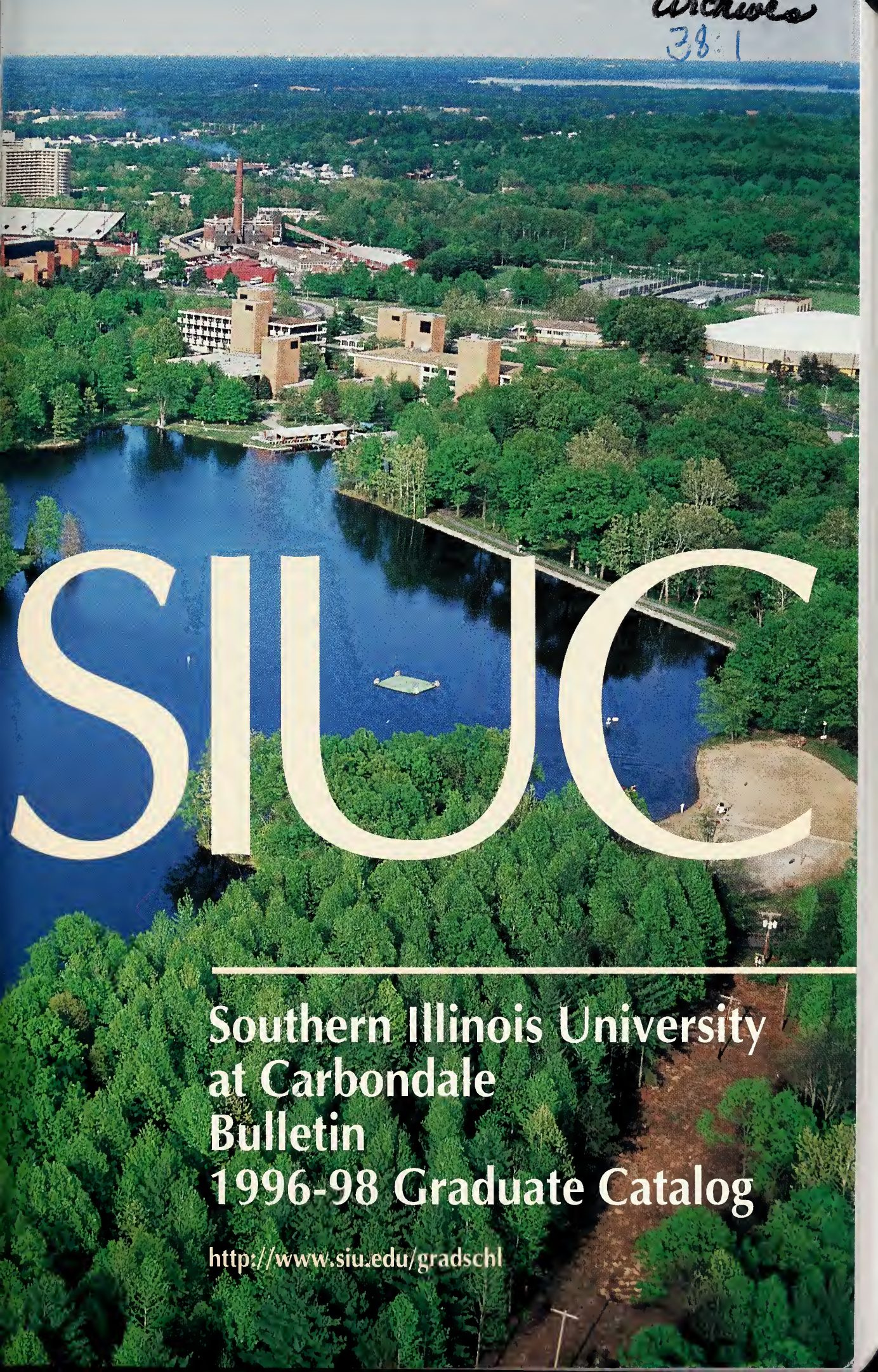
1996

1996-1998 Southern Illinois University Bulletin Carbondale Campus (Graduate Catalog)

Southern Illinois University Carbondale



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Southern Illinois University at Carbondale Bulletin 1996-98 Graduate Catalog

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This Catalog

The Graduate Catalog covers in detail questions concerning the graduate program of Southern Illinois University at Carbondale for the period from summer, 1996, through spring, 1998. It supersedes Volume 36, Number 1, of the *Southern Illinois University at Carbondale Bulletin*.

The following publications may be obtained free from University Electronic Communications, Southern Illinois University at Carbondale, Carbondale, Illinois 62901-6513.

Graduate Catalog
Undergraduate Catalog
School of Law Catalog
Schedule of Classes. Please specify term (fall, spring, or summer).

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Graduate School Phone: 618-536-7791, WWW: http://www.siu.edu/gradschl

SIUC complies fully with applicable federal and state nondiscrimination and equal opportunity laws, orders, and regulations in admission, employment, and access to University programs and activities. Complaints or requests for further information should be directed to the University Affirmative Action Office, Anthony Hall 104, 618-536-6618.

SIUC is committed to creating and maintaining a university community free from all forms of sexual harassment. Copies of the "Sexual Harassment Policy and Grievance Procedures" are available in the University Affirmative Action Office. Problems should be reported promptly to the University Ombudsman, Woody Hall C302 or to the University Affirmative Action Office, Anthony Hall 104.

This publication provides information about Southern Illinois University at Carbondale. Primary attention is given to its academic programs, rules and regulations, and procedures. Students will be subject to the published requirements in effect when they are admitted to the Graduate School. Students beginning graduate work during the period of time from the start of summer session 1996 through spring semester 1998 are subject to the academic requirements of the Graduate School as specified in this publication. These requirements may be superseded by future publications of the Graduate Catalog. If the requirements are subsequently changed, students may elect either to meet the requirements in force in their particular degree programs immediately prior to the change, or to meet the new requirements. If they elect the former option they shall be guaranteed a minimum period of time from the date that the program requirements were changed within which minimum period they will be permitted to complete the old degree requirements.

This minimum period shall be determined by the department or other degree-program unit, subject to the following two constraints. First, the minimum period prescribed by the department may not exceed the standard Graduate School limitation that credit applied toward fulfillment of requirements for the master's degree must have been earned within a six-year period preceding the completion of the degree, and that doctoral students must complete degree requirements within five years after admission to candidacy. Second, the minimum period shall encompass no less than two years for master's degree students and three years for doctoral students, with the exception that students in the last stage of their degree work when requirements change (a master's student who has completed all requirements except the thesis or research report and the final examination or a doctoral student who has been admitted to Ph.D. candidacy) shall not be subject to the new requirements but may complete their degrees within the standard Graduate School limitations stated above. Students who elect to follow old requirements, but do not complete their work within the minimum period prescribed by the department, shall, unless they were in the last stage of their degree work when requirements changed, be subject to requirements in force at the time they complete their degrees, and shall be subject to the standard Graduate School limitations described above. The University reserves the right to change information contained herein on matters other than curricular requirements without notice when circumstances warrant such action.

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University Calendar

All breaks officially begin at 10:00 o'clock the night before, and end at 7:30 the morning after, the respective beginning and ending dates listed unless otherwise noted.

Summer Session 1996

Eight-Week Session Begins	Monday, June 10, 7:30 A.M.
Deadline to Apply for Graduation	Friday, June 14
Deadline to Drop an 8-Week Class and Receive a Refund	Friday, June 21
Independence Day Holiday	Thursday, July 4
Deadline to Drop an 8-Week Class	Monday, July 8
Final Examinations	Thursday and Friday, August 1–2
Commencement	Saturday, August 3

Fall Semester 1996

Semester Classes Begin	Monday, August 19
Labor Day Holiday	Monday, September 2
Deadline to Apply for Graduation	Friday, September 20
Deadline to Drop a Class and Receive a Refund	Friday, August 30
Deadline to Drop a Class	Monday, October 14
Fall Recess	Thursday–Sunday, October 31–November 3
Thanksgiving Vacation	Noon Saturday–Sunday, November 23–December 1
Final Examinations	Monday–Friday, December 9–13

Spring Semester 1997

Semester Classes Begin	Monday, January 13
Martin Luther King, Jr.'s Birthday Holiday	Monday, January 20
Deadline to Apply for Graduation	Friday, January 17
Deadline to Drop a Class and Receive a Refund	Friday, January 24

Spring Semester 1997 (*Continued*)

Deadline to Drop a Class	Monday, March 17
Spring Vacation	Noon Saturday –Sunday, March 8–16
Final Examinations	Monday–Friday, May 5–9
Commencement	Friday–Sunday, May 9–11

Summer Session 1997

Eight-Week Session Begins	Monday, June 9, 7:30 A.M.
Deadline to Apply for Graduation	Friday, June 13
Deadline to Drop an 8-Week Class and Receive a Refund	Friday, June 20
Independence Day Holiday	Friday, July 4
Deadline to Drop an 8-Week Class	Monday, July 7
Final Examinations	Thursday and Friday, July 31–August 1
Commencement	Saturday, August 2

Fall Semester 1997

Semester Classes Begin	Monday, August 25
Labor Day Holiday	Monday, September 1
Deadline to Drop a Class and Receive a Refund	Friday, September 5
Deadline to Apply for Graduation	Friday, September 26
Deadline to Drop a Class	Monday, October 20
Fall Recess	Thursday–Sunday, October 30–November 2
Thanksgiving Vacation	Noon Saturday–Sunday, November 22–30
Final Examinations	Monday–Friday, December 15–19

Spring Semester 1998

Martin Luther King, Jr.'s Birthday Holiday	Monday, January 19
Semester Classes Begin	Tuesday, January 20
Deadline to Apply for Graduation	Friday, January 23
Deadline to Drop a Class and Receive a Refund	Friday, January 30
Deadline to Drop a Class	Monday, March 23
Spring Vacation	Noon Saturday–Sunday, March 14–22
Final Examinations	Monday–Friday, May 11–15
Commencement	Friday–Sunday, May 15–17

Excused Absences for Religious Holidays. Students absent from classes because of required observances of major religious holidays will be excused. It is the student's responsibility to notify in advance the instructor of each class that will be missed. Students must also take the responsibility for making up work missed.

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1 / The Graduate School

Southern Illinois University

Southern Illinois University has entered its second hundred years of teaching, research, and service. At the outset of the 1970's, Southern Illinois University became a single state system with two universities: Southern Illinois University at Carbondale and Southern Illinois University at Edwardsville. Southern Illinois University at Carbondale also has a medical school campus at Springfield.

Southern Illinois University at Carbondale (SIUC) first operated as a two-year normal school but in 1907 became a four-year, degree-granting institution. In 1943 SIUC was transformed from a teacher-training institution into a university, thus giving official recognition to the area's demand for diversified training and service. Graduate work was instituted in 1943, with the first doctoral degrees granted in 1959. There has been diversification and expansion of graduate programs across the University through the Colleges of Agriculture, Business and Administration, Education, Engineering, Liberal Arts, Mass Communication and Media Arts, and Science. In addition to expansion of programs within the Graduate School, professional schools were established in medicine, law, and social work.

In keeping with the state's master plan, the University's objective is to provide a comprehensive educational program meeting as many individual student needs as possible. While providing excellent instruction in a broad range of traditional programs, it also helps individual students design special programs when their interests are directed toward more individualized curricula. The University comprises a faculty and the facilities to offer general and professional training ranging from two-year associate degrees to doctoral programs, as well as certificate and non-degree programs meeting the needs of persons not interested in degree education.

Enrollment

In fall semester 1994, out of a total enrollment of 23,162, SIUC had 3,761 and 630 registered graduate and professional students respectively.

Location

Carbondale is approximately 100 miles southeast of St. Louis, Missouri. Immediately south of Carbondale begins some of the most rugged and 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. Within ten miles of the campus are located two state parks and four recreational lakes and much of the area is a part of the 240,000 acre Shawnee National Forest.

Campus

The Carbondale campus, comprising more than 3,290 acres, has developed a 981 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.

The Graduate School

WWW: http://www.siu.edu/gradschl/

The primary concerns of the Graduate School are graduate instruction and research. The Graduate School therefore plays an essential role in development of instructional and research programs, in acquisition of funds, and in procurement of facilities necessary to encourage and support research by members of its scholarly community. Through faculty, staff, and students the Graduate School makes its contribution to the public welfare of the region, state, nation, and international community.

The Graduate School offers master's degrees through fifty-nine programs and the doctoral degree through twenty-eight programs. Graduate students pursue advanced study and research under the leadership of a graduate faculty of over 1,000 members. In addition, the Schools of Law and Medicine provide graduate students with additional opportunities in instruction and research. The Graduate School administers programs in the Colleges of Agriculture, Business and Administration, Education, Engineering, Liberal Arts, Mass Communication and Media Arts, Science, Technical Careers, and the Schools of Law, Medicine, and Social Work.

Within these colleges and schools are departments whose distinguished faculty offer inspired teaching, conduct innovative research, and facilitate student services from admission to placement. The University has an excellent library and has a very good computing facility. For further information, see Academic Resources elsewhere in this chapter. In addition to the excellent research conducted in the colleges and schools, SIUC operates a number of research centers, most of which have been established with the aid of outside funding. These centers also are described under Academic Resources.

Graduate Degrees Offered

The Graduate School offers the master's, Master of Fine Arts, Doctor of Philosophy, Doctor of Rehabilitation, and Doctor of Business Administration degrees. In several of the programs listed below, one or more concentrations are available.

Master's Degrees

Master's degrees are available in the approved programs listed below:

Abbreviations: Master of Accountancy, M.Acc.; Master of Arts, M.A.; Master of Business Administration, M.B.A.; Master of Music, M.M.; Master of Public Administration, M.P.A.; Master of Science, M.S.; Master of Science in Education, M.S.Ed.; Master of Social Work, M.S.W.

Accountancy ..... M.Acc.
Information Systems
Taxation
Administration of Justice ..... M.A.
Agribusiness Economics ..... M.S.
Agribusiness Economics
Agricultural Services
Agricultural Education and Mechanization ..... M.S.
Animal Science ..... M.S.
Anthropology ..... M.A.
Applied Linguistics ..... M.A.
Behavior Analysis and Therapy ..... M.S.
Biological Sciences ..... M.S.

Business Administration ..... M.B.A.
- Information Systems
- International Business

Chemistry ..... M.S.
Civil Engineering ..... M.S.
Communication Disorders and Sciences ..... M.S.
Computer Science ..... M.S.
Curriculum and Instruction ..... M.S.Ed.
Economics ..... M.A., M.S.
Educational Administration ..... M.S.Ed.
Educational Psychology ..... M.S.Ed.
- Counselor Education
- Educational Psychology

Electrical Engineering ..... M.S.
English ..... M.A.
- Composition
- Creative Writing
- Literature

Food and Nutrition ..... M.S.
Foreign Languages and Literatures.... M.A.
- French
- Spanish

Forestry ..... M.S.
- Forest Resource Management
- Outdoor Recreation Resource Management
- Wood Science and Technology

Geography ..... M.A., M.S.
- Physical Environmental Systems
- Resource Management Systems
- Urban and Regional Planning

Geology ..... M.S.
Health Education ..... M.S.Ed.
Higher Education ..... M.S.Ed.
- College Student Personnel
- Community and Junior College Teaching

History ..... M.A.
- American
- European
- Latin American

Journalism ..... M.A., M.S.
Manufacturing Systems ..... M.S.
Mathematics ..... M.A., M.S.
Mechanical Engineering ..... M.S.
Microbiology ..... M.A.
Mining Engineering ..... M.S.
Music ..... M.M.
- Music Education
- Music History and Literature
- Music Theory and Composition
- Opera-Music Theater
- Performance
- Piano Pedagogy

Pharmacology ..... M.S.
Philosophy ..... M.A.
Physical Education ..... M.S.Ed.
Physics ..... M.S.
Physiology ..... M.S.
Plant Biology ..... M.S.
Plant and Soil Science ..... M.S.
- Crop Science
- Horticultural Science
- Soil Science

Political Science ..... M.A.
Psychology ..... M.A., M.S.
- Clinical
- Counseling
- Experimental

Public Administration ..... M.P.A.
Recreation ..... M.S.Ed.
Rehabilitation Administration and Services ..... M.S.
Rehabilitation Counseling ..... M.S.
Social Work ..... M.S.W.
Sociology ..... M.A.
Special Education ..... M.S.Ed.
Speech Communication ..... M.A.,M.S.
Teaching English to Speakers of Other Languages ..... M.A.
Telecommunications ..... M.A.
Workforce Education and Development ..... M.S.Ed.
Zoology ..... M.S.

Master of Fine Arts Degree

Master of Fine Arts (M.F.A.) degree programs are available in the fields below:

Art
Cinema and Photography
Theater

Doctoral Degrees

Doctor of Philosophy degree programs are available in the fields listed below along with the approved concentrations:

Anthropology
Chemistry
Curriculum and Instruction
Economics
Educational Administration
Educational Psychology
Engineering Science
English
Geography
- Physical Environmental Systems
- Resource Management Systems

Geology
Health Education

Historical Studies
Journalism
Mathematics
Microbiology
Pharmacology
Philosophy
Physiology
Plant Biology
Political Science
Psychology
  Clinical
  Counseling
  Experimental
Sociology
Special Education
Speech Communication
Workforce Education and Development
Zoology

The Doctor of Rehabilitation degree is offered in the area of rehabilitation.

The Doctor of Business Administration degree is offered in the area of business administration.

Student Responsibility

Students are responsible for knowing degree requirements and enrolling in courses that will enable them to complete their degree programs. It is also their responsibility to know the University regulations for the standard of work required to continue in the Graduate School. For information, consult both the general and specific degree requirements enclosed in this publication. Additional details about requirements and procedures are available from your graduate adviser or the Graduate School.

Human Subjects

Before the start of any research involving human subjects, the research project must be reviewed and approved by the SIUC Human Subjects Committee (an institutional review board). If your master's or doctoral project will involve human subjects (including administering questionnaires, conducting interviews, or accessing confidential databases), you must submit an application to the committee *prior* to the start of the research. When you submit your master's thesis /research paper or doctoral dissertation to the Graduate School, you must include Form A indicating that your project has been reviewed and approved by the committee. If this form is not included, your master's research paper/thesis or doctoral dissertation cannot be accepted by the Graduate School.

Animal Care

The SIUC Animal Care Committee was formed to establish and enforce ethical, humane guidelines for the use of live animals in research at the University. The committee reviews all protocols involving the use of vertebrate animals for training, research, and testing to assure compliance with humane standards and federal regulations. Researchers with projects involving animals must submit a completed *Animal Use Protocol* form for the committee's review. Approval of the protocol is required before the animals can be used for training, research, or testing purposes. For more information, contact the Animal Care Committee at 618-453-4556 or the Vivarium at 618-536-2346.

Handling Chemicals

Faculty, staff, and students conducting projects that involve hazardous biological materials (including recombinant DNA), radiological materials, or hazardous chemical materials must have prior approval and must comply with all relevant government regulations. SIUC's Center for Environmental Health and Safety (618-453-7180) monitors compliance and oversees the approval committees of Institutional Biosafety, Radiological Control, Hazardous Waste Oversight and Biological Safety Oversight.

Degree Requirements

The following section describes Graduate School regulations unique to the master's and the doctoral degrees. For Graduate School procedures and regulations applicable to all graduate students, regardless of degree program, the student should consult the section titled General Regulations and Procedures. For information about specific degree programs, the student should consult the departmental degree program description.

MASTER'S DEGREE PROGRAM

Requirements and admission policies for applicants to a master's degree program are elaborated on in the following paragraphs.

Admission

In order to be admitted to a degree program, an applicant must meet Graduate School admission requirements and be approved by the department or degree program concerned.

The Graduate School requires that the applicant hold a bachelor's degree from an accredited institution or have completed all undergraduate degree requirements prior to the beginning of the classes for the term for which admission is sought. The applicant must have earned a grade point average (GPA) of 2.70 or better (A = 4.00) on the last 60 semester hours of undergraduate coursework. Applicants to master's degree level study may begin the admissions process when they need no more than 32 semester hours beyond the credit shown on their transcript at the time of application to complete all requirements for the bachelor's degree.

An applicant who is a U.S. citizen or permanent resident and whose GPA is below 2.70 may be admitted as an unclassified student and may later apply to a degree program when 12 or more semester hours of graded graduate work at SIUC have been completed. A minimum GPA of 3.00 is required in courses for which grades of A, B, C, D, F have been assigned.

Any applicant who has completed 12 or more semester hours of graded graduate work at an accredited U.S. education institution, and who has a GPA of 3.00 or better on all graduate work, may be exempted from the 2.7 undergraduate grade point average requirement.

Any student with fewer than 12 hours of graduate work may be admitted to the Graduate School on the basis of undergraduate GPA only.

General Requirements

Graduate credit earned in graduate courses for which the student has received grades of A, B, C, or S, and only such credit, is acceptable for master's degree programs. At least 21 semester hours of graduate credit with grades of A, B, or C must be earned in courses graded A through F. An overall grade point average of at least 3.00 in all graduate work included in the master's degree program is required before that degree can be awarded.

The Graduate School requires a minimum of 30 semester hours of acceptable graduate credit for the master's degree. Since certain degree programs require more than 30 hours, the student should consult the description of the appropriate program for specific requirements. No more than half of the credit applied toward fulfillment of the master's degree requirements may be earned at other universities and transferred to SIUC.

At least nine hours of course work must be earned in courses taught on the Carbondale campus or in an approved residency center and at least nine hours of credit must be earned after admission to the degree program.

In addition, a minimum of fifteen hours in courses numbered 500 or above must be earned at SIUC.

Candidates for a master's degree are required to pass a comprehensive examination covering all of their graduate work, including the thesis. This examination may be written or oral, or both, as determined by the student's advisory committee.

Time Limits

A student has six calendar years to complete the degree. This time is calculated from initial enrollment to completion of all degree requirements including any document that must be approved by the Graduate School. This time limit includes courses taken either at SIUC or elsewhere. All students must remain registered until completion of their degrees. See section Continuing Enrollment Requirement.

Thesis

Each candidate for a master's degree shall write a thesis except where a graduate program has been approved to provide some other arrangement, such as a research paper. The thesis shall be supervised by a committee of at least three members of the graduate faculty and may be counted for not more than six nor less than three semester hours of credit.

Students who have completed all course work and have registered for the minimum number of thesis or research hours required for the degree are subject to the continuing registration requirement described in the section titled General Regulations and Procedures.

Two copies of the approved thesis must be presented to the Graduate School by the stated deadline date to be bound and shelved in the library. For nonthesis programs, a research paper should show evidence of the student's knowledge of research techniques and should be based on a special project or specific courses as may be recommended by the advisory committee. One copy of the research paper must be filed in the Graduate School by the stated deadline date.

Double Major for a Master's Degree

A student may earn a double major for a master's degree if such a program of graduate study is commensurate with the student's vocational and professional goals.

A student interested in pursuing a double major for a master's degree must submit to the graduate dean a written statement of justification for the proposed program and a program of study endorsed by the chairman of both of the cooperating units. The forms for submitting a double major program of study are available in the Graduate School office.

Requirements.

1. The student must have been admitted to one master's degree program.
2. Each unit in which the student wishes to earn a major must have an approved master's degree program.
3. The chairman of each unit must endorse the proposed program.
4. The proposed program must specify the title of the degree which is to be awarded.
5. The proposed program must be approved by the graduate dean.
6. At least 18 semester hours must be earned for each major, and one-half of the required course work for each major must be in courses numbered 500 or above.

7. The minimum number of hours required for the double major must total 60 per cent of the sum of the total required for the two majors individually.
8. The thesis may be counted for not more than a combined total of 6 nor less than 3 semester hours of credit.

Second Master's Degree

A student may earn a second master's degree if the second degree is offered by an academic unit different from that of the first master's degree. None of the hours used towards any previous degree will be allowed to count as a part of the total number of hours toward a second master's, and all regulations shall apply to the second master's degree exactly as they would if this were a first master's degree.

Concurrent Master's Degrees Program

A concurrent master's degrees program permits students to be enrolled at the same time in two academic departments which have an approved concurrent degrees arrangement with each other, and earn two master's degrees.

Academic departments, upon approval of the Graduate Council, may establish a concurrent degrees program. Concurrent master's degrees programs will only be approved if they can be shown to enhance graduate students' educational experiences and professional opportunities. Furthermore, concurrent degrees programs must meet the following requirements:

1. students must obtain admission to both academic departments, and must be formally admitted to the concurrent degrees program prior to completion of the master's degree requirements for either of the participating academic departments;
2. students are required to complete all core requirements of each master's program;
3. students are required to earn no less than 80 percent of the total number of semester hours required in the master's degree programs of each of the participating academic units.

Approved concurrent master's degrees programs are the M.A. in telecommunications and M.B.A., and the M.S. in agribusiness economics and M.B.A. Contact the Graduate School Admissions Office for details.

Summary of Master's Degree Requirements

- At least 30 hours of graduate credit, or the minimum number of hours required by the specific degree program.
- Grade point average of at least 3.00.
- At least 15 hours in courses numbered 500 or above, which must be completed at SIUC.
- At least 9 hours after admission to the degree program.
- At least 9 hours taught on the Carbondale campus or in an approved residency center.
- At least 21 hours of graduate course work graded *A*, *B*, or *C*.
- At least one-half of the required number of hours earned at SIUC.
- Courses to be applied to the degree taken within six years of conferring the degree.
- Transfer credit taken at another institution or as an unclassified student approved by the dean of the Graduate School.
- Two copies of an approved thesis or one copy of an approved research paper turned in to the Graduate School (not applicable for M.B.A., M.Acc., or M.S.W. programs).
- Comprehensive or oral examination.
- Submission of departmental clearance form.
- Register for 601 Continuing Enrollment.

DOCTORAL DEGREE PROGRAM

All Graduate School requirements for the Doctor of Philosophy degree also apply to other doctoral degree programs under the jurisdiction of the Graduate School.

Admission

Admission to a doctoral program in the Graduate School normally requires a master's degree or its equivalent, a grade point average in graduate work of at least 3.25, and acceptance by the academic unit offering the doctoral program. Faculty of a degree program-unit may add its own grade point average requirements (above the Graduate School minima) for admission to that particular program. Direct post-baccalaureate degree entry is possible upon recommendation of the department and acceptance by the Graduate School. An applicant to doctoral level study may begin the admission process when the applicant needs no more than 16 additional semester hours (24 quarter hours) beyond the credits shown on the transcript at the time of application to complete all requirements for the master's degree. The graduate dean informs each student of any conditions for admission imposed by the Graduate School or by the academic unit.

Accelerated Entry into a Doctoral Program

Applicants with exceptional research potential or outstanding academic preparation may have the option to enter a doctoral program after one semester as a master's level student. Not all departments participate in the accelerated entry option; therefore, the interested applicant should contact the appropriate department.

The student initially must be admitted into a master's level program. After at least one semester and evidence that the applicant is prepared to begin research at the doctoral level and meets other departmental criteria for accelerated entry, the department may recommend admission directly into the doctoral program. The student must also meet the doctoral admission requirements including the minimum 3.25 grade point average for all graduate work.

It should be noted that course work to be applied toward residency does not begin until after admission into the doctoral program.

General Requirements

The doctoral degree is awarded for high accomplishment in a particular discipline or a recognized interdisciplinary area, as measured by the student's ability to pass the preliminary examination for admission to candidacy, meet the research tool requirement of the program, perform a piece of original research, present the results in proper form in a dissertation, and defend the dissertation before a faculty committee. Except for the hours required to meet residency, there is no Graduate School requirement that a certain number of semester hours be taken for the doctorate although some degree programs do require a certain number of semester hours. Graduate work completed at another institution may be eligible for transfer to the student's doctoral program, subject to Graduate School regulations regarding transfer of credit and acceptance by the student's major department.

No doctoral level residence-credit program may be established off campus, although course work involved in a doctoral program may be taken at an off-campus residence center provided that the full, normal requirement of residence on campus at SIUC is met under the usual Graduate School standards for doctoral programs.

Preliminary Examination

The student will generally prepare for this examination through independent study and course work, as advised by the faculty of the doctoral program. The examination is given to determine the breadth and depth of the student's knowledge within the discipline. The particular form and content of the examination are determined by the faculty of each of the doctoral programs. The student will be permitted to take the preliminary examination at the discretion of the department, after having completed two years of full-time study or its equivalent beyond the baccalaureate.

Research Tool Requirement

The doctorate at SIUC is a research-oriented degree. The research tool requirement is intended to be an integral part of the student's program. Since research materials, problems, and techniques vary from discipline to discipline, the details of the research tool requirement are determined by the faculty of each of the doctoral programs.

Residency

The residency requirement for the doctorate must be fulfilled after admission to the doctoral program and before formal admission to doctoral candidacy. The residency requirement is satisfied by completion of 24 semester hours of graduate credit on campus as a doctoral student within a period not to exceed four calendar years. No more than six hours of deferred dissertation credit may be applied toward fulfillment of the 24 semester hours residency requirement. No doctoral student will be permitted to sign up for more than six hours of dissertation until candidacy has been achieved. Any dissertation hours registered for above the six permitted prior to candidacy will not be counted toward completion of the doctoral degree. Credit earned in concentrated courses or workshops may apply toward fulfillment of the residency requirements if the student is concurrently registered for a course spanning the full term. No more than six semester hours of short course or workshop credit may be applied to the 24 semester hours residency requirement.

Admission to Candidacy

Admission to candidacy is granted by the dean of the Graduate School upon recommendation of the faculty responsible for the student's program, after the student has fulfilled the residency requirement for the doctoral degree, passed the preliminary examination, and met the research tool requirement of the program. The doctoral degree may not be conferred less than six months after admission to candidacy, except upon approval of the dean of the Graduate School. The candidate must fulfill all requirements for the degree within a five-year period after admission to candidacy. If completion of requirements is delayed beyond five years, a student may be required to take another preliminary examination and be admitted to candidacy a second time. All candidates must remain registered until completion of their degree. See section Continuing Enrollment Requirement.

Dissertation

After being admitted to candidacy, the student must complete a dissertation showing that the student is capable of independent research or other creative effort. A successful dissertation usually represents the most extensive and intensive scholarly work the student has performed to date. Completing the dissertation will lead the student up to the cutting edge of research (however defined by the discipline) conducted at that time in his or her field of research. A dissertation must address a significant question and demonstrate that its author can in-

terpret findings and formulate conclusions that are the result of independent thinking and sustained evaluation of source materials. These findings must be expressed in clear and grammatical language that is well organized into cogent and coherent argument. The dissertation shall be supervised by a faculty committee which has been approved by the dean of the Graduate School. Unless the graduate dean has approved an exception requested by the student's academic unit this committee shall consist of five graduate faculty members, at least one of whom shall be from a graduate program outside the student's academic unit. The student's academic unit shall be understood to mean the department (or equivalent units) and any member outside the department is eligible to serve as the outside member providing that the department and the graduate dean agree.

While working on the dissertation, the student must register for the course numbered 600. The student is to devote at least one academic year of full-time work to complete the dissertation and will register for 24 semester hours of dissertation credit, for example, 12 hours for each of two terms.

Students who have registered for 24 semester hours of dissertation credit and have not completed the doctoral dissertation are subject to the continuing enrollment requirement described in the section titled General Regulations and Procedures.

Publication of the doctoral dissertation to insure its availability to the scholarly community is considered an integral part of the process of doctoral education. Students must have their dissertations microfilmed by University Microfilms. An abstract of the dissertation will be published in *Dissertation Abstracts International*.

The student must submit two copies of the dissertation acceptable to the Graduate School, along with an abstract of 350 words or less. All dissertations will be microfilmed. There is a fee of $60.00 to cover the cost of publication of the abstract and microfilming of the dissertation. If copyright is desired, an additional fee of $35.00 will be required. The microfilming agreement form and the survey form of earned doctorates are completed in the office of the Graduate School at the time the dissertation is submitted.

The abstract will be published in the current *Dissertation Abstracts International* and the dissertation will be cited in *American Doctoral Dissertations* and *Comprehensive Dissertation Index*. A copy of the microfilmed dissertation will be placed in the Library of Congress archives. This service assures the student that the dissertation will be available to other researchers at no further personal expense to the student.

If the student elects to use the copyright service, copyright will be obtained in the student's name. Publication rights, other than for reproduction in microform or from microform, are the student's to assign to any publisher at any time. In addition, arrangements can sometimes be made for University Microfilms to publish a small edition of the dissertation.

Final Examination

There will be a final oral examination administered by the student's doctoral dissertation committee. The examination will cover the subject of the dissertation and other matters related to the discipline. Any member of the graduate faculty may attend the final oral examination and may participate in questioning and discussion, subject to reasonable limitations imposed by the chairperson of the committee, but only members of the committee may vote or make recommendations concerning acceptance of the dissertation and final examination. A student will be recommended for the degree only if the members of the committee, with at most one exception, judge both the dissertation and the performance at the final oral examination to be satisfactory. In cases where a committee of

more than five members has been approved, the requirement of not more than one negative vote will still apply.

Interdisciplinary Doctor of Philosophy Programs

These guidelines provide for interdisciplinary doctoral programs for a limited number of students whose educational requirements can be met by existing resources, but not exclusively by any one of the University's constituent units. Interdisciplinary doctoral programs will be instituted in response to the particular academic interest of individual students, not as programs of a permanent nature. The procedures and criteria given below govern the authorization and control of interdisciplinary doctoral programs.

1. After admission to an established doctoral program at SIUC and upon the recommendation of the chairperson or adviser of that program, a student may apply for an interdisciplinary doctoral program to the dean of the Graduate School.
2. The dean of the Graduate School will apply the following criteria in deciding whether a program committee should be established to consider the proposed interdisciplinary doctoral program.
   a. The requisite staff must be available.
   b. The library holdings must be adequate without unreasonable additions.
   c. The program must lie within the recognized disciplines or fields of study, at least one of which offers the doctoral program.
3. If the dean of the Graduate School is satisfied that the proposed program satisfies these criteria, the dean shall form a special program committee of five members, at least three of whom shall be from units offering the doctorate.
4. If the committee approves the proposed program, a plan of study shall be developed that includes the following elements:
   a. Fields or areas of study
   b. Required courses
   c. Languages or other research tool requirements
   d. Dissertation subject
   e. Preliminary examination
5. The program as approved by the committee and accepted for principal sponsorship by a unit with an approved doctoral program shall be submitted to the dean of the Graduate School. Upon final approval the student's program shall have the same binding effect upon the Graduate School as programs printed in the graduate catalog. The degree earned shall carry the title of the doctoral unit that has assumed principal sponsorship. The commencement program shall give specific indication that the degree is interdisciplinary and include a listing of those units that are substantively involved in addition to the principal sponsoring unit, as determined by the graduate dean.
6. When the committee has certified all the required performances, including the results of examinations, the committee shall be dissolved.

Summary of Doctoral Degree Requirements

- Achievement of a grade point average of at least 3.00.
- Completion of any specific courses required by the doctoral program.
- Fulfillment of the residency requirement.
- Completion of the research tool required by the doctoral program.
- Passing of the preliminary examination.
- Admission to candidacy.
- Completion of an approved dissertation with 24 hours of dissertation credit.
- Oral defense of dissertation.

- Submission of two approved copies of the dissertation to the Graduate School.
- Payment of $60.00 microfilming fee.
- Completion of microfilm agreement and survey of earned doctorates at the Graduate School office.
- Degree conferred not less than six months nor more than five years after admission to candidacy.
- Submission of departmental clearance form.
- Register for 601 Continuing Enrollment.

General Regulations and Procedures

This section includes Graduate School procedures and regulations applicable to all graduate students regardless of degree classification. Requirements unique to the master's and doctoral degrees are stated in the section titled Degree Requirements. For information about specific degree programs the student should consult the appropriate degree program description. Requirements unique to the nondegree classifications are stated in the section in this chapter titled Unclassified Students—Non-Degree.

APPLICATION FOR GRADUATE STUDY

Students interested in admission to degree programs should contact appropriate departments directly to obtain official Graduate School application forms and other departmental materials. Students interested in unclassified (non-degree program affiliated) status, should contact the Graduate School directly to obtain application materials. In addition, students should carefully read directions obtained from departments on where to send official transcripts. Regardless of where the official transcripts are eventually sent, such transcripts must be forwarded directly from the registrar of previously attended schools (other than SIUC).

Application Fee

The Graduate School has a $20.00 non-refundable application fee for unclassified graduate students. In addition, most programs require a non-refundable application fee of $20.00 which must be submitted with the Application for Admission to Graduate Study. Refer to the specific programs for application fee information.

Transcripts

Students must have the registrar of each college previously attended (except SIUC) send an official transcript of the student record to either the Graduate School or the degree program director (check departmental procedures). Students applying for unclassified (non-degree status) must have the registrar of the degree-granting institution send one official transcript indicating the receipt of the bachelor's (or higher) degree to the Graduate School. Transcripts from institutions where the student received neither a degree nor enrolled for more than 12 semester hours of undergraduate credit are not required, provided that the grades obtained at such institutions are recorded upon the transcript of the college which granted the student's degree. Transcripts submitted directly by students are not acceptable. Transcripts and other admission credentials will not be returned nor forwarded to other institutions.

In accord with the Family Education Rights and Privacy Act of 1974, no non-Southern Illinois University at Carbondale person, firm, or agency may have access to an applicant's or a student's credentials without written consent of the

individual concerned. Graduate students shall be permitted to examine their own records upon request. Such requests should be made by the student to the dean of the Graduate School.

Test Scores

The Graduate School does not require the Graduate Record Exam (GRE); however, various departments may require, at their discretion, the GMAT, GRE, MAT, or other appropriate standardized tests for admission. Refer to the departmental program description or contact the department for specific information.

Deadlines

In order to be fully admitted to a degree program at the beginning of the academic term, an applicant should see to it that all required admissions materials are submitted no later than 90 days prior to the beginning of the term for which the applicant is seeking admission.

Admission is for the term indicated and a student who does not enroll in courses for that term will be required to update the application by a request to the Graduate School. The petition to update can only be granted within one calendar year of the initial admission term and only with the agreement of the department and the Graduate School. After one year, the student must be readmitted through the regular admission process.

If the term for which the applicant is applying is more than two years after the term of original admission, a student applying to a degree program must have the registrar of all institutions previously attended furnish official transcripts. An unclassified, nondegree student must have the registrar of the bachelor's degree-granting institution furnish one official transcript. If a student is applying to a degree program and has taken any course work at another institution between the first admission and the first registration, the applicant must have the registrar of the appropriate institutions furnish official transcripts of this work regardless of the amount of time elapsed.

