard J. Stains, Ph.D.

Hilda A. Stein, M.S. (*Emerita*)

Assistant Professors Joseph Beatty, Ph.D.

William Dyer, Ph.D.

William C. George, Ph.D.

John N. Krull, Ph.D.

Eugene Lange, Ph.D.

Eugene A. LeFebvre, Ph.D.

J. E. McPherson, Ph.D.

Bruce W. Peterson, Ph.D.

Benjamin Shepherd, Ph.D.

John B. Stahl, Ph.D.

George H. Waring, Ph.D.

A concentration in zoology is an appropriate beginning for those wishing to specialize in teaching or research in the zoological sciences and allied fields (e.g. conservation, fisheries management, wildlife management, dentistry, medicine and veterinary medicine).

Students planning to concentrate in zoology should consult with the director of undergraduate studies in zoology for current information about the department and its programs.

Students concentrating in zoology are encouraged to develop an individualized curriculum by consulting with an appropriate faculty member of the Department of Zoology or with the director of undergraduate studies in zoology. The curriculum must include: Biology 305, 306, 307, 308; Zoology 317a,b, Zoology 382, and electives to total at least 48 quarter hours. The individualized curriculum can not be approved until the student has completed the biology requirements. If an individualized program is not developed and approved, the prescribed curriculum presented below must be completed.

Bachelor of Arts or Bachelor of Science Degree,

COLLEGE OF LIBERAL ARTS AND SCIENCES

<i>General Studies Requirements</i>	67
<i>Supplementary Two-Year College Requirement in FL/Mathematics</i>	9-10
GSD FL (Recommended French, German or Russian)	
<i>Requirements for Concentration in Zoology</i>	93
Biology 305, 306, 307, 308	16
Chemistry 121a,b, 305a,b	20
Mathematics 150a,b	10
Physics 111 or 206	9

Zoology 309, 317a,b, 382, 426, 430a,b, 441, 479	38
Electives	
Recommended: three quarters of botany, two of physics, one of physiology, one of microbiology, and organic chemistry	
Total	192

Secondary Concentration

A secondary concentration in Zoology consists of 24 hours, including Zoology 317a,b. Electives from the following areas may be used to complete the 24-hour minimum requirement; Biology 305, 306, 307, 308, GSA 312, 314, 315, and zoology (any course). No courses offered in the General Studies Program will be accepted as electives within the major. Liberal Arts and Science students should take GSD FL-9 to satisfy the college language requirement.

Course Descriptions

- 300-5 Vertebrate Embryology.** Development of the individual with the frog, chick, and pig as types. Three lectures and four laboratory hours per week. Prerequisite: 318a.
- 309-5 Elementary Cytology.** Introduction to structure and function of the cell on an elementary level. Three lecture and four laboratory hours per week. Prerequisite: 15 hours of biology.
- GSA 312-3 Conservation of Natural Resources.**
- GSA 313-3 Evolution.**
- GSA 314-3 Man's Genetic Heritage.**
- GSA 315-3 History of Biology.**
- 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 concentration in zoology.) Two lecture and 4 laboratory hours per week. Prerequisite: GSA 201b.
- 317-10 (5,5) Diversity of Animals.** Diversity and its taxonomic treatment in invertebrate and vertebrate animals, emphasizing structure, function, life cycles, and evolution. Must be taken in a,b sequence. Students who have completed 102 cannot receive credit for 317a. Students who have completed 103 cannot receive credit for 317b. Prerequisite: any 3 of Biology 305, 306, 307, or 308.
- 318-8 (4,4) Vertebrate Anatomy.** The structure of vertebrate organ systems. (a) Three lectures and 2 laboratory hours per week. (b) One lecture and 6 laboratory hours per week. To be taken in a,b sequence. Prerequisite: 317b or consent of instructor.
- 321-5 Histological Techniques in Zoology.** Methods of preparing material for microscopic study. Two lecture and 6 laboratory hours per week. Prerequisite: one year of biological sciences or consent of instructor.
- 322-2 to 5 Problems in Zoology.** Research on zoological problems. Prerequisite: 4.25 grade point average, senior standing, and approval of the department or faculty. (Credit may not be used toward a secondary concentration in zoology.)
- 340-3 Teleology and Optimality in Biological Systems.** The design and purpose of biological structures from the molecular to the population level. Reference to evolutionary origins, engineering principles, and systemic integrations. Prerequisite: any 2 of Biology 305, 306, 307, or 308.
- 351-5 Ecological Methods.** Basic ecological field techniques for analysis of community structure and functional relationships. Cost of field trips may be \$5 to \$25 per student. One conference and eight laboratory hours per week. Prerequisite: 317 and Biology 307.
- 382-3 (1,1,1) Zoology Seminar for Seniors.** Three quarters required of seniors concentrating in zoology. Prerequisite: senior standing.
- 402-4 Natural History of Invertebrates.** Observation, identification, and life histories. Designed for teachers. Not for students specializing in invertebrate zoology. Prerequisite: 317a.
- 403-4 Natural History of Vertebrates.** Observation, identification, and life

histories. Designed for teachers. Not for students specializing in vertebrate zoology. Prerequisite: 317b.