Requirements

The admission requirements of the Graduate School and the department must both be met before the student is admitted to a degree program, and both the Graduate School and the department may specify conditions. Most departments require additional materials such as letters of recommendation and these should be forwarded directly to the applicant's major department. The student will be informed by the Graduate School of the resultant admission status after this process has been completed.

Admission of Faculty Members

No one who holds a faculty appointment at any of the academic ranks—lecturer, instructor, assistant professor, associate professor, and professor—shall be admitted to a graduate degree program at any level, or be eligible to register for courses to be taken for graduate credit, in the graduate degree program in which the faculty member holds the appointment. If a faculty member has been admitted to a graduate degree program in some unit other than the one in which such appointment exists, no member of the faculty of the unit in which the appointment is held may be a member of that colleague's thesis committee, graduate program committee, dissertation committee, or any other examining committee. (See also faculty appointments in the section titled Financial Assistance.)

Admission of International Students

This school is authorized under federal law to enroll non-immigrant alien students. A student from abroad is subject to all requirements for admission estab-

lished by the Graduate School. In addition, the applicant must complete special forms pertaining to the admission of international students. For these admission forms and for other information concerning international students, inquiries should be sent to the Graduate School.

To allow ample time for visa and other departure procedures, the applicant should have an application and all supporting documents on file with the University no less than four months prior to the proposed entry date.

International students must be enrolled in a program leading to a graduate degree. They cannot be admitted as unclassified students.

If the above requirements are satisfactorily met and the student is admitted to a degree program, the applicant will be required to certify that personally adequate financial resources will be available to undertake and continue in a program of study.

Test of English as a foreign language (TOEFL). All applicants whose native or first language is not English must take the TOEFL test no more than 24 months prior to the term for which the applicant is seeking admission. A minimum TOEFL score of 550 is required for Graduate School admission; higher scores may be required for admission into specific degree programs.

Exemptions to the TOEFL requirement are: (1) an applicant who has completed a bachelor's degree (four years attendance and completion of at least 100 semester hours of course work) at an accredited institution in the United States; (2) an applicant who has completed a master's degree at an accredited institution in the United States, who obtained a TOEFL score of at least 550 prior to beginning graduate studies and who has been in residence in the United States continuously prior to application to SIUC. Verification of the earlier TOEFL score by the degree granting institution is mandatory.

Academic Requirements. If a foreign-born applicant has completed a four-year bachelor's degree program at an accredited institution in the United States of America, the applicant may be given the same consideration for admission to a graduate degree program as a United States citizen, in regard to both academic requirements and the use of English as a foreign language.

Applicants who have completed the equivalent of a four-year bachelor's degree at a recognized institution in any other country must have an academic record equivalent to a 2.70 grade point average ($A = 4.00$) for admission to a master's degree program.

The determination of the applicant's grade point average shall be the responsibility of the Graduate School.

Applicants for doctoral programs must meet the regular academic requirements for admission to a doctoral program.

Qualification for Assistantship with Teaching Duties. Every non-native English speaker assigned a graduate assistantship with teaching duties must pass an examination of oral English skill before undertaking classroom duties. A representative of the appointing department and of the Graduate School must participate in the examination.

REGISTRATION

Only those students who have been officially admitted by the Graduate School will be permitted to register.

Some degree programs require their students to have an advisor's signature before registration. Please consult the designated major department about advisement. Unclassified nondegree students are their own advisors and may begin registration for the admitted semester after the registration period begins.

The schedule of classes for a particular semester is available from the Registration Center at the Graduate School.

Students are strongly encouraged to complete their registration before the beginning of classes. After the beginning of the term, the student must have the approval of the Graduate School to register late and may be required to pay a late registration fee. In addition, after the first week of classes, registration or program changes involving adding a course must have the written approval of the instructor of each course as well as the approval of the Graduate School. The Graduate School registration deadline is the end of the third week of each semester.

Information concerning registration dates and deadlines for the first time the student attends the University will be sent when the student is admitted to the Graduate School. Continuing students should consult the *Schedule of Classes* for each semester to find deadlines and dates for registration.

Registration Methods

During the advance registration period (see registration calendar for dates in the *Schedule of Classes*) graduate students may register by several methods described below. Unclassified students may use any of the methods. Degree-seeking students may be required by their departments to have an advisor's signature and thus are limited to the options of Mail Registration or in person at the Graduate School.

Mail Registration

Unclassified graduate students may mail in a course request form. Degree-seeking students should contact their graduate advisor to sign the Course Request Form as a prerequisite to the process. Mail to Graduate Registration, Graduate School, Southern Illinois University, Carbondale, IL 62901-4716.

Phone Registration

Unclassified students may phone in their registration during office hours and during the advance registration period. Degree-seeking students whose departments do not require an advisor's signature may also phone in their registration. The telephone number is 618-453-2969.

Touch Tone Registration

By calling 618-453-7482, unclassified students and permitted degree-seeking students may call UniLink during the hours of 7:15 A.M. to 7:50 P.M., Monday through Friday, to register for classes or to add/drop. To begin the registration, a student needs a touch-tone telephone, a PIN (DD/YY of birth) and the 5-digit call number assigned to each class section. If you are not yet admitted to the Graduate School or do not have department approval to register or there is some other problem situation, the computer states that you are ineligible to register.

Registration at the Graduate School

The Graduate Registration Center is located at Woody Hall B104. All students may register in person from 8:00 A.M. to 4:30 P.M., Monday through Friday. After the first week of classes, students are required to have the graduate dean's permission to add courses and must come to the center to process a registration or add. After the second week of classes, all registration and changes must be processed at the center. The Graduate School registration deadline is the end of the third week of each semester.

Late Registration

A late registration fee of $15 shall be assessed to all students taking on-campus classes who register after the designated registration period. This fee shall be

nonrefundable and nonwaiverable, except when it is clearly shown that the late registration was caused by faculty or administrative action. Off-campus classes and registration in 599, 600, and 601 shall be exempt from such fee.

Withdrawal from Courses and from the University

DROPPING COURSES

Students officially registered for courses must withdraw formally. They must process an official withdrawal form. Outlined below are the procedures to be followed by graduate students when withdrawing from courses.

DEADLINES FOR DROPPING FROM A COURSE(S)

If Classes Meet for	*Deadline for Drop to Receive Refund	Deadline to Drop
13–16 weeks	2nd week	8th week
9–12 weeks	2nd week	6th week
8 weeks	2nd week	4th week
7 weeks	1st week	4th week
4–6 weeks	1st week	3rd week
2 or 3 weeks	1st day	1st week
less than 2 weeks	1st day	2nd day

*Students must drop a course or withdraw from the University by these deadlines to receive an account credit equal to a full refund of tuition and fees. Students who drop courses after the full refund deadline but remain enrolled in the University will not receive any refund. Students who withdraw from the University after the full refund period will receive an account credit equal to a pro-rata refund of tuition and fees through 60 percent of the duration of the enrollment period. An administrative fee will be assessed to all students who withdraw from the University and receive a pro-rata refund. The amount of the fee will be the lesser of 5 percent of all assessed charges, or $100.

Students officially withdraw from courses through the program change process. This process starts with the academic adviser and is completed at the Registration Center. Graduate students may drop from a course through the 8th week of the fall and spring semesters. Drop deadlines for shorter sessions are correspondingly earlier (see schedule above). Official withdrawals during the first two weeks of the semester result in no entry being made on the student's record. Official withdrawals after the second week but prior to the 8th week of classes will result in the course listed on the student's record with the symbol *W* and the week of withdrawal. No drop from a course will be authorized after the 8th week of classes. It is the student's responsibility to insure that the drop process is officially completed.

WITHDRAWAL FROM THE UNIVERSITY

A complete withdrawal from the University may be authorized by the graduate dean through the Friday before the last week of classes. Students who withdraw from all classes will have a statement of withdrawal from the University and the week of withdrawal entered on their records. Students who find it necessary to withdraw from the University after school has started and who are on campus should contact the Graduate School in person to initiate the withdrawal process. If they are unable to come to campus, they may write the Graduate School asking that it process a withdrawal.

Students who advance register, including the paying of tuition and fees, and then find they 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. Students who advance register but do not clear tuition and fees by the announced deadline date have their registrations cancelled by the University. Students who have deferred payment of tui-

tion and fees must officially withdraw if they stop attending classes; the failure to pay deferred fees by the deadline date does not cancel one's registration nor remove the obligation to pay the deferred fees.

Refer to the section titled Payment and Refunding of Tuition and Fees 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 students withdrawing from school for extended military service.

Graduate Student Course Loads

FINANCIAL AID AWARDS

For financial aid *awarding* purposes, the following defines the number of semester hours for full-and half-time:

Status	16-Week Semester	8-Week Session
Full-time	12	6
Half-time	6	3

Graduate students enrolled in fewer than 6 hours for fall and spring semesters or 3 hours for summer session are not eligible to *obtain* student loans.

ENROLLMENT CERTIFICATION

The following semester hours of credit are to be used to certify full-time and half-time attendance of graduate students.

Status	16-Week Semester	8-Week Session
Full-time	9 or more hours*	3 or more hours
Half-time	6 hours	3 hours
Less than half-time...	Less than 6 hours	Less than 3 hours

* Students who hold at least a quarter-time (25% FTE) graduate assistantship are considered as full-time if they have a minimum of 6 semester hours.

MINIMUM AND MAXIMUM COURSE LOADS

Maximum course work for graduate students is 16 hours each semester; 12 hours is considered normal load. The minimum and maximum loads for graduate students under various types of financial support are summarized below. To meet the minima below, a graduate student must enroll in a graduate-level course (typically a 400-or 500-level course; certain 400-level courses are not available for graduate credit). Audit work will not qualify to meet the minimum load. However, audit work is calculated in determining a student's maximum course load. Exceptions to these minima and maxima are possible only with the written permission of the graduate dean. If graduate students' enrollments exceed the maximum or fail to meet the minimum of hours required by their type of financial support, their registrations will be withdrawn and financial support will be terminated.

	16-Week Semester		8-Week Session	
Type of Financial Support	Max.	Min.	Max.	Min.
No financial support	16		9	
Graduate Assistantships				
1/2 time appointment	12	6	6	3
1/4 time appointment	14	6	9	3
Full-time University employees	8		6	
Graduate Fellowships	16	9	9	3
Full Veteran's Benefits	16	9	9	3
SIUC Scholarships	16	9	9	3

All University employees who wish to use the employee tuition and fee waiver (civil service and faculty) and are classified as graduate students must seek ap-

proval of the Graduate School to enroll in more than 8 semester hours of courses.

Continuing Enrollment Requirement

Students who have not completed all degree requirements but who have previously enrolled for the minimum number of research, thesis, or dissertation credit hours required of the degree, must enroll every semester for at least one hour until all degree requirements have been completed. Summer sessions are exempted from the continuous enrollment requirement. Any graduate student who is not enrolled continuously as described above and who subsequently completes degree requirements, must have the permission of the graduate dean to graduate. Such permission will be contingent upon payment of the tuition and fees that would have been paid if the student had enrolled continuously each semester.

Continuing Enrollment—601. This course is offered by each graduate degree program for students who have previously registered for the minimum number of research, thesis, or dissertation credit required of the degree. Registration in 601 (1 hour per semester) is required of all graduate students, whether in residence or not, who are not otherwise enrolled. Concurrent registration in any other course is not permitted.

Students registering for 601 are assessed only tuition and the Student Center Fee for the credit hours associated with the registration. Since none of the other student fees are assessed for 601, the student is not eligible for the benefits of any other programs such as Recreation Center use, Health Service and Student Medical Benefits, Students' Attorney Program assistance, etc. Students needing the above benefits that require fees may instead register for additional research, thesis, or dissertation hours.

School of Law Courses

A graduate student may enroll for graduate credit in designated law courses if the student has permission of the dean of the School of Law and the dean of the Graduate School. Registration must be processed through the Graduate School and the grades will be reported on the Graduate School letter-grade system (*A*, *B*, *C*, etc.).

A law student may register for law credit in graduate courses with approval of the dean of the School of Law and the graduate dean. Registration must be processed on School of Law forms and the grades will be reported on the Graduate School letter-grade system.

A law student may not register for graduate courses for graduate credit unless the student has been admitted to the Graduate School in an approved concurrent program.

ADDITIONAL INFORMATION

Residence-Center Credit

Credit earned at approved graduate residence centers and credit earned in off-campus courses for which graduate credit has been approved will be entered on a student's record as on-campus credit earned at SIUC.

Students enrolled for credit in approved residence-center master's degree programs or in specific residence-credit courses must have been officially admitted (either in a degree program or unclassified) to the Graduate School at SIUC.

For information about specific programs and courses, the student should consult the appropriate department.

Transfer Credit

All graduate credits earned by a student in good standing at an accredited university, which have not been applied toward fulfillment of requirements for another degree, are eligible for transfer to that student's degree program, subject to general limitations of Graduate School regulations, to residency requirements for doctoral degree programs, and to acceptance by the student's major department. All transfer credits are subject to final review by the graduate dean. No transfer credit will be given for work bearing a grade below *B* without express permission of the graduate dean in response to written petition from the student's department. No credit toward a degree may be earned by correspondence nor in extension courses at another university. In the case of a master's degree, the student must earn at least half of the credit applied toward fulfillment of degree requirements in courses offered by SIUC.

The department recommending the graduate degree shall administer all required general and final examinations, and a member of the graduate faculty at SIUC shall direct the student's master's thesis, required research paper, or doctoral dissertation.

Graduate Grading System

A Excellent. 4 grade points.
B Good. 3 grade points.
C Conditional, not fully satisfactory. 2 grade points.
D Poor, not satisfactory. 1 grade point.
F Failure. 0 grade points.
S Satisfactory. Used for thesis and dissertation credit and certain designated and approved 500-level research, internship, and practicum courses. Is not counted in calculating grade-point average.
U Unsatisfactory. Used for thesis and dissertation credit and certain designated and approved 500-level research, internship, and practicum courses. Is not counted in calculating grade-point average.
W Authorized withdrawal made through a program change. Work may not be completed. Refer to grade explanation below.
INC Incomplete. Has permission of the instructor to be completed within a period of time designated by the instructor. Refer to grade explanation below.
DEF Deferred. Used only for certain designated and approved 500-level courses of an individual continuing nature such as research, thesis, or dissertation. Refer to grade explanation below.
AU Audit. No grade or credit earned. Refer to grade explanation below.

Grading System Explanation

Only courses for which the grades of *A*, *B*, *C*, or *S* have been received are acceptable in fulfillment of graduate degree requirements. The letter grades *A*, *B*, *C*, *D*, and *F* are included in computing the grade-point averages for academic retention. If a graduate student repeats a course with the permission of the graduate dean, both grades will be counted in the grade-point average. Graduate students will not receive graduate credit for Pass/Fail grades. They may not receive a grade of Pass/Fail in a 400-level course graded Pass/Fail on an elective basis.

400-level courses. Most 400-level courses may be taken for graduate credit. The Graduate Catalog will indicate those 400-level courses which may not be taken for graduate credit. No grades of Pass/Fail may be given for a 400-level course for graduate credit. The instructor in a 400-level course which can be taken for graduate credit has the discretion to decide whether to require additional work for graduate credit.

Withdrawal. A *W* indicates authorized withdrawal from a course prior to the date indicated in the schedule of classes for the term in which the course was taken. The student's record will reflect the courses from which the student had withdrawn with the symbol *W* and the week of withdrawal. Program changes to drop a course during the first two weeks of classes result in no entry being made on the student's record (consult the section entitled Withdrawal from Courses and from the University for additional information on withdrawal procedures and deadlines).

Incomplete. An *INC* is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An *INC* must be changed to a completed grade within a time period designated by the instructor. *INC* is not included in grade-point computation.

To complete the work from the original registration, a student should not register for the course again, but should complete the work for the original registration if the original registration is within the normal time limits established for the degree.

Deferred. When the work is completed in a course for which *DEF* has been assigned, the grade is changed to a letter grade by the instructor, except in the case of theses and dissertations. When a thesis or dissertation has been submitted to the Graduate School as approved, the grade is automatically changed to *S*. If a thesis or dissertation is found unacceptable and the student is dismissed from the program, the grade of *U* is automatically assigned upon receipt by the Graduate School of the action dismissing the student.

Audit. A student registering for a course on an audit basis receives no letter grade and no credit hours. The student's registration must indicate audit registration and the same fees are paid as when registering for credit. During the first three weeks of a regular semester a student registered for a course for credit may change to audit status or vice versa through the official program change process. Thereafter, the change may not be made.

Changing of grades. At the completion of a course the final grade assigned to a student is the responsibility of the instructor of the course. Grades given at the end of the course are final and may not be changed by additional work or by submitting additional materials; however, clerical errors in recording grades can be corrected. To correct a clerical error, the assigned instructors should submit a grade change card together with an explanation and justification of the grade change for the approval or disapproval of the department chair, the appropriate college dean, and the dean of the Graduate School. In cases of theses and dissertations, for which *DEF* grades are given, the Graduate School changes the *DEF* grades upon presentation and acceptance of the thesis and dissertation and receipt of the departmental approval papers. In courses for which INC and *DEF* grades have been given, the assigned instructors has the responsibility of determining the final grade to be assigned and notifying the Office of Admissions and Records of the final grade by means of the grade change card.

Financial Assistance

Financial assistance is available to qualified students in all fields of study in the form of (1) graduate assistantships where one serves as a classroom teacher or assistant, as a research assistant, or as an administrative assistant, (2) fellowships or traineeships, (3) scholarships, (4) federal work-study programs, and (5) loans. There are basic regulations that relate to these awards. Students should

make application for the graduate assistantships, fellowships, or traineeships through the department to which they have been admitted. Information and application forms for the tuition scholarship program may be obtained from the Graduate School office. Information regarding the federal work-study program and loans may be obtained by contacting the Financial Aid Office.

Students should be sure that their applications for admission are complete including the submission of required transcripts to the Graduate School to assure consideration for an award.

Graduate assistant appointments, graduate fellowships, and most traineeships include a tuition scholarship, but fees must be paid by the student. A student may receive no more than two calendar years of graduate-student support while a master's level student. A student may receive no more than four calendar years of graduate-student support while a doctoral-level student. The maximum number of years of graduate-student support for students seeking any combination of graduate degrees is six (72 months) unless a specific exception based on the student's programmatic needs is granted by the graduate dean. These time limits apply to assistantships, fellowships, traineeships, and other similar awards and appointments administered by the University, regardless of source of funds. Students who are awarded graduate assistantships, fellowships, or traineeships, but who have not furnished official proof of their most recent degree to the Graduate School shall be considered to be on term appointment for one semester only. No one will be appointed to a second term until an official transcript indicating receipt of the degree is received in the Graduate School.

Acceptance of an offer of financial aid (such as a fellowship, traineeship, or assistantship) for the next academic year by an actual or prospective graduate student completes an agreement which both student and graduate school expect to honor. In those instances in which the student accepts the offer before April 15 and subsequently desires to withdraw, the student may submit in writing a resignation of the appointment at any time through April 15. However, an acceptance given or left in force after April 15 commits the student not to accept another offer from another institution without first obtaining a written release from the institution to which a commitment has been made. Similarly, an offer by an institution after April 15 is conditional on presentation by the student of the written release from any previously accepted offer.

Graduate Assistants

Graduate assistantships (GA) are available in a variety of places across campus, from academic departments and research centers to administrative and service units. This type of appointment comprises the largest number of awards offered by the University. A graduate assistant must be a registered student in a degree program. Unclassified students are not eligible for graduate assistantships.

For these appointments, students should inquire directly to the chair of the department to which they have been admitted or to the appointing officer of a research center or administrative or service unit. Information about the criteria used to select GAs and to assign their responsibilities may be obtained by contacting the chair of the department, the administrator of a research or service unit, or the Graduate School.

The average GA appointment is 50% appointment (20 hours per week) and lasts for one academic year (9 months). There are also some 25% appointments requiring 10 hours per week. A student may hold two simultaneous quarter time (25%) appointments on campus without special approval. GA appointments may be either on a semester-pay basis or a fiscal-pay basis.

Appointments of at least 25% time for the full length of an academic term qualify for a tuition scholarship. The appointment papers, however, must have a starting date on or before the fifteenth day of classes for the tuition scholarship to apply. If a student is appointed for less than a full academic term on a fiscal

pay basis, the appointment will not carry a tuition scholarship. A GA who holds an appointment for the full academic term but resigns before the end of the term still is granted the tuition scholarship for that term. A GA holding an appointment for the full length of two consecutive semesters will be eligible for a tuition scholarship the summer session immediately following the two consecutive semesters.

Salary schedules for graduate assistantships vary from unit to unit. Currently, monthly stipends range from $736 to $1020 (50% appointments). Generally doctoral students are paid higher rates than master's students. Information about the specific conditions of the appointment should be directed to the department or unit making the appointment.

In the best interests of both the University and students, academic departments should monitor outside employment and intervene in those cases where outside employment results in problems. Toward this end, it is within the rights and responsibilities of a department: 1) to require that graduate assistants holding outside employment notify their department, so that their performance can be monitored; 2) to make the relinquishing of outside employment a precondition for the continued enrollment of, and/or availability of assistantships to, students whose academic or assistantship performance has been rated Unsatisfactory; and 3) to cancel or not renew the assistantship contracts of those students whose assistantship performance is rated Unsatisfactory and who also hold and do not discontinue outside employment. Graduate students can appeal departmental decisions regarding outside employment and academic/assistantship status through the University's standard routes of appeal.

Federal Work-Study Graduate Assistantships

The Graduate School and the Financial Aid Office jointly administer the Federal Work-Study Assistantship program. This program supports approximately twenty-five graduate assistants each year. The program provides for up to 70% of each graduate assistantship from federal funds, with the remainder coming from departmental or collegiate funds. Students qualify for this program on the basis of financial need. Students must be citizens or permanent residents of the United States. Further information on application procedures and eligibility criteria is available from the Graduate School.

Graduate Fellowships

The Graduate School offers a number of graduate fellowships. The number varies depending on the funds available for these awards each year. All awards of this type are highly competitive based upon scholarship, scores on standardized tests, and potential for success in graduate study. Application for these awards should be made by February 1 preceding the academic year for which the award is desired. Application forms and information about the award may be obtained by contacting the department to which one has been admitted or is seeking admission.

The stipend for a fellowship is $650 per month, or $7,150 for eleven months for master's degree students; for doctoral degree students the stipend is $700 per month, or $7,700 for eleven months. Graduate School fellowships include a tuition scholarship. While on fellowships, students shall be allowed to hold other appointments (up to a 25% overload) in the University provided that the appointment is directly related to the student's academic and professional goals. Fellows may not hold jobs outside the University, since the purpose of the fellowship is to provide students with an opportunity to devote full time to their graduate studies and research rather than work part time at a job and part time at studies. There may be a training assignment if this has been outlined at the time of the appointment. Fellowship awardees must remain on campus as fulfillment of their award except with permission by the graduate dean.

Traineeships

Individual departments often are able to provide traineeships. Information about these awards should be directed to the department to which one has been admitted or is seeking admission.

Graduate Internships

The graduate internship provides an educational experience for students at either the master's or doctoral level who wish or are required as a part of their program of studies to devote their primary effort toward applied activities in an academic program or a community-based agency or business under the direct supervision of a qualified representative of the host agency or business. Such internship activities may be unpaid or paid. Paid internships are externally sponsored and include the following categories: (a) paid through the University as graduate assistants; (b) paid by an agency or business as an employee; or (c) paid by an agency or business as a consultant. Requests for information should be directed to one's department.

Dissertation Research Awards

Dissertation research awards are designed for superior students who are in the dissertation preparation stage of their graduate education. Selection is based upon a competition primarily considering the students academic research and quality of the dissertation prospectus. Students who will have started their dissertations by the end of the fall semester (advanced to candidacy, completed preliminary examinations, and completed most of their course work and research tools) may apply for the award during the preceding spring semester. A recipient of a dissertation research award must be officially admitted to candidacy by the end of the semester in which the award begins. The application should be submitted by February 1. The award is for a maximum of 11 months at a monthly rate of $942 or $10,362 plus tuition scholarship.

Students holding a dissertation research award are expected to devote full-time to the approved research project as determined by their department. The student should be enrolled for graduate credit hours or dissertation hours. The student holding such an award is expected to resign the award at the time the dissertation is submitted to the Graduate School if this comes prior to three weeks before the end of the time period for the award.

Graduate Dean's Fellowships

Several special graduate dean's fellowships are offered annually to students who, although not selected for a regular fellowship, in the judgment of the graduate dean show unusual promise for success in graduate studies. Students will be considered for these awards who have overcome social, cultural, or economic disadvantages in attaining their educational objectives. Application should be made through the chair of the department in which the student is enrolled.

Stipend rates and related regulations are the same as for the regular graduate fellowships. There is no service requirement other than those activities which are required by departments of all students regardless of the source of their support.

Delyte and Dorothy Morris Doctoral Fellowship Program

The Delyte and Dorothy Morris doctoral fellowships have been established by Southern Illinois University at Carbondale to honor a distinguished former president and his wife. During Dr. Morris's tenure as president (1949–71) the University grew to be a comprehensive research institution and established doctoral programs in twenty-two fields, now twenty-five fields.

Eligible applicants must be at the beginning of their doctoral work. Therefore, applications prior to entrance into a doctoral program is required. Only applicants who have received no prior degree from SIUC and who have done no graduate work at SIUC are eligible. Applicants must possess the credentials of very promising scholars as indicated by high scholastic standing, excellent scores on standardized tests, outstanding recommendations, and evidence of high potential for research and publication.

Morris fellows will receive $12,000 and a tuition scholarship for up to three years of full-time doctoral study at SIUC. Fellows are not eligible to hold another appointment either within or outside the University. Application deadline is February 1. Contact the Graduate School for application information.

State Fellowship Programs for Minority Students

The state of Illinois is currently supporting two fellowship programs for minority graduate students, the Illinois Minority Graduate Incentive Program (IMGIP) and the Illinois Consortium for Educational Opportunity Program (ICEOP). Both programs are designed to develop minority faculty and staff for Illinois institutions of postsecondary education; graduates of each program must agree to seek and accept appropriate employment in Illinois higher education. There are differences between the two programs in terms of eligible minority groups, residency requirements, eligible programs of study, etc. For further information and application materials, contact the IMGIP/ICEOP administrator in the Graduate School. While on IMGIP or full ICEOP awards, students may not hold other appointments either inside or outside the University, since the purpose of the fellowships is to provide students with a source of income which will enable them to study full time. All other rules and regulations governing University fellowships apply to these programs. Deadlines for applications are early in February for the following fall semester.

Patricia Roberts Harris Fellowship Program

The Patricia Roberts Harris fellowship is an interdisciplinary fellowship program that complements an overall Graduate School commitment to attract and retain increased numbers of highly qualified doctoral students from previously underrepresented groups. Stipends for Patricia Roberts Harris fellows are need based with a maximum award of $14,400. A tuition scholarship and waiver of fees accompany this award. The Graduate School will continue to offer the fellowship in the event that federal funds remain available. While holding a Patricia Harris fellowship, students may not hold other appointments either inside or outside the University, since the purpose of the fellowship is to provide students with a source of income which will enable them to study full time. All other rules and regulations governing University fellowships apply to this program. Contact the Graduate School for information.

Proactive Recruitment of Multicultural Professionals for Tomorrow (PROMPT) Fellowship Program

The PROMPT Program, an initiative developed by the Graduate School to increase the number of minorities receiving advanced degrees, provides fellowship support to master's and doctoral students and assists college faculty to pursue their doctorate.

1. *PROMPT Fellowship*. The Graduate School and each participating department will award up to 16 two-year financial assistance packages to beginning master's and doctoral students. The fellowship includes a teaching or research assistantship, which provides a tuition waiver and stipend for the student.
2. *Human Ecology Faculty Development Fellowship*. This fellowship will provide opportunities for minority college teachers to pursue terminal degrees

at SIUC in specified academic disciplines. Individual support packages will include stipends up to $14,400 annually for up to three years of study, tuition and fee waivers, 10-hour-per-week teaching assistantship, free housing, and paid conference travel. The Graduate School will continue to offer this fellowship in the event that federal funds remain available.

Contact the Graduate School for application information.

The National Consortium for Educational Access, Inc.

The National Consortium for Educational Access, Inc. (NCEA) offers a funding alternative for those who wish to pursue study towards the doctoral degree. Through NCEA a fellowship award is given, contingent upon and supplemental to the financial assistance provided by a participating doctoral degree granting institution. Black Americans choosing to study in an academic area of underrepresentation or faculty members who want to continue to teach at the college or university level are encouraged to apply. An NCEA fellowship supplement averages between $3,000 to $7,000 per year, making combined assistance from NCEA and the doctoral degree granting institution between $9,000 to $15,000 per year. Annual fellowship renewals are dependent upon satisfactory performance and normal progress toward the doctoral degree.

NCEA structurally is a partnership agreement among 42 historically black colleges and universities, and over 25 doctoral granting institutions (including SIUC) supported by corporations, foundations, and the university system of Georgia, merged to provide a financial base for those who can help NCEA meet the following goals: (1) increase the pool of black Americans holding the Ph.D. degree in disciplines underrepresented by black Americans and (2) simultaneously increase the number of black Americans with a Ph.D. degree who want to teach in our nation's colleges and universities. Therefore, two distinct kinds of applicants are sought: faculty members working at a historically black college or university who want to continue to teach and the black American who wants to pursue the terminal degree with the intention of teaching in higher education. For further information, contact the Graduate School at SIUC or the executive director of NCEA, 296 Interstate North Parkway, Suite 100, Atlanta, GA 30339 (404-421-3255).

Tuition Scholarships

A limited number of tuition scholarships are awarded each semester to graduate students on the basis of scholarship. The award is for remission of tuition; fees must be paid. Students may receive a tuition scholarship for a maximum of three semesters during their enrollment in the University.

To be eligible the student must be admitted to the Graduate School and to a department, and the student may not hold another University appointment which provides a tuition scholarship. Tuition scholarship recipients must enroll for a minimum of 9 hours each semester (3 hours in summer). There is no service requirement other than the duties required by a department of all students regardless of their source of support.

Application forms are available in the Graduate School office. Students should submit application forms at least one full semester preceding the semester for which the tuition scholarship is requested. Deadline dates are as follows: April 15 for summer session, July 15 for fall semester, and November 15 for spring semester.

Financial Aid Office

Other forms of financial assistance available through the Financial Aid office include part-time employment on and off campus, cooperative work-study programs, summer employment, and student loan funds.

External Support for Graduate Study

Fellowships, grants-in-aid, scholarships, and other similar awards for the support of graduate students are available from many sources outside the University. Students are encouraged to apply for such awards. Information concerning appropriate external sources of support may be obtained from the Office of Research Development and Administration or from department chairs or directors of graduate studies of the student's major department.

Faculty Appointments

No student in a graduate degree program shall be appointed to any full-time faculty position in the department (or equivalent unit) while enrolled in the unit as a student, with the sole exception that a student who has already been admitted to candidacy for the doctoral degree may be granted a term appointment as an instructor in the unit while so enrolled. Such a term appointment shall not be renewable beyond a period of one year.

Satisfactory Progress Policy for Graduate Students

Note: This policy is due to be revised by fall, 1996.

PURPOSE

The Federal Government, the States, and Southern Illinois University at Carbondale have invested large sums of money in order to provide financially needy students the opportunity to attain a post-secondary education. Financial aid recipients are responsible for using the funds in an acceptable manner. Therefore, a classified graduate student who wishes to benefit from the receipt of financial aid must maintain satisfactory progress as defined in this policy.

AUTHORITY

The Higher Education Act of 1965, as amended, and the final regulations set forth by the Department of Education in 34 CFR 668 require that institutions of higher education establish reasonable standards of satisfactory progress. A classified graduate student who does not meet these standards is not eligible to receive applicable federally funded and/or state funded financial aid. Southern Illinois University at Carbondale shall make these standards applicable to the following federal aid programs: Perkins Loan, Federal Work-Study, Stafford Loan Program, and the Supplemental Loans for Students. Applicable state programs are identified by the state agencies. Unclassified graduate students are only eligible to be considered for a Stafford Loan or a Supplemental Loan for Students during one twelve-month period while preparing for a classified program of study.

SATISFACTORY PROGRESS STANDARDS

SIUC requires that a classified graduate student be making satisfactory progress toward a degree if that student wishes to receive financial aid funds. A classified graduate student is making satisfactory progress toward a degree if successfully meeting two basic academic standards. First, a classified graduate student must complete a reasonable number of credit hours attempted each academic year in attendance. Second, a classified graduate student must maintain a scholastic standing, derived from grades, that allows for continued enrollment at the University under current academic guidelines. The following parameters will be used to define these two basic academic standards.

1. Maximum Time to Graduate: A student's eligibility is terminated after the academic year in which a cumulative total of 120 master's hours — 140 hours for the Master of Fine Arts degree — or 140 doctoral hours is attempted. A graduate student must complete at least 50% of the credit hours attempted during any

year. The student's progress will be measured annually after spring semester to determine the progress made for the last academic year of attendance.

2. Grades: A student must be in compliance with the University's policy concerning academic standing, grades, and grade point average, as defined under the topic "Retention" and all other provisions in the current *Graduate Catalog*. A graduate student who is academically suspended from the Graduate School is not making satisfactory progress.

A classified graduate student who does not meet both of the standards set forth above and has been provided a probationary period or who cannot show mitigating circumstances is not maintaining satisfactory progress toward a degree and is no longer eligible to receive federal financial aid funds. (See Appeal for Mitigating Circumstances.)

Nothing in this policy shall be construed as a reduction of external requirements by other federal, state, public, or private agencies when they award or control financial aid. Examples of such agencies are: Veterans Administration, Vocational Rehabilitation, and the NCAA.

DEFINITIONS

Credit Hours Attempted shall be defined as those credit hours for which a student is registered and will receive a grade from SIUC.

Credit Hours Completed, for the purpose of the policy, shall be defined as the total number of academic credit hours for which a graduate student receives any grade from SIUC other than incomplete and failing, withdrawal, unsatisfactory, or audit. Deferred grades count as credit hours completed.

Eligible Students shall be defined as those classified graduate students who are admitted to the Graduate School and to a specific degree program.

Grade Point Average (GPA) is defined in the *Graduate Catalog* under the topic "Retention".

NOTIFICATION OF INELIGIBLE STATUS

It shall be the responsibility of the Graduate School to publish this policy and to notify by letter any graduate student who is no longer eligible to receive financial aid funds. Said notices shall be addressed to the graduate student's most current permanent address on file with the University. *It shall be the responsibility of the student to inform the University of a correct permanent address at all times.* The Financial Aid office will provide the Graduate School with a list of graduate students who are no longer eligible to receive federal or applicable state financial aid.

REINSTATEMENT

Graduate students will have their eligibility to receive financial aid reinstated when they have reached the level of satisfactory progress required of them by this policy. They may achieve this status by the correction of incorrect grades, or by completing the required number of attempted hours during the next academic year of enrollment without the benefit of applicable financial aid.

SATISFACTORY PROGRESS PROBATIONARY PERIOD

A graduate student who has not met the satisfactory progress requirements specified above will be granted an extension for the following calendar year and will remain eligible for financial aid during this period. At the end of the probationary period, the student must have rectified the deficiency and be in compliance with all other established criteria in order to be considered eligible for federal financial aid. Only one such probationary period will be granted a student during graduate studies.

APPEAL FOR MITIGATING CIRCUMSTANCES

A graduate student shall have the opportunity to appeal in writing to explain mitigating circumstances. The appeal should be sent to the Graduate School within 15 days of receipt of the notice of ineligible status. The Graduate School will review the mitigating circumstances documented in the appeal and provide a written decision within 20 days after the receipt of the appeal.

The Graduate School will provide written notification to the Financial Aid Office concerning all graduate students who have been granted an exception for mitigating circumstances.

Tuition and Fees

Tuition and fees charged students are established by the Board of Trustees and are subject to change whenever conditions necessitate. All assessments are on a per-hour basis, with 12 hours considered full time. Students will be assessed the following tuition and fees each term:

Graduate Student Tuition and Fee Schedule

	Illinois Residents			Non-Illinois Residents		
Semester Hours Enrolled	Student Tuition	Student Fees	Total	Student Tuition	Student Fees	Total
1	$ 85.00	242.82	$327.82	$255.00	$242.82	$497.82
2	170.00	264.64	434.64	510.00	264.64	774.64
3	255.00	286.46	541.46	765.00	286.46	1051.46
4	340.00	308.28	648.28	1020.00	308.28	1328.28
5	425.00	330.10	755.10	1275.00	330.10	1605.10
6	510.00	351.92	861.92	1530.00	351.92	1881.92
7	595.00	373.74	968.74	1785.00	373.74	2158.74
8	680.00	395.56	1075.56	2040.00	395.56	2435.56
9	765.00	417.38	1182.38	2295.00	417.38	2712.38
10	850.00	439.20	1289.20	2550.00	439.20	2989.20
11	935.00	461.02	1396.02	2805.00	461.02	3266.02
12	1020.00	483.15	1503.15	3060.00	483.15	3543.15
13	1105.00	483.15	1588.15	3315.00	483.15	3798.15
14	1190.00	483.15	1673.15	3570.00	483.15	4053.15
15 or more	1275.00	483.15	1758.15	3825.00	483.15	4308.15

The fees which have been established by the Board of Trustees are payable by all students unless they are specifically exempted by the Board of Trustees. All fees are considered to be institutional in nature and require payment regardless of whether or not the student receives direct benefits or is in a location which permits access to such benefits.

Student fees include: Student Center fee, student activity fee, athletic fee, revenue bond fee, and student medical benefit fee. A microfilming fee of $60 is required of all doctoral students at the time the dissertation is submitted for approval. If copyright is desired, an additional fee of $35 is required. (Additional fee information is available in the schedule of classes.) Student fees include the following.

Student Center Fee. Provides funds for the operation of the Student Center.

Student Activity Fee. Provides funding for student organizations and activities on campus.

Athletic Fee. Provides partial funding for the university intercollegiate athletic program.

Revenue Bond Fee. Replaces funds which were previously obtained from tuition payments and used to under-write the funded debt operations of the Student Center and university housing.

Student Medical Benefit Fee. Provides funding for a comprehensive student health program including emergency service; hospitalization; specialty, primary, intermediate, or infirmary care; and prevention program. A student who pays this fee is entitled to full medical benefits at the Health Service. One who has comparable coverage may seek a refund within the first three weeks of each semester by contacting the administrative director of the Health Service. Similarly, a refund is authorized for those students precluded from use of the student health program by unusual or extreme geographic considerations.

Additional Fee Information

1. Students should refer to the Schedule of Classes for specific fee information.
2. Permanent full-time or permanent part-time employees may be eligible for waiver of tuition and waiver of a portion of the student fees. (Graduate assistants are not eligible for a waiver of student fees.) Approval by the department head and the director of the Personnel office must be given prior to enrolling for courses. Employees who are approved pay only the Students Center fee and the Students' Attorney Program fee.
3. Students taking courses in extension or at approved residence centers are required to pay tuition as listed in the table above but do not pay student fees.
4. Graduate students who have registered for the minimum number of credit hours required for their degree are required to remain registered in continuing enrollment. Refer to the section titled Continuing Enrollment Requirement previously in this chapter for the regulations governing this fee.
5. In addition to the above fees, there is a graduation fee. For further information, contact the Office of Admissions and Records. When submitting their dissertations, doctoral students are required to pay a $60.00 fee to cover the cost of publication of the dissertation abstract and microfilming the dissertation. If copyright is desired, an additional fee of $35.00 is required.
6. 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. Honorary scholarships, which have no monetary value, may be awarded. An Illinois State Teacher Education Scholarship, an Illinois Military Scholarship, or an Illinois General Assembly Scholarship exempts the student from paying tuition, the student activity fee, and the graduation fee. The Illinois Scholarship for Dependents of Prisoners of War and the Illinois Bilingual Scholarship exempt the student from paying tuition and all mandatory nonrefundable fees.
7. Adult education course fees are computed on the basis of approximately sixty cents per contact hour.
8. Other charges which students may incur are those for departmental field trips, library fines, and excess breakage. Also, students taking a course involving use of materials, as distinct from equipment, will ordinarily pay for such materials.
9. Students registering for courses on an audit basis pay the same tuition and fees as though they were registering for the courses for credit.

10. Out-of-state students will find the official University regulations governing determination of residency status for assessment of tuition later in this chapter.
11. Students enrolled in public service courses only pay tuition and a $3.00 per semester hour fee divided equally between the Student Center and the Student Medical Benefit fund.
12. An identification card fee of $10.00 will be charged to all first-time SIUC students who register for on-campus credit. This is a one-time charge. For additional information please contact the Student Center ID Card Office.

Payment and Refunding of Tuition and Fees

Tuition and fees are payable each semester during the academic year. Students who register in advance receive a Statement of Account in the mail and may pay either by mail or in person at the Bursar's office, by the deadline date, in accordance with instructions accompanying the statement. Otherwise their advance registration is cancelled and they must register again later. Students who register at the start of a semester must pay tuition and fees according to the schedule which is in effect at that time. Students should read the *Schedule of Classes* for specific information on payment of tuition and fees.

Students who process a program change which places them in a different tuition and fee category than the one for which they originally registered will be billed additional tuition and fees when appropriate. If the change places them in a smaller tuition and fee category and if they have processed the program change within the first two weeks of the semester, they will receive an automatic credit to their account.

A credit for tuition and fees will be made to student accounts for students who officially withdraw from school by the withdrawal deadlines listed later in this chapter. They will receive a refund check in approximately four weeks after the withdrawal has been received by the Office of Admissions and Records. No credit for tuition and fees is made for withdrawal occurring after the deadlines, except as described in the next paragraph.

Special consideration is extended to individuals who leave school for extended military service (6 months or longer). Students will be refunded full tuition and fees paid if they enter military service during the first five weeks of school. If students withdraw during the sixth through tenth weeks of school, they will be refunded half of the paid tuition and fees, and they will receive one-half credit without letter grades for the courses in which they were receiving a passing grade at the time of withdrawal. When the withdrawal occurs after the tenth week, students will receive no refund, but will receive both grades and credit hours for the courses in which they are passing. 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 students must remain in school to within ten days of their military reporting date.

Deferment of Tuition and Fees

Students who are experiencing a delay in the receipt of verified financial assistance through the Financial Aid office may be eligible for a cancellation waiver. If granted, a cancellation waiver prevents a student's registration from being cancelled even though tuition and fees have not been paid by the publicized cancellation date.

Information concerning cancellation waiver procedures is available from the Financial Aid office and the office of the Graduate School. This information is also published in the *Daily Egyptian* each term. Guidelines may vary from term to term and year to year so students are advised to seek out accurate information rather than assume they qualify.

Determination of Residency Status

For the purpose of these regulations an *adult* is considered to be a student eighteen years of age or over; a *minor* student is a student under eighteen years of age. The term "the State" means the State of Illinois except in the following instances: (1) for the purposes of assessing graduate tuition, the chancellor may take the term "the State" to include the Kentucky counties of Ballard, Caldwell, Calloway, Carlisle, Crittenden, Fulton, Graves, Hickman, Livingston, Lyon, McCracken, Marshall, Trigg, and Union. (2) For the purposes of assessing graduate tuition for not more than six hours the chancellor may take the term "the State" to include the State of Missouri. Graduate students who take more than six hours per term will be charged out-of-state tuition for all semester hours taken during the term. Except for those exceptions clearly indicated in these regulations, in all cases where records establish that the person does not meet the requirements for Resident status as defined in these regulations the nonresident status shall be assigned.

Determination of residence status of each applicant for admission to the University is made at the time of admission. A student may petition for change to Illinois residency by contacting the Graduate Registration Center to obtain the necessary forms and information. A student may be reclassified at any time by the University upon the basis of additional or changed information. However, if the University has erroneously classified the student as a Resident, the change in tuition shall be applicable beginning with the term following the reclassification; if the University has erroneously classified the student as a nonresident, the change in tuition shall be applicable to the term in which the reclassification occurs, provided the student has filed a written request for review in accordance with these regulations. If the University has classified a student as a Resident based on false or falsified documents, the reclassification to nonresident status shall be retroactive to the first term during which residency status was based on the false or falsified documents.

Adult Student. An adult, to be considered a Resident, must have been a bona fide resident of the State for a period of at least three consecutive months immediately preceding the beginning of any term for which the individual registers at the University, and must continue to maintain a bona fide residency in the State, except that an adult student whose parents (or one of them if only one parent is living or the parents are separated or divorced) have established and are maintaining a bona fide residence in the State and who resides with them (or the one residing in the State) or elsewhere in the State will be regarded as a Resident student.

Minor Student. The residence of a minor shall be considered to be, and to change with and follow:

a. That of the parents, if they are living together, or the living parent, if one is dead; or
b. If the parents are separated or divorced, that of the parent to whom the custody of the person has been awarded by court decree or order, or, in the absence of court decree or order, that of the parent with which the person has continuously resided for a period of at least three consecutive months immediately preceding registration at the University; or
c. That of the adoptive parents, if the person has been legally adopted and, in the event the adoptive parents become divorced or separated, that of the adoptive parent whose residence would govern under the foregoing rules if that parent had been a natural parent; or
d. That of the legally appointed guardian of the person; or

e. That of the *natural* guardian, such as a grandparent, adult brother or adult sister, adult uncle or aunt, or other adult relative with whom the person has resided and by whom the student has been supported for a period of at least three consecutive months immediately preceding registration at the University for any term, if the person's parents are dead or have abandoned him and if no legal guardian of the person has been appointed and qualified.

Parent or Guardian. No parent or legal or natural guardian will be considered a resident of the State unless said person (a) maintains a bona fide and permanent place of abode within the State, and (b) lives, except when temporarily absent from the State with no intention of changing the legal residence to some other State or country, within the State.

Emancipated Minor. If a minor has been emancipated, is completely self-supporting, and actually resides in the State, the minor shall be considered to be a Resident even though the parents or guardian may reside outside the State. An emancipated minor who is completely self-supporting shall be considered *to actually reside in the State of Illinois* if a dwelling place has been maintained within the State uninterruptedly for a period of at least three consecutive months immediately preceding term registration at the University. Marriage or active military service shall be regarded as effecting the emancipation of minors, whether male or female, for the purposes of this regulation. An emancipated minor whose parents (or one of them if only one parent is living or the parents are separated or divorced) have established and are maintaining a bona fide residence in the State and who resides with them (or the one residing in the State) or elsewhere in the State will be regarded as a Resident student.

Married Student. A nonresident student, whether male or female, or a minor or adult, or a citizen or noncitizen of the United States, who is married to a resident of the State, may be classified as a Resident so long as the individual continues to reside in the State; however, a spouse through which a student claims residency must demonstrate residency in compliance with the requirements applicable to students seeking Resident status.

Persons without United States Citizenship. A person who is not a citizen of the United States of America, to be considered a Resident, must have permanent resident status with the United States Immigration and Naturalization Service and must also meet and comply with all of the other applicable requirements of these regulations to establish Resident status.

Armed Forces Personnel. A person who is actively serving in one of the Armed Forces of the United States and who is stationed and present in the State in connection with that service and submits evidence of such service and station, shall be treated as a Resident as long as the person remains stationed and present in Illinois. If the spouse or dependent children of such member of the Armed Forces also live in the State, similar treatment shall be granted to them.

A person who is actively serving in one of the Armed Forces of the United States and who is stationed outside the State may be considered a Resident only if the individual was a resident of the State at the time of entry into military service.

A person who is separated from active military service will be considered a Resident of Illinois immediately upon separation providing the person: (a) was a resident of the State at the time of enlistment in the military service, (b) became treated as a Resident while in the military by attending school at Southern Illi-

nois University while stationed within the State, or (c) has resided within the State for a period of three months after separation.

State and Federal Penitentiary. A person who is incarcerated in a State or Federal place of detention within the State of Illinois will be treated as a Resident for tuition assessment purposes as long as said person remains in that place of detention. If bona fide residence is established in Illinois upon release from detention, the duration of residence shall be deemed to include the prior period of detention.

Minor Children of Parents Transferred Outside the United States. The minor children of persons who have resided in the State for at least three consecutive months immediately prior to a transfer by their employers to some location outside the United States shall be considered Residents. However, this shall apply only when the minor children of such parents enroll in the University within five years from the time their parents are transferred by their employer to some location outside the United States.

Dependents of University Employees. For the purposes of tuition assessment, all faculty, staff (including civil service employees), and graduate assistants, as well as their spouses and dependent children, shall be considered as resident students.

Definition of Terminology. To the extent that the terms *bona fide residence*, *independent*, *dependent*, and *emancipation* are not defined in these regulations, definitions shall be determined by according due consideration to all of the facts pertinent and material to the question and to the applicable laws and court decisions of the State of Illinois.

A bona fide residence is a domicile of an individual which is the true, fixed, and permanent home and place of habitation. It is the place to which, whenever absent, the individual has the intention of returning. Criteria to determine this intention include but are not limited to year around residence, voter registration, place of filing tax returns (home state indicated on federal tax return for purposes of revenue sharing), property ownership, driver's license, car registration, vacations, and employment.

Procedure for Review of Residency Status or Tuition Assessment. A student who takes exception to the residency status assigned or tuition assessed shall pay the tuition assessed but may file a claim in writing to the appropriate official for a reconsideration of residency status and an adjustment of the tuition assessed. The written claim must be filed within 30 school days from the date of assessment of tuition or the date designated in the official University calendar as that upon which instruction begins for the academic period for which the tuition is payable, whichever is later, or the student loses all rights to a change of status and adjustment of the tuition assessed for the term in question. If dissatisfied with the ruling in response to the written claim made within said period, the student may appeal the ruling to the chancellor or his/her designee by filing with the appropriate official within twenty days of the notice of the ruling a written request.

UNIVERSITY EMPLOYEES

All full-time University employees who wish to use the employee tuition and fee waiver (civil service and faculty) who are classified as graduate students must seek approval of the Graduate School to enroll in more than six semester hours of courses.

Faculty and Staff

Members of the faculty who are seeking a waiver of tuition and fees, must apply each term for the waiver by completing an Application for Waiver of Tuition/Fees for Faculty form. A form may be obtained from the Personnel Office or from the Graduate Registration Office, Woody Hall, B104. The form should be filled out promptly each term and may be turned in at the Graduate Registration Area or may be mailed to the Personnel office. The amount of the waiver will be automatically credited to the student's account after the faculty status is verified and the application form is processed.

Note that the waiver does not cover the Student Center fee, which must be paid by the student prior to the payment deadline in order to avoid cancellation of the registration. Faculty can phone the Graduate Registration Office (618-453-2969 or 618-453-4552) for any questions regarding the registration process.

Civil Service

Employees in permanent civil service positions will receive a tuition credit and credit applied toward some fees only when authorized by the Personnel office after compliance with personnel regulations. However, civil service employees expecting a waiver of tuition and fees must process a Civil Service Tuition and Fee Waiver form through the Personnel office before registering. If the Personnel office approves the request, the student's account will then be credited with the amount of the waiver.

Note that the waiver does not cover the Student Center fee, which must be paid by the student prior to the payment deadline in order to avoid cancellation of the registration.

OTHER TYPES OF REGISTRATION IN GRADUATE COURSES

The following discussion concerns students who are either unclassified for various reasons or are undergraduates wanting to take graduate-level courses.

Unclassified Students—Non-Degree

A person may apply for admission to the Graduate School as an unclassified student when the applicant does not seek a graduate degree or has applied too late to be admitted to a degree program for the term for which admission is sought.

If an unclassified student is admitted to a degree program at a later time, the director of that program may petition the graduate dean that graduate courses completed while the student was unclassified be applied toward fulfillment of degree requirements. The student will be subject to the rules and regulations of the Graduate School and the department concerned including the completion of at least 9 hours after being admitted to a master's degree program from unclassified status.

Unclassified students are not eligible for fellowships, assistantships, or tuition scholarships.

Regular Unclassified

A person who seeks admission as a regular unclassified graduate student must have been awarded a bachelor's or higher degree. A student admitted as a regular unclassified student may enroll in graduate courses as long as the student meets retention standards of the Graduate School.

Late-Entry Unclassified

An applicant to a degree program who meets Graduate School admission standards but whose materials are received too late for processing may be granted late-entry, unclassified status for the term for which admission was originally

sought. The application papers will continue to be processed for admission to a degree program for the term following the one originally applied for. Whether or not work taken by a student who is unclassified because of late application will later count toward a degree will be decided by the Graduate School and the department concerned.

TEMPORARY UNCLASSIFIED

An applicant who wishes to enroll for one term only or who has applied for admission too late to furnish official transcripts required by the Graduate School may be admitted as a temporary unclassified student. The applicant must sign a special registration form affirming possession of a bachelor's degree. No transcript is required.

A student may register as a temporary unclassified student for one semester only. If the student wishes to enroll in graduate courses after this time period, the student must apply for and be admitted, either to a degree program or to regular unclassified status.

Undergraduate Student Registration in Graduate Courses

GRADUATE CREDIT

An undergraduate student who wishes to register for a graduate course (400- or 500-level course) for graduate credit must file the standard application for admission to the Graduate School and submit to the graduate dean a request for graduate credit. Forms are available in the Graduate School. If the student is academically eligible for admission to a degree program, the student will be allowed to register as an undergraduate for graduate courses for graduate credit when within 12 semester hours of completing requirements for the bachelor's degree.

An undergraduate student who meets these qualifications will be allowed to take graduate courses for graduate credit for one semester or one summer term. If, at the end of the term, the student has not received the bachelor's degree, permission to enroll in graduate courses for graduate credit will be withdrawn until after the bachelor's degree has been conferred.

UNDERGRADUATE CREDIT

The Graduate School has the responsibility of approving the registration of undergraduate students in 500-level courses for undergraduate credit. Undergraduate students should only be encouraged to take 500-level courses if they are properly qualified. In dealing with these requests the following procedures must be followed.

The chair of the department offering the course, in collaboration with the instructor who is teaching the particular course, should forward a letter to the graduate dean indicating their approval for this student to enroll in the 500-level course for undergraduate credit. Since such a request should only be made for superior students, the letters should include such information as: (1) undergraduate GPA; (2) general description of the student's academic work; and (3) why this course would be beneficial. The student must stop by the Graduate School to obtain permission to enroll upon receipt of the letter by the graduate dean. If permission to enroll has been granted by the graduate dean, this will be indicated to the registration center. Accordingly, the student should bring the request form or add/drop slip to the Graduate School.

Student Conduct Code

I. Introduction

A. Purpose

Southern Illinois University at Carbondale is dedicated not only to learning, research, and the advancement of knowledge, but also to the development of ethically sensitive and responsible persons. The University seeks to achieve these goals through sound educational programs and policies governing individual conduct that encourage independence and maturity. By accepting membership in this University, an individual joins a community characterized by free expression, free inquiry, intellectual honesty, respect for others, and participation in constructive change. All rights and responsibilities exercised within this academic environment shall be compatible with these principles.

B. Rights and Responsibilities

Students shall be free to examine all questions of interest to them and to express opinions. They shall be guaranteed all constitutional rights including free inquiry, expression, and assembly. All regulations shall seek the best possible reconciliation of the principles of maximum academic freedom and necessary order.

C. Title/Authority/Enforcement

These regulations shall be known as the Student Conduct Code for Southern Illinois University at Carbondale. The regulations contained herein are established under the authority granted by law to the Board of Trustees to establish rules and regulations for Southern Illinois University and pursuant to Chapter 3 *Policies of the Board of Trustees C* authorizing the Chancellor to develop regulations dealing with student rights and conduct. All students of the University community have the responsibility to comply with these regulations. The responsibility for the enforcement of the Code rests with the Chancellor of Southern Illinois University at Carbondale or his/her designees. The effective date for this Code is June 9, 1986.

D. Jurisdiction

The University community has a responsibility to provide its members those privileges, opportunities, and protections which encourage and maintain an environment conducive to educational development. Accordingly, this Code shall apply to (1) conduct occurring on property owned or controlled by the University, and (2) conduct occurring elsewhere, but only if the student's conduct has substantially interfered with the University's educational functions, including, but not limited to, interference with the educational pursuits of students, faculty, or staff or conduct having its origins in the educational process.

When a student has been apprehended for violation of a law, the University will not request special consideration because of the individual's status as a student. The University will cooperate fully with law enforcement and other agencies administering a corrective or rehabilitative program for the student. The University reserves the right to initiate concurrent disciplinary action.

Academic dishonesty violations in the School of Law will be adjudicated through that unit's Professional Ethics Policy. Academic dishonesty violations in the School of Medicine will be adjudicated

through that unit's Student Progress System. Law students and medical students on the Carbondale campus charged with other violations of the Code will be treated as any undergraduate and graduate student. In addition, law students charged with violations of social misconduct may also be charged under the School of Law's Professional Ethics Policy and medical students on the Carbondale campus charged with violations of social misconduct may also be charged under the School of Medicine's Student Progress System.

E. Definitions
   1. "Academic officer" means any Instructor, Department Chairperson, Dean, Director, or Coordinator.
   2. "Adjudication" means the resolution of disciplinary charges, including the appeal process.
   3. "Admission" means admission, readmission, re-entry, registration, and re-registration as a student in any educational program at the University.
   4. "Appeal" means a process for reviewing an earlier decision.
   5. "Board" means the Board of Trustees of Southern Illinois University.
   6. "Charge" means an accusation of a violation of the Student Conduct Code of Southern Illinois University at Carbondale.
   7. "Code" means the Student Conduct Code for Southern Illinois University at Carbondale.
   8. "Days" means all days when classes are in session.
   9. "Formal" disciplinary procedures are disciplinary procedures used when the question of guilt is contested or when the student accepting responsibility for the disciplinary charges prefers to have a full hearing on the sanction.
   10. "Informal" disciplinary procedures are disciplinary procedures used when the question of guilt is not contested and the student prefers to have an immediate decision on the sanction.
   11. "Instructor" means any teaching assistant or member of the faculty.
   12. "Members of the University Community" means the members of the Board of Trustees, employees, and registered students of Southern Illinois University at Carbondale.
   13. "Chancellor" means that individual appointed by the board as the chief executive, administrative, and academic officer of Southern Illinois University at Carbondale and any person authorized or directed by the chancellor to act on that officer's behalf.
   14. "Sanction" means a measure imposed on account of violation(s) of the Code.
   15. "Student" means any person registered for, enrolled in, or auditing one or more classes.
   16. "University" means Southern Illinois University at Carbondale.
   17. "University official" means any individual authorized or directed by the Chancellor or his/her designee to perform any delegated function.
   18. "Violation" means a breach of conduct governed by the Code. The standard of proof used shall be a preponderance of the evidence.

II. Violations

A. Acts of Academic Dishonesty
   1. Plagiarism: Representing the work of another as one's own work.
   2. Preparing work for another that is to be used as that person's own work.

3. Cheating by any method or means.
4. Knowingly and willfully falsifying or manufacturing scientific or educational data and representing the same to be the result of scientific or scholarly experiment or research.
5. Knowingly furnishing false information to a University official relative to academic matters.
6. Soliciting, aiding, abetting, concealing, or attempting conduct in violation of this Code.

B. Acts of Social Misconduct
   1. Violence
      a. Rape
      b. Physical abuse
      c. Direct threat of violence
      d. Harassment*
      e. Intimidation
      f. Intentional obstruction or substantial interference with any person's right to attend or participate in any University function.
      g. Participation in any activity to disrupt any function of the University by force or violence
      h. Reckless behavior representing a danger to person(s)
   2. Property Damage
      a. Arson
      b. Willful or malicious damage or destruction of property
      c. Reckless behavior representing a danger to property
   3. Weapons (unauthorized possession and/or use)
      a. Firearms
      b. Explosives and/or explosive devices
      c. Any type of arms defined as weapons in 720 Illinois Compiled Statutes 5/33A.
      d. Pellet guns and B-B guns
      e. Fireworks
   4. Disobedience
      a. Disobedience, interference, resistance, or failure to comply with direction of an identified University official acting in the line of duty.
      b. Trespassing
      c. Unauthorized entry
   5. Deception
      a. Furnishing false information to the University with intent to deceive
      b. Forgery, alteration, or misuse of University documents, records, and identification cards
      c. Forgery or issuing a bad check with intent to defraud
   6. Theft
      a. Misappropriation or conversion of University funds, supplies, equipment, labor, material, space, or facilities
      b. Possession of stolen property
   7. Safety
      a. Intentionally entering false fire alarms
      b. Bomb threats
      c. Tampering with fire extinguishers, alarms, or safety equipment
      d. Tampering with elevator controls and/or equipment
      e. Failure to evacuate during a fire, fire drill, or false alarm

8. Cannabis or Controlled Substances (as defined in 720 Illinois Compiled Statutes 550 and 570).
   a. Manufacture
   b. Sale or delivery
   c. Unauthorized possession and/or use
9. Hazing (as defined in 720 Illinois Compiled Statutes of 120).
10. Abusive or disorderly conduct
11. Violations of University Housing regulations
12. Violations of other duly promulgated University policies or regulations, including but not limited to, alcohol, demonstrations, pets, smoking, solicitation, and guidelines for access to data and programs stored on the computer, will be adjudicated under this Code.
13. Acts Against the Administration of this Code
    a. Initiation of a complaint or charge knowing that the charge was false or with reckless disregard of its truth
    b. Interference with or attempt to interfere with the enforcement of this Code, including but not limited to, intimidation or bribery of hearing participants, acceptance of bribes, dishonesty, or disruption of proceedings and hearings held under this Code.
    c. Knowing violation of the terms of any disciplinary sanction or attached conditions imposed in accordance with this Code.
14. Soliciting, aiding, abetting, concealing, or attempting conduct in violation of this Code.

*Charges of sexual harassment may be adjudicated under the University Sexual Harassment Policy.

III. Sanctions

The following are sanctions which may be imposed for a violation of this Code. Also, a condition may accompany a sanction. Conditions include, but are not limited to, restitution of damages, work projects, required counseling or therapy, required academic performance, etc. A condition may include loss of certain university privileges. If a condition accompanies a sanction, the condition must be related to the violation.

A. Failure of an assignment, quiz, test, examination, or paper
   A failing grade (*F*) may be assigned for the work in connection with which the violation occurred.
B. Failure in a course
   A failing grade (*F*) may be assigned for the course in which the violation occurred.
C. Disciplinary Reprimand
   In cases of minor violations and when the violation is acknowledged by the student, a written reprimand may be issued by the coordinator of Student Judicial Affairs or his/her designee upon the recommendation of a University official. The purpose of the reprimand shall be to call to the student's attention the responsibility of meeting certain minimal community standards. Since a reprimand is given only when the violation is acknowledged the sanction may not be appealed.
D. Disciplinary Censure
   Disciplinary censure is a written warning to the student that the cited behavior is not acceptable in the University community and that further misconduct may result in more severe disciplinary action. The student may appeal the finding of a violation but may not appeal the severity of the sanction.

E. Disciplinary Probation
Disciplinary probation removes a student from good disciplinary standing. The probation shall last for a stated period of time and until specific conditions, if imposed, have been met. Any misconduct during the probationary period will bring further disciplinary action and may result in suspension. Probationary status prevents the student from representing the University in some extracurricular activities and may result in the loss of some types of financial assistance.

F. Disciplinary Suspension
Disciplinary suspension is an involuntary separation of the student from the University for a stated period of time and until a stated condition, if imposed, is met after which readmission will be permitted. Disciplinary suspension is entered on the student's transcript for the duration of the suspension.

G. Indefinite Suspension
Indefinite suspension is an involuntary separation of the student from the University for an unprescribed period of time and until a stated condition, if imposed, is met. Any consideration for readmission requires a written petition to the appropriate administrative official before readmission will be considered. The indefinite suspension is entered on the student's transcript for the duration of the suspension.

H. Interim Separation
If the chancellor or his/her designee has reasonable cause to believe that a serious and direct threat to the safety and well-being of the members and/or property of the University community will be present if an individual is permitted to remain an active member of the community an interim separation may be imposed. A preliminary hearing or the opportunity for a preliminary hearing shall be afforded. If it is impossible or unreasonably difficult to conduct a preliminary hearing prior to the interim separation the individual shall be afforded the opportunity for such a preliminary hearing at the earliest practical time. The purpose of the preliminary hearing is to determine if there is justification to invoke an interim separation. During the preliminary hearing, the student will be provided a statement of the reasons for interim separation and will be afforded an opportunity to rebut. Interim separation is temporary and shall be enforced only until the completion of a full disciplinary hearing. A full disciplinary hearing shall be provided within a reasonable period of time.

IV. Policies and Procedures Applicable to Academic Dishonesty

A. Judicial Structure

1. Department Level
The department chairperson shall have initial jurisdiction over complaints of academic dishonesty and may adjudicate the case if the student accepts responsibility for the violation(s). In any case where the student does not accept responsibility for the violation(s) the chair shall review the complaint of alleged academic dishonesty and decide whether there are sufficient grounds to formally charge the student with a violation of the code. When social misconduct is also involved in an incident(s) of academic dishonesty, the chair shall charge the student with all violations. All charges shall be adjudicated under the provisions for academic dishonesty.
2. College/School Level

a. Each dean has the responsibility for the formal resolution of charges against a student. For the purpose of administering this code, the Graduate School dean shall operate at the level of other deans.
b. Charges of falsifying information on applications for admission shall be adjudicated by the director of Admissions and Records. The director of Admissions and Records, for the purpose of administering this Code, shall operate at the level of other deans.

3. Chancellor Level
This level has jurisdiction to hear appeals.

B. Informal Disciplinary Procedures
1. Informal Hearing
In cases where the student admits to a violation of the Code relating to academic dishonesty the matter may be adjudicated at the department level. An informal discussion between the instructor and the student shall be held. If the student admits to a violation of the Code, the instructor shall inform the department chair and the student whether, as a sanction for the violation, the instructor will assign a failing grade for the work and/or course. The instructor shall also recommend to the chairperson any other sanction that may be imposed, pursuant to IV.B.2. The chair shall meet with the instructor and the student, receive the acknowledgment of responsibility from the student, receive the recommendation from the instructor, and apprise the student of the sanction.
2. Sanctions
The full disciplinary history of the student shall be considered in determining the sanction. Sanctions which may be imposed when the student accepts responsibility for the conduct are:
a. The student may be removed from the class for the remainder of the testing period.
b. The instructor may assign the student a failing grade for the work and/or course.
c. The student may be placed on disciplinary probation.
d. Any combination of the above.
e. The department chair may recommend to the dean that the student be suspended from the University. The department chair shall also inform the student in writing that a disciplinary suspension is recommended as an appropriate sanction for the student's violation of the Code.
(1) If the student elects to challenge the severity of the recommended suspension, the student may request an informal hearing on the proposed sanction(s) before the dean.
(2) The student must submit a request in writing for an informal hearing on the proposed sanction(s) within 5 days of receipt of the chairperson's recommendation.
(3) In such cases the dean or his/her designee shall meet with the student, the chair and/or instructor, and apprise the student of the sanction(s).
3. Notification
The department chair shall send written verification of the sanction(s) to the student. Such notification will normally be sent within five days of the meeting with the instructor and the student.
4. Appeal

The student may appeal the severity of the sanction or failure to follow prescribed procedure, pursuant to IV.C.8. A student may not appeal the question of guilt.

C. Formal Disciplinary Procedures

1. Initiation of a Complaint

Any member of the University community may initiate disciplinary proceedings by filing a complaint within twenty days of discovery of an alleged violation of the Student Conduct Code.

a. The complaint must be made in writing with all available evidence attached.
b. The complaint shall be filed with the departmental chair of the unit in which the violation is alleged to have occurred.
c. The complaint may include a recommendation concerning the appropriate sanction(s) to be imposed if, following formal adjudication, the student is found in violation of the Code.
d. In any case initiated by an instructor, the complaint shall state whether or not the instructor will assign a failing grade for the work and/or course if, following formal adjudication, the student is found in violation of the Code in the manner alleged in the complaint. In any such case the instructor shall assign an "Incomplete" in lieu of a letter grade pending adjudication and final resolution of the complaint.

2. Formal Charges

The department chair shall review the complaint and, within ten days, determine whether there are grounds to believe a violation may have occured.

a. If there are sufficient grounds to believe a violation may have occurred, within five days of such determination the chair shall notify the student in writing of the violation with which the student is charged. A copy of the charges shall be submitted to the appropriate academic dean.
b. If there are no grounds for disciplinary charges the complainant shall be notified. If the complainant wishes to proceed with a disciplinary charge, a written request must be submitted to the appropriate academic dean within ten days of the receipt of the notification. The dean shall review the request, the complaint, and the department chair decision and decide whether to allow the complainant to pursue formal charges of the alleged violation set forth in the complaint.

3. Formal adjudication

In cases of alleged academic dishonesty where guilt is disputed by the student, the case will be adjudicated at the dean's level with a formal hearing. The dean shall notify the student in writing regarding the date, time, and place of the hearing. The notification will be considered to have been delivered if the notice is sent to the current local address of the student as provided to Admissions and Records by the student. Thus, failure to notify the University of changes of address could result in a hearing being held *in absentia*.

a. The student has the right to:
   (1) Be apprised of all evidence.
   (2) Hear and question available witnesses. Sworn statements will be accepted from those persons unable to attend the hearing.
   (3) Not be compelled to offer evidence which may be self-incriminating.

(4) Receive a written decision specifying judicial actions.
(5) Appeal the decision, pursuant to IV.C.8.

b. The student has the option to have:
(1) Advisory assistance. The responsibility for selecting an advisor is placed on the charged student. The advisor may be any individual except a principal in the hearing. The advisor shall be limited to advising the student and shall not participate directly in the hearing.
(2) An open or closed hearing.
(3) Witnesses testify in his/her behalf. Sworn statements shall be accepted from those persons unable to attend the hearing. Character witnesses may be excluded by the hearing agent.

c. Hearing agent
The charged student may submit a preference for a hearing before a judicial board or the dean or his/her designee. The dean shall decide the hearing agent.

4. Judicial Hearing Agents
a. Judicial Board Directives
(1) Size
A judicial board shall be comprised of seven members. A quorum required to conduct a hearing shall be five members. A decision shall be reached by majority vote.
(2) Membership
(a) Student members shall meet the following standards:
(i) Full time as defined by the director of Admissions and Records.
(ii) Good disciplinary standing since matriculation.
(iii) Minimum grade point average of 2.5 (undergraduate); 3.0 (graduate); or professional student in good standing.

NOTE: Full time University employees who are enrolled in classes may not serve as student members. Graduate assistants and student workers in the department in which the incident occurred shall be excluded from judicial boards.

(b) Faculty members may include any person under faculty appointment, excluding administrators.
(c) All appointments shall be reviewed by Student Judicial Affairs to ensure that candidates meet the minimal requirements. A list of judicial board members may be obtained from Student Judicial Affairs.
(3) Judicial Board Operating Papers
Each Judicial Board may develop its own operating paper. Each operating paper shall be reviewed by Student Judicial Affairs to ensure consistency with the provisions of this Code.
(4) Administrative Advisors
Each judicial board shall have an administrative advisor from Student Judicial Affairs. The advisor's role shall be limited to providing guidance and clarification. The advisor shall sit with the panel in both open and executive sessions.
(5) Terms
Each judicial board shall be in session for twelve weeks during the fall and spring terms and for four weeks during

the summer term. A board is not expected to meet during the first two nor the last two weeks of a term. Disciplinary cases shall be adjudicated by an administrative hearing officer when a board is not in session or is defunct.

(6) Powers
A judicial board shall make a decision of guilt or innocence and shall make a recommendation on the sanction to the Dean.

b. Administrative Hearing Officer
The administrative hearing officer shall be the academic dean or that officer's designee.

5. Judicial Hearings
   a. Time limitations
      (1) A student electing formal adjudication shall have a minimum of five days written notice prior to a hearing.
      (2) A student shall have five days after receiving notification of the decision in which to submit an appeal.
   b. Failure to appear
      Initial jurisdiction hearings shall be held *in absentia* when the charged student fails to appear. An appeal shall be dismissed when the student fails to appear.
   c. Tape recordings
      All formal judicial hearings shall be tape recorded. After the appeal period has expired the tape may be erased.
   d. Challenge for cause
      A student may challenge panel members for cause. The decision to remove a panel member will be made by the other panel members.
   e. Peremptory challenge
      A student may challenge one panel member without assigning any cause. A peremptory challenge will be automatically honored by the chair of the panel.
   f. Confidentiality
      All evidence, facts, comments, and discussion at a closed hearing and all executive sessions shall be held in strict confidence. Failure to maintain confidentiality may result in removal of judicial board members by the dean.
6. Sanctions
   A student's disciplinary history shall have no bearing on the question of guilt or innocence. If, however, a student is found to be in violation of the Code, the full disciplinary history shall be considered in determining the sanction. The academic dean shall request the student's disciplinary record from Student Judicial Affairs. The academic dean and the coordinator of Student Judicial Affairs shall develop lines of communication to keep each other apprised of a student's disciplinary history for this purpose. Sanctions which may be imposed are:
      (1) The student may be assigned a failing grade for the work and/or course.
      (2) The student may be placed on disciplinary probation.
      (3) The student may be suspended from the University.
      (4) Any combination of the above.
7. Notification
   The dean shall send written notification of the decision of the hearing and sanction(s) to the student. Such notifications will normally be sent within five days of the receipt of the judicial

board's recommendation or within five days of the administrative hearing.

8. Appeals
   Any disciplinary determination or sanction involving academic dishonesty may be appealed from the dean's level by submitting an application for appeal to the Vice Chancellor for Academic Affairs and Provost within five days after receiving notification of the prior decision. However, the right of appeal does not guarantee that an appeal will be granted nor does it entitle the student to a full rehearing of the case. An appeal hearing, if granted, will be limited to the issues set forth in subparagraph c. below.
   a. The student may submit a preference for an appeal hearing before a judicial board or an administrative hearing officer. The Vice Chancellor for Academic Affairs and Provost shall decide the hearing agent.
   b. The burden of proof at the initial jurisdiction level is on the University. At the appeal level, however, the student bears the burden of demonstrating error as defined in the following item.
   c. Three issues constitute possible grounds for an appeal:
      (1) Were judicial procedures correctly followed?
      (2) Did the evidence justify a decision against the student?
      (3) Was the sanction(s) imposed in keeping with the gravity of the violation? Previous violation(s) of the Code and the accompanying sanction(s) will be considered in determining a proper sanction for a current violation.
   d. The appropriate committee of the judicial board or the administrative hearing officer will review the appeal to ascertain whether there are sufficient grounds for a hearing.
   e. If an appeal hearing is granted the agent hearing the appeal will not rehear the case. The agent will limit its review to the specific points of the appeal that were accepted at the screening review.
   f. The agent hearing the appeal may:
      (1) Affirm the decision(s) of the initial jurisdiction.
      (2) Affirm the decision(s) and reduce the sanction.
      (3) Modify the decision(s) of violation and reduce the sanction.
      (4) Reverse the decision(s) of violation, remove the sanction, and dismiss the case.
   g. A student dissatisfied with the decision on appeal may seek review by the chancellor by submitting such a request in writing within five days after receiving notification of the prior decision. Review by the chancellor shall also be limited to the issues specified in subparagraph c. above.
   h. Further appeal may be made to the Board of Trustees by filing an application for appeal in accordance with Article VI Section 2 of the *Bylaws*. The Board of Trustees will review only those administrative decisions which meet the requirements for review established by the Board's *Bylaws*.
9. Implementation of Sanction(s)
   a. The disciplinary sanction(s) shall be implemented when:
      (1) The student has waived or exhausted the right of appeal, or
      (2) The appeal period has expired.
   b. The sanction shall be as specified by the final adjudicating agent. However, when the sanction relates to the assignment

of a grade, the instructor has the responsibility of assigning the grade. In any case where an "incomplete" was assigned for a course pending adjudication of charges of academic dishonesty against the student, the instructor shall immediately change the "incomplete" to an appropriate letter grade.

c. A student separated from the University for disciplinary reasons is subject to the normal guidelines for tuition and fee refunds, grades, and financial penalties for terminating a housing contract.

d. Following the implementation of the sanction, all records relating to the case will be filed with Student Judicial Affairs

10. Exceptions
The above procedures shall be followed unless an exception is authorized in writing by the Vice Chancellor for Academic Affairs and Provost. All requests for temporary exceptions shall be submitted in writing to the Vice Chancellor. Any exception allowed shall be limited to individual cases and shall not infringe upon a student's right to written notice, opportunity for a hearing, and an appeal.

V. Policies and Procedures Applicable to Social Misconduct

A. Judicial Structure

1. Unit Level
A case may be resolved informally by a University official in a department/office as authorized by the coordinator of Student Judicial Affairs pursuant to V.B.1. All cases in which guilt is disputed shall be referred to Student Judicial Affairs.

2. Campus Level
The Campus Judicial Board for Discipline and/or the coordinator of Student Judicial Affairs has initial jurisdiction over social misconduct not handled by other offices. The campus level also shall hear appeals from the unit level.