404-2 to 8 Zoology Field Studies. A trip of four to eight weeks to acquaint students with animals in various environments and/or with methods of field study, collection, and preservation. Arrangements made in advance of term. Cost per individual will be approximately \$25 per week. (Only 4 hours may be used for credit.) Prerequisite: consent of department.

406-4 Protozoology. Taxonomy, cytology, reproduction, and physiology of unicellular animals. Laboratory methods of culturing and studying. Prerequisite: 317a.

407-5 Parasitology. Principles, collection, identification, morphology, life histories, and control measures. Prerequisite: 317a.

408-4 Herpetology. Taxonomic groups, identification, morphology, and natural history of amphibians and reptiles. Prerequisite: 317b.

409-5 Histology. Microscopic structure of organs and tissues with emphasis on mammalian forms. Prerequisite: 15 hours biological sciences.

410-5 Vertebrate Paleontology. History of vertebrate animals in terms of their morphological change, geological succession, and ecological relationships. Prerequisite: 318a or Geology 301.

413-10 The Lower and Higher Invertebrates. (a) Structure, phylogeny, and natural history of the lower invertebrates, through lophophorates. (b) Structure, phylogeny, and natural history of the higher invertebrates, protostomes, deuterostomes. Taken in a,b sequence. Prerequisite: 317.

414-4 Freshwater Invertebrates. Taxonomic groups, identification and natural history of the regional fauna. Prerequisite: 317a.

415-4 Limnology. Lakes and other inland waters, the organisms living in them, and factors affecting these organisms. Prerequisite: 317a.

425-4 (2,2) Genetic Methods. Experimental methods in applying basic principles of genetics. (a) Monogenic and digenic inheritance, sex-linkage, gene interaction, linkage, and chromosome mapping. (b) Mutation, artificial and natural selection, gene frequencies, and genetic drift. Four hours laboratory per week. Must be taken in a,b sequence. Prerequisite: Biology 305.

426-4 Comparative Endocrinology. Comparison of mechanisms influencing hormone release, hormone biosynthesis, and the effects of hormones on target tissues. Includes ablation and histology of glands, and chemical and bioassays with vertebrates and invertebrates. Prerequisite: Biology 308 and consent of instructor.

430-8 (4,4) Biological Statistics. (a) Examination of distributions, the parametric statistics and simple regression theory. (b) Examination of experimental design, the analysis of variance, and the analysis of covariance. Prerequisite: consent of instructor.

441-4 Emergence of Order in Biological Systems. From molecular to the gross morphological level: cybernetic, systemic, thermodynamic, and evolutionary aspects. Prerequisite: 300 and one course in cellular physiology or consent of instructor.

459-4 Game Birds. Identification, life history, ecology, and management. Cost of field trips up to \$15 per student. Prerequisite: 317 or consent of instructor.

461-4 Mammalogy. Taxonomic groups, identification, and natural history of mammals. Prerequisite: 317b.

463-4 Wildlife Management. The principles and varied techniques of managing wildlife resources. Cost of field trips up to \$15 per student. Prerequisite: 15 hours of biological science or consent of instructor.

465-4 Ichthyology. Taxonomic groups, identification, and natural history of fishes. Prerequisite: 317b.

466-4 Fish Management. Sampling, dynamics, and manipulation of fish populations, age and growth of fishes, and habitat improvement. Prerequisites: 15 hours of biological science, consent of instructor.

467-4 Ornithology. Classification and recognition of birds and the study of their songs, nests, migratory habits, and other behavior. Cost of field trips may be \$5 to \$10 per student. Two lecture and 4 laboratory hours per week. Prerequisite: 317b.

471-4 Entomology. Principles of the structure, classification, and life histories of insects. Two lectures and 4 laboratory hours per week. Prerequisite: 317b.

479-4 Animal Behavior. (Same as Animal Industries 479.) The biological basis for the actions and responses of animals. Prerequisite: GSA 301, or 302, or equivalent.

- 508-4 Helminthology.
- 512-3 Animal Geography.
- 514-4 Advanced Entomology.
- 520-5 Advanced Invertebrates.
- 521-4 Advanced Limnology.
- 525-5 Cytology.
- 540-3 Factors in Animal Reproduction.
- 542-3 Osteology.
- 561-4 Game Mammals.
- 566-4 Fish Culture.
- 573-4 Physiological Ecology.
- 577-3 Population Ecology.
- 578-4 Population Genetics.
- 580-4 Advanced Systematics.
- 581-3 Readings in Current Zoological Literature.
- 582-6 (1,1,1,1,1,1) Graduate Zoology Seminar.
- 583-3 (1,1,1) Teaching of Zoology in College.
- 585-10 to 30 Seminars.
- 596-1 to 12 Special Research.
- 599-1 to 9 Master's Research and Thesis.
- 600-1 to 48 Research and Dissertation.

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ETIVES OF
TERN ILLINOIS UNIVERSITY

X.T BEAUTY

od,
nature, and
n art;
e, h, how to love the best
t to keep the human touch;

DANCE LEARNING

l lines of truth
erever they may lead,
h, ing how to think
her than what to think,
s, ting the powers
e the mind
n, eir self-development;

OWARD IDEAS AND IDEALS

ur democracy,
s, ring respect for others
e for ourselves,
u, promoting freedom
h responsibility;

OME A CENTER OF ORDER AND LIGHT

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t understanding
n understanding
t wisdom.

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