3. Chancellorial Level
This level has jurisdiction to hear appeals.

B. Informal Disciplinary Procedures

1. Informal Hearing
In cases where the student accepts responsibility for the social misconduct the matter may be adjudicated at the department/office level. An informal discussion between the University official and the student shall be held. If the student accepts responsibility for the charge(s) the University official shall recommend a sanction to the coordinator of Student Judicial Affairs.

2. Sanctions
The full disciplinary history of the student shall be considered in determining the sanction. The University official may recommend to the coordinator of Student Judicial Affairs any of the following sanctions:

a. Disciplinary reprimand
b. Disciplinary censure
c. Disciplinary probation
d. Disciplinary suspension
e. Indefinite suspension
f. Interim suspension

3. Notification
The coordinator of Student Judicial Affairs shall send written

verification of the sanction to the student within five days of the receipt of the recommendation.

4. Appeals
   A student may appeal the severity of the sanction pursuant to V. C. 9 of this Code on the grounds of unreasonable severity or of failure to follow prescribed procedure. A student may not appeal the question of guilt.

C. Formal Disciplinary Procedures
   1. Initiation of a Complaint
      a. Any member of the University community may initiate disciplinary proceedings by filing a complaint with the coordinator of Student Judicial Affairs within twenty days of the discovery of an alleged violation of the Student Conduct Code. The complaint must be in writing with all available evidence attached.
      b. The coordinator of Student Judicial Affairs shall make a preliminary review of the complaint. If there are no grounds for disciplinary charges or if the complaint should be processed under another policy the complainant shall be notified. If the complainant wishes to proceed with a disciplinary charge a written request must be submitted to the director of Student Development within ten days of the receipt of the notification. The director shall review the request, the complaint, and the coordinator of Student Judicial Affairs decision and decide whether to pursue formal charges.
   2. Formal Charges
      In cases of alleged social misconduct when guilt is disputed by the student, the case will be adjudicated at the appropriate level with a formal hearing. The coordinator of Student Judicial Affairs shall notify the student in writing regarding the charge(s) as well as the date, time, and place of the hearing. The notification will be considered to have been delivered if the notice is sent to the current local address of the student provided to Admissions and Records by the student. Thus, failure to notify the University of changes of address could result in a hearing being held *in absentia.*
   3. Fact-Finding Conference
      The coordinator of Student Judicial Affairs shall conduct a fact-finding conference which shall include the charged student and may include the complainant and/or witnesses. Matters to be examined at the fact-finding conference are:
      a. The charge(s) filed against the student.
      b. The evidence against the student.
      c. The witnesses, if any, that shall testify.
      d. The provisions of the Student Conduct Code.
      e. Whether to continue disciplinary procedures.
      f. The student may elect to acknowledge the violation(s) at the fact-finding conference and have a decision made on the sanction by the coordinator of Student Judicial Affairs at the fact-finding conference. If this option is chosen the student may appeal only the severity of the sanction.
      g. The student may elect to have a formal hearing scheduled in the future.
      h. If the student fails to make an appointment or keep a scheduled appointment for a fact-finding conference, the case may

automatically be referred to the appropriate hearing agent for a hearing.

4. Formal Adjudication
   a. The student has the right to:
      (1) Be apprised of all evidence.
      (2) Hear and question available witnesses. Sworn statements will be accepted from those persons unable to attend the hearing.
      (3) Not be compelled to offer evidence which may be self-incriminating.
      (4) Receive a written decision specifying judicial actions.
      (5) Appeal the decision, pursuant to V.C.9.
   b. The student has the option to have:
      (1) Advisory assistance. The responsibility for selecting an advisor is placed on the charged student. The advisor may be any individual except a principal in the hearing. The advisor shall be limited to advising the student and shall not participate directly in the hearing.
      (2) An open or closed hearing.
      (3) Witnesses testify in his/her behalf. Sworn statements shall be accepted from those persons unable to attend the hearing. Character witnesses shall be excluded.
   c. Hearing agent
      The charged student may submit a preference for a hearing before a judicial board or an administrative hearing officer. The appropriate University official may decide the hearing agent.
5. Judicial Hearing Agents
   a. Judicial Board Directives
      (1) Size. A judicial board shall be comprised of seven members. A quorum required to conduct a hearing shall be five members. A decision shall be reached by majority vote.
      (2) Membership
         (a) Student members shall meet the following standards:
            (i) Full time as defined by the director of Admissions and Records.
            (ii) Good disciplinary standing since matriculation.
            (iii) Minimum grade point average of 2.5 (undergraduate); 3.0 (graduate); or professional student in good standing.

         NOTE: Full time University employees who are enrolled in classes may not serve as student members.

         (b) Faculty members may include any person under faculty appointment, excluding administrators.
         (c) All appointments shall be reviewed by Student Judicial Affairst to ensure that candidates meet the minimal requirements. A list of judicial board members may be obtained from Student Judicial Affairs.
      (3) Judicial Board Operating Papers
      Each Board may develop its own operating paper. Each operating paper shall be reviewed by Student Judicial Affairs to ensure consistency with the provisions of this Code.
      (4) Administrative Advisors
      Each judicial board shall have an administrative advisor from Student Judicial Affairs. The advisor's role shall be

limited to providing guidance and clarification. The advisor shall sit with the panel in both open and executive sessions.

(5) Terms
Each judicial board shall be in session for twelve weeks during the fall and spring terms and for four weeks during the summer term. A board is not expected to meet during the first two nor the last two weeks of a term. Disciplinary cases shall be adjudicated by an administrative hearing officer when a board is not in session or is defunct.

(6) Powers
A judicial board shall make a decision of guilt or innocence and shall make a recommendation on the sanction to the appropriate administrator.

b. Administrative Hearing Officer
An administrative hearing officer appointed by the coordinator of Student Judicial Affairs shall be available at all levels to adjudicate disciplinary cases.

6. Judicial Hearings
   a. Time Limitations
      (1) A student electing formal adjudication shall have a minimum of five days written notice prior to a hearing.
      (2) A student shall have five days after receiving notification of the decision in which to submit an appeal.
   b. Failure to appear
      Initial jurisdiction hearing shall be held *in absentia* when the charged student fails to appear. An appeal shall be dismissed when the student fails to appear.
   c. Tape recordings
      All formal judicial hearings shall be tape recorded. After the appeal period has expired the tape may be erased.
   d. Challenge for cause
      A student may challenge panel members for cause. The decision to remove a panel member will be made by the other panel members.
   e. Peremptory challenge
      A student may challenge one panel member without assigning any cause. A peremptory challenge will be automatically honored by the chair of the panel.
   f. Confidentiality
      All evidence, facts, comments, and discussion at a closed hearing and all executive sessions shall be held in strict confidence. Failure to maintain confidentiality may result in administrative removal of judicial board members by the coordinator of Student Judicial Affairs.
7. Sanctions
   A student's disciplinary history shall have no bearing on the question of guilt or innocence. If, however, a student is found to be in violation of the Code, the full disciplinary history shall be considered in determining the sanction. The coordinator of Student Judicial Affairs shall request the student's disciplinary records from the academic dean. The academic dean and the director of Student Development shall develop lines of communication to keep each other apprised of the student's disciplinary history for this purpose.
   Sanctions which may be imposed are:

a. Disciplinary reprimand
b. Disciplinary censure
c. Disciplinary probation
d. Disciplinary suspension
e. Indefinite suspension
f. Interim separation

8. Notification
The coordinator of Student Judicial Affairs shall send written notification of the decision of the hearing and sanction(s) to the student. Such notification will normally be sent within five days of receipt of the judicial board's recommendation or within five days of the administrative hearing.

9. Appeals
Any disciplinary determination or sanction involving social misconduct may be appealed to the next level in the judicial structure by submitting an application for appeal in writing to the director of Student Development or the Vice Chancellor for Student Affairs, as appropriate, within five days after receiving notification of the prior decision. However, the right of appeal does not guarantee that an appeal will be granted nor does it entitle the student to a full rehearing of the case. An appeal, if granted, will be limited to the issues set forth in subparagraph c. below.
   a. The student may submit a preference for an appeal hearing before a judicial board or an administrative hearing officer. The appropriate university official shall decide the hearing agent.
   b. The burden of proof at the initial jurisdiction level is on the University. At the appeal level, however, the student bears the burden of demonstrating error as defined in the following item.
   c. Three issues constitute possible grounds for an appeal:
      (1) Were judicial procedures correctly followed?
      (2) Did the evidence justify a decision against the student?
      (3) Was the sanction(s) imposed in keeping with the gravity of the violation? Previous violation(s) of the Code and the accompanying sanction(s) will be considered in determining a proper sanction for a current violation.
   d. The appropriate committee of the judicial board or the administrative hearing officer will review the appeal to ascertain whether there are sufficient grounds for a hearing.
   e. If an appeal hearing is granted the agent hearing the appeal will not rehear the case. The agent will limit its review to the specific points of the appeal that were accepted at the screening review.
   f. The agent hearing the appeal may:
      (1) Affirm the decision(s) of the initial jurisdiction.
      (2) Affirm the decision(s) and reduce the sanction.
      (3) Modify the decision(s) of the violation and reduce the sanction.
      (4) Reverse the decision(s) of violation, and remove the sanction, and dismiss the case.
   g. A student dissatisfied with the decision of the Vice Chancellor for Student Affairs may seek review by the Chancellor by submitting such a request in writing within five days after receiving notification of the prior decision. Review by the Chan-

cellor shall also be limited to the issues specified in subparagraph c. above.

h. Further appeal may be made to the Board of Trustees by filing an application for appeal in accordance with article VI section 2 of the Board *Bylaws*. The Board of Trustees will review only those administrative decisions which meet the requirements for review established by the Board's *Bylaws*.

10. Implementation of Sanction(s)
    a. The disciplinary sanction(s) shall be implemented when:
       (1) The student has waived the right of appeal, or
       (2) The appeal period has expired.
    b. The sanction shall be as specified by the final adjudicating agent.
    c. A student separated from the University for disciplinary reasons is subject to the normal guidelines for tuition and fee refunds, grades, and financial penalties for terminating a housing contract.
    d. Any type of disciplinary separation from the University may be accompanied by a condition which bars the student from University property.
11. Exceptions
    The above procedures shall be followed unless an exception is authorized in writing by the coordinator of Student Judicial Affairs. All requests for temporary exceptions shall be submitted in writing to the coordinator of Student Judicial Affairs. Any exception allowed shall be limited to individual cases and shall not infringe upon a student's right to written notice, opportunity for a hearing, and an appeal.

VI. Amending Procedures

A. Review and/or Revisions
At the request of any recognized constituency, the Vice Chancellor for Academic Affairs and Provost, or the Vice Chancellor for Student Affairs, the Chancellor or his/her designee shall appoint a committee to consider amendments to this Code. The committee shall consist of two undergraduate students, one graduate student, two faculty members, one academic dean, one representative from the University Housing Office, one representative from Student Judicial Affairs, and an ex officio representative from University Legal Counsel. The student and faculty members shall be designated by their appropriate constituencies. The Vice Chancellor for Student Affairs shall appoint a chair for the committee who may be one of the members listed above.

B. Amendments
The Chancellor may propose to the President amendments to the Code. Whenever the circumstances allow, due consideration shall be given to the recommendations of the committee provided for in the preceding paragraph. Amendment will be accomplished by the regular procedures for amendment of University policy.

C. Notification
Any amendment of the Code shall become effective only after general notice of such change has been given to the student body, faculty, and administrative staff. General notice shall include, but not be limited to, public notification of approved amendments twice successfully published in the *Daily Egyptian* in their entirety within seven days after approval of said amendments by the President.

Academic Grievances Policy/Procedures

Graduate Student Academic Grievance Policy

Graduate students at SIUC shall have the right to appeal for redress of grievance through established channels under the conditions stated below. Access to these channels is restricted to complaints by graduate students alleging that some member of the university community has caused the student to suffer some specific harm related to a matter within the authority of the dean of the Graduate School. Grievances which have been brought to a hearing under another campus grievance procedure shall not be brought to a hearing under this procedure.[1]

With respect to students' complaints alleging capricious grading, the following guidelines shall apply: Instructors are expected to evaluate student work according to sound academic standards. Equal demands should be required of all students in a class, and grades should be assigned without departing substantially from announced procedures. It is the instructor's prerogative to assign grades in accordance with his/her academic/professional judgment, and the student assumes the burden of proof in the appeals process. Grounds for appeals include: (1) the application of non-academic criteria in the grading process, as listed in the University's non-discrimination and affirmative action statements: race, color, sex, national origin, religion, age, sexual orientation, marital status, or handicap; (2) the assignment of a course grade by criteria not directly reflective of performance relative to course requirements; (3) the assignment of a course grade by standards different from those which were applied by the instructor to other students in the course.

Graduate Student Academic Grievance Procedure

A graduate student seeking redress through grievance must first attempt to resolve the matter informally by contacting the party against whom redress is sought (respondent). If the dispute is not resolved at this stage, the student should contact the respondent's departmental chair or another appropriate mediator, such as the university ombudsman, who will attempt to resolve the dispute.

In the event that the dispute is not resolved informally, a graduate student may ask for and receive a hearing before a departmental academic grievance committee. [Such a grievance will be governed by the procedures established by the academic unit in which the complaint arose. In the event an academic unit has not established such procedures, the procedures outlined below shall govern the grievance.]

Departmental Grievance Procedure

Filing a Grievance

A graduate student desiring a hearing before a grievance committee of an academic department must submit a written request to the chair of the department no later than 30 calendar days[2] after the beginning of the semester following the incident in question, excluding summer term. A student may request an exten-

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[1]Cases involving academic dishonesty will be handled according to the Student Conduct Code. Separate grievance procedures exist for cases covered by the University Policy on Sexual Harassment, the Policy Accommodating Religious Observances of Students, the Policy on the Release of Student Information and Access to Student Records at Southern Illinois University, the Policy on Immunization of Enrolled Students, the Policy on the Determination of Residency Status, and the University's response to comply with *Americans with Disabilities Act.* These procedures are published in the *Undergraduate Catalog*. Graduate students employed as student workers are covered by a student worker grievance procedure, which is administered by the Financial Aid Office.

[2]Hereafter, "day" refers to calendar day, unless defined otherwise.

sion of the deadline in writing by petitioning the department chair. In the event that informal proceedings are continuing toward resolution, such a request shall normally be granted.

The request for a hearing must state the following:

1. Name of the grievant.
2. Program in which the grievant is enrolled.
3. Name of the grievant's major adviser.
4. Name and title of the person(s) against whom the grievance is being filed.
5. Current address and phone number of the grievant.
6. Statement of the grievance including descriptions of the incident(s) involved, date(s) of occurrence, what remedy is being sought, as well as any supporting documents.

Department Action on Grievance

Upon receiving a written request for a hearing regarding an academic grievance, the department chair shall send the respondent a copy of the grievance, who will provide the chair with a written response within a reasonable time as stipulated by the chair. The chair shall then forward the grievance and response to the department graduate student grievance committee.[3]

The department chair shall notify the parties of the identity of the individuals who have been selected to serve on the grievance committee. The participation of any committee member may be challenged for cause. If the department chair determines that the challenge is valid, she/he shall name a substitute.

The committee chair shall request of both parties copies of any documents and a list of witnesses they wish to introduce. These should be submitted without delay. The committee chair shall convene a hearing within 20 days of receipt of the substantiating documents. These documents shall be available to both parties at least five days prior to the hearing.

The hearing shall be conducted by the committee according to the hearing procedures which are outlined in the Appendix.

In the absence of compelling circumstance, the committee shall make its recommendation on the grievance to the department chair within 10 working days after the conclusion of the hearing.

The department chair shall decide to accept or reject the committee's recommendations and render a decision on the grievance promptly. The decision and the reasons for it shall be submitted to the parties, the committee members, and the collegiate dean at the same time.

The department chair shall advise the parties of their right to appeal to the dean of the Graduate School. Hearings of appeals will not be automatically granted. Dissatisfaction with the decision shall not be sufficient grounds for appeal. The appellant must demonstrate that the decision at the department level was in error.

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[3]Department Graduate Student Grievance Committee: A department graduate student grievance committee will be advisory to the department chair and will submit its findings to the department chair. The committee shall consist of three members. The department chair may designate an existing department committee to serve in such a capacity (subject to the qualifications listed herein), or may appoint an ad-hoc graduate student grievance committee. The members of the committee shall be appointed wherever possible from the department/unit in the college in which the grievance arose. Of those three members, two shall be appointed from the senior graduate faculty and one shall be appointed from the graduate student body upon consultation with the leadership of the department graduate student organization. A department graduate student grievance committee shall meet and elect its chair from among its graduate faculty membership. Any faculty member involved in the dispute shall not be appointed to the grievance committee.

Appeals of Department Decisions to the Graduate School

FILING AN APPEAL

If a graduate student wishes to appeal a decision of the department she/he must file a written appeal with the dean of the Graduate School within 30 calendar days of receipt of the department decision. The appeal must state the following:

1. Name of the appellant.
2. Program in which the appellant is enrolled.
3. Name of the appellant's major adviser.
4. Name and title of the person(s) against whom the original grievance was filed.
5. Current address and phone number of the appellant.
6. Copies of the original statement of grievance, the response by the person against whom it was filed, supporting documents, as well as a statement of what remedy is being sought.
7. Summary of grievance proceedings held at the department level and the decision(s) rendered at that time.
8. Statement of why the previous decision may be in error.

The dean will promptly forward the material to the coordinator of the Student Appeals Committee of the Graduate School (SAC)[4]. The SAC coordinator will solicit a reply to the appeal from the respondent. The coordinator will then promptly forward all materials to the committee members and will convene the committee at the earliest opportunity. The committee will decide by simple majority whether or not a hearing should be held. If a hearing is not granted, the coordinator shall forward all materials to the dean of the Graduate School and inform both parties of the reasons for the denial. If a hearing is granted the SAC coordinator shall request from the Graduate Council a list of graduate faculty members and from the Graduate and Professional Student Council a list of graduate students available to serve as hearing panel members. These persons may not be members of the same college as the parties to the grievance. The coordinator shall appoint a panel of three graduate faculty members and two graduate students and so notify the parties to the grievance. Panel members may be challenged for cause and, if the coordinator determines the challenge to be valid, she/he will name substitute(s) from the lists. The panel selects its own chair.

Procedures of the Student Grievance Committee of the Graduate School

Upon formation of the hearing panel, the SAC coordinator shall forward all materials to the hearing panel chair. The chair shall convene a hearing within 30 days.

The hearing shall be conducted by the hearing panel according to the procedures listed in the Appendix, with the exception that new evidence and testimony may be introduced only at the discretion of the panel. The hearing at this level will be limited to the bases of the appeal itself. New evidence will not normally be permissible.

The committee shall make its recommendation on the appeal to the dean within 10 working days after the conclusion of the hearing. The dean of the Graduate School shall decide to accept or reject the committee's recommendations and render a decision on the grievance promptly. The decision and the reasons for it shall be submitted to the parties, the hearing panel members, and the department chair.

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[4]Student Appeals Committee of the Graduate School: The Educational Policies Committee of the Graduate School shall elect annually from its membership the Coordinator of the SAC who will select three members of the Graduate Council (two faculty members, one student) to form a SAC as needed.

All records of the appeal and hearing shall be deposited with the Graduate School upon completion of the hearing panel's work.

Appendix A

HEARING PROCEDURES

1. The principal parties to the grievance shall have the right to be accompanied by an adviser of their choice. The advisers may speak on behalf of their clients only with the approval of the committee.
2. All hearings shall be open unless either of the parties requests that the hearings be closed. If the hearing is closed, only the parties, their adviser, and the committee shall be present during the taking of evidence. Witnesses for either party shall be present only while giving testimony if the hearing is closed.
3. All hearings shall be tape recorded. The tape recording will be deposited in the office of the department chair at the conclusion of the hearing.
4. Each party may call witnesses to present evidence. Each party shall have the right to examine any witness called by the opposing party. If a witness is unable to appear the committee may allow written statements. If the presence of a witness is required to ensure fairness to all parties, the hearing may be continued until such witness is physically able to attend the hearing.
5. The committee will decide all matters, procedural and substantive, by simple majority vote.
6. Each party may make an opening and a closing statement.
7. Decisions by the panel will be based on a preponderance of the evidence.

Graduate School Procedures for Charges of Academic Dishonesty Leading to Possible Rescission of Degree

INTRODUCTION

Charges against a former student relating to acts of academic dishonesty in the submission of graduate degree requirements shall be handled to the extent feasible under the SIUC Student Conduct Code procedures applicable to charges relating to academic dishonesty. The dean of the Graduate School has the responsibility for the formal resolution of charges involving academic dishonesty in Graduate School programs. Since the Student Conduct Code procedures are not in all respects applicable to charges involving an individual no longer enrolled in the University, the following supplemental procedures will be followed for adjudicating such charges.

NOTIFICATION OF CHARGES

Charges against a former student involving allegations of academic dishonesty in the completion of graduate degree requirements shall be initiated by the dean of the Graduate School by letter to the individual, sent certified mail/return receipt requested, stating the specific charges, and the date, time, and place for the hearing, and enclosing a copy of the Student Conduct Code and these procedures. The charge letter shall be mailed no less than 20 business days in advance of the date of the the hearing.

HEARING AGENT

Charges shall be heard by a five-member hearing committee, the members of which shall be appointed from those colleges/schools having graduate programs. Of the five members, three shall be appointed from the graduate faculty and two shall be appointed from the graduate student body. The dean will seek nominations for a committee hearing a case from the Graduate and Professional Student Council for the graduate student members, and from the Graduate Council for the graduate faculty members. The committee will be demographically repre-

sentative of the University insofar as possible. The academic unit from which the charge arose will not have a member appointed to the hearing committee. Once a hearing committee is constituted it shall meet and elect its own chair from among its graduate faculty membership. The individual charged shall have the right to challenge membership of the hearing committee as provided in the Student Conduct Code.

HEARING PROCEDURES

Hearings shall be conducted in accordance with the formal disciplinary procedures set forth in the Student Conduct Code. In addition, the following procedures shall govern the conduct of the hearing.

1. The individual charged shall have the right to be accompanied by an adviser of his/her choice. An adviser will be permitted to advise the individual in the hearing, and to speak on behalf of the individual and cross-examine witnesses with the consent of the hearing committee.
2. The dean of the Graduate School and the individual charged shall provide to the hearing committee a list of witnesses to be called and copies of any documents which they seek to introduce into evidence at the hearing. The committee chair will furnish copies of these to the other party. Such witness list and documents shall be provided to the hearing committee not less than 10 business days prior to the date scheduled for the hearing, and to the parties not less than 5 business days before the date of the scheduled hearing.
3. All hearings shall be closed unless the individual charged requests that it be open. If the hearing is closed, only the parties, their adviser, and the committee members shall be present during the taking of evidence. Witnesses for either party shall be present only while giving testimony.
4. All hearings shall be tape-recorded. The tape-recording will be submitted along with the entire case record and the committee's findings and recommendations to the dean of the Graduate School following conclusion of the hearing.
5. Each party may make an opening statement before the presentation of any evidence and a closing argument following the conclusion of all evidence.
6. The charges against the individual and witnesses testifying in support thereof shall be presented first. The individual charged shall have the right to respond to the charges and present witnesses and evidence in his/her own behalf.
7. Each party shall have the right to ask questions of any witness called by the other party. Members of the committee may also question witnesses.
8. Written statements in lieu of personal testimony may be used only with permission of the committee and only in the event a witness is physically unable to attend the hearing. The opposing party shall be given notice at least three days prior to the commencement of the hearing of the fact that an individual will not be physically present to give testimony and so that objection may be made to the use of written statements. If the committee determines that the actual presence of the witness is required to insure fairness to all parties, the hearing may be continued until such witness is physically able to attend the hearing.
9. The hearing committee will decide all matters, procedural and substantive, by simple majority vote.
10. In the absence of compelling circumstances, the committee shall make findings and recommendations on the charges to the dean of the Graduate School within 15 business days after the conclusion of the hearing. The dean of the Graduate School shall render a decision, absent compelling circumstances, within ten business days after receipt of the committee's findings and recommendations. The decision and the reasons therefore shall be

submitted to the individual charged by certified mail, return receipt requested, and to the committee chair. If the dean determines that additional evidence is necessary to decide the matter(s), the dean may remand the matter to the committee for the taking of further evidence, and in doing so, may limit the issues on which additional evidence may be taken. When a matter is remanded to the committee, the committee shall follow the procedures set forth above.

SANCTIONS

Sanctions which may be imposed include the completion of any additional academic requirements deemed necessary for continued holding of the degree, or, if it is found that the degree was improperly awarded because of academic dishonesty on the part of the former student in the submission of degree requirements, a recommendation that the degree be rescinded. A recommendation that a degree be rescinded will be made to the chancellor through the vice chancellor for Academic Affairs and Provost, and will require final action by the Board of Trustees of Southern Illinois University.

APPEAL

If the individual is not satisfied with the decision of the dean, a written argument stating the reasons for such dissatisfaction may be submitted to the vice president for Academic Affairs and provost within ten business days after the date that delivery of the decision was tendered by the U.S. Postal Service to the individual. Such written argument shall be attached to the dean's decision and remain therewith throughout the remainder of the process.

Retention

Any graduate student whose grade point average falls below 3.00 will be placed on academic probation. Faculty of a degree program-unit may determine its own grade point average requirements (above the grade point minimum for retention in their particular program.) All 400-and 500-level courses taken after a student is admitted to the Graduate School are considered graduate level, unless the course is specifically designated, Not for graduate credit, for all students. Grade point averages for doctoral students are based on graduate credit work completed at SIUC after admission to the doctoral program. Grade point averages for master's degree students and unclassified graduate students are based on all graduate credit work completed at SIUC.

Any graduate student on academic probation whose grade point average remains below 3.0 for two consecutive semesters in which she or he is enrolled, excluding summer sessions, will be permanently suspended from the Graduate School, unless the department and the collegiate dean petition the graduate dean for an exception.

Graduation

Graduation ceremonies are held each year at the end of the spring semester and the summer session. Degree candidates must apply for graduation with the Office of Admissions and Records by no later than the end of the first week of the spring semester or summer session in which the student plans to graduate. Candidates who plan to complete requirements at the end of the fall semester will have an extended application time. Please contact the Graduate School for deadline dates. Although there is no ceremony at that time, degree candidates

who complete requirements will be issued a December diploma and will have the option of participating in the May graduation ceremony.

Graduation application forms are available in the Office of Admissions and Records and may be obtained by mail by writing that office.

A $15 graduation fee is established for all persons receiving degrees. The fee is payable at the time of application or the fee will be charged to the student's account. The fee does not cover the rental fee for the cap, gown, and hood, or the cost of the invitations. These items are ordered through the University Book Store in the Student Center and questions regarding them should be referred to the University Book Store. Doctoral students are also required to pay a fee of $60.00 to cover the cost of publication of the abstract and microfilming of the dissertation.

Final, approved copies of research reports, theses, field studies, special project reports, and dissertations are due in the Graduate School office not later than three weeks before graduation. Doctoral students must also submit the microfilming agreement form and the survey form of earned doctorates at the time the dissertation is submitted.

Although attendance at commencement is not compulsory, students who wish to graduate in absentia must notify the Graduate School in advance. This information is needed for seating arrangements and for mailing purposes.

Posthumous Degrees

A graduate degree may be awarded posthumously if, before the student's death, work for the degree had substantially been completed. This determination shall be the responsibility of the graduate dean in consultation with the administrative officers and faculty of the degree program in which the student had been enrolled.

Release of Student Information and Issuance of Transcripts

The University follows a policy for release of student information in compliance with federal regulations. More specific information may be obtained from the Office of Admissions and Records or from the Graduate School.

A transcript of the student's official educational record is issued by the Office of Admissions and Records under the following conditions: a transcript is sent, issued, or released only upon a student's request or explicit permission, except that such permission is not required when the University faculty and administrative officials or other educational institutions request transcripts for official purposes.

In addition, requests will be honored from a philanthropic organization financially supporting a student and from a recognized research organization conducting educational research provided the confidentiality of the transcript is protected. One transcript will be issued directly to a student upon request. The transcript will have the statement, *Issued to the Student,* stamped on its face. Transcripts will be sent without charge to recipients other than the student as requested by the student. A transcript will not be sent, issued, or released if a student owes money to the University as verified by the Bursar's office.

University Policy Concerning Sexual Harassment

Southern Illinois University at Carbondale is committed to creating and maintaining a community in which students, faculty, and staff can work together in

an atmosphere free of all forms of harassment, exploitation, or intimidation. Sexual harassment, like harassment on the basis of race or religion, is a form of discrimination expressly prohibited by law. It is a violation of Title VII of the federal Civil Rights Act of 1964 and Title IX of the Educational Amendments of 1972 and a civil rights violation of the Illinois Human Rights Act.

In addition to being illegal, sexual harassment runs counter to the objectives of the University. When people feel coerced, threatened, intimidated, or otherwise pressured by others into granting sexual favors, or are singled out for derision or abuse because of their gender, their academic and work performance is liable to suffer. Such actions violate the dignity of the individual and the integrity of the University as an institution of learning. Academic freedom can exist only when every person is free to pursue ideas in a non-threatening, non-coercive atmosphere of mutual respect. Sexual harassment is harmful not only to the persons involved but also to the entire University community.

The University will take whatever action is needed to prevent, stop, correct, or discipline behavior that violates this policy. Disciplinary action may include, but is not limited to, oral or written warnings, demotion, transfer, suspension, or dismissal for cause.

Definitions and Examples

Sexual harassment is defined as unwelcome sexual advances, requests for sexual favors, verbal or other expressive behaviors, or physical conduct commonly understood to be of a sexual nature, when:

a. submission to, or toleration of, such conduct on or off campus is made, either explicitly or implicitly, a term or condition of instruction, employment, or participation in other University activities;
b. submission to, or rejection of, such conduct is used as a basis for employment or for academic decisions or assessments affecting the individual's status as an employee or student; or
c. such conduct has the purpose or effect of unreasonably interfering with an individual's status as a student or employee or creates an intimidating, hostile, or offensive work or educational environment.

Sexual harassment may involve the behavior of a person of either sex toward a person of the opposite or the same sex. Examples of behavior that would be considered sexual harassment include, but are not limited to, the following:

a. physical assault;
b. direct or implied threats that submission to sexual advances will be a condition of employment, work status, promotion, grades, or letters of recommendation;
c. a pattern of conduct, annoying or humiliating in a sexual way, that includes comments of a sexual nature and/or sexually explicit statements, questions, jokes, or anecdotes;
d. a pattern of conduct that would annoy or humiliate a reasonable person at whom the conduct was obviously directed. Such conduct includes, but is not limited to gestures, facial expressions, speech, or physical contact understood to be sexual in nature or which is repeated after the individual signifies that the conduct is perceived to be offensively sexual.

Consenting Relationships

Consenting romantic and/or sexual relationships between a faculty member and a student or under the faculty member's academic supervision, or between a supervisor and an employee are inappropriate and unprofessional behavior and should not occur. Taking note of the respect and trust accorded a professor by a student and of the power exercised by the professor, a relationship between a faculty member and a student should be considered one of professional and client, in which sexual relationships are inappropriate. A similar relationship

exists between a supervisor and an employee. The power differential inherent in such relationships may compromise the subordinate's free choice. Others may view such a relationship as one of preferential treatment and detrimental to themselves or others. A faculty member or supervisor who enters into a sexual relationship with a student or an employee, where a professional power differential obviously exists, must realize that if a charge of sexual harassment is subsequently lodged, the burden will be on the faculty member or supervisor to prove immunity on grounds of mutual consent.

Relationships between a graduate student and an undergraduate, when the graduate student has some supervisory responsibility for the undergraduate, belong in this category. Among other relationships included are those between a student or employee and administrator, coach, adviser, program director, counselor, or residential staff member who has supervisory responsibility for that student or employee.

Protection of the Complainant and Others

No student, faculty member, or staff member may be subjected to any form of reprisal for seeking information on sexual harassment, filing a sexual harassment complaint, or serving as a witness in a proceeding involving a complaint of sexual harassment. Any retaliatory action will be a violation of this policy and will be grounds for disciplinary action. Individuals who believe they have been subjected to reprisal for their participation in a sexual harassment complaint may use the procedures of this policy to seek redress.

Protection of the Accused

Accusations of sexual harassment are grievous and can have serious and far-reaching effects on the careers and lives of accused individuals. Allegations of sexual harassment must be made in good faith and not out of malice. Individuals who believe they have been falsely accused of sexual harassment may use the procedures of this policy to seek redress.

Responsibility of Supervisors

Supervisory personnel are charged with maintaining an atmosphere that discourages sexual harassment and ensuring that the University policy is enforced in their areas. Supervisors are directed to discourage all behavior that might be considered sexual harassment and to respond promptly to sexual harassment complaints. University officials who knowingly condone incidents of sexual harassment or instances of reprisal for reporting such complaints will be subject to disciplinary action.

Role of Human Resources

The chancellor has assigned responsibility for the administration of this policy to the director of Human Resources who will disseminate the policy to the University community, devise education and training programs, maintain centralized records of sexual harassment complaints, oversee the grievance process, coordinate the resolution of complaints, and evaluate the effectiveness of the complaint resolution procedures and related educational programs.

External Agency Complaint Procedures:

A summary description of the legal recourse, investigative and complaint process available through the Illinois Department of Human Rights and the federal Equal Employment Opportunity Commission may be found in Appendix B. Additional information about the procedures of these agencies is available from Human Resources. Also, Appendix B may be obtained from Human Resources.

Campus Resources

The names of the sexual harassment information advisers are available from:
University Directory listed in the Office Directory section under Sexual Harassment Information Advisers
University Affirmative Action Office, Anthony Hall 104, 618-536-6618
University Ombudsman, Woody Hall C302, 618-453-2411
Human Resources, 805 S. Elizabeth St., 618-453-6689

For assistance in informal complaint resolution on campus, contact:
University Affirmative Action Office, Anthony Hall 104, 618-536-6618
University Ombudsman, Woody Hall C302, 618-453-2411

To file a complaint on campus, contact:
Director of Human Resources, 805 S. Elizabeth St., 618-453-6689
The supervisor of the individual you are complaining about.

Off Campus Resources

Department of Human Rights
222 S. College Street
Springfield, Illinois 62704
(217) 785-5100
T.D.D. (217) 785-5125

Human Rights Commission
William G. Stratton Office Bldg., 4th Fl.
Springfield, Illinois 62704
(217) 785-4350

State of Illinois Center
100 W. Randolph St., 5th Fl.
Chicago, Illinois 60601
(312) 814-6200
T.D.D. (312) 263-1579

State of Illinois Center
100 W Randolph St., 10th Floor
Chicago, Illinois 60601
(312) 814-6269

EEOC
Central West Plaza Building
625 Euclid Street, 4th Floor
St. Louis, Missouri 63108
(314) 425-6545

EEOC
536 S. Clark Street
Chicago, Illinois 60605
(312) 353-2713

Academic Resources

Library Affairs

The extensive holdings and wide array of bibliographic and instructional support services offered by SIUC's Morris Library place it among the foremost research institutions. The library is a longtime member of the Association of Research Libraries and also holds membership in the Center of Research Libraries in Chicago. It is an active participant in the world's largest bibliographic network, OCLC (Online Computer Library Center), and is a member of ILLINET Online (IO), the statewide automated catalog, circulation, and interlibrary loan system with records of over 600 libraries.

The library's general collection numbers 2.4 million volumes, 3.1 million microforms, and over 12,200 current serial subscriptions. Library users have access to nearly 900 electronic data files and CD-ROM products via multiple workstations located throughout the building. Up to date information about library services is available via the LINKS (Library Information NetworKS) component of the campus-wide computer network.

The library's many noteworthy holdings include: depository collections of federal, state, and United Nations documents; and an Instructional Materials Center which includes current and historical children's literature, textbooks, and

audiovisual teaching aids. Also part of Library Affairs is the Ulysses S. Grant Association's editorial project to publish the complete correspondence of President Grant.

Among the library's major administrative units, Reference Services and Collection Management comprises four subject divisions (Education and Psychology, Humanities, Science, and Social Studies), and the Undergraduate and Instructional Services unit which provides materials designed to meet the special needs of undergraduates, including a self-instruction center and reserve collection. The library also offers faculty members a host of instructional development, research, and evaluation services including multi-media training and development, as well as video materials and photographic and graphic production services. The Distance Learning initiatives for the southern Illinois area have their headquarters in Morris Library.

The Special Collections and Development unit consists of historical and literary manuscripts, the rare book collection, and the University Archives. Special Collections contains important research materials in American and British expatriate literature; twentieth century philosophy, including the papers of John Dewey and the archives of the Open Court press; the Irish literary renaissance, First Amendment freedoms, and proletariat theater. Among other library services, the Technical and Automation Service unit updates information in the online catalog and assists library users by providing access to, and identifying, borrowing, and delivering materials from other libraries. It is responsible for LINKS and all of the library's other electronic services.

Information Technology

Faculty and staff are encouraged to have desktop computers for their needs. To assist faculty and staff in the achievement of instruction, research, service, and administrative goals and objectives of the University, SIU's network infrastructure provides network-based information resources to desktops by Unix-based RISC servers, an IBM mainframe (ES/9021-500 with vector processor), and three public learning centers with instructional labs equipped with a variety of microcomputers. The network at SIUC currently includes over 25 buildings. The expansion of the fiber optic network to buildings on the SIUC campus is designed to provide for data transmission, compressed digital video, and full motion video, empowering faculty to enhance teaching with computer teaching with computer and video projection. The technology infrastructure, based primarily on support of the campus backbone network and its peripheral technologies, enables the creative delivery of instruction, research, and community service. The network connects work groups and departmental microcomputers or workstations for electronic interchange.

SIUnet, SIUC's communications network, with over 5,000 interactive devices, provides access to on and off campus computing resources as well as to regional and international resources through BITNET, netILLINOIS/CICNET access to the Internet, the worldwide collection of interoperable computer networks, and ADVANTIS (a commercial value added network).

A Campus Wide Information System network-based Unix server provides specific information about services and resources available at SIUC. CWIS links research faculty and students to library resources, local, regional, and international information sources, specialized network-based servers such as electronic mail, access to Unix computational resources, and various statistical libraries. Data storage systems are also provided. These resources are available from local area networks and through dial-up facilities.

The academic and research needs of faculty and students are supported with a full range of compilers, statistical packages, graphics software, word processing, electronic mail, and network facilities. Computer services and support are avail-

able on-line to the University academic, research, and administrative communities on a 24-hour, seven-day per week basis.

Research and Service Centers

The Center for Archaeological Investigations

Closely associated with the Department of Anthropology, the Center for Archaeological Investigations has research activities in the American Midwest, Caribbean, Guatemala, Mexico, Peru, and the western Pacific. Funding is provided by state and federal agencies, and private institutions. The center also conducts archaeological research for firms and government agencies which are required to comply with environmental and antiquities laws. The center conducts an annual field school, and provides thesis and dissertation data, and research opportunities for numerous students of archaeology. The center also curates a large collection, representing over 30 years of research.

Center for Environmental Health and Safety

This center is responsible for facilitating and monitoring assurances of university wide compliance to policies and guidelines of the University, state agencies, Environmental Protection Agency, Nuclear Safety Agency, Occupational Health and Safety, and National Institute of Health, with respect to human health and safety.

Coal Research Center

The Coal Research Center assists in the development and implementation of research education and service activities related to the extraction and utilization of coal. Established in 1974, the center has worked to advance the application of new technologies in mining and power production and to identify new uses and markets for Illinois coal. Research relating to surface mine reclamation, mine subsidence, coal desulfurization, coal characterization, combustion, gas cleanup and environmental policy have been conducted at SIUC. Faculty and students from such diverse fields as engineering and technology, science, business, education, law, and agriculture have contributed to the University's international reputation in energy and environmental research.

The center administers the Illinois Mining and Mineral Resources Research Institute and the National Mine Land Reclamation Center—Midwestern Region, and since 1990 it has managed the Illinois Coal Development Park at SIUC's Carterville Campus in cooperation with the Illinois Department of Commerce and Community Affairs. Efforts at the Coal Development Park have targeted technologies that promise near term commercial acceptance by coal producers and users. Technologies developed here include coal cleaning, refining, combustion, air emission reduction and solid combustion residues utilization.

The center also operates a unique program that offers industry improved dragline safety and productivity. The Dragline Productivity Program offers computer-based instruction and hands-on simulator experience for operators and supervisors from mining operations around the world.

Cooperative Wildlife Research Laboratory

Since its founding in 1951, the laboratory has achieved a distinguished record training graduate students in basic and applied principles of vertebrate ecology and wildlife biology. It is the only such comprehensive program in Illinois, and it is recognized as among the premier programs in the nation. Independent, cooperative, and collaborative research supported by industry, foundations, and state and federal agencies lead to better understanding and management of natural resources. The laboratory has pioneered in the reclamation and enhancement of mined lands for the benefit of various resources; and, the current efforts provide unique research and training opportunities. Other areas of ac-

knowledged laboratory expertise include the biology and ecology of game, endangered, and nongame wildlife; land use and the impact on wildlife resources; wildlife and environmental toxicology; waterfowl/wetland ecology and the epizootiology of zoonotic and other diseases in wildlife. More than 20 projects directed by laboratory staff currently afford graduate fellows and research assistants broad and varied research opportunities. These activities exceed $500,000 each year in contracts and grants, resulting in significant contribution to academic needs of students and staff and requests for service by state, federal, and private agencies.

Cooperative Fisheries Research Laboratory

Graduate research in fisheries is conducted through the Fisheries Research Laboratory. Graduate study in fisheries, culminating in the Master of Science or Doctor of Philosophy degree, is offered in the Department of Zoology. In addition to a wide variety of support courses, ten fisheries courses are taught. Research activities include studies in both fish management and aquaculture. Emphases include warmwater, coolwater, and coldwater fishes native to Illinois. There are also opportunities to work with exotic species of fishes and shellfishes, both freshwater and marine, particularly through the international fisheries program. Some of the areas of research stressed are trophic ecology, water quality, pond culture, tank culture, polyculture, culture system development, nutrition, fish physiology, fish genetics, utilization of nursery areas, introduction of forage fishes as a management tool, introduction of non-native sport fishes, ecology of larval fishes, age and growth studies, introduction of hybrid fish species, utilization of power plant cooling lakes, and population dynamics. Facilities in the Fisheries Research Laboratory include offices, well equipped laboratories, aquarium rooms, culture ponds, a greenhouse for hydroponic and recirculating water system studies and an 8,300 square-foot wet-laboratory building and a 90-pond research/demonstration facility.

The Materials Technology Center

The Materials Technology Center was established in 1983 as a result of a high-technology thrust by the state of Illinois. Charged with stimulating materials-related research on the campus of SIUC, the center accomplishes this mission through initiating interdisciplinary research in the colleges of engineering and science, conveying results to industrial partners and sponsoring international technical conferences and seminars. The center encourages research in new areas by administering a competitive grant program that funds start-up projects for faculty entering new areas of materials research and provides technical, administrative and financial support to start-up and established research programs.

A historical strength of the center has been research in the area of carbon-carbon composites. Regarded as a national leader in characterization and fabrication, the center has expanded its leadership and expertise in carbon science to include studies in areas such as fullerenes and development of carbon material precursors.

Research programs in electrorheological fluids, catalysis, magnetic materials, superconductivity, reinforced civil engineering structures (geotextiles and geomembranes), plastic matrix composites, chemical vapor infiltration and plasma induced deposition techniques represent the diverse nature of materials research supported by the center.

Under the guidance of established experts, students associated with MTC receive hands-on training and valuable experience. The total program of the center offers an opportunity for students at all levels of experience to train in the materials science field.

Research Shops and Services

The services of the Office of Research Development and Administration's (ORDA) centralized research support facilities are available to faculty, staff, and students at minimal cost. The *Center for Electron Microscopy* provides training, technical service, and research for faculty and students in the use of electron and light microscopes. The *Nuclear Magnetic Resonance (NMR) Facility,* a centralized NMR lab for teaching and research, houses Varian VXR-500 and VXR-300 systems. The *Research Photography and Illustration Facility* offers consultation and technical assistance to those in need of scientific photography or illustration as an integral part of their research endeavors. The central animal facility, or *Vivarium*, is directed by a veterinarian with specialty training in laboratory animal medicine to ensure proper and humane care of research animals. The *Central Research Shop* designs, constructs, and repairs special equipment demanding medium and large machining capabilities. The *Fine Instruments Research Shop* designs, fabricates, and repairs sophisticated mechanical, opto-mechanical, and electro-mechanical instruments. The *Research Glassblowing Facility* designs and fabricates unique scientific glassware and repairs glassware.

Office of Research Development and Administration

The Office of Research Development and Administration (ORDA) offers a number of services for faculty, staff, and students who wish to submit grant applications to funding agencies. Graduate students seeking funding for their research projects (dissertation support, research fellowships, travel grants, etc.) should visit the ORDA Resources Library (Woody Hall C-214), which contains a wide range of information on governmental agencies, private foundations, and other sources of grant funding. ORDA also publishes a brochure for graduate students that explains the process of seeking grant funding. This publication, along with a host of other research- and grant-related information, also appears on ORDA's electronic bulletin board ("Research Assistance and Grants") on the Campus Wide Information System.

The ORDA staff is available for consultation and assistance in preparing grant proposals and budgets. ORDA also works with researchers in negotiating grant/contract award agreements, processing awards, and handling invention disclosures.

One of ORDA's responsibilities is to ensure that research conducted at SIUC complies with all applicable federal and funding-agency regulations. Funded or unfunded research that will involve any of the following—human subjects (including administering questionnaires, conducting interviews, or accessing confidential databases), research animals, radiological materials, hazardous biological materials, recombinant DNA, or hazardous waste—must have clearance **before** the research project begins. Students should consult ORDA (618-453-4540) or their graduate advisor for guidance. (See related information in section on Student Responsibility elsewhere in this chapter).

Accreditations

The Graduate School, as a part of SIUC, is fully accredited by the North Central Association of Colleges and Secondary Schools. Other accreditations and affiliations include:

Accreditation Board for Engineering and Technology, Inc.
Accreditation Council of the American Assembly of Collegiate Schools of Business (undergraduate and master's level programs)
American Association for Accreditation of Laboratory Animal Care
American Association of Museums American Bar Association
American Chemical Society
American Council on Education in Journalism and Mass Communication

American Dietetic Association
American Psychological Association (Counseling and Clinical Psychology)
American Speech-Language-Hearing Association, Educational Standards Board
Association of American Law Schools
Association of Research Libraries
Commission on Accreditation of Rehabilitation Institutes (Evaluation Development Center)
Council for Accreditation for Counseling and Related Educational Programs (CACREP)
Council on International Educational Exchange
Council on Rehabilitation Education (Rehabilitation Counseling Program)
Council on Social Work Education
Federal Aviation Administration (Aviation Maintenance Technology, Aviation Flight, Avionics Technology, and the Airway Science Curriculum)
Federation of Schools of Accountancy
Illinois Alcohol and Other Abuse Professional Certification Association, Inc.
Illinois State Board of Education
Superintendent of Education
State Teacher Certification Board
Liaison Committee on Medical Education of the American Medical Association and Association of American Medical Colleges
National Academy of Early Childhood Programs
National Athletic Trainers Association
National Association of Schools of Art and Design
National Association of Schools of Music
National Association of Schools of Public Affairs and Administration
National Association of Schools of Theatre
National Council for Accreditation of Teacher Education
National Recreation and Parks Association (National Accreditation Council)
Society of American Foresters
University Council for Vocational Education
Western Association of Schools and Colleges

Associations

Center for Advanced Radiation Sources

The University is a member of the Center for Advanced Radiation Sources (CARS), a research consortium composed of Northern Illinois University, the University of Chicago, and Southern Illinois University at Carbondale. Membership with CARS provides access to the facilities being developed at the Advanced Photon Source sited in Illinois and facilities at other federal laboratories.

Council of Graduate Schools of the United States and Canada

The University is a regular member of the Council of Graduate Schools (CGS) of the United States and Canada. CGS was established to provide graduate schools with both a comprehensive and widely representative organization through which they can counsel and act together.

Council on Research Policy and Graduate Education (CRPGE) in the National Association of State Universities and Land Grant Colleges (NASULGC)

The Graduate School is an active member of this major research and graduate educational council of the largest association of public research universities in the United States.

National Council of University Research Administrators

The National Council of University Research Administrators (NCURA) is an association of individuals involved in the administration of sponsored programs (research, education, and training) primarily at colleges and universities.

Oak Ridge Associated Universities

Since 1980, students and faculty of Southern Illinois University at Carbondale have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of colleges and universities and a management and operating contractor for the U.S. Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education, the DOE facility that ORAU manages, undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry, and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of underrepresented minority students pursuing degrees in science- and engineering-related disciplines. A comprehensive listing of these programs and other opportunities, their disciplines, and details on locations and benefits can be found in the *Resource Guide*, which is available by calling either of the contacts below.

ORAU's Member Services office seeks opportunities for partnerships and alliances among ORAU's members, private industry, and major federal facilities. Current alliances include the Southern Association for High Energy Physics, Pan American Association for Physics, Materials Science Forum, and international initiatives in support of the New Independent States and the republics of Central and Eastern Europe. Other activities include faculty development programs, such as the Junior Faculty Enhancement Awards and the Visiting Industrial Scientist Program, and various services to chief research officers.

For more information about ORAU and its programs, contact Dr. John H. Yopp, ORAU Council Member, at 618-453-4526; or contact Monnie E. Champion, ORAU Corporate Secretary, at 615-576-3306.

Organization for Tropical Studies

Southern Illinois University at Carbondale is an institutional member of the Organization for Tropical Studies (OTS), a non-profit corporation organized for the purpose of establishing, fostering, supporting and conducting programs in education and research relating to the tropics; to establish, maintain, and operate facilities for these purposes; to publish the results of education and research; and to carry out other activities relating to the advancement of education and research in the tropics. Since its founding in 1963, OTS has become a significant force on the international scene, and it functions as a catalytic agent within Costa Rica and the U.S. scientific community. OTS continues to expand programming into environmental education and other areas where sound ecological knowledge can be used to address societal problems. OTS is the oldest consortium of U.S. universities dealing with tropical biology. It includes over 50 major institutions.

SOCIETY FOR RESEARCH ADMINISTRATORS

The University is a member of the Society for Research Administrators (SRA). Its membership includes administrators in industry, colleges and universities, nonprofit research organizations, hospitals, and government agencies. SRA is the premier international organization for research administrators.

Facilities and Services

Placement Services of University Career Services (UCS)

University Career Services provides services to students and alumni seeking job search assistance. Professional placement counselors are available to answer career related questions and to discuss placement procedures, job opportunities, resume writing, and interviewing techniques. UCS also works closely with employers in order to provide direct assistance in filling their job requirements. Inquiries concerning these services should be made to the University Career Services office in Woody Hall B208, or by calling 618-453-2391.

Housing

Residence Halls. Single and double occupancy housing is available in residence halls for single graduate students. Contracts for room and board are offered on a first come, first serve basis. A variety of meal options are also available.

Inquiries regarding on-campus residence halls should be sent to the Supervisor of Contracts, University Housing, Southern Illinois University at Carbondale, Carbondale, IL 62901-6716.

Family Housing. SIUC operates two apartment complexes for graduate students, married couples, and students with families. Southern Hills, on the southeast edge of campus, has efficiency, one-bedroom, and two-bedroom furnished apartments. Evergreen Terrace, on the southwest edge of campus, has two- and three-bedroom unfurnished apartments. Priority for two- and three-bedroom apartments are given to families with children.

Sixteen, furnished efficiency apartments are available for single graduate students at Elizabeth Apartments, 800 South Elizabeth Street, on the west edge of campus.

Contracts are offered to eligible applicants based on the date of application. Inquiries regarding family housing apartments should be sent to Family Housing, Southern Illinois University at Carbondale, Carbondale, IL 62901-6716.

Off-Campus Housing. Many types of rental units are available in Carbondale, including apartments, rooming houses, and mobile homes. Many of the off-campus complexes are within walking distance of the campus. A personal visit prior to contracting with a facility is recommended.

A listing of apartment complexes and mobile home parks in the Carbondale area is available by contacting Off-Campus Housing, Southern Illinois University at Carbondale, Carbondale, IL 62901-6716.

Parking on Campus

Students wishing to operate or park a motor vehicle on campus must apply for a parking decal at the Parking Division, Washington Square, Building B.

Office of Executive Assistant to the Chancellor for International and Economic Development

The office of Executive Assistant to the Chancellor for International and Economic Development (OIED) is responsible for developing and supporting faculty and staff in international programs and serving as a bridge between the University and the region, state, and nation in the area of economic development. The office administers International Development; International Programs and Services; the Office of Economic and Regional Development; Touch of Nature; Southern Illinois University at Carbondale in Niigata, Japan; Southern Illinois University at Chaing Mai, Thailand; Study Abroad, and Overseas Campus Programs.

Primary goals include increasing the numbers of externally funded grants and contracts in the international arena for SIUC; enhancing the economic climate of southern Illinois and the State through a program of economic development activities; increasing the programs and academic opportunities for clients at the Touch of Nature Environmental Center; and extending the SIUC-N overseas campus program concept to other areas of the world. OIED is located at 218 Anthony Hall. Southern Illinois University at Carbondale in Niigata, Japan, office is located in Small Business Incubator, room 208. Southern Illinois University at Chaing Mai, Thailand, office is located in Small Business Incubator, room 216.

Economic and Regional Development

The University established the Office of Economic and Regional Development (OERD) in 1986 as a means to improve the quality of life and economic climate in southern Illinois. Located in the award-winning Small Business Incubator south of campus at the intersection of Route 51 and Pleasant Hill Road, OERD administers the Incubator Program, the Center for Rural Health and Social Service Development, Regional Research and Service, Informational Services, and International Economic Development. OERD provides special programs in business training and scheduling, plus rentable space for business start-up and expansions needing in-depth assistance, reception, copy, FAX service and conference space.

Primary goals include creating, attracting, and expanding business and industry in Illinois; further developing the human resource potential within the public and private sectors of the region and state; and addressing the health care and social service issues impacting the lives and productivity of the citizens in this state and nation.

International Development

The International Development division provides University-wide leadership, coordination, and support for a wide variety of developmental activities. These activities include research and dissemination of information on external funding opportunities, maintenance of an international projects database and a resource library, development of grants and projects, coordination of international linkages and agreements, promotion of women in development activities, sponsorship of international development forums, and assistance with international visitors and protocol. Assistance also is provided in the exploration of project ideas, identification of funding sources, development of proposals, negotiation of contracts, and administration of externally funded activities.

The International Development division is located at 803 S. Oakland (618-453-7670).

International Programs and Services

International Programs and Services is an administrative unit within the Chancellor's Office and reports to the Executive Assistant to the Chancellor for Inter-

national and Economic Development. The unit is composed of three divisions: International Students and Scholars, International Development, Community Programs, which represents the local, regional, and state outreach effort of the University in international affairs, is an important subdivision of the International Students and Scholars division. The offices are located at 803 S. Oakland.

International Students and Scholars

The International Students and Scholars division provides comprehensive programs and services for international students and scholars from pre-arrival correspondence to post-graduate concerns. These programs and services include processing of financial clearance for admission, serving as liaison with foreign governments and sponsoring agencies, providing certification for foreign currency exchange, and other needs. This office has been designated by the U.S. Immigration and Naturalization Service (INS) as having the official responsibility for interpretation and adherence to INS laws and regulations as they apply to non-immigrant students and faculty. Also designated responsible officers administer proper compliance with the USIA Exchange Visitor Program for the University. Assistance with INS regulations, forms, and procedures is provided to all non-immigrants related to University and broader community affairs.

Integral educative services include orientation programs, arrival and housing assistance, personal counseling and referral, a *Handbook for International Students and Faculty,* a newsletter (The International Dateline), advisement of international student associations, and a re-entry workshop for internationals going home.

Special programs which promote an international dimension of cross-cultural exchange to the broader community are provided. An annual International Festival and various national day celebrations are held. The Community Programs subdivision in cooperation with the International Friends Club coordinates a Host Family Program, International Speakers' Bureau, English in Action, Language Exchange, American and International Cooking Exchange, an International Spouses Group, and a Loan Closet.

The International Students and Scholars division is located at 910 S. Forest (618-453-5774).

Study Abroad Programs

Study Abroad Programs coordinates overseas services for American students, including international grant programs, exchanges, and study abroad programs. It is the central referral point for information on the student Fulbright program and on the British Marshall, International Research and Exchanges Board (IREX), National Security Education Program, and Rhodes scholarships. Graduate students may also participate in inter-university international exchange programs and in travel/study programs offered during the summer and intercession periods under the auspices of this division.

Study Abroad Programs is located at Small Business Incubator, room 217, on 105 Pleasant Hill Road (618-453-7670).

Touch of Nature Environmental Center

Since 1949, SIUC has been home to this unique center for outdoor, experiential and environmental learning. It is well respected in North America for programs emphasizing both natural and human resources. Touch of Nature offers a wide variety of educational and service programs including environmental education, adventure and therapeutic recreation, executive and staff development, conference and banquet facilities. Educational and service programs are available year around to a variety of population types, age groups and affiliations. Touch of Nature is a 3,100 acre complex located at Little Grassy Lake on Giant City Road.

Student Health Program

Primary medical care is available on campus for SIUC students and includes outpatient care, laboratory and x-ray services, pharmacy services, emergency dental services, wellness programs, and sports medicine programs. Because more complex health issues sometimes arise, students are expected to have their own insurance to cover these expenses. Some students are covered by their parents' insurance policies, but many are not. In order to meet the varied needs of SIUC students for insurance coverage, the Student Health Program makes a comprehensive medical benefit plan available. All SIUC students who have been assessed the Student Medical Benefit Extended Care Fee are automatically enrolled in a group major medical benefit plan. Extended Medical Care Benefit include emergency services, hospitalization, specialty care, and out of area benefits.

If a student is enrolled under an outside insurance plan and desires a refund of the Student Medical Benefit Extended Care fee, application for a refund must be made during the first three weeks of fall semester and spring semester and during the first two weeks of summer session whether or not all tuition and fees are paid. Application must be made *each* semester that a refund is desired. However, if you are covered by another insurance carrier, maintaining the SIUC Student Medical Extended Care Plan may further reduce costs of claims to you. For further information on primary medical care call 618-453-3311 or on the Student Medical Benefit Extended Care plan (insurance) call 618-453-4413.

The Student Health Program is located in Beimfohr and Kesnar Halls and is open 8:00 A.M. to 4:30 P.M., Monday through Friday. Students in need of medical care when the Health Service clinic is closed may call the Dial-A-Nurse program, 618-536-5585 for health care advice. If an ambulance is required, students should call the Jackson County Ambulance Service at 618-684-5678.

Effective July 1, 1989, the Illinois Department of Public Health (Public ACT 85-1315) requires all new students born after January 1, 1957, to present proof of immunizations to the University for diphtheria, tetanus, measles, mumps, and rubella. Students who enroll on-campus shall present to the Student Health Program proof of immunity evidencing the following immunizations, UNLESS they are exempt from doing so as hereinafter provided:

IMMUNIZATION REQUIREMENTS

1. Diphtheria, Tetanus
   a. Students not considered international students are required to provide proof of at least one dose of Tetanus and Diphtheria (Td) vaccine having been received within 10 years of the term of current enrollment.
   b. International students are required to provide dates of any combination of three or more doses of Diphtheria, Tetanus, and Pertussis (DTP), Diphtheria and Tetanus (DT) or Tetanus and Diphtheria (TD) vaccine, with the most recent dose having been received within 10 years of the term of current enrollment.
   c. For international students, the minimum time interval between the first and second dose must have been at least four weeks, with the third dose having been received at least six months after the second or last dose of the basic series.
   d. Receipt of Tetanus Toxoid (T.T.) vaccine is not acceptable in fulfilling this requirement for both international and non-international students.
2. Measles
   a. Immunization with two live measles virus vaccines on or after the first birthday. If vaccine was received prior to 1968, proof must be provided that a live virus vaccine, without gamma globulin, was administered

with minimum time interval between the first and second dose of at least 30 days; or
   b. Laboratory (serologic) evidence of measles immunity; or
   c. A physician's signed confirmation of disease history and date of conclusive diagnosis.
3. Rubella
   a. Immunization with live rubella vaccine on or after the first birthday; or
   b. Laboratory (serologic) evidence of rubella immunity.
   c. History of disease is not acceptable as proof of immunity.
4. Mumps
   a. Immunization with live mumps vaccine on or after the first birthday; or
   b. A physician's signed confirmation of disease history and date of conclusive diagnosis.
   c. Laboratory (serologic) evidence of mumps is only acceptable if the diagnostic test utilized to assess immunity is one with demonstrable reliability, including neutralization, enzyme-linked immunosorbent assay (ELISA or EIA), or radical hemolsyis antibody test. A four-fold rise in mumps antibody titer between appropriately spaced acute and convalescent sera is also acceptable as proof of immunity.
5. Skin Tests
   a. Required for international students only.

PROOF OF IMMUNITY

1. Proof of immunity may be provided by a certificate of immunity containing:
   a. A signature by a Health Care Provider (physician licensed to practice medicine in all of its branches [MD or DO] or Registered Nurse or a Public Health Official) or you may attach a copy of the Child Health Exam Form obtainable through your high school. If you are using the Child Health Exam Form, the signature and title of the school official (and date of signature) must be provided. If you are not using the Child Health Exam Form, the signature, title, and telephone number of the health care provider verifying the submitted information (and date) must be indicated in PART II.
      1. All dates must include MONTH, DAY, and YEAR.
      2. All laboratory evidence of immunity must be accompanied by a copy of the laboratory report.
      3. History of disease is NOT acceptable for proof of immunity for rubella.
      4. Mumps titer is NOW acceptable for proof of immunity.
      5. All live virus vaccines must have been given on or after 12 months of age.
      6. Individuals born prior to 1957 can be considered exempt.
      7. International students will be required to have a Tuberculosis test. International students who have been treated for Tuberculosis or have undergone a Tuberculosis prevention program should bring medical evidence (drugs, date of treatment, old X-rays) with them. All medical records must be accompanied by a certified English translation.
      8. International students may find that it is easier to be revaccinated than to obtain the necessary vaccination history.

EXEMPTIONS

1. Medical Contraindications:
   a. A written, signed, and dated statement from a physician stating the specific vaccine or vaccines which are contraindicated and the duration

of the medical condition that contraindicates the vaccine(s) must accompany the completed Health Information Form.

2. Pregnancy or Suspected Pregnancy
   a. If a student is pregnant or suspects pregnancy, a signed statement from a physician must accompany the completed Health Information Form along with the expected date of delivery.
3. Religious Exemption
   a. A completed religious exemption form, including signature of pastor or clergyman, citing specific details of your objection must accompany the completed Health Information Form. These forms are available at the Student Health Programs Clinic. NOTE: General philosophical or moral objection to immunization shall not be sufficient for an exemption on religious grounds.

IMMUNIZATION FEES

1. A $5.00 front door fee will be assessed for each immunization appointment given.
2. A $25.00 no-show fee will be assessed to each student who fails to appear or cancel at least two hours prior to the scheduled appointment.
3. A $25.00 late compliance fee will be assessed to students who fail to provide proof of immunity or begin to receive the necessary series of immunizations by the end of the seventh week of the semester.

Disability Support Services

Disability Support Services Office is the central SIUC office for services to students with disabilities. Support services are offered to a wide range of individuals including those with mobility impairments, blind or visual impairments, deaf or hard-of-hearing, learning disabilities, and others.

Services and programs include, but are not necessarily limited to: pre-admission planning, orientation, adapted van transportation, wheelchair repair, adapted recreational opportunities, sign language interpreters, equipment loan, tutor/notetaker/reader/personal care attendant recruitment and referral, test proctoring, accessible housing referral, closer parking exceptions, and liaison with agencies such as Illinois Department of Rehabilitation Services.

Prospective or newly admitted students should contact Disability Support Services at 618-453-5738 for further information.

Women's Services

Women's Services, a component of the Counseling Center, is designed to meet the special needs of women from the University and the surrounding community. Staff members are available to provide information and support to women making educational, vocational, and personal decisions. Some of the services provided by Women's Services include resource and referral information, outreach workshops, consultation by request, short-term individual counseling and support groups. A newsletter is published several times throughout the year which focuses on issues of interest to women. In addition, a library is available which contains books, articles, and periodicals on topics that may assist individuals in their research and/or personal growth.

Women's Services also houses the Campus Safety Program. The Campus Safety Representative provides individual and group counseling to individuals who have experienced rape, sexual assault or sexual harassment. The University's Campus Safety Program also includes women's self-defense classes, the Women's Transit Service, and the Brightway Path. Women's Services also sponsors the Program for Rape Education and Prevention (PREP), which provides prevention and awareness education to individuals, residence halls, classes, and groups upon request.

Women's Services is located at B-244 Woody Hall (618-453-3655). Walk-ins are always welcome. Both women and men are welcome to use the Women's Services office.

The University Ombudsman

The Office of the University Ombudsman assists individuals in resolving problems that arise in the University. The office is independent from other offices of the University and reports directly to the Chancellor. The office acts on complaints or suggestions from students, faculty, and staff in an attempt to ensure that members of the University community receive fair and equitable treatment within the University. This includes ensuring that decisions affecting individuals are made promptly and with due process, not only with respect to the adequacy of the procedures used in decision making, but also with respect to the appropriateness of the criteria and rules upon which decisions are based.

The office helps individuals resolve a broad range of problems expeditiously, including academic matters, employment matters, and matters regarding the delivery of University services. Such assistance may include advising individuals on steps to take so that their claims may be heard or their questions answered, making referrals to other offices, investigating claims of unfair treatment or erroneous procedures, engaging in mediation to obtain a fair settlement, and assisting in accessing University grievance mechanisms when other methods are unsuccessful. In addition, the Ombudsman will intervene in the bureaucratic process on behalf of individuals when such process unnecessarily or unfairly impinges upon them.

The Ombudsman Office also brings to the attention of those in authority any gaps and inadequacies in existing University policies, procedures, and practices which have generated justified claims of unfair treatment or which may cause such complaints in the future.

The Ombudsman has the authority to access official files as required to fulfill the functions of the Office. However, names of persons requesting help cannot be used in the investigation of a case without permission, and all Ombudsman records and communications are kept in confidence.

The office is located in Woody Hall C302; hours are 8:00 A.M. to 4:30 P.M., Monday through Friday; and the telephone number is 618-453-2411.

2 / Academic Programs, Graduate Faculty, and Courses

The academic programs, graduate faculty, and course descriptions are outlined in this chapter.

The official descriptions of programs leading to graduate degrees are arranged below in alphabetical order. The faculty affiliated with each program is listed at the beginning of the description and the courses at the end. The college or school in which the program is located is noted and e-mail addresses are shown at the right margin. Admission and degree requirements which are listed in Chapter 1 are minimum standards. The student should consult the specific program description for additional criteria imposed by the department. All programs are cross-listed to aid in locating the official description. Several departments offer one or more concentrations as noted in Chapter 1 within the major, the requirements for these concentrations may be found in the program description.

Graduate instruction is the responsibility of the graduate faculty. The faculty listed below are arranged in terms of their departmental affiliations. Faculty teaching in interdisciplinary programs are listed under the appropriate programs and are identified as to the department in which they hold an appointment. The first of the two dates listed with the name of a faculty member indicates the year in which the highest degree was earned; the second date indicates the year when the person first became a faculty member at Southern Illinois University at Carbondale.

The 400- and 500-level courses offered by Southern Illinois University at Carbondale are listed numerically after each program description. The first entry for each course is a three-digit identification numeral. Courses numbered 400–499 are open to both seniors and graduate students, unless designated otherwise. Courses numbered above 499 are for graduate students only. Following the course identification number is another number which indicates maximum credit allowed for the course. The maximum may vary, and specific semester hours may be assigned for each term a course is offered. Following the course description may be prerequisites which must be satisfied before a student will be permitted to enroll. Graduate students will not receive graduate credit for Pass/Fail grades taken at the 400 level. Graduate credit is awarded for 500-level courses which have been approved to be graded *S/U* (Satisfactory/Unsatisfactory) only. All courses offered in a specific term will be listed in the appropriate Schedule of Classes which is published three times a year. Schedules are available at the Graduate School, Southern Illinois University at Carbondale, Carbondale, Illinois 62901-4716.

Biological Sciences
Business Administration
Chemistry
Cinema and Photography
Civil Engineering
Communication Disorders and Sciences
Computer Science
Curriculum and Instruction
Economics
Education (Ph.D.)
Educational Administration
Educational Psychology
Electrical Engineering
Engineering
English
Food and Nutrition
Foreign Languages and Literatures
Forestry
Geography
Geology
Health Education
Higher Education
History
Historical Studies (Ph.D.)
Journalism
Manufacturing Systems
Mathematics
Mechanical Engineering and Energy Processes
Microbiology
Mining Engineering
Music
Pharmacology
Philosophy
Physical Education
Physics
Physiology
Plant Biology
Plant and Soil Science
Political Science
Psychology
Public Administration
Recreation
Rehabilitation Administration
Rehabilitation Counseling
Social Work
Sociology
Special Education
Speech Communication
Teaching English to Speakers of Other Languages
Telecommunications
Theater
Workforce Education and Development
Zoology

Accountancy

E-mail: ga3854@siucvmb.siu.edu

COLLEGE OF BUSINESS AND ADMINISTRATION

Barron, Mary Noel, Associate Professor, *Emerita,* C.P.A., M.B.A., University of Michigan, 1946; 1948.

Basi, Bartholomew, Professor, C.P.A., D.B.A., Indiana University, 1971; 1978. Financial accounting and taxation of closely-held companies.

Burger, Clifford R., Professor, *Emeritus,* C.P.A., M.S., Indiana State University, 1947; 1958.

Dwyer, Peggy D., Assistant Professor, C.P.A., Ph.D., University of Missouri-Columbia, 1988, 1995. Auditing and financial accounting.

Gribbin, Donald, Associate Professor, C.P.A., Ph.D., Oklahoma State University, 1989; 1989. Managerial and cost accounting.

Hahn, Randall, Associate Professor, C.P.A., Ph.D., University of Kentucky, 1984; 1984. Taxation and auditing.

Karnes, Allan, Associate Professor and *Director*, C.P.A., M.A., J.D., Southern Illinois University at Carbondale, 1986; 1977. Taxation and auditing.

King, James, Associate Professor, C.P.A., Ph.D., Indiana University, 1988; 1987. Behavioral auditing and financial accounting.

Masoner, Michael M., Associate Professor, C.P.A., Ph.D., University of Minnesota, 1975; 1978. Accounting systems and cost accounting.

Rivers, Richard, Associate Professor, C.P.A., D.B.A., Kent State University, 1976; 1978. Quantitative decision models, information systems and managerial accounting.

Sobery, Julie, Associate Professor, C.P.A., Ph.D., Saint Louis University, 1982; 1985. Financial accounting and accounting theory.

Swick, Ralph D., Professor, *Emeritus,* C.P.A., D.B.A., Indiana University, 1954; 1955.

Tucker, Marvin W., Professor, *Emeritus,* Ph.D., University of Alabama, 1966; 1966. Managerial and cost accounting.

Wacker, Raymond, Associate Professor, C.P.A., Ph.D., University of Houston, 1989; 1989. Taxation.

Welker, Robert B., Rehn Professor of Accountancy, Ph.D., Arizona State University, 1977; 1987. Managerial accounting and accounting theory.

Wright, Roland M., Professor, *Emeritus,* C.P.A., Ph.D., University of Iowa, 1962; 1966.

Wu, Fred, Professor, *Emeritus*, C.M.A., Ph.D., Texas Tech University, 1975; 1984.

The objective of the Master of Accountancy degree program is to provide an opportunity for students to achieve greater breadth and depth in the study of ac-

countancy than is possible in the baccalaureate program. As preparation for a dynamic profession the curriculum fosters clear, logical, and analytical thought processes, effective oral and written communications, and life-long learning skills. Graduates pursue careers as professional accountants in public practice, industry, financial institutions, government, and other not-for-profit organizations.

Admission

Applicants for admission to the program are required to:

1. Complete all requirements for admission to graduate study as specified by the Graduate School.
2. Complete the Graduate Management Admissions Test (GMAT). Information regarding the GMAT is available through: Graduate Management Admission Test, Educational Testing Service, Box 966, Princeton, NJ 08540.

The results of the test must be mailed directly to the director of the M.Acc. Program.

A non-refundable application fee of $20.00 must be submitted with any application to the accountancy program. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Admission to the program is based on a composite of 1) undergraduate grade point average times 200, and 2) GMAT overall score (with minimum verbal percentile of 40%). These two factors are added together to arrive at a composite score. A composite score of 1100 is required to be admitted into the program. For example, an undergraduate grade point average of 3.2 with a GMAT of 550 would yield a composite score of 1190.

Students whose native language is not English will be required to obtain an acceptable score (presently 550) on the Test of English as a Foreign Language (TOEFL) examination before being admitted to the Master of Accountancy degree program.

Notification of admission to the Master of Accountancy degree program is by letter from the director, Master of Accountancy degree program. This letter must be presented by the student prior to enrollment and registration in the program.

Degree Requirements

The Master of Accountancy degree program includes two specializations from which to choose: 1) Taxation, and 2) Audit/Systems. Degree requirements are dependent upon the specialization chosen.

Taxation Specialization:

a. The following course is required — 3 hours.
   BA 514-3 Ethics of Business (formerly ACCT 561)
b. Select 6 from the following 8 courses — 18 hours.
   ACCT 541-3 Tax Concepts
   ACCT 542-3 Tax Research and Procedure
   ACCT 543-3 Corporate Taxation
   ACCT 544-3 Partnership Tax
   ACCT 545-3 Estate Planning
   ACCT 546-3 Seminar: Selected Tax Topics (541)
   ACCT 547-3 Tax Accounting Principles
   ACCT 548-3 Interjurisdictional/International Tax
c. Select 1 from the following 3 — 3 hours.
   ENG 491-3 Technical Writing
   LAW -3 Elective from the approved list of Law School courses.

BA 530-3 Financial Management

d. Select 2 electives approved by the M.Acc. director — 6 hours.

Audit/Systems Specialization:

a. The following course is required — 3 hours.
   BA 514-3 Ethics of Business (formerly ACCT 561)

b. Select 6 from the following 7 courses — 18 hours.
   ACCT 521-3 Issues in Accountancy
   ACCT 551-3 Accounting Information Systems I
   ACCT 552-3 Accounting Information Systems II
   ACCT 532-3 Advanced Management Accounting
   ACCT 562-3 Computer Auditing
   ACCT 590-3 Seminar in Accounting
   ACCT 561-3 Advanced Auditing

c. Select 2 from the following 3 courses — 9 hours.
   ENG 491-3 Technical Writing
   BA 456-3 Building Design Support and Expert Systems
   (ACCT 351 would probably meet the prerequisite of MGMT 345)
   BA 560-3 Management Information Systems

d. Select 1 from the following 4 — 3 hours.
   MGMT 548b/c-3 Decision Support/Expert Systems
   BA 561-3 Data Base Design & Applications (BA 560)
   or MGMT 420-3 Undergraduate equivalent
   BA 562-3 Analysis, Planning & Design of Info. Systems (BA 560)
   or MGMT 421-3 Undergraduate equivalent
   BA 530-3 Financial Management
   (No more than 6 hours at the undergraduate level)

A student who does not have any undergraduate work in accounting will be required first to make up deficiencies in the following areas: intermediate accounting, cost accounting, tax, accounting information systems, and auditing.

A student must also complete the common body of knowledge requirements specified by the AACSB. A student who has graduated from an undergraduate accredited (AACSB) business school should have met this requirement. A student who has any deficiencies in any areas required by the AACSB will be required to make up these deficiencies before receiving the Master of Accountancy degree.

The full-time student who qualifies for the minimum program in terms of course work requirements normally may expect to complete the Master of Accountancy degree in one calendar year (two semesters and one summer session). The professional nature of this program requires that the course, writing requirements, oral communications, special lectures, case studies, computer applications, colloquia, independent study, and research activities be presented in an integrated manner which stresses the program aspects at all times. This requires serious and extensive personal commitment to the program on the part of all candidates.

In order to meet the graduate requirements the student must obtain a 3.0 grade point average (4.0 = *A*) and obtain a *B* or better in eighty percent of all graduate level courses taken after admission to the M.Acc. program.

Areas of Emphasis

A student who has an undergraduate degree in accounting or one who has satisfied the accounting common body of knowledge may arrange the additional 15 hours of graduate courses beyond the core requirement to form a specific area of emphasis (taxation, information systems, managerial accounting and control,

auditing, or not-for-profit accounting). Emphases are developed with the advice and consent of the student's adviser.

3–2 Program

A 3–2 program within the College of Business and Administration and the School of Accountancy is available to qualified students within the college, transfer students, and students majoring in areas other than business. The program permits a student to devote a part of the last 2 years of undergraduate study to fulfilling the foundation course requirements for business and accounting required for the Master of Accountancy degree. Upon completion of the requirements for the bachelor's degree, the student may apply for admission to the Graduate School and the Master of Accountancy degree program. Students who successfully complete the program would thus have a 5 year program required for certification in some states.

Concurrent J.D. and M.Acc. Program

A student who has been admitted separately to the School of Law and to the M.Acc. program may apply for permission to study concurrently for both the Juris Doctor and Master of Accountancy degrees. This permission must be requested from both the School of Law and the School of Accountancy, ordinarily prior to entry into the second year curriculum of the School of Law.

During the first academic year of concurrent work on the two degrees, the student enrolls only in the first-year law curriculum. In any subsequent academic term, the student may enroll for courses either in the School of Law or in the Master of Accountancy program. A student registered for both law and graduate courses in the same term must enroll for a minimum of 10 hours in law, and 12 semester hours in total, in order to meet A.B.A. residence requirements and the academic requirements of the School of Law.

Completion of the concurrent program requires that the student successfully complete 81 semester hours of law courses and 30 semester hours of courses that meet M.Acc. requirements. Up to 9 semester hours of the 30 may be School of Law courses which are also part of the 81 hours required for the Juris Doctor degree. School of Law courses counting for graduate credit toward the Master of Accountancy degree must be approved by the director of the Master of Accountancy program. Further, no more than 6 of the 30 semester credit hours may be taken in courses at the 400 level for graduate credit.

Other Graduate Degrees Offered by the College

The College of Business and Administration also offers the Master of Business Administration (M.B.A.) degree with specialization in finance, management, and marketing and the Doctor of Business Administration (D.B.A.) degree. Information relative to these degrees may be obtained from the associate dean for graduate programs, College of Business and Administration.

Courses (ACCT)

421-3 Advanced Accounting. Accounting principles and procedures relating to specialized topics, including partnership equity, installment and consignment sales, fiduciaries, international operations, branches, and business combinations. Prerequisite: junior standing and limited to accounting majors or consent of school; a grade of **C** or better in 322.

431-3 Advanced Cost Accounting. Managerial decision making; profit planning and control through relevant costing, return on investment and transfer pricing, determination of cost behavior patterns, analysis of variances, capital budgeting, inventory models, probabilities, statistical methods and operations research. Prerequisite: junior standing and limited to accounting majors or consent of school; 331 with grade of *C* or better.

441-3 Advanced Tax. Study of income tax problems which arise from sole proprietorship, partnership, corporation, estate and trust of organization. Brief study of social security, federal and state estate tax and gift tax. Student does research in source materials in arriving at solutions of complicated problems. Prerequisite: junior standing and limited to accounting majors or consent of school; 341 with grade of *C* or better.

451-3 Accounting Systems Operation. The study of accounting information systems, their technology and the management decision process supported by those systems. Prerequisite: junior standing and limited to Accounting majors or consent of school; a grade of *C* or better in both 322 and 331; Computer Science 212 or Information Management Systems 229.

461-3 Advanced Auditing. (Same as Accounting 561) The study and application of selected auditing concepts and techniques. Hands-on application will be emphasized. Prerequisite: junior standing; 361 with grade of *C* or better.

471-3 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: For Accounting majors, 230 with grade of *B* or better.

512-3 to 18 (3 per topic) Accounting Research Methods Seminar. An advanced seminar critically analyzing research methods employed to study problems existing in a subarea of accounting thought, which may be repeated for credit in terms of sections (a) through (f). Sections (a) through (f) may be taken only once each. **(a)** Auditing, **(b)** Financial accounting, **(c)** Managerial accounting, **(d)** Not-for-profit accounting, **(e)** Accounting information systems, **(f)** Taxation. Prerequisite: Business Administration 513 or consent of the school.

521-3 Emerging Issues in Accountancy. Identifies developing areas in financial accounting and forces students to research the issues, to think critically, evaluate alternatives and communicate conclusions in oral and written form. International accounting, not-for-profit, standard setting and regulation, and other developing issues are addressed. *The Journal of Accountancy*, other professional journals, and guest speakers. Prerequisite: 321, 322, or consent of instructor.

532-3 Advanced Management Accounting. Management planning and control decisions and design and evaluation of management accounting systems requiring formal models and application of vigorous analytic reasoning. Integration and synthesis of techniques such as regression analysis, linear programming, decision theory and behavioral science for important decisions of the form. Information economics. Contemporary research directories. Prerequisite: enrollment in M.Acc. or M.B.A. program or consent of instructor.

541-3 Tax Concepts. Provides the student with an understanding of the nature of the federal tax law and an appreciation of the law's impact upon business decisions both for individuals and companies. Prerequisite: 341 or consent of instructor.

542-3 Tax Research and Procedure. Provides the student with a working knowledge of the tax practitioner's methodology applied to the solution of both routine and complex tax problems. Prerequisite: enrollment in M.Acc. program or consent of instructor.

543-3 Corporate Taxation. Provides students with in-depth exposure to federal income taxation of corporations and shareholders. Areas explored are corporate formations, distributions, redemptions, liquidations, subchapter S election, corporate income tax, accumulated earnings tax, personal holding company tax and affiliated corporations. Prerequisite: enrollment in M.Acc. program or consent of instructor.

544-3 Partnership Taxation. Provides students with in-depth exposure to the federal income taxation of partnerships and partners. Areas explored are the definition of a partnership, acquisition of an interest, basis of interest, tax accounting for partnership operation, distributions, termination, sale or exchange of interest, collapsible partnerships, death or retirement and tax shelters. Prerequisite: enrollment in M.Acc. program or consent of instructor.

545-3 Estate Planning. A comprehensive study of the various aspects of estate planning, including an analysis of the impact of the federal estate and gift tax laws. In addition, the role of wills, trusts, insurance and other related legal topics necessary to formulate a comprehensive plan is emphasized. The case approach will be utilized wherever feasible. Prerequisite: enrollment in M.Acc. program or consent of instructor.

546-3 Seminar: Selected Tax Topics. Provides students with in-depth exposure to federal income taxation of selected topics. Topics will vary from semester depending upon instructor and topics of current interest. Prerequisite: 541 or consent of instructor.

547-3 Tax Accounting Principles. Provides linkage of accounting skills with tax knowledge through identification of significant differences between tax and financial accounting and selection of tax accounting principles having a significant impact on cash flows. Tax accounting problems for industrial, wholesale and retail companies. Prerequisite: 541 or equivalent and 421.

548-3 International Taxation. Examination of tax accounting problems when taxable events transcend national boundaries. Use of transfer pricing for international taxation purposes. Specific international taxation problems of foreign persons, U.S. citizens living abroad, U.S. shareholders for foreign corporations and special problems related to multinational corporations. Prerequisite: 541 or equivalent and 531 or consent of the School of Accountancy.

551-3 Accounting Information Systems Control and Development. A comparison of operation, control and development of alternative accounting information systems. A study of selected technology for accounting systems development. Prerequisite: 451 or consent of school; enrollment in M.Acc. program or consent of school.

552-3 Accounting Information Systems Development. A study of selected technology for accounting information systems development. Emphasizes design and implementation of particular computerized information systems for diverse uses and purposes. Prerequisite: 551, enrollment in M.Acc. program or consent of school.

561-3 Advanced Auditing. (Same as Accounting 461) The study of current and historical critical evaluations of the accounting and auditing professions. Provides an advanced technical understanding of the auditing process and develops written and oral communication skills essential to

success in the auditing profession. Prerequisite: admission into the M.Acc. program.

562-3 Computer Auditing. The study of electronic issues as they pertain to the attestation function, including internal control, auditing automated systems and the use and application of automated auditing procedures and techniques. Prerequisite: 561, enrollment in M.Acc. program or consent of school.

571-3 Not-For-Profit Accounting. The study of accounting principles and practices of schools, hospitals, governmental agencies, the arts and other not-for-profit organizations. Emphasis is on financial reporting. Prerequisite: enrollment in M.Acc. program or consent of instructor.

590-3 Seminar in Accounting. Discussion of current accounting theories, principles standards and problems. Prerequisite: enrollment in M.Acc. program or consent of instructor.

591-1 to 6 Independent Study. Directed independent study in selected areas of accountancy. Prerequisite: enrollment in M.Acc. program.

595-3 Internship. Supervised work experience in professional accounting. Prerequisite: outstanding record in accounting and recommendation of the department committee on internship. Graded *S/U* only.

599-3 to 6 Thesis. Prerequisite: enrollment in M.Acc. program.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Administration of Justice

E-mail: crimjust@siucvmb.siu.edu

COLLEGE OF LIBERAL ARTS

Anderson, Dennis B., Associate Professor, Ed.D., University of Nebraska, 1970; 1970. Educational psychology; forensic and criminal justice psychology.

Castellano, Thomas C., Associate Professor, Ph.D., State University of New York, Albany, 1986; 1986. Criminal justice; juvenile justice; research methods.

Coughlin, Joseph S., Professor, *Emeritus,* M.S.W., A.C.S.W., University of Wisconsin, 1954; 1973.

Ferdinand, Theodore N., Professor, Ph.D., University of Michigan, 1961; 1985. Social psychology; juvenile delinquency; juvenile justice; history of crime and criminal justice.

Garofalo, James, Professor and *Director,* Ph.D., State University of New York, Albany, 1978; 1992. Criminal Justice; victims of crime; policing; crime prevention; research and analysis.

Johnson, Elmer H., Distinguished Professor, *Emeritus,* Ph.D., University of Wisconsin, 1950; 1966.

LeBeau, James L., Associate Professor, Ph.D., Michigan State University, 1978; 1985. Geography; geography of crime and criminal justice; law enforcement; quantitative methods.

Lorinskas, Robert, Associate Professor, Ph.D., University of Georgia, 1973; 1980. Political science; security.

Matthews, Charles V., Associate Professor, *Emeritus,* M.A., University of Kansas City, 1951; 1962.

McDermott, M. Joan, Assistant Professor, Ph.D., State University of New York, Albany, 1979; 1992. Criminal Justice; juvenile delinquency and juvenile justice; women, crime and criminal justice; victims of crime; policy analysis.

Riedel, Marc P., Associate Professor, Ph.D., University of Pennsylvania, 1972; 1978. Sociology; research methods; violence.

Robinson, Cyril D., Professor, *Emeritus,* LL.B., Northwestern University, 1952; 1979.

Small, Mark A., Associate Professor, J.D., Ph.D., University of Nebraska, 1990; 1990. Psychology and law; mental health law; privacy; children and the law; program evaluation.

Szockyj, Elizabeth, Assistant Professor, Ph.D., University of California, Irvine, 1992, 1994. Criminology; white-collar crime; government crime; juvenile justice; community corrections; research methods.

The Center for the Study of Crime, Delinquency, and Corrections enjoys both a national and an international reputation for quality research and an outstanding educational program. Through many relationships with operating agencies, students are afforded unique opportunities to gain practical experience as an integrated part of their academic work.

A number of opportunities for financial support are offered through the special programs and research projects conducted by individual faculty. In addition there are a number of fellowships offered, for which qualified students are encouraged to apply.

The Center for the Study of Crime, Delinquency, and Corrections offers the Master of Arts degree in the administration of justice. The curriculum is a multidisciplinary study of crime, its causes and settings, and systematic means of responding to it. The curriculum prepares students for careers in law enforcement,

correctional services and administration, teaching, criminal justice research and planning, and private security management. Augmenting the academic program, there are opportunities for graduate students to work with faculty members who are conducting research and designing innovative projects in the field. Students are encouraged to take Supervised Field Experience credit to ensure a blending of practical experience with classroom education.

For students who complete the master's degree in administration of justice and who wish to pursue the Ph.D., opportunities are available through a cooperative arrangement between Administration of Justice and the Department of Sociology.

Admission

Full admission to the graduate program requires at least a 2.7 overall undergraduate average and acceptance by the faculty. Scores on the Graduate Record Examination (aptitude portion only) or the Millers Analogies Test are also required. The Test of Written English will be required as a component of the regular TOEFL exam.

Students who do not have an undergraduate degree in administration of justice or criminal justice should have a minimum of 12 units in sociology, psychology, political science, or other social sciences. In cases where these criteria are lacking, additional selected undergraduate courses may be required for acceptance in this program.

An introductory statistics course is required of all incoming graduate students. This requirement can be satisfied in one of two ways: a) approval by the graduate affairs committee of a course previously taken by the student; or b) successful completion of an approved statistics course during the student's graduate course work. This course is a prerequisite and does not count toward the degree.

Requirements

A total of 36 semester hours are required for the Master of Arts degree in administration of justice. Students may complete the degree under a thesis or non-thesis option.

Required Core Courses. All candidates for the Master of Arts degree in the administration of justice are required to fulfill 15 hours of core courses. These consist of two didactic courses:

AJ 500-3 Foundations of Criminal Justice

AJ 516-3 Scope and Methods of Criminal Justice Inquiry

In addition the student must take one research related course which provides skills that contribute to the generation of knowledge and more thorough utilization of existing information. Appropriate courses include quantitative methods such as AJ 517, Quantitative Techniques in Criminal Justice Research, ED PSYC 507 or POLS 503. Other courses to meet this requirement must be approved by the student's graduate adviser. The statistics requirement for incoming graduate students will not satisfy this requirement.

Two of the following three courses are also required.

AJ 504-3 Criminological Theory

AJ 562-3 Fundamental Legal Concepts in the Administration of Justice

AJ 584-3 Administration and Management in Criminal Justice

Curricular Emphases

The Master of Arts degree is broadly conceived so the student can seek an individualized program appropriate to either continued graduate studies or a particular field of work. Each student is encouraged to work with a faculty adviser to

tailor a program of studies around his or her areas of interest. Suggested course work includes but is not limited to the following:

Juvenile Delinquency. AJ 473-4, 474-3, 578-3; REHB 452-3; SOC 562-4; and other courses approved by the student's graduate adviser.

Law Enforcement. AJ 403-3 to 6, 587-3, 588-3 to 6, and other courses approved by the student's graduate adviser.

Security Administration. AJ 450-3, 588-3 to 6; BA 410-3, 440-3, 510-3, 450-3; POLS 436-3, 444-3; and other courses approved by the student's graduate adviser.

Criminal Justice Counseling. AJ 402-3, 571-3, 578-3; PSYC 414-4, 421-3, 431-3, 440-3; REHB 406-3; and other courses approved by the student's graduate adviser.

Correctional Administration. AJ 484-3, 485-3, 588-3 to 6; POLS 436-3, 441-3, 443-3, 542-3, 543-3, 544-3, 545-3; REHB 570-3, 573-2 to 3, 579-3; SOC 475-4, 539-4; and other courses approved by the student's graduate adviser.

Research in Criminal Justice. AJ 517-3, 580-3, 588b-3, and other courses as appropriate to the student's area of research and approved by the student's graduate adviser.

Supervised Field Experience

Six credits of supervised field experience is required for all students pursuing the non-thesis option. Supervised field experience may also be taken as an elective by any student. Students may take a total of 12 hours supervised field experience; however, only 6 hours may be counted toward the semester hours required for the master's degree.
AJ 595a-3 to 6 Supervised Field Experience, graded *S/U*
AJ 595b-3 to 6 Supervised Field Experience, letter graded

Thesis Option

Students choosing the thesis option may take a total of 6 thesis semester hours (AJ 599-1 to 6); however, only 3 hours are counted towards the degree requirements. An oral defense of the student's thesis is required in this option.

Non-Thesis Option

Students choosing the non-thesis option may take a total of 6 individualized research semester hours (AJ 591-1 to 6); however, only 3 hours are counted towards the degree requirements. Students pursuing this option are required to defend their supervised field experience report publicly and complete a written examination successfully.

Application and Further Information

Application forms for both the Graduate School and the Department of Administration of Justice must be submitted separately. Upon request to the department, application forms from the Graduate School and the department will be sent. Acceptance in the program is contingent on the final approval of the administration of justice graduate affairs committee after admission to the Graduate School.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois Univer-

sity, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

A more detailed description of the graduate program, as well as information about graduate assistantships and fellowships, may be obtained by writing: Graduate Secretary, Center for the Study of Crime, Delinquency, and Corrections, Southern Illinois University at Carbondale, Carbondale, IL 62901-4504.

Courses (AJ)

The following courses are offered through the Center for the Study of Crime, Delinquency and Corrections.

402-3 Group and Family Treatment in Criminal Justice. Presentation of theoretical knowledge and practical techniques utilized in major group and family treatment approaches for adults and juveniles in institutions, community-based correctional programs and transitional living situations. Prerequisite: 201, 290 and 316 or consent of instructor.

403-3 to 9 (3 per topic) Enforcement Operations. (a) Advanced investigation; **(b)** Enforcement management; **(c)** Enforcement discretion. Each course topic focuses on a major theme in law enforcement. Prerequisite: (a), (b), and (c): 201, 290 306 and 316 or consent of instructor; additionally for (a) 303; and for (b) 302.

408-3 Criminal Procedure. An introduction to the procedural aspects of criminal law pertaining to police powers in connection with the laws of arrest, search and seizure, the exclusionary rule, civil liberties, eavesdropping, confessions and related decision-making factors. Prerequisite: 201, 290, 310 and 316 or consent of instructor.

415-3 Prevention of Crime and Delinquency. Multidisciplinary analysis of the functions, goals and effectiveness of measures to forestall delinquency and crime. Etiology of delinquent behaviors as related to community institutions such as police, courts, corrections, mental health clinics, schools, churches and citizen groups. Prerequisite: 201, 290 and 316 or consent of instructor.

418-3 Criminal Violence. Examination of historical, comparative, cultural and social structural aspects of homicide, robbery, rape and assaults. Course focuses on trends and patterns in criminal violence, the role of firearms, victim/offender relationships and post-arrest processing of the offender in the criminal justice system. Prerequisite: 201, 290 and 316 or consent of instructor.

450-3 Public and Private Security. An overview of important issues related to security and loss prevention in the public and private sectors. Covers security's historical development; its current role, and the relationship between the public and private sectors. Prerequisite: 201, 290, 316 and 350 or consent of instructor.

451-3 Forensic Interrogation. Forum focusing on forensic interrogation. Conceptual framework for understanding behavioral and psychological aspects of the process; discussion of its historical and philosophical development, use in criminal and private security investigations, legal proceedings and role in a democratic society. Provides both theoretical grounding and hands-on experience. Prerequisite: 201, 290 and 316 or consent of instructor.

460-3 Women and the Criminal Justice System. (Same as Women's Studies 476.) Addresses the topics of women as offenders, as victims, and as workers in the criminal justice system. Prerequisite: 201, 290 and 316 or consent of instructor.

473-4 Juvenile Delinquency. (See Sociology 473.) Prerequisite: 201, 290 and 316 or consent of instructor.

474-3 Juvenile Justice. The evolving definition of juvenile misbehavior and the legal mechanisms that have emerged to control it. The problems and promise of juvenile justice in terms of the juvenile code and court, law enforcement, custodial and treatment institutions and community treatment. Prerequisite: 201, 290 and 316 or consent of the instructor; 473 or equivalent recommended.

476-3 Crime and Criminal Justice: International Dimensions. Examination of sociocultural and political factors shaping criminality and responses to crime around the world. Similarities and differences in criminogenic conditions and practices of law enforcement and corrections are traced. Prerequisite: 201, 290 and 316 or consent of instructor.

477-3 Theoretical Analyses of Crime. Examination of theories of crime and criminality. Major topic areas include types of theories, the development and testing of theories, explanations of the kinds and degrees of crime observed in society, and explanations of processes involved in the development of criminal behavior. Emphasis is on current directions in theories of crime. Prerequisite: 201, 290 and 316 or consent of instructor.

484-3 Correctional Institutions. (Same as Sociology 484) Examination of the roles, purposes, structures and functioning of institutional corrections within the U.S. Emphasis is placed on understanding the philosophies, elements, structures and programs that shape current institution operations and their impacts on offenders, staff and the community. Prerequisite: 201, 290, 316 or the consent of instructor.

485-3 Corrections and the Community. Traditional correctional functions are redefined to emphasize the development of resources in communities, diversion of convicted offenders from institutions and direct involvement of correctional programs in community affairs. Prerequisite: 201, 290 and 316 or consent of instructor.

490-1 to 3 Independent Study in the Administration of Justice. Supervised readings or independent research projects in various aspects of crime control, treatment of offenders, and the management of criminal justice programs and agencies. May be repeated up to a maximum of three credit hours. Prerequisite: 201, 290 and 316 and consent of instructor.

492-3 Contemporary Issues in Administration of Justice. A forum, geared toward seniors,

majoring in administration of justice, that focuses on criminal justice issues of concern to students and faculty. May re-enroll for a maximum of six credits. Prerequisite: 201, 290 and 316 and consent of instructor.

500-3 Foundations of Criminal Justice. An exploration of the nature and scope of the criminal justice process. Criminal justice operations and behavior are assessed in context of the major theoretical, historical, normative and organizational influences found in the field.

504-3 Criminological Theory. Multidisciplinary study of biogenic, psychogenic and sociogenic explanations for criminal behavior relevant to policy-making and practice in criminal justice. Prerequisite: consent of instructor.

516-3 Scope and Method of Criminal Justice Inquiry. Principles of scientific inquiry applied to the study of crime and criminal justice. Examines the interrelationship of theory and research techniques, development of hypotheses and problem statements, different approaches to data collection and research designs.

517-3 Quantitative Techniques in Administration of Justice Research. Examination and application of advanced statistical techniques often utilized in criminal justice research.

562-3 Fundamental Legal Concepts in the Administration of Justice. Includes the origin of rights, a review of the historical development and current use of civil rights; due process, equal protection and cruel and unusual punishment; affirmative action, the limits of governmental action; and the application of these doctrines to various populations such as criminal justice personnel, prisoners, women and minorities.

571-3 Correctional Systems in Criminal Justice. Evaluation of corrections as a system, its programmatic interrelationships and conflicts and the probable course of its future development. Prerequisite: consent of instructor.

578-1 to 4 Seminar in Correctional Rehabilitation Counseling. Review of major issues and research relative to rehabilitation practices in youth and correctional settings. Prerequisite: consent of instructor.

580-3 Planning for Change in the Administration of Justice. Examines the planning of change in criminal justice. Presents perspectives and models used in understanding the dynamics of planned change and why change efforts succeed or fail. Discusses types of change strategies, targets of change and levels of intervention with focus on broad-based organizational and system-level change.

582-3 Criminal Law and the Correctional Process. Basic principles and administration of the criminal law and the legal foundations of the juvenile court, the sentencing process, parole and probation and the changing concept of mental competency. Includes statutory, case, and administrative law requirements of "due process" in correctional services.

584-3 Administration and Management in Criminal Justice. Focuses on the development and history of administrative theory and its impact on management techniques involving administration of justice bureaucracies.

587-3 Seminar in Law Enforcement. Multidisciplinary study of the philosophical premises, theoretical implications and functions of contemporary law enforcement. Prerequisite: consent of instructor.

588-3 to 6 (3 per topic) Selected Topics in the Administration of Justice and Public Safety. **(a)** Personnel administration. Issues and processes in the education, selection, training, and promotion of administration of justice personnel are reviewed. **(b)** Policy and program evaluation. Examination of approaches and problems in the analysis and evaluation of criminal justice personnel, policy and problems, with attention paid to both process and outcome analyses.

590-1 to 6 Supervised Readings in Selected Subjects. Readings supervised by a faculty member in a selected area of the Administration of Justice. May be repeated with different topics up to a maximum of six credits. Prerequisite: consent of a faculty sponsor.

591-1 to 6 Field Project Research. A requirement for the non-thesis option directed by a faculty committee. Usually represents an applied research project addressing an issue/problem confronted during supervised field work (595a and 595b). Graded *S/U* only. Prerequisite: consent of graduate faculty advisor.

592-3 to 6 (3,3) Advanced Seminar in Administration of Justice. Seminars of varied content for advanced students. May be repeated with different topics up to a maximum of six credits. Prerequisite: consent of instructor.

595A-3 to 6 Supervised Field Experience. Experience in law enforcement agencies, juvenile courts, probation and parole departments, correctional institutions, delinquency control programs and public or voluntary agencies. Orientation sessions precede placement. Student must submit internship application during the first 30 days of the preceding spring or fall semester. Graded *S/U* only. Prerequisite: consent of instructor.

595B-3 to 6 Supervised Field Experience. Experience in law enforcement agencies, juvenile courts, probation and parole departments, correctional institutions, delinquency control programs and public or voluntary agencies. Orientation sessions precede placement. Student must submit internship application during the first 30 days of the preceding spring or fall semester. Graded on a letter grade basis. Prerequisite: consent of instructor.

599-1 to 6 Thesis. Graded *S/U* only. Prerequisite: consent of academic coordinator.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Agribusiness Economics

E-mail: gradinfo@siucvmb.siu.edu

COLLEGE OF AGRICULTURE

Beaulieu, Jeffrey R., Associate Professor, Ph.D., Iowa State University, 1984; 1983.

Beck, Roger J., Associate Professor, Ph.D., Pennsylvania State University, 1977; 1984.

Eberle, Phillip R., Associate Professor, Ph.D., Iowa State University, 1983; 1983.

Harris, Kim S., Associate Professor, Ph.D., University of Illinois, 1985; 1984.

Herr, William McD., Professor, *Emeritus,* Ph.D., Cornell University, 1954; 1957.

Keepper, Wendell E., Professor, *Emeritus,* Ph.D., Cornell University, 1938; 1950.

Kraft, Steven E., Professor and *Chair*, Ph.D., Cornell University, 1976; 1980.

Rendleman, C. Matthew, Assistant Professor, Ph.D., Purdue University, 1989; 1994.

Solverson, Lyle, Associate Professor, Ph.D., University of Wisconsin, 1967; 1966.

Wills, Walter J., Professor, *Emeritus,* Ph.D., University of Illinois, 1952; 1956.

The Department of Agribusiness Economics offers graduate work leading to the Master of Science degree with a major in agribusiness economics.

Students interested in agricultural economics at the doctoral level can be admitted to a program of study leading to the Ph.D. degree in economics.

Application forms for admission to the Graduate School may be obtained from the department. For entering graduate students to be acceptable on an unconditional basis in the agribusiness economics Master of Science degree program, a minimal undergraduate grade point average of 2.7 is required.

Inquiries for financial assistance and additional information would be directed to the chair of the Department of Agribusiness Economics, Southern Illinois University at Carbondale, Carbondale, IL 62901-4410.

Agribusiness Economics Concentration

Emphasis may be attained in farm management, agricultural marketing, agricultural prices, agricultural policy, resource economics, and agribusiness management and finance.

Undergraduate competence in economics and agricultural economics must be demonstrated. Students with an insufficient background in economics or agricultural economics may be admitted if remedial courses are taken.

A minimum of 30 hours of graduate credit, including a thesis, is required for the Master of Science degree major in agribusiness economics with a concentration in agribusiness economics. At least 15 hours must be at the 500 level.

Thirteen hours of agribusiness economics courses are required. This includes ABE 500a, 500b, 551, 552, and 581. In addition, the student's program is oriented toward either economics or business. The emphasis in economics is accomplished by completing six hours of graduate level courses in the Department of Economics. The emphasis in business is accomplished by completing six hours of graduate level courses in the College of Business and Administration. Such work completed as part of an undergraduate degree may be accepted in meeting the economics or business program requirements. This enables students with strong backgrounds in economics or business to take additional agribusiness economics courses or courses in their area of interest to meet the 30 hour M.S. degree requirement. Students are required to take 3–6 hours of thesis.

M.B.A./M.S. in Agribusiness Economics Concurrent Degree Program

The Department of Agribusiness Economics (ABE) in the College of Agriculture (COA) and the College of Business and Administration (COBA) together offer an M.B.A./ABE M.S., a concurrent degree program leading to both the Master of Business Administration and the Master of Science degrees with a major in agribusiness economics. The M.B.A. degree requires completion of 32 semester hours of course work; the M.S. with a major in ABE requires the completion of 30 semester hours of course work. In the concurrent M.B.A./M.S. degree pro-

gram, COBA accepts 6 semester hours of ABE approved course work, and ABE accepts 6 semester hours of COBA approved course work. The end result is that the concurrent degree program entails completion of 26 semester hours of COBA approved courses and 24 semester hours of ABE approved courses, for a total of 50 hours; this is a savings of 12 semester hours over pursuing both degrees separately outside of the M.B.A./ABE M.S. concurrent degree program.

Students interested in enrolling in the concurrent M.B.A./M.S. in agribusiness economics program must apply to both the graduate program in ABE and the graduate program in COBA. The student must be accepted by both programs. This initiates the process to pursue the concurrent degrees.

Students enrolled only in the M.S. in agribusiness economics or only in the M.B.A. in COBA may request admission into the other program and approval to pursue the concurrent degree program. Admission to the concurrent degree program must be done at least one semester prior to the last semester of registration at SIUC.

Agricultural Services Concentration

The agricultural services concentration is designed to permit students who are engaged in agriculture as extension workers, as soil conservation employees, in mechanization related industries, agricultural environmental service, etc., to expand their educational experiences in light of current and prospective employment goals and opportunities.

A minimum of 30 hours of graduate credit, including a thesis, is required for the Master of Science degree major in agribusiness economics with a concentration in agricultural services. At least 15 hours must be at the 500 level. Fifteen hours must be agricultural courses. Students are required to take 3–6 hours of thesis.

Courses (ABE)

Field trips are required for certain courses.

401-3 Agricultural Law. Relations of common-law principles and statutory law to land tenure, farm tenancy, farm labor, farm management, taxation and other problems involving agriculture. Prerequisite: junior standing or consent of instructor.

402-1 to 6 Problems in Agribusiness Economics. Designed to improve the techniques of agribusiness economics workers through discussion, assignment, and special workshops on problems related to their field. Emphasis will be placed on new innovative and currently developed techniques for the field. Prerequisite: consent of chair.

440-3 Land Resource Economics. The use of land as an economic variable in production of goods and services; land markets; public versus private land use conflicts; and land-use planning in an institutional setting. Prerequisite: 12 hours of agricultural economics or economics credit, or graduate status or consent of instructor.

444-3 Agricultural Development. Analysis of the economic, social, political, cultural, and institutional factors related to economic growth and development in agricultural sector. Framework for evaluating outcome of alternative strategies in agricultural production, marketing, and government policies that affect output, income distribution and resource use in agriculture and the related agroindustrial complex. Prerequisite: 204.

450-3 Advanced Farm Management. Application of production economic principles and modern decision-making techniques to farm management problems. The importance of information, sources of agricultural risk and management of risk in farm planning will be integrated. Prerequisite: 350 or equivalent and General Education Mathematics requirement.

451-2 Farm Real Estate Appraisal. Principles and practices of farm real estate appraisal. Application of capitalization, market and cost approaches for estimating market value. Understanding of special valuation methods used for buildings, insurance, assessments, loans and condemnation. Field trips not to exceed $10. Prerequisite: 350 or consent of instructor.

453-3 Agribusiness Planning Techniques. Application of mathematical programming to agribusiness and farm planning, including enterprise selection, resource allocation, least cost ration formulation, decision making under risk and uncertainty, transportation and location problems. Emphasis placed on modeling problems and interpretation of results. Prerequisite: 350 or consent of instructor.

460-3 Agricultural Prices. Measurement and interpretation of factors affecting agricultural prices. Construction of index numbers, trend analysis, seasonal and cyclical price movements and the measurement of relationships between price and other variables. Prerequisite: 362 or equivalent.

461-3 Agriculture Business Management. Examination of agribusiness firm management with

emphasis on the management and control of financial resources and the interrelationship between the agribusiness firm and human resource management. Other topics in agribusiness will include effective communication in the management process, business ethics and workable credit programs for customers. Prerequisite: 351 and 360 or equivalent.

462-3 Advanced Agricultural Marketing. Advanced treatment of marketing issues from both theoretical and practical decision-making perspectives. Marketing margins, intertemporal and spatial price relationships are reviewed in detail. Historical and current grain and livestock price series are utilized in decision-making exercises. Prerequisite: 362 or equivalent.

500-6 (3,3) Agribusiness Economics Research Methodology. (a) Social science research methodology in agriculture, including defining research problems, hypothesis formation, specification of research design, survey methodology, source of data and development of research proposals. **(b)** A survey of applied techniques and procedures for developing and evaluating agricultural economic research models with an emphasis on multiple regression and time-series models. Prerequisite: Educational Psychology 506 or equivalent.

551-3 Resource Allocation in the Agribusiness Firm. An examination of resource allocation in the agribusiness firm. Production decisions, agricultural product price analysis and decision making models are considered. Prerequisite: six hours of agricultural economics or economics or consent of instructor.

552-3 Problems and Policies of the Agricultural Sector. An analytical survey of agricultural policy issues including agricultural price and income stabilization; international trade, capital and credit, the structure of agriculture and the quality of life in rural areas. Prerequisite: six hours of agricultural economics or economics or consent of instructor.

581-1 to 4 Seminar in Agribusiness Economics. Seminar on current research and issues in agribusiness economics on topics such as farm management, farm policy, agricultural marketing, farm finance, agricultural prices and international agriculture.

588-1 to 8 International Graduate Studies. University residential graduate study program abroad. Prior approval by the department is required both for the nature of program and the number of semester hours of credit.

590-1 to 4 Readings. Readings in specialized topics under the direction of an approved graduate faculty member. Graded *S/U* only.

593-1 to 4 Individual Research. Directed research in selected topics under the supervision of an approved graduate faculty member. Graded *S/U* only.

599-1 to 6 Thesis. Work in the research for and presentation of a thesis under the supervision of an approved faculty member. Graded *S/U* only.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Agricultural Education and Mechanization

E-mail: judyw@siu.edu

COLLEGE OF AGRICULTURE

Benton, Ralph A., Professor, *Emeritus,* Ph.D., University of Illinois, 1955; 1956.

Doerr, William A., Associate Professor, *Emeritus,* Ph.D., Southern Illinois University at Carbondale, 1973; 1965.

Legacy, James, Professor, Ph.D., Cornell University, 1976; 1977.

Steffen, Richard W., Assistant Professor, Ph.D., Iowa State University, 1993; 1994.

Stitt, Thomas R., Professor, Ph.D., Ohio State University, 1967; 1967.

Wolff, Robert L., Professor and *Chair,* Ph.D., Louisiana State University, 1971; 1972.

Wood, Eugene S., Professor, *Emeritus,* Ed.D., University of Missouri, 1958; 1949.

The Department of Agricultural Education and Mechanization offers graduate work leading to the Master of Science degree majoring in agricultural education and mechanization with concentrations in agricultural education, agricultural mechanization, and agricultural information.

Students interested in agricultural education at the doctoral level can be admitted to a program of study leading to the Ph.D. in education.

Application forms for admission to the Graduate School may be obtained from the department. For entering graduate students to be acceptable on an unconditional basis in the agricultural education and mechanization concentrations for the Master of Science degree program, a minimal undergraduate grade point average of 2.7 is required.

Inquiries for financial assistance and additional information should be directed to the chair of the Department of Agricultural Education and Mechanization, Southern Illinois University at Carbondale, Carbondale, IL 62901-4414.

Agricultural Education Concentration

The concentration in agricultural education is designed for instructors in secondary schools, for students preparing for employment at junior colleges, and for those desiring to continue their education by obtaining a Ph.D. degree.

A minimum of 30 hours of graduate credit, including thesis or research hours is required for the M.S. degree major in agricultural education and mechanization with a concentration in agricultural education. At least 15 hours must be at the 500 level.

A minimum of 15 hours is required in agriculture (including agricultural education), six hours of research methods or statistics, and six hours in education or community development. M.S. students usually take 4–6 hours of research or thesis, and complete the additional hours by taking courses in education or agriculture.

Agricultural Mechanization Concentration

The concentration in agricultural mechanization is designed to permit students interested in agricultural mechanization the opportunity to emphasize one or more of the following areas: (a) power and machinery operation and field testing, (b) product handling, processing, and storage, (c) farm equipment sales, service, and product education, (d) machinery selection and efficient utilization in the farming operation, (e) agricultural structures — sales and construction supervision, (f) agricultural electricity — service and consumer advisement, (g) conservation of soil and water. Each of these areas offers application in agricultural environmental studies.

A minimum of 30 hours of graduate credit, including thesis or research hours is required for the Master of Science degree with a major in agricultural education and mechanization with a concentration in agricultural mechanization. At least 15 hours must be at the 500 level.

Agricultural Information Concentration

The agricultural information concentration is designed to provide graduate training for extension agents, agricultural communication professionals, product-education specialists, and others who are interested in agricultural information processing and transfer to a variety of non-student clientele.

A minimum of 30 hours of graduate credit, including thesis or research hours, is required for an M.S. degree with a major in agricultural education and mechanization with a concentration in agricultural information. At least 15 hours must be at the 500 level. Fifteen hours must be agricultural courses. Students usually take 4–6 hours of research or thesis and complete the additional hours by taking courses in their concentration.

Courses (AGEM)

Field trips are required for certain courses.

402-1 to 12 (1 to 6 per topic) Problems in Agricultural Education and Mechanization. **(a)** Agriculture education, **(b)** agriculture mechanization. Designed to improve the techniques of agricultural education and mechanization workers through discussion, assignment and special workshops on problems related to their field. Emphasis will be placed on new innovative and currently developed techniques for the field. A limit of six hours will be counted toward graduation in Master's degree program. Prerequisite: consent of chair.

411-3 Human Resource Development Programs in Agriculture. Principles and procedures of human resource development (HRD) programs in agriculture with emphasis on program determination and methods. Prerequisite: junior standing.

412-3 Methods of Agriculture Mechanization. Theory and use of educational materials and de-

vices adaptable to the needs and interests of educators involved in agricultural mechanization laboratories. There is a $15 laboratory fee for this course.

414-3 Adult Education Procedures, Methods and Techniques. Determining adult education needs and interests of the community. Securing and organizing the information needed for adult education programs and planning teaching activities.

415-3 Beginning Teacher Seminar. The application in the professional field setting, of principles and philosophies of the education system. Includes application of principles of curricula construction, programming student and community needs. Prerequisite: consent of instructor.

418-3 Applications of Integrated Software/ Agriculture. (Same as Workforce Education and Development 409.) Design of agricultural or educational applications of integrated software. Spreadsheet, database, wordprocessing, graphic and communications software will be applied to the solution of agricultural problems. Individual student projects will be the focus of the applied nature of the class. Prerequisite: junior standing or consent of instructor.

473-3 Planning Agricultural Electrical Systems. Design and plan the efficient application of electrical service to agricultural buildings and operations. National electric and local code requirements and safety are emphasized. Prerequisite: 170 or equivalent.

474-3 Advanced Agricultural Structures. A study of design characteristics, construction, methods and environmental control applicable to agricultural structures. Design construction and environment are considered from the standpoint of the function of the building of an agricultural enterprise. Prerequisite: 384 or equivalent.

476-3 Agricultural Safety and Health. Analysis of safety and health issues important to managers and supervisors in agricultural operations. Topics include agricultural accident data, causes and effects of accidents, hazard identification, strategies for accident prevention, response to accidents and health risks and safeguards. Development and documentation of accident and illness prevention activities in the workplace. Prerequisite: junior standing.

499-3 Agriculture Information for Elementary Teachers. A general inquiry into the agriculture literacy appropriate for elementary students. A framework for evaluating content appropriate for elementary students in the pursuit of agriculture literacy will be developed.

483-3 Agricultural Materials Handling, Processing and Storage. Arrangement of systems for animal waste disposal, feed handling and processing and storage of agricultural products. Prerequisite: 373 or 384 or 473 or 474.

500-3 Agricultural Education and Mechanization Research Methodology. Social science research methodology in agriculture including defining research problems, preparing project proposals and sources of data.

501-3 Recent Research in Agricultural Education. A study of recent research and development in agricultural education. The course includes an analysis of regional and national scholarly publications, procedures and products. Prerequisite: graduate status and consent of instructor.

525-3 Program Development in Agricultural Education. Analysis and appraisal of current trends in agricultural education program development. Attention is given to implications for educators at the high school, post secondary and in extension education positions. Offered each year, alternating spring and summer semesters.

526-3 Professional Development in Agricultural Education. Recent developments and trends in agricultural education are presented for review and discussion. The role of the agricultural instructor in determining educational priorities is emphasized. Offered each year, alternating fall and summer semesters.

572-3 Current Problems and Research in Power and Machinery. A study and analysis of current problems, research findings and innovations in agricultural power units and machinery. Prerequisite: 372 or equivalent.

581-1 to 8 (1 to 4 per topic) Seminar. (a) Agriculture education. **(b)** Agriculture mechanization. Study and discussion in selected topics under the supervision of an approved graduate faculty member. A maximum of four hours can be counted toward a Master of Science degree.

588-1 to 8 International Graduate Studies. University residential graduate study program abroad. Prior approval by the department is required both for the nature of program and the number of semester hours of credit.

590-1 to 4 Readings. Readings in specialized topics under the direction of an approved graduate faculty member. Graded *S/U* only.

593-1 to 4 Individual Research. Directed research in selected topics under the supervision of an approved graduate faculty member. Graded *S/U* only.

595-1 to 4 Agricultural Occupation Internship. Prepares coordinators to fulfill their responsibilities in selected areas in agricultural related occupations through an internship in the area of specialization and through orientation to related technical information. Prerequisite: consent of department.

599-1 to 6 Thesis. Work in the research for and presentation of a thesis under the supervision of an approved faculty member. Graded *S/U* only.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Animal Science

E-mail: asms01@siu.edu

COLLEGE OF AGRICULTURE

Arthur, Robert, Professor, Ph.D., University of Missouri, 1970; 1977. Monogastric nutrition, biochemistry.

Carnevale, Elaine M., Assistant Professor, D.V.M., Colorado State University, 1985; Ph.D., University of Wisconsin-Madison, 1994; 1994. Equine reproductive physiology.

Dado, Richard G., Assistant Professor, Ph.D., Michigan State University, 1993; 1994. Dairy production, ruminant nutrition.

Goodman, Bill L., Professor, *Emeritus*, Ph.D., Ohio State University, 1959; 1958.

Hausler, Carl L., Associate Professor, Ph.D., Purdue University, 1970; 1970. Reproductive physiology.

Hinners, Scott W., Professor, Ph.D., *Emeritus*, University of Illinois, 1958; 1951.

Kammlade, W. G., Jr., Associate Professor, *Emeritus*, Ph.D., University of Illinois, 1951; 1954.

King, Sheryl S., Professor, Ph.D., University of California, Davis, 1983; 1983. Reproduction physiology, equine science.

Kroening, Gilbert H., Professor and *Chair*, Ph.D., Cornell University, 1965; 1969. Swine production, monogastric nutrition.

Olson, Howard H., Professor, *Emeritus*, Ph.D., University of Minnesota, 1952; 1954.

Strack, Louis E., Associate Professor, *Emeritus*, D.V.M., University of Illinois, 1961; 1968. Veterinary medicine.

Winters, Todd A., Assistant Professor, Ph.D., University of Wisconsin-Madison, 1992; 1994. Animal biotechnology, reproductive physiology.

Woody, Harold Dee, Associate Professor, Ph.D., Michigan State University, 1978; 1978. Ruminant nutrition, growth.

Young, Anthony W., Professor, Ph.D., University of Kentucky, 1969; 1980. Ruminant nutrition, forages.

The Department of Animal Science, Food and Nutrition offers programs of study leading to the Master of Science degree with a major in animal science. Programs may be designed in the various disciplines of nutrition, reproductive physiology or growth and development with emphasis on beef cattle, dairy cattle, horses, or swine. Supporting courses may be selected in applied science, chemistry, microbiology, physiology, zoology, behavioral science, agriculture, etc.

Admission to programs administered by the Department of Animal Science, Food and Nutrition must be approved by the department. Application and reference forms will be provided upon request from the department. Applicants must have the registrar of each college previously attended send official transcripts directly to the Graduate School.

Requirements

Minimum requirements for the master's degree may be fulfilled by satisfactory completion of 30 semester hours of graduate credit, with a minimum of 15 hours in animal science. A maximum of two animal production related courses (409, 419, 430, 455, 465, 485) may be counted for graduate credit. At least 8 hours of graduate credit must be earned outside the College of Agriculture. Minimal requirements for students entering the master's degree program are: (a) meet animal science undergraduate requirements; (b) minimal GPA of 2.7 ($A = 4.0$); (c) CHEM 340 and 344 or organic chemistry equivalent.

Students who do not meet the undergraduate requirements may correct these deficiencies while an unclassified student or with the consent of the department during graduate study. Students entering the animal science graduate program with a GPA below 2.70 are accepted on a conditional basis and must enroll in 8 hours of structured courses at the 400–500 level during their first semester and make a 3.0 GPA or be dropped from the program.

Each student, whether in the thesis or non-thesis option, will have an advisory committee of at least four members including the departmental chair and at least one other member of the department. Each master's degree candidate must pass a comprehensive oral examination covering all graduate work including the thesis or research paper.

Students interested in animal science at the doctoral level can be admitted to a program of study leading to the Ph.D. degree in physiology. The program, in the Department of Physiology, is adequately flexible to allow students to emphasize such areas as behavioral science, endocrinology, metabolism, microbiology, physiological genetics, or reproductive physiology. For admission requirements and program description the student should consult the physiology section in the *Graduate Catalog*.

Information concerning admission policies, requisites for graduation, and availability of financial assistance for graduate study in animal science may be obtained from the Department of Animal Science, Food and Nutrition, Southern Illinois University at Carbondale, Carbondale, IL 62901-4417.

Courses (ANS)

Field trips are required for certain courses.

409-4 Equine Science. Designed for students interested in the more scientific aspects of equine physiology and management. The class will take a more advanced look at anatomy and physiology of the systems of the equine and consider how they relate to selection, use and management. Lecture and laboratory. Prerequisite: 219, 220, 331 or Physiology 310 or equivalent.

410-3 Meat Science. Chemical, physical and nutritional properties of meat and meat products. Topics covered include muscle function, tissue growth and development, aspects of post mortem change including rigor mortis, meat microbiology, methods of analysis and quality control. Prerequisite: 210, Chemistry 140 or equivalent and a course in physiology.

414-3 Animal Feed Quality Control. Laboratory procedures for nutrient determinations used in animal feed quality control. Prerequisite: Chemistry 140 or equivalent.

415-4 Advanced Animal Nutrition. Advanced principles and practices associated with digestion, absorption and metabolism of nutrients as related to domestic monogastrics, ruminants and horses. Prerequisite: 215 and 315.

416-3 Ruminant Nutrition. Practical knowledge gained of problems associated with digestion, absorption and metabolism of nutrients as related to domestic ruminants, horses and other pseudoruminants. Prerequisite: 215 and 315.

419-4 Stable Management. Designed for the advanced equine science student planning a career in the horse field. Teaches in-depth management techniques on an applied basis. Students will have the opportunity to learn both theory and application of management in one course. One hour lecture, four hours laboratory. Laboratory fee $20. Prerequisite: 219, 409 and consent of department.

420-4 Commercial Poultry Production. Principles and practices of management of broilers, layers and turkeys as adapted to commercial operations. Field trip. Offered fall semester of even numbered years. Prerequisite: 315 or consent of instructor.

421-2 International Animal Production. A study of world animal production practices with emphasis on the developing countries. Adaptability of animals to environmental extremes and management practices employed to improve productivity. Prerequisite: junior standing plus Animal Science 121 or one year of biological science.

430-4 Dairy Cattle Management. Application of the principles of breeding, physiology and economics to management of a profitable dairy herd. Breeds of dairy cattle, housing, milking practices and quality milk production. Field trip. Students enrolled will incur field trip expenses of approximately $25. Prerequisite: 315, 332.

431-4 Reproductive Physiology of Domestic Animals. Comparative anatomy and physiology of the male and female reproductive system of domestic animals; hormones; reproductive cycles; mating behavior; gestation and parturition; sperm physiology; collection and processing of semen; artificial insemination, pregnancy tests; diseases. Prerequisite: 121 or a course in physiology.

432-2 Quantitative Inheritance of Farm Animals. A review of the genetic principles underlying changes in animal breeding population; interpretations of gene frequency, heritability and genetic correlations; application of selection and breeding systems in farm animals. Prerequisite: 332.

433-4 Introduction to Agricultural Biotechnology. (Same as Plant and Soil Science 433.) This course will cover the basic principles of plant and animal biotechnology using current examples; gene mapping in breeding, transgenic approaches to improve crop plants and transgenic approaches to improve animals will be considered. Technology transfer from laboratory to marketplace will be considered. An understanding of gene mapping, cloning, transfer and expression will be derived. Prerequisite: senior standing or consent of instructor.

434-2 Physiology of Lactation. Anatomy and physiology of milk secretion; endocrine control; milk precursors and synthesis; milk composition; physiology and mechanics of milking, mastitis. Offered only fall semester of odd numbered years. Prerequisite: course in physiology.

435-1 to 4 Agricultural Molecular Biotechnology Seminar. (Same as Plant and Soil Science 435) Molecular biology is rapidly making important contributions to agricultural science through biotechnology. An appreciation of the techniques of molecular biology and their application to plant improvement is important to all in agriculture and biology. The relationships between plant molecular biology and the biotechnology industry will be discussed. Presentations on particular research problems will be made. Graded *S/U*.

455-2 Animal Waste Management. Acquaints the student with the scope and problems involved with animal waste management, current regulations and laws on environmental protection. Principles covering waste management technology and current livestock waste management systems are presented. Field trips will be scheduled. Prerequisite: junior standing.

465-4 Swine Production. Swine production systems and management techniques including breeding and selection, reproduction, nutrition, herd health and disease prevention, housing and waste management, marketing, production costs and enterprise analysis. Field trip. Prerequisite: 315 and 332 or consent of instructor.

480-3 Sheep Production. Breeding, feeding and management of sheep. Field trip. Prerequisite: 315.

481-1 Current Topics in Equine Science. Seminar exploring selected topical concerns in the horse industry. Students will prepare and present an individual seminar on current scientific work in the equine area. Such areas of study might include but are not limited to behavior, nutrition, reproduction, management, veterinary advances and general and exercise physiology. Prerequisite: 419.

485-4 Beef Production. Beef cattle production systems and management, breeding and selection, reproduction, nutrition and herd health with emphasis on the most economical and efficient systems. Field trip. Students enrolled will incur field trip expenses of approximately $5. Prerequisite: 315 and 332 or consent of instructor.

500-3 Research Methods in Agricultural Science. Experimental design and biometry as applied to biological and allied fields. Prerequisite: graduate student.

502-2 Surgical Research Techniques in Farm Animals. Basic methods of experimental surgery and sampling of biological materials in research on farm animals. Practice of techniques discussed in the lectures. Prerequisite: consent of instructor.

506-3 Instrumentation Methods in Agricultural Science. Basic methods and techniques of spectrophotometric and chromatographic instrumentation are taught in the lectures with application of instruments carried out in the laboratories. Prerequisite: consent of instructor.

515-3 Energy and Protein Utilization. Energy and protein utilization including digestion, absorption and metabolism as related to domestic animal production. Prerequisite: Chemistry 344 and 345.

516-3 Minerals and Vitamins in Animal Nutrition. Basic and applied principles of mineral and vitamin metabolism. Emphasis on metabolic functions, reaction mechanisms and interrelationships. Prerequisite: Chemistry 344 and 345.

531-2 Topics in Theriogenology. Current research topics in reproduction of domestic mammals are discussed in relation to improving production technology. Emphasis is on neural and endocrine control mechanisms that may be modified to increase animal productivity. Prerequisite: 431.

581-1 to 2 (1,1) Seminar. Problems relating to various phases of animal industries. Maximum of one hour per semester.

588-1 to 8 International Graduate Studies. University residential graduate study program abroad. Prior approval by the department is required both for the nature of the program and the number of credit hours.

590-1 to 3 Reading in Animal Industries. Reading in specialized fields under direction of approved graduate specialists.

593-1 to 3 Individual Research. Investigation of a problem in animal science under the supervision of an approved graduate specialist.

599-1 to 6 Thesis. Credit is given for a Master's thesis when it is accepted and approved by the thesis committee.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

FOOD AND NUTRITION

E-mail: fnms01@siu.edu

COLLEGE OF AGRICULTURE

Anderson, Sara Long, Assistant Professor, Ph.D., Southern Illinois University at Carbondale, 1991; 1990. Clinical dietetics.

Ashraf, Hea-Ran Lee, Associate Professor, Ph.D., Iowa State University, 1979; 1980. Food science, food technology.

Banz, William J., Assistant Professor, Ph.D., University of Tennessee, 1995; 1995. Human nutrition, nutritional physiology.

Boushey, Carol J., Assistant Professor, Ph.D., University of Washington, 1995; 1995. Nutritional epidemiology, public health nutrition.

Endres, Jeannette M., Professor, Ph.D., St. Louis University, 1972; 1975. Community nutrition, dietetics, life cycle nutrition.

Girard, T.C., Assistant Professor, M.S., University of Wisconsin-Stout, 1992; 1993. Hospitality and tourism.

Harper, Jenny M., Professor, *Emerita*, Ph.D., Cornell University, 1941; 1958.

Konishi, Frank, Professor, *Emeritus*, Ph.D., Cornell University, 1958.

Payne, Irene R., Professor, *Emerita*, Ph.D., Cornell University, 1960; 1965.

Welch, Patricia K., Professor, Ph.D., Southern Illinois University at Carbondale, 1982; 1974. Community nutrition, food service management.

The Department of Animal Science, Food and Nutrition offers a graduate program leading to the Master of Science degree in food and nutrition with a concentration in community nutrition. The curriculum for this concentration fulfills the requirements of the Association of Faculties of Graduate Programs in Public Health Nutrition.

The program is designed to meet the needs of: (a) students who have a B.S. degree in dietetics, home economics, food and nutrition or other health related fields, but are without the knowledge and skills to practice dietetics with a community nutrition concentration and (b) students who are Registered Dietitians, having worked in a hospital setting, but need additional competencies to cope with the demands of the ambulatory health care setting and community nutrition.

In addition to fulfilling the requirements for admission to the Graduate School, to be admitted to the graduate program in food and nutrition, the applicant's course work must provide an appropriate academic base for the community nutrition concentration. Unless otherwise stated, the policies of the University and of the Graduate School shall establish the minimum requirements for retention in and graduation from the program.

Requirements

Minimum requirements for the master's degree are fulfilled by the satisfactory completion of 36 semester hours of graduate credit from the following: FN 420-3, 472-3, 530-3, 540-3, 580-4, 581-1, 585-3 and 593-3 or 599-3; HED 401-3, 483-3; and EPSY 493-3, 506-4. Minimum requirements for students entering the master's degree program are: (a) meet American Dietetic Association knowledge requirements for the Didactic Program in Dietetics; (b) GPA of 3.0 (A = 4.0). Students who do not meet the undergraduate requirements may correct these deficiencies while an unclassified student or, with the consent of the department, during graduate study.

Each student, whether in the thesis or research report portion, will have a graduate committee of at least four faculty members, that includes the departmental chair and one faculty member from outside of the department. Each master's degree candidate must pass a comprehensive oral examination conducted by the graduate committee, covering all graduate work including the thesis or research report and the field experience.

Information concerning admission policies, requisites for graduation, and availability of financial assistance for graduate study in food and nutrition may be obtained from the Department of Animal Science, Food and Nutrition, Southern Illinois University at Carbondale, Carbondale, IL 62901-4417.

Courses (FN)

410-3 Nutrition Education. Course provides principles, techniques and evaluation methods necessary to incorporate food and nutrition into the educational curriculum of schools, hospitals, out-patient clinics and health agencies. Principles of interviewing, counseling and education are discussed. Prerequisite: 321.

420-3 Recent Developments in Nutrition. Critical study of current scientific literature in nutrition. Prerequisite: 320 or equivalent.

421-2 Recent Trends in Food. Critical study of current scientific literature in food. Prerequisite: 320 or equivalent.

425-3 Energy and Nutrition Utilization. The interrelationship of cell physiology, metabolism and nutrition as related to energy and nutrient utilization, including host needs and biochemical disorders and diseases requiring specific nutrition therapy or consideration. Prerequisite: 320, Chemistry 140b, Physiology 310.

435-3 Hospitality Marketing Management. Marketing principles and practices from a hospitality management perspective. Develops the use of marketing tools as an integral part of any hospitality and tourism operation. Prerequisite: 202 and Marketing 304.

461-3 Service Organization and Management in the Hospitality Industry. Managerial aspects of the hospitality industry as related to the provision of quality service. Organizational structures, management techniques, decision-making abilities, ethics, leadership and human resource issues are examined. Prerequisite: 435 and Management 304.

470-3 Medical Nutrition Therapy. Physiological and biochemical changes associated with cer-

tain diseases and the appropriate nutrition therapy. Prerequisite: 320, Chemistry 140b and Physiology 310.

472-3 Applied Medical Nutrition Therapy. Application of nutrition principles to the management of patients with altered physiological and biochemical states. Off-campus experiences may be required. Prerequisite: 470 or concurrent enrollment and consent of instructor.

473-3 Hotel Administration. An advanced hotel administration course covering contemporary management issues such as conference management, hotel security, strategic planning, and hotel law.

474-3 Nutrition Therapy II. In depth study of the application of nutrition to the management of disease states with emphasis on current treatment and complex metabolic abnormalities. Prerequisite: 470.

480-3 Community Nutrition. Offers a study of the objectives, implementation strategies, and evaluation methods of nutrition programs in communities' health programs. Integration of nutrition into the health care delivery system at local, state and federal levels is included.

490-3 Nutrition and Growth. The study of human nutrition during each phase of the life cycle, prenatal through geriatric. Students elect at least two phases for in-depth study. A general review of basic nutrition is included. Prerequisite: consent of instructor and department chair.

530-3 Advanced Nutritional Assessment and Education. Community assessment methods, specifications or particular tools used and how these tools can be applied to particular conditions of concern in community nutrition. The methods of education for individuals and populations using dietary, biochemical, anthropometric and physical assessment data will be taught. Prerequisite: 321 or consent of instructor.

540-3 Nutrition Policy, Programs and Services. The study of policies, programs and services concerned with prevention and treatment of nutrition problems in the population. Prerequisite: 480 and consent of instructor.

580-9 (3,3,3) Nutrition Practicum in the Community. Designed to provide practicum experiences in dietetics for students completing the Master's in Food and Nutrition and includes **(a)** clinical rotation, **(b)** management rotation, **(c)** public health nutrition rotation. Prerequisite: 585 and consent of instructor.

581-1 Seminar. An integration of the knowledge gained from the didactic and experiential learning prior to and after the clinical, food service and public health field experiences. Prerequisite: 480 and consent of instructor.

585-3 Advanced Community Nutrition. A presentation and examination of issues and programs in food and nutrition programs. Elements including the organization and management of quality nutrition services for the prevention of disease and promotion of health will be identified and applied to community programs. Prerequisite: 480.

593-1 to 3 Individual Research. Investigation of a problem in food and nutrition under the supervision of an approved graduate faculty member. Graded *S/U* only.

599-1 to 6 Thesis. Credit is given for a Master's thesis when it is accepted and approved by the thesis committee. Graded *S/U* only.

601-1 Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Anthropology

E-mail: cmcgee@siu.edu

COLLEGE OF LIBERAL ARTS

Adams, Jane H., Associate Professor, Ph.D., University of Illinois-Urbana, 1987; 1987. Sociocultural anthropology, political economy, agricultural systems, history, gender roles; rural US, Latin America.

Benefit, Brenda R., Associate Professor, Ph.D., New York University, 1987; 1990. Physical anthropology, primate paleontology (especially Old World monkeys and apes), functional anatomy, diet and dentition, paleoecology; excavation of Miocene deposits at Maboko Island; Kenya.

Butler, Brian M., Adjunct Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1977; 1977. Archaeology, cultural resource management, prehistoric subsistence and settlement systems; southeastern and midwestern US.

Corruccini, Robert S., Professor, Ph.D., University of California, Berkeley, 1975; 1978. Physical anthropology, paleontology, osteology, multivariate methods, dental anthropology, epidemiology; India, Italy, Caribbean.

Ford, Susan M., Associate Professor, Ph.D., University of Pittsburgh, 1980; 1979. Physical anthropology, primate paleontology and systematics (especially New World monkeys and early anthropoids), evolutionary theory, functional and comparative anatomy; South America.

Gumerman, George J., Professor, *Emeritus,* Ph.D., University of Arizona, 1968; 1973.

Handler, Jerome S., Professor, *Emeritus*, Ph.D., Brandeis University, 1965; 1962.

Hill, Jonathan D., Associate Professor and *Director of Graduate Studies,* Ph.D., Indiana University, 1983; 1986. Ethnology, ecology, history, ethnomusicology, structural-semantic analysis; Amazon.

Maring, Ester G., Assistant Professor, Ph.D., Indiana University, 1969; 1965. Folklore, ethnology, acculturation, anthropology of religion, customary law and ethics; Southeast Asia, US Pueblos.

Maring, Joel M., Associate Professor, *Emeritus*, Ph.D., Indiana University, 1967; 1963.

McCall, John, Assistant Professor, Ph.D., Indiana University, 1992; 1995. Sociocultural anthropology, social theory, epistemology, history, ritual studies, medical anthropology, expressive culture; Africa.

Muller, Jon D., Professor, Ph.D., Harvard University, 1967; 1966. Archaeology, art analysis and culture theory; Eastern US, Africa.

Newsome, Lee Ann, *Curator* and Adjunct Assistant Professor, Ph.D., University of Florida, 1993; 1993. Archaeology, paleoethnobotany, origins of agriculture; Eastern U.S., Caribbean, neotropics.

Rands, Robert L., Professor, *Emeritus,* Ph.D., Columbia University, 1952; 1966.

Rice, Don, Professor, Ph.D., Pennsylvania State University, 1976; 1991. Archaeology, ethnohistory, tropical ecology, development of complex societies; Middle America, Andes.

Rice, Prudence M., Professor and *Chair*, Ph.D., Pennsylvania State University, 1976; 1991. Archaeology, ceramics; Mesoamerica; Andes.

Riley, Carroll L., Distinguished Professor, *Emeritus,* Ph.D., University of New Mexico, 1952; 1955.

Shimada, Izumi, Assistant Professor, Ph.D., University of Arizona, 1976; 1994. Archaeology, complex societies, technology and craft production, urban and ceremonial centers, experimental archaeology; Andes.

The Department of Anthropology offers graduate programs leading to the Master of Arts and Doctor of Philosophy degrees. Provided the student has been admitted to the Graduate School and meets its requirements, acceptance and continuation in the graduate program are at the discretion of the Department of Anthropology.

The philosophy of the Department of Anthropology is to produce students with broad backgrounds in the major sub-fields of anthropology and expertise in particular specialty areas. Within this philosophy, and subject to the requirements discussed below, the department offers a flexible program which will serve students with diverse needs and goals.

Admission

The applicant to the anthropology program must send a completed application for admission to graduate study and certified copies of all transcripts directly to the department, and must meet all Graduate School requirements for entry. Applicants whose native language is not English must achieve a TOEFL score of 600 or higher as well as take the Test of Written English (TWE), and the TWE score must be at least 5.0 (on a scale of 1 to 6) in order to gain admittance in the program. The Graduate Record Exam (GRE) is required for all U.S. applicants. Preference will be given to applicants who achieve the sum of a score of 1100 or higher on verbal and either quantitative or analytical sections of the exam. Although not required to take the GRE prior to admittance, all foreign students are strongly encouraged to take the exam prior to entering the graduate program and are required to take the exam before the end of their first year in the program.

Applicants who wish to be considered for university Graduate School fellowships must have all application materials completed by January 15. Applicants who wish to be considered for admission into the graduate program in the fall semester of the next academic year and who wish to be considered for departmental graduate assistantships must have all application materials completed by March 1. Applications not received or completed prior to March 1 will be considered only in exceptional cases, as determined by the Director of Graduate Studies in consultation with other members of the Graduate Studies Committee.

In addition, the applicant must send a completed departmental application for admission and financial aid form, personal data sheet, statement of academic and professional goals, and arrange for three letters of recommendation to be sent to the Director of Graduate Studies of the Department of Anthropology. All necessary forms will be provided to applicants by the department. No special program of previous work is required. Applicants with academic degrees in fields other than anthropology are encouraged to apply.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois Univer-

sity, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Master's Degree Program

In addition to the master's degree requirements specified in the Graduate Catalog, the following departmental requirements apply to all M.A. degree candidates:

(1) Each student must complete ANTH 500e plus 3 of the 4 core courses, ANTH 500a, b, c, and d, with an average grade of *B* or higher, no more than one *C*, and no grade lower than *C*. These courses should be taken by new M.A. students within the first 2 terms, and must be completed by the end of the third term. Once the 4 core courses have been satisfactorily completed, performance in them together with an evaluation of the student's overall academic record will serve as a basis for departmental decision on retaining a student in the M.A. degree program.

(2) Each student must complete 1 or more regular graduate-level courses or seminars in each of 3 subdisciplines of the student's choice (from among archaeological, linguistic, physical, sociocultural anthropology) beyond the core courses.

(3) A further 9 hours of course work will be assigned by the student's committee after consultation with the student. These 9 hours may include up to 4 hours of graduate credit to meet tool requirements, and may not include more than 3 hours of independent study or thesis. No more than 3 hours of credit in ANTH 501, 590, 597, and 599 (thesis) may be applied toward the Graduate School requirements of 30 hours of graduate course credit and 15 hours of 500-level credit. The department requires 2 additional seminars (500-level course) beyond the 4 core courses and the thesis hours.

(4) Each student must demonstrate a reading competence in a relevant language foreign to the student.

Students entering the program may petition to have previously taken courses accepted for credit as equivalent to core courses in cases where the equivalence can be documented.

M.A. Degree Committee, Thesis, Research Paper. Each student in the M.A. degree program will consult with the director of graduate studies and relevant faculty members to select a three-person faculty committee, which will assume major responsibility for the student's advisement. At least 2 members of this committee, including the chair, must be from the Department of Anthropology, and the third member may be selected from outside the department. At least the chair should be chosen by the end of the first year, and the entire committee by the end of the third term.

Under the direction of the M.A. degree committee, the student will complete a thesis and register for at least three hours of Anthropology 599 while doing so. A student may submit a published paper, or one accepted for publication in an approved professional journal, instead of a thesis, or may be authorized by the department to substitute a research paper for the thesis. Passing of a comprehensive examination on the student's entire program is a Graduate School requirement. One properly bound copy of the thesis, research paper, or article must be deposited with the department before the degree is granted.

An option is available, at the discretion of the departmental faculty, to allow exceptional M.A. students accelerated entry in the doctoral program at the end of their first year of M.A. study. For these students, the following are sufficient for the M.A. degree in Anthropology:

(1) completion of 30 hours of coursework, including 21 hours at the 500 level (which can include up to 9 hours of Anthropology 598 - Research); and

(2) a research paper (normally one prepared for a class in the student's subdiscipline) approved by the student's adviser and the Director of Graduate Studies, and submitted to the Graduate School.

No additional stipulations on the nature of the coursework (beyond the core courses) nor a language requirement are imposed.

Doctor of Philosophy Degree Program

Applicants to the Ph.D. degree program must complete the equivalent of the master's degree and apply directly to the Graduate School for admission as a doctoral student. Three letters in support of the application must be forwarded to the director of graduate studies in the Department of Anthropology. Students must also supply a statement of goals for their programs and subsequent professional careers. The department will offer an accelerated entry option to students who have been admitted at M.A. level and who are judged by the faculty of the department to be prepared to begin research at the doctoral level. Such students must complete at least one term in the M.A. degree program before being admitted at Ph.D. level, and must then meet all retention and exit requirements for the regular doctoral option. The students need not submit the application materials required of regular applicants to the Ph.D. degree program outlined above.

No later than the spring semester of the first year after being admitted to the Ph.D. degree program, students are given a written qualifying examination over their choice of 3 of the 4 major sub-fields of anthropology. Students who fail the examination will be dropped from the program. Students who pass the qualifying examination will form a faculty committee in consultation with the director of graduate studies and relevant members of the faculty. The committee must include at least 5 members of the graduate faculty, at least 3 of whom (including the chair) must be from within the department, and at least 1 from outside: the normal case will be 4 from within and 1 additional.

The requirements for the Ph.D. degree include the following:

(1) Additional course work in anthropology and other fields within the student's interests. Of the 24 hours of credit required to establish residency, 9 must be in 500-level anthropology courses other than 500a,b,c,d,e, 501, 585, and 597. The Ph.D. committee is expected to help formulate a study program that will usually involve at least one additional academic year of full-time course work beyond the M.A. degree.

(2) Research tool requirements. These vary and will be determined between the students and the committee, subject to approval of the chair of the department. In all cases a certified reading knowledge of at least one foreign language will be required and at least one other tool. Other possible tools could include, for example, computer science, statistics, a second foreign language, or a combination of these or others.

(3) Administration by the committee of a three-hour special examination covering topical and geographical specialties (the preliminary or candidacy exam). The student may not take the examination until 2 years of full-time graduate work have been completed, except by authorization from the Dean of the Graduate School. The student is encouraged to take this examination by the end of three years of full-time Ph.D. level work. In evaluating the examination, the committee may pass the student, fail the student but allow retaking of the examination at a later time (as either an oral or written examination, at the discretion of the committee) or fail the student and recommend dismissal from the program. If a student fails the examination and the committee allows reexamination, it must occur within one year of the first examination and only one retake is allowed.

(4) Dissertation prospectus approved by student's committee and formally presented to the department.

(5) Formal experience in teaching.

Ph.D. Candidacy. After completion of the above requirements, the department will recommend a student to the Graduate School for candidacy. The candidate will design dissertation research in consultation with the committee and will undertake the research necessary to acquire the materials for the dissertation. Candidates must register for 24 hours of credit under ANTH 600.

When a final draft of the dissertation has been accepted by the Ph.D. committee, an oral defense of the dissertation and all supporting work will be held in accordance with Graduate School requirements. After a successful dissertation defense and completion of final revisions of the text, the student must submit two copies of the dissertation to the Graduate School in accordance with its guidelines, and a properly bound copy to the Department of Anthropology.

Courses (ANTH)

402-3 People and Culture. Offered primarily for non-anthropology majors. Focuses on the nature of culture, cultural processes, and cultural change with emphasis on social, political, economic, artistic, religious and linguistic behavior of humans as individuals and in social groups.

404-3 Art and Technology in Anthropology. An introduction to the basic ways in which people utilize the natural resources of their habitat to meet various needs, such as food, shelter, transportation and artistic expression. The nature of art, its locus in culture and its integration into technical society will be considered.

406-3 Conservation Archaeology. The method and theory of archaeology in relationship to local, state and federal laws regarding the protection and excavation of antiquities. Emphasis is on problem oriented survey and excavation, as well as the preparation of archaeological contracts and the writing of reports to satisfy statutes involving environmental concerns. Prerequisite: 300c or 400c or consent of instructor.

410A-3 Applied Anthropology. The practical applications of theoretical social anthropology. Problems of directed culture change are examined from an anthropological perspective as they apply to the work of the educator, social worker, extension agent, administrator and others who are attempting to guide change in the life ways of others in Western culture and the third world. Prerequisite: none. 300d recommended for undergraduates.

410B-3 Educational Anthropology. An examination of the cultural processes of formal and informal education, the use of anthropological premises in educational program design, bicultural-bilingual education programs, comparative American-non-American systems and the teaching of anthropology. Prerequisite: none. 300d recommended for undergraduates.

410C-3 Economic Anthropology. The study of non-Western economic systems. Prerequisite: none. 300d recommended for undergraduates.

410D-3 Anthropology of Folklore. A comparative study of the role of folklore in various cultures of the world, with emphasis upon nonliterate societies. Analysis of motifs, taletypes, themes and other elements; comparisons between nonliterate and literate groups. Prerequisite: none. 300d recommended for undergraduates.

410E-3 Anthropology of Law. Anthropological thought on imperative norms, morality, social control, conflict resolution and justice in the context of particular societies, preliterate and civilized. Law of selected societies is compared to illustrate important varieties. Prerequisite: none. 300d recommended for undergraduates.

410F-3 Anthropology of Religion. A comparative study of (religious) belief systems, with emphasis upon those of non-literate societies. Examination of basic premises and elements of these belief systems, normally excluded from discussions of "Great Religions". Prerequisite: none. 300d recommended for undergraduates.

410G-3 Psychological Anthropology. Similarities and differences in personality structures cross-culturally including the historical development of this as an anthropological subdiscipline. Prerequisite: none. 300d recommended for undergraduates.

410H-3 Ethnomusicology of Oceania, Asia and Africa. A survey of theory, method, structure, organology and cultural context of the ethnomusicology of Oceania, Asia and Africa.

410I-3 Ethnomusicology of Middle East, Europe and the New World. A survey of theory, method, structure, organology and cultural context of the ethnomusicology of Europe and the New World.

410J-3 Kinship and Social Organization. Universal features of non-Western systems of kinship terminology and social organization. Topics include the structure and functioning of kinship systems, lineages, clans, sibs, phratries, moieties and tribal units. Prerequisite: none. 300d recommended for undergraduates.

410K-3 Ecological Anthropology. An examination of the relationship of past and present human populations in the context of their natural and social environments. Prerequisite: 300c and 300d or equivalent.

410M-3 Healing and Culture. This course examines systems of healing and medicine from an anthropological perspective. The theory and practice of medicine in different cultures, including Western biomedicine, are considered. Particular attention is given to the ways in which medical knowledge gains legitimacy in different social contexts and the problems which arise in culturally heterogeneous arenas when different medical paradigms contend for legitimization. Prerequisite: 300d of consent of instructor.

425-3 Cognitive Anthropology. The theory of culture as cognitive organization is explored.

Among the topics are: Formal analysis of lexical domains, folk classifications and strategies, the problem of psychological validity, linguistic determinism and relativity, biogenetic and psycholinguistic bases of cognition and the "new ethnography."

430A-3 Archaeology of North America. Detailed study of the early cultures of North America. Emphasis on the evolutionary cultural development of North America. Prerequisite: 300c or 400c or consent of instructor.

430B-3 Archaeology of Meso-America. Detailed study of the early cultures of Meso-America with emphasis on the evolutionary cultural development of Meso-America. Prerequisite: 300c or 400c or consent of instructor.

430E-3 Archaeology of the Eastern Woodlands. Detailed study of the early cultures of the North American Eastern Woodlands with emphasis on the evolutionary development of cultures. Prerequisite: 300c, 302, 400c or 430a or consent of instructor.

430F-3 Archaeology of South America. Survey of the prehistory and ethnohistory of South America, including the peopling of the South American continent, the development of early cultures, the rise and fall of Andean and empires and the impact of Spanish contact and conquest. Prerequisite: 300c or 400c or consent of the instructor.

440A-3 The Fossil Evidence for Human Evolution. An advanced consideration of the fossil evidence for human evolution and evaluation of the various theories regarding the course of human evolution. Prerequisite: 300a or consent of instructor.

440B-3 Race and Human Variation. A consideration of the range, meaning and significance of contemporary human biological variation, including evolutionary and adaptive implications and the utility of the race concept. Prerequisite: 300a or consent of instructor.

440C-3 Context of Human Evolution. This course will provide an ecological, behavioral, geological, geographic and theoretical context from which to understand the evolutionary history of modern humans. The course is designed to complement Anthropology 440a.

441-6 (3, 3) Laboratory Analysis in Archaeology. (a) Emphasizes methods of analysis in archaeology as part of a larger research design created by the student. May be taken independently or as a follow-up to 496. **(b)** Emphasizes technical methods of the physical and natural sciences in archaeological analysis, as used in environmental reconstruction, dating and for the investigation of production and exchange.

442-1 to 12 Working with Anthropological Collections. Management, curation and analysis of anthropological collections as part of a research project created by the student. May be taken independently or as a follow-up to 450, 495, 496 or 597.

444-3 Human Genetics and Demography. A course in human genetics with an emphasis on population genetics and demography of modern and ancient human populations. Prerequisite: 300a, 400a or consent of instructor.

450-3 Museum Studies. A detailed study of museum operation to include methodology and display. Practical museum work will be stressed.

455-3 to 27 (3 per topic) Topics in Bioanthropology. Intensive study of one of the major subfields within biological anthropology. Topical areas include: **(a)** Dental Anthropology. **(b)** Laboratory Methods. **(c)** Primate Behavior and Ecology. **(d)** Quantitative Methods. **(e)** Biomedical Anthropology. **(f)** Human Growth, Development and Adaptation. **(g)** Primate Biology and Evolution. **(h)** Osteology. **(i)** Comparative and Functional Primate Anatomy.

460-1 to 12 Individual Study in Anthropology. Guided research on anthropological problems. The academic work may be done on campus or in conjunction with approved off-campus (normally field research) activities.

470-3 to 24 People and Cultures. A survey of the prehistory, cultural history and contemporary cultures of the area in question. Topical emphasis may vary from course to course and year to year. **(a)** Africa, **(b)** Asia, **(c)** Caribbean, **(d)** Europe, **(e)** Latin America, **(f)** Near East and North Africa, **(g)** North America, **(h)** Oceania. Prerequisite: a basic acquaintance with geography and history of the areas.

490-3 Field Methods and Analysis in Linguistic Anthropology. Includes theoretical background and a project in the linguistic aspects of culture. Prerequisite: 300b, 301.

495-3 to 8 Ethnographic Field School. Apprentice training in the field in ethnographic theory and method. Students will be expected to devote full time to the field school. Prerequisite: consent of instructor.

496-1 to 8 Field School in Archaeology. Apprentice training in the field in archaeological method and theory. Students will be expected to be in full-time residence at the field school headquarters off campus. Prerequisite: consent of instructor.

500A-3 Theory and Method in Biological Anthropology. Current topics in biological evolution and variation, including the theoretical and methodological background to each. Topics will be drawn from the four major areas of physical anthropology: genetics and evolutionary theory, primate studies, human fossil record and human variation. Prerequisite: 300a for undergraduates or consent of instructor.

500B-3 Theory and Method in Linguistic Anthropology. History of linguistics and anthropology. Description and analysis of languages. Origin, development and acquisition of language. Theory of symbolic systems. Human and animal communication. Historical linguistics. Languages in culture and society. Prerequisite: 300b for undergraduates or consent of instructor.

500C-3 Theory and Method in Archaeology. Overview of the currents and controversies in anthropological archaeology in their historical and theoretical context. Topics include history of archaeological theory, explanation in archaeology, limitations of the archaeological record and archaeological approaches to the study of cultural variation. Prerequisite: 300c for undergraduates or consent of instructor.

500D-3 Theory and Methods in Sociocultural Anthropology. This course is designed to enable students to identify, define and critically understand the major theories and methods of contemporary sociocultural anthropology. The course is

organized into three general parts, reflecting broad areas of theoretical inquiry which have expanded most rapidly in anthropology since 1960: **(1)** ecological, economic and other materialist approaches; **(2)** cognitive, symbolic and other interpretive approaches; and**(3)** recent and ongoing research strategies, including critical and historical approaches. Prerequisite: 300d for undergraduates or consent of instructor.

500E-3 History of Anthropology. The development of anthropological thought in the four subfields of the discipline (sociocultural, physical, linguistics, archaeology). Emphasis is on concepts, ideas and work and major practitioners of the early 19th to the middle of the 20th centuries, on the major trends that have led to specialties found in anthropology today. The present status of anthropology as an academic discipline is briefly explored, and an attempt is made to assess the future of the discipline in terms of intellectual and practical concerns.

501-6 (3,3) Practicum in Educational Anthropology. Provides anthropology students actual classroom experience in a lower division anthropology course. Students will be involved in the teaching of designated courses. The instructor of record will meet with practicum members on a regular basis, critique their lectures, and together with them work out problems and plan future direction of the course. Graded *S/U* only. Prerequisite: Ph.D. level or successful completion of core course requirements at the M.A. level.

510-3 to 6 (3 per topic) Seminar Archaeology of North America. Seminar studying issues concerning the prehistoric and historic inhabitants of North America north of Mexico. From year to year, the precise areal and topical coverage will vary, as will the instructors. Students should consult department about subjects to be offered.

511-2 to 6 (2 to 3 per topic) Seminar in Meso-American Archaeology. From year to year, the areal and topical coverage of this course will vary, as will the instructors. Students should consult the department about subjects to be covered.

513-3 to 9 (3 per topic) Seminar in Archaeology. Seminars in varying topics in archaeology. Students should consult department about subjects to be covered.

514-3 to 6 (3 per topic) Seminar in South American Archaeology. Seminar will focus upon archaeological investigations of specific cultures, regions, time periods or cultural precesses in South America. From year to year the areal and topical coverage of the course will vary as may the instructor. Students should consult the department about subjects to be covered. Prerequisite: 430f, 500c, 500d or 500e or consent of instructor.

515A-3 Seminar in Social-Cultural Anthropology. Discussion of anthropological concepts of social structure and related topical themes, based upon extensive reading selected from a large number of sources. Prerequisite: 500e or consent of instructor.

515B-3 Seminar in Social-Cultural Anthropology. Intensive analysis of a limited set of monographs organized around a theoretical problem or set of problems. Prerequisite: 500E or consent of instructor.

516-3 to 9 (3 per topic) Seminar in the Archaeology of Complex Societies. Seminar reviews selective literatures dealing with theoretical and methodological issues in archaeological investigation of pre-industrial, regional complex societies. From year to year the topical coverage of this course will vary as will the instructors. Students should consult the department about subjects to be offered. Prerequisite: 500c, 500d or 500e; or consent of the instructor.

520-2 to 6 (2 to 3 per topic) Seminar in New World Ethnology. From year to year, the areal and topical coverage of this course will vary, as will instructors. Students should consult the department about subjects to be covered.

521-2 to 6 (2 to 3 per topic) Seminar in Ethnology of Latin America. From year to year, the areal and topical coverage of this course will vary, as will the instructors. Students should consult the department about subjects to be covered.

522-2 to 6 (2 to 3 per topic) Seminar in the Anthropology of Oceania. From year to year, the areal and topical coverage of this course will vary, as will the instructors. Students should consult the department about subjects to be covered.

523-2 to 6 (2 to 3 per topic) Seminar in Anthropology of Africa. From year to year, the areal and topical coverage of this course will vary, as will the instructors. Students should consult the department about subjects to be covered.

530-3 to 9 (3 per topic) Seminar in Paleoanthropology. Topics will be drawn from any dealing with the fossil and/or contextual evidence for human evolution (e.g., *The Place of Neandertals in Human Evolution; Taphonomy and Paleoecology; Origins of Bipedalism*). From semester to semester, the topical coverage will vary, as will the instructor. Students should consult the department about subjects to be covered. Prerequisite: 440a or 440c or consent of instructor.

532-3 to 9 (3 per topic) Seminar in Human Biological Variation. Topics will be drawn from any of the areas of biological variation among humans (e.g., *Comparative Epidemiology, Human Sociobiology, Demography and Paleodemography*, or *Multivariate Pattern Recognition*). From semester to semester, the topical coverage will vary, as will the instructor. Students should consult the department about subjects to be covered. Prerequisite: 440b or consent of instructor.

534-3 to 9 (3 per topic) Seminar in Evolutionary Theory. Seminars will be constructed around various theoretical and/or substantive issues in current biological evolutionary theory (e.g., *Issues in Paleobiology, Evolution At and Above the Species Level* or *Phylogenetic Systematics*). From semester to semester, the topical coverage will vary, as will the instructor. Students should consult the department about subjects to be covered. Prerequisite: 500a or consent of instructor.

536-3 to 9 (3 per topic) Seminar in Primate Behavior and Ecology. Topics will vary among theoretical and substantive issues in primate behavior and ecology (e.g., *Primate Social Structure, Socioecology, Diet, Locomotion and Foraging Strategies*, or *Reproductive Strategies in Primates*). From semester to semester, the topical coverage will vary, as will the instructor. Students should consult the department about sub-

jects to be covered. Prerequisite: 455c or consent of instructor.

538-3 to 9 (3 per topic) Seminar in Primate Evolution. Topics will vary among substantive (taxonomic), theoretical, and contextual issues in primate evolution (e.g., *Catarrhine Evolution, Anthropoid Origins, Molecular vs. Fossil Evidence for Hominoid Phylogeny* or *The Role of Body Size and Allometry in Primate Evolution*). From semester to semester, the topical coverage will vary, as will instructor. Prerequisite: 455g or consent of instructor.

540-3 Pidgin and Creole Languages. (Same as Linguistics 507.) Survey of the world's pidgins and creoles, with emphasis on the English-based Atlantic creoles. Comparison of creolization with first and second language acquisition, and with the origin and evolutionary development of human language. Prerequisite: one previous course in linguistics or consent of instructor.

545-2 to 6 (2 to 3 per topic) Seminar in Anthropological Linguistics. From year to year, the areal and topical coverage of this course will vary, as will the instructors. Students should consult the department about subjects to be covered.

560-2 to 6 (2 to 3 per topic) Seminar in Comparative Social Organization. From year to year, the areal and topical coverage of this course will vary, as will the instructors. Students should consult the department about subjects to be covered.

562-2 to 6 (2 to 3 per topic) Seminar in the Anthropology of Contemporary Peoples. From year to year, the areal and topical coverage of this course will vary, as will the instructor. Students should consult the department about subjects to be covered.

565-2 to 6 (2 to 3 per topic) Seminar in Culture Change and Development. From year to year, the areal and topical coverage of this course will vary, as will the instructor. Students should consult the department about subjects to be covered.

567-2 to 6 (2 to 3 per topic) Seminar in Anthropological Theory and Method. From year to year, the areal and topical coverage of this course will vary, as will the instructors. Students should consult the department about subjects to be covered.

568-3 to 12 (3 per topic) Seminar in Analytical Methods in Archaeology. Seminar in definition, measurement and description of data in relation to archaeological research problems. From year to year, the topical coverage of this course will vary as will the instructors. Students should consult the department about subjects to be offered. Prerequisite: permission of instructor.

576-2 to 6 (2 to 3 per topic) Seminar in Anthropological Research Design. Supervised training in the preparation of anthropological research designs. Requirements will include completed research proposals involving the relation of data to theory and results in the general sub-areas of archaeological, physical, social and linguistic anthropology. Coverage will vary. Students should consult the department.

581-2 to 6 (2 to 3 per topic) Seminar in Anthropology. From year to year, the areal and topical coverage of this course will vary, as will the instructor. Students should consult the department about subjects to be covered.

585-1 to 12 (1 to 3 per semester) Readings in Anthropology. Guided readings to cover special topics and fill gaps in the student's specialized anthropological background, to be arranged with department.

590-1 to 12 Internship. This provides a supervised experience in a professional setting, generally entailing supervisory and/or administrative duties. Prerequisite: Written approval from department.

595-3 Field Methods in Ethnology. Anthropological methods of inquiry and documentation of cultures and habitat together with appropriate instruction in the technique of field work such as photography and sound recording.

597-1 to 12 Fieldwork in Anthropology. To be arranged with department. Graded *S/U* only.

598-1 to 9 Research. This course is restricted to students to be accelerated from the M.A. to the Ph.D. program (at the discretion of the faculty). Its purpose is to allow the student, under the guidance of his/her major advisor, to complete the research paper and other requirements of an M.A. degree. Graded *S/U* only. Prerequisite: Consent of department and departmental offer of accelerated entry to Ph.D. program in Anthropology.

599-1 to 6 Thesis.

600-1 to 32 (1 to 12 per semester) Dissertation.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Applied Linguistics

(See Linguistics for program description.)

Art

E-mail: ge1085@siucvmb.siu.edu

COLLEGE OF LIBERAL ARTS

Abrahamson, Roy E., Associate Professor, Ed.D., Columbia University, 1965; 1965. Art education.

Addington, Aldon M., Associate Professor, M.F.A., Cranbrook Academy of Art, 1966; 1967. Sculpture.

Archer, Richard, Assistant Professor, M.S., Governor's State University, 1979; 1968. Design.

Bernstein, Lawrence A., Associate Professor, *Emeritus,* M.F.A., Cranbrook Academy of Art, 1953; 1962.

Boysen, Bill H., Professor, M.F.A., University of Wisconsin, 1966; 1966. Ceramics, glassblowing.

Briggs, Larry S., Associate Professor, B.F.A., University of Oklahoma, 1956; 1985. Visual communications.

Busch, Larry, Associate Professor, M.S., Southern Illinois University at Carbondale, 1970; 1970. Design.

Chapman, Gretel, Associate Professor, Ph.D., University of Chicago, 1964; 1984. Art history.

Croston, Robert, Associate Professor, M.S., University of Massachusetts, 1981; 1992. Design.

Deller, Harris, Professor, M.F.A., Cranbrook Academy of Art, 1973; 1975. Ceramics.

Feldman, Joel B., Professor, M.F.A., Indiana University, 1967; 1973. Printmaking, lithography.

Fink, Herbert L., Distinguished Professor, *Emeritus,* M.F.A., Yale University, 1958; 1961.

Greenfield, Sylvia R., Professor, M.F.A., University of Colorado, 1967; 1968. Drawing and painting.

Jackson, Jed, Assistant Professor, M.F.A., Cornell University, 1980; 1990. Drawing and painting.

Kington, L. Brent, Professor, M.F.A., Cranbrook Academy of Art, 1961; 1961. Metals, blacksmithing.

Lintault, M. Joan, Professor, M.F.A., Southern Illinois University at Carbondale, 1962; 1973. Fibers and weaving.

Mavigliano, George J., Associate Professor, M.A., Northern Illinois University, 1967; 1970. American art and architecture.

Mawdsley, Richard W., Professor, M.F.A., University of Kansas, 1969; 1978. Metalsmithing.

Monteith, Jerry, Assistant Professor, M.F.A., Cranbrook Academy of Art, 1978; 1990. Sculpture.

Onken, Michael O., Associate Professor, M.A., Northern Illinois University, 1966; 1968. Drawing and painting.

Palmer, Erin L., Assistant Professor, M.F.A., Yale School of Art, 1993; 1993. Painting and drawing.

Paulson, Robert L., Professor and *Director*, M.F.A., University of Wisconsin, 1967; 1967. Drawing and painting.

Saunders, Ann, Associate Professor, M.F.A., Syracuse University, 1984; 1986. Visual communications.

Shay, Edward H., Professor, M.F.A., University of Illinois, 1971; 1978. Drawing, painting, and printmaking.

Sullivan, James E., Associate Professor, M.A., University of California, Los Angeles, 1965; 1969. 19th century and modern art and interdisciplinary studies.

Sullivan, Milton F., Professor, *Emeritus,* M.A., Columbia University, 1951; 1952.

Unger, Gotz, Associate Professor, Master of Design, Royal College of Art, 1978; 1994. Product design.

Walsh, Thomas J., Professor, M.F.A., University of Michigan, 1962; 1967. Sculpture and foundry.

Youngblood, Michael, Associate Professor, Ph.D., University of Oregon, 1975; 1979. Art education.

Zivkovich, Kay M. Pick, Assistant Professor, M.F.A., Southern Illinois University at Carbondale, 1973; 1989. Visual communications.

In all of its graduate studio programs, the School of Art and Design strives to maintain a vital, creative ambience in which emerging artists with strong motivation may develop, through intensive studio practice and appropriate scholarly support, a clear, mature, and professional focus to their creative life. The core of any program is the in-depth studio practice of individual studio disciplines and frequent, sustained contact with working professional faculty and fellow students. This work is supported and extended through formal studio course work, studies in the history of art, and through access to the many resources and opportunities apparent in a large multi-purpose university.

M.F.A. Degree Program Description

The School of Art and Design offers graduate studies leading to the Master of Fine Arts degree with a major in art and offers studies supporting a teaching specialty in art for the Master of Science in Education degree with a major in secondary education. The student is expected to select an area of emphasis

(studio or art education), and a program will be planned in consultation with the major professor in that area.

Admission

An undergraduate degree in art or art education, or the equivalent in course work or experience if the undergraduate degree is in another discipline, is required for admission into the Master of Fine Arts degree program. The student must also submit transcripts of all previous undergraduate work, present slides or a portfolio of creative work, and may submit letters of recommendation.

In most cases an undergraduate degree in art education is required for admission into the program constituting a teaching specialty in art for the Master of Science in Education degree majoring in secondary education. Any exception to these requirements must be approved by the faculty in the studio or art education fields and by the director of the School of Art and Design.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

M.F.A. Degree

A minimum of 60 semester credit hours is required for the Master of Fine Arts degree with a major in art. All hours that are to count toward graduation must have the approval of the student's major adviser in the studio area of emphasis. Students may emphasize the following areas in studio: drawing, painting, printmaking, sculpture/foundry, ceramics/glass, metalsmithing/blacksmithing, and fibers/weaving. The length of time required to complete a 60 semester-hour program is usually 5–6 semesters or 3 academic years. Most graduate students are in residence for at least 4 semesters. Programs of residency must have the approval of the student's major adviser. Required hours are distributed as follows: 26 hours in the primary studio emphasis, 12 hours in art history or related subjects, 6 hours in thesis or terminal project work, and 16 hours of elective study of which 9 hours must be in studio disciplines. The remaining hours may be elected from any area within the School of Art and Design or in the University at large.

In addition to the completion of course work, all candidates for the M.F.A. degree must, during the last semester of academic work, present a graduate exhibition, present a terminal project or a written thesis, and pass an oral examination. The terminal project is a creative activity presented in lieu of the written thesis, and in practice, the graduate exhibition is considered to satisfy the terminal project requirement.

Graduate education in the studio areas of emphasis is expensive, and because of the individual nature of creative work, it is virtually impossible to predict the exact cost for each student. The School of Art and Design provides the faculty, and the studio and shop facilities that are necessary to the programs offered, but all other costs, especially materials, that are considered necessary to the successful completion of a graduate program are borne by the student.

Art as a Teaching Specialty

The Master of Science in Education degree with a major in secondary education with a teaching emphasis in art requires a minimum of 30 semester hours of graduate credit. Two art education program options are available: (1) the research option for those interested in research, supervision, or eventual doctoral studies, and (2) the teacher-studio option for improving teaching and studio skills.

The research option requires 13 hours in education, 11 hours in art education, 3 hours of thesis (or research paper) with the remaining hours for art electives.

The teacher-studio option requires 13 hours in education, 6 hours in art education, 3 hours for thesis (or research paper) with the remaining hours for art electives. All hours that are counted toward graduation and election of either a thesis project or a research paper must have the approval of the art education graduate adviser.

Courses (AD)

Art studio courses (400-499, 500-598) are directed toward individual research in the student's major field. Emphasis is placed upon the history, materials, processes and ideas that form the content and experience of the major field.

Courses in this department may require the purchase of supplemental materials. Permission of the major adviser in each studio is required for enrollment in studio courses.

400D-3 to 15 Advanced Drawing I. Independent study in drawing. Studio fee: $5. Incidental expenses may exceed $100 for each section. Prerequisite: consent of major adviser.

401D-3 to 15 Advanced Painting I. Independent study in painting. Studio fee: $5. Incidental expenses may exceed $50. Prerequisite: consent of major adviser.

402D-3 to 15 Advanced Printmaking I. Independent study in printmaking. Studio fee: $10 per credit hour. Incidental expenses may exceed $50. Prerequisite: consent of major adviser.

403D-3 to 15 Advanced Sculpture I. Independent study in sculpture. Studio fee: contingent upon type of materials used by student. Incidental expenses may exceed $75. Prerequisite: consent of major adviser.

404D-3 to 15 Advanced Drawing I. Independent study in ceramics. Studio fee: $27 per credit hour enrolled. Incidental expenses may exceed $20. Prerequisite: consent of major adviser.

405D-3 to 15 Advanced Metalsmithing I. Independent study in metalsmithing. Studio fee: $10 per credit hour enrolled. Incidental expenses may exceed $75. Prerequisite: consent of major adviser.

406D-3 to 15 Advanced Fibers I. Independent study in fibers. Studio fee: $17 per credit hour enrolled. Incidental expenses may exceed $75. Prerequisite: consent of major adviser.

407-3 Ancient Art. Ancient art of the Mediterranean area from the Egyptians to the end of the Roman Empire. A survey of the major cultures, with emphasis upon visual analysis, media and techniques, function and icongraphy. Field trip required. Documented research paper on an aspect of ancient art required for graduate credit. Prerequisite: 207a or consent of instructor.

414-3 to 21 Glass I. A studio course designed for the beginning glass student focusing initially upon basic "flat glass" and cold working techniques and processes. Coursework includes projects intended to familiarize the student with designing and executing products in stained glass. Student will be introduced to forming techniques in glassblowing. Studio fee $20 per credit hour enrolled. Prerequisite: consent of instructor.

415-4 A Creative Look at Reclamation Possibilities for Massively Disturbed Land. Presents the possibility that massively disturbed areas can be aesthetic resources if potential inherent in these sites can be recognized and addressed. Seminar/lecture/studio format with selected lectures given by invited speakers. Discussions include recognition of massive land disturbance; reclamation as a concept; environmental art and design; the questions a potential developer or designer of disturbed land should ask and where they might look for expert advice; and group critiques on student studio projects. Studio projects will involve the visualization in two- and three-dimension formats of plans for the reclamation of the students' chosen site with accompanying documentation.

417-3 Medieval Art. Medieval art from the Fourth to the Fifteenth Century in Western Europe. Examination of selected art objects in terms of media and techniques, iconography, function and cultural milieu. Field trip required. Documented research paper on an aspect of medieval art required for graduate credit. Prerequisite: 207a or consent of the instructor.

427-3 Renaissance Art. An examination of various topics appropriate to a study of Renaissance art, both Northern and Italian, during the Fifteenth and Sixteenth Centuries in Europe. The emphasis is on a range of art history problems and methods of approach. Field trip required. Prerequisite: 207a or consent of instructor.

437-3 Baroque and Rococo Art. An examination of various topics appropriate to a study of Baroque and Rococo art in Western Europe. Emphasis upon a range of art historical problems and methods of approach. Field trip required. Prerequisite: 207a or b or consent of instructor.

447-3 Introduction to Museology. A survey of museum and gallery techniques (emphasis upon practical exhibit development) which will involve answering questions concerning contractual agreements, taxes, insurance, packing, shipping, exhibit design and installation, record systems, general handling, public relations and sale of art works directed toward problems encountered by the artist outside the privacy of the studio. Prerequisite: art major or consent of instructor.

448-3 Art of Tribal Cultures. Covers a broad range of arts of Africa, Native North America, Pre-Columbian America and Oceana; primarily sculpture, textiles, masking and performance, body decoration and textiles, architecture and ceramics of small-scale village societies.

457-3 Women in the Visual Arts. (Same as Women's Studies 427.) Consists of a survey of women's contributions and participation in the visual arts from the middle ages through the Twentieth Century. Through lecture, discussion and

research, painting, sculpture, architecture, crafts, film, photography and other forms of visual art will be covered. Screening fee: $10.

458-3 African Arts. Covers a broad range of the arts primarily of west and central Africa, as well as north, south, and east Africa: includes sculpture, masking and performance, body decoration and textiles, architecture. Shows how arts are used in the daily life of traditional village societies in these areas.

467-3 Critical Issues in Contemporary Art. An examination of the style and meaning of contemporary art in relation to the current political, social and cultural issues. Will include visual arts, architecture, and communications media. Prerequisite: 207a,b or consent of instructor.

468-3 Pre-Columbian Art. Covers architecture, textiles, pottery, metal and 2-D arts of Meso-, Central and South America during the Pre-Columbian era. Also includes hieroglyphic and calendrical systems and some Post-Columbian era arts as well.

477-3 American Art of the Thirties. A socio-political and artistic study of American art during the decade of the Great Depression. Course material will be divided in three parts: (1) a survey of art trends during the Thirties concentrating on traditional art forms such as painting, sculpture and architecture; (2) an investigation into government-subsized art programs; and (3) recent governmental and corporate patronage of the arts through such programs as the National Endowment for the Arts. Prerequisite: 207a,b or consent of instructor.

487-6 (3, 3) American Art. (a) U.S. art to 1913. Study of American art from native Indian settlements through Colonial period to 20th Century. Attention to such art forms as painting, sculpture, and architecture, as well as the rich varied Indian folk and craft traditions. **(b)** U.S. art since 1876. Study of American art and design from Industrial Revolution to present. Attention to such traditional art forms as painting, sculpture, and architecture, as well as the many facets of modern design. Prerequisite: 207a,b or consent of instructor.

497-3 to 6 (3 per topic) Problems in Art History. A close examination of selected categories of works of art from various periods, media and cultures as illustrative of particular art historical problems. Topics will vary and include **(a)** Portraiture. **(b)** Landscape and still life. **(c)** Narrative. **(d)** Other selected topics. Sections **a** through **c** may be taken only once each, section **d** may be repeated as topics vary. Art historical perspectives to include formal analysis, iconography, art theory, social history, connoisseurship. Prerequisite: 300-level art history course or consent of instructor.

499-1 to 21 Individual Problems. Art studio course directed toward individual research in the student's major field. Emphasis is placed upon the history, materials, processes and ideas that form the content and experience of the student's major field. Designed to adapt to students' individual needs in problem research. Prerequisite: senior standing in the School of Art and Design, a 3.0 average, and consent of instructor.

500-3 to 21 Advanced Drawing II. A studio directed toward individual research in the student's major field. Emphasis is placed upon the historical materials, processes and ideas that form the content and experience of the student's major field. Prerequisite: consent of major adviser.

501-3 to 21 Advanced Painting II. Art studio course directed toward individual research in the student's major field. Emphasis is placed upon the history, materials, processes and ideas that form the content and experience of the student's major field. Prerequisite: consent of major adviser.

502-3 to 21 Advanced Printmaking II. Advanced studio course in printmaking directed toward individual research in the student's choice of print media. Emphasis is on the processes which lead to the formation of personal content. Studio fee: $13 per credit hour enrolled. Prerequisite: graduate status and consent of instructor.

503-3 to 21 Advanced Sculpture II. Advanced studio course directed toward individual research in the student's major field. Emphasis is placed upon the history, materials, processes and ideas to form content in the student's medium. Incidental expenses may exceed $100. Prerequisite: consent of major adviser.

504-3 to 21 Advanced Ceramics II. Art studio course directed toward individual research in the student's major field. Coursework is designed to assist the student's discovery of ceramic form and content as applied to personal artistic expression. Emphasis upon the development of creative studio research techniques and seminar-type experiences exploring historical and contemporary issues as they relate to ceramic art. Studio fee: $43 per credit hour enrolled. Incidental expenses may exceed $50. Prerequisite: consent of major adviser.

505-3 to 21 Advanced Metalsmithing II. Art studio course directed toward individual research in the student's major field. Emphasis is placed upon the history, materials, processes and ideas that form the content and experience of the student's major field. Studio fee: $10 per credit hour enrolled. Prerequisite: consent of major adviser.

506-3 to 21 Advanced Fibers II. Art studio course directed toward individual research in the student's major field. Coursework is designed to assist the student's discovery of fibers and content as applied to personal artistic expression. Emphasis upon development of creative studio research techniques and seminar-type experience exploring historical and contemporary issues as they relate to fibers. Studio fee: $17 per credit hour enrolled. Prerequisite: consent of major adviser.

507-3 to 6 (3,3) Readings in Art History. Individual assistance and investigation to discover new meaning and involvement in graduate studio work through the literature of art.

508-2 to 9 (2 to 3, 2 to 3, 2 to 3) Research in Art Education. Each student demonstrates via class presentations, a term paper, surveys of research reports and formulations of research designs, an understanding of advanced art education research procedures, analyses and implications; new process and product research techniques; and research in artistic creativity, perception, and the evolution of art images. Prerequisite: consent of instructor.

514-3 to 21 Glass II. An advanced glass course intended to increase the student's knowledge of

the potential of glass as a medium of creative expression and to refine studio skills associated with the material. Coursework will include the investigation of historical and contemporary solutions to aesthetic problems related to the medium. Studio fee $30 per credit hour enrolled. Prerequisite: consent of major adviser or consent of instructor.

517-3 to 6 (3,3) Concepts in Art History. Group seminar to discuss and present aspects of the history of art in relation to both traditional and contemporary artistic concerns.

518-2 to 9 (2 to 3, 2 to 3, 2 to 3) Seminar in Art Education. Each student shows evidence, via class presentation, a term paper and evaluations of individual and group projects, an understanding of important literature; the latest developments and trends in philosophical, psychological and sociological concepts in art education and methods for developing rationale for art curriculum and instruction programs. Prerequisite: consent of instructor.

599-2 to 6 Thesis. Art studio course directed toward individual research in the student's major field. Emphasis is placed upon the history, materials, processes and ideas that form the content and experience of the student's major field.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Behavior Analysis and Therapy

(See Rehabilitation Institute for program description.)

Biological Sciences

E-mail: biological-sciences@cos.siu.edu

The biological sciences program provides broad interdisciplinary graduate training in biology leading to the Master of Science degree. This interdisciplinary program utilizes the faculty, facilities and courses of the Departments of Plant Biology, Microbiology, Physiology and Zoology. The program is designed for those students who desire a broad-based curriculum rather than an in-depth concentration in only one of the biological sciences.

Requirements for Admission

All applicants must submit an application to the biological sciences program. Applicants must meet the minimal requirements of the Graduate School before being considered for admission to Biological Sciences. A completed application includes the program application form, three letters of recommendation, transcripts of all previous college credit, and scores from the general aptitude portion of the Graduate Record Examination (GRE).

Prerequisites for graduate training in the biological sciences program include a bachelor's degree with the following academic background.

1. 37 semester hours of undergraduate courses distributed among any three of the biological science areas (plant biology, microbiology, physiology and zoology).
2. Organic chemistry with laboratory.
3. Physics.
4. Statistics.

(NOTE: Applicants deficient in these background areas may be admitted, but any deficiency must be successfully completed before the third semester of registration in the program.) Application forms are available from: Director, Biological Sciences Program, Life Science II, Rm. 148, SIUC, Carbondale, IL 62901-6505.

Advisement

After admission to the program, a student must consult the director of the biological sciences program for counsel and assistance prior to registration.

No later than the end of the first semester of registration in the program, the student must arrange with a faculty member of one of the four biological science departments to serve as the research adviser.

Following selection and approval of the research adviser, a research and advisory committee is to be recommended to the director of the biological sciences program for approval by the dean of the Graduate School. The research and advisory committee shall consist of a minimum of three members, each representing a different biological science department, with the research adviser serving as chair. The director of the biological sciences program serves as an *ex-officio* member of all committees.

A program of course work must be approved by the research and advisory committee and filed with the director no later than the eighth week of the second semester of registration in the program. Any deviation from the course work program during the student's tenure must be approved by the research and advisory committee and filed with the director. The research plan for the thesis or research paper must be approved by the research and advisory committee and filed with the director no later than the end of the second semester of registration.

Non-Thesis Option

A total of 40 semester hours of 400- or 500-level courses is required with the following provisions:

1. A minimum of 26 semester hours of formal graded courses in the biological sciences required with no less than eight semester hours including one 400- or 500-level laboratory course in each of three of the biological sciences departments.
2. At least 15 semester hours of the total required must be at the 500 level.
3. At least one semester of seminar in each of three of the biological science departments must be attended for credit.
4. An overall 3.0 grade point average (*A = 4.0)* must be maintained with no course in which the grade is less than a *C* counting toward the degree requirements.
5. A research paper is required demonstrating the ability to collect and analyze data and to report interpreted results in a scientific manner. A library research problem is acceptable, but must include an original contribution of analysis and interpretation. No less than three nor more than six semester hours of "Research" may be counted for credit in meeting requirements. *(Only those courses listed as "Individual Research", Introduction to Research", etc. may be taken for credit. "Thesis Research" may not be used for this requirement.)*
6. A final oral examination is required, consisting of two parts:
   a. a public presentation of the research paper and
   b. a closed session of inquiry by the student's Research and Advisory Committee.

Thesis Option

A total of 30 semester hours of 400- or 500-level courses is required with the following provisions:

1. A minimum of 21 semester hours of formal graded courses in the biological sciences is required with no less than six semester hours coming from each of three of the biological science departments.
2. A least 15 semester hours of the total required must be at the 500 level.
3. At least one semester of seminar in two of the four biological science departments must be attended for credit.

4. An overall 3.0 grade point average ($A = 4.0$) must be maintained with no course in which the grade is less than a *C* counting toward the degree requirements.
5. A thesis embodying original research is required and may be counted for not less than three nor more than six semester hours of credit.
6. A final oral examination is required consisting of two parts:
   a. A public presentation of the thesis research and
   b. a closed session of inquiry by the student's research and advisory committee.

Business Administration

MBA e-mail: jope@siu.edu
DBA e-mail: barbh@siu.edu

The graduate faculty, consisting of members of the School of Accountancy and the Departments of Finance, Management, and Marketing, offers graduate work leading to the Master of Business Administration degree, the Master of Accountancy degree, and the Doctor of Business Administration degree.

Graduate Faculty in Accountancy

See under the major heading for the program in Accountancy

Graduate Faculty in Finance

Cornett, Marcia M., Professor, Ph.D., Indiana University, 1983; 1990. Corporate finance and financial institutions and markets.

Davids, Lewis E., Professor, *Emeritus,* Ph.D., New York University, 1949; 1978.

Davidson, Wallace N., III, Professor, Ph.D., Ohio State University, 1982; 1989. Corporate finance.

Elsaid, Hussein H., Professor and *Chair*, Ph.D., University of Illinois, 1968; 1967. International finance and financial management.

Mathur, Iqbal, Professor, Ph.D., University of Cincinnati, 1974; 1977. Financial management and international finance.

Musumeci, James, Assistant Professor, Ph.D., University of Texas at Austin, 1987; 1993. Investments and corporate finance.

Rangan, Nanda, Associate Professor, Ph.D., Texas A&M University, 1986; 1986. Financial institutions.

Schwarz, Thomas V., Associate Professor, D.B.A., Florida State University, 1984; 1988. Investments and speculative markets.

Szakmary, Andrew C., Assistant Professor, Ph.D., University of New Orleans, 1989; 1990. Corporate finance, international finance.

Tyler, R. Stanley, Associate Professor, *Emeritus,* J.D., University of Illinois, 1952; 1970. Business law, legal environment of business and real estate.

Vaughn, Donald E., Professor, Ph.D., University of Texas, 1961; 1970. Budgeting and investments.

Waters, Gola E., Professor, J.D., University of Iowa, 1957; Ph.D., Southern Illinois University at Carbondale, 1970; 1965. Business law and labor law.

Graduate Faculty in Management

Bateman, David N., Professor, *Emeritus,* Ph.D., Southern Illinois University at Carbondale, 1970; 1965.

Bedwell, R. Ralph, Associate Professor, *Emeritus,* Ph.D., Southern Illinois University at Carbondale, 1969; 1954.

Bhattacharyya, Siddhartha, Assistant Professor, Ph.D., University of Florida, 1993; 1993.

Fohr, John M., Professor, *Emeritus,* Ed.D., Michigan State University, 1959; 1962.

Keon, Thomas L., Professor and *Dean, College of Business and Administration,* Ph.D., Michigan State University, 1979; 1995. Strategic management, organizational theory.

Larson, Lars L., Associate Professor, *Emeritus,* Ph.D., University of Illinois, 1971; 1971.

McKinley, William, Associate Professor, Ph.D., Columbia University, 1983; 1990. Organization theory, organizational behavior, strategic management.

Melcher, Arlyn J., Professor, Ph.D., University of Chicago, 1964; 1989. Organization theory, strategic management, research methodology.

Nelson, Reed, Associate Professor, Ph.D., Cornell University, 1983; 1991. Organizational behavior and theory.

Ponce de Leon, Jesus, Assistant Professor, Ph.D., Indiana University, 1989; 1991. Strategic management, international business, technology management.

Rai, Arun, Associate Professor, Ph.D., Kent State University, 1990; 1990. Management information systems, database management, management support systems.

Ramaprasad, Arkalgud, Professor, Ph.D., University of Pittsburgh, 1980; 1980. Strategic management, management information systems.

Scott, John W., Professor, *Emeritus,* Ph.D., University of Chicago, 1930; 1947.

Sekaran, Uma, Professor, *Emeritus,* Ph.D., U.C.L.A., 1977; 1977.

Stubbart, Charles, Associate Professor and *Chair*, Ph.D., University of Pittsburgh, 1983;

1991. Strategic management, international business.

Tadisina, Suresh K., Associate Professor, Ph.D., University of Cincinnati, 1987; 1986. Operations management and management sciences.

Troutt, Marvin D., Professor, Ph.D., University of Illinois at Chicago, 1975; 1976. Mathematical programming, modeling of systems, optimization theory.

Vicars, William M., Associate Professor, *Emeritus,* Ph.D., Southern Illinois University at Carbondale, 1969; 1961.

White, Gregory P., Associate Professor, Ph.D., University of Cincinnati, 1976; 1978. Production management and management sciences.

Wilson, Harold K., Associate Professor, *Emeritus,* D.B.A., University of Colorado, 1972; 1972.

Graduate Faculty in Marketing

Adams, Kendall A., Professor, *Emeritus,* Ph.D., Michigan State University, 1962; 1965.

Andersen, R. Clifton, Professor, D.B.A., Indiana University, 1960; 1967. Marketing management and marketing channels.

Anderson, Carol H., Associate Professor, *Emerita,* Ph.D., Texas A&M University, 1980; 1979.

Balasubramanian, Siva, Associate Professor, Ph.D., State University of New York at Buffalo, 1986; 1992. Advertising and promotional management, consumer behavior, new product diffusion models, and measurement issues in marketing.

Bruner II, Gordon C., Associate Professor, Ph.D., University of North Texas, 1983; 1984. Consumer behavior, promotion management, and scale compilation.

Dommermuth, William P., Professor, *Emeritus,* Ph.D., Northwestern University, 1964; 1968.

Fraedrich, John P., Associate Professor, Ph.D., Texas A&M University, 1988; 1987. Ethics, international marketing, and industrial sales.

Grant, John A., Assistant Professor, Ph.D., Arizona State University, 1993; 1993.

Hindersman, Charles H., Professor, *Emeritus,* D.B.A., Indiana University, 1959; 1960.

King, Maryon F., Assistant Professor, Ph.D., Indiana University, 1989; 1988. Marketing management, consumer behavior, promotion management.

Lambert, Zarrel V., Professor and *Chair*, Ph.D., Pennsylvania State University, 1966; 1995. Research methodology and statistics.

Mathur, Lynette Knowles, Assistant Professor, Ph.D., The Ohio State University, 1990; 1988. International business/marketing, marketing channels, and physical distribution.

Moore, James R., Assistant Professor, *Emeritus,* Ph.D., University of Illinois, 1972; 1969.

Perry, Donald L., Associate Professor, Ph.D., University of Illinois, 1966; 1964. Social marketing, management, and sales management.

Summey, John H., Associate Professor, Ph.D., Arizona State University, 1974; 1978. Marketing management, marketing research, product strategy.

To support the graduate programs, the College of Business and Administration houses a computer laboratory equipped with microcomputers and terminals for mainframe access. The laboratory is staffed with graduate assistants and has up-to-date word processing and spreadsheet software. In addition, the University maintains two additional laboratories which also contain microcomputers, terminals for mainframe access, and up-to-date software.

Master of Business Administration

The basic objectives of the Master of Business and Administration (M.B.A.) degree program are first, the development of professional managers and executives to serve the needs of business, government, and other organizations and second, the preparation of students interested in doctoral study. The program is designed to develop the individual's ability to comprehend internal and external social, legal, political, and economic forces as they affect the decision-making process within the organization.

The curriculum enhances the student's professional and academic growth by:

1. Developing critical thinking skills through in-depth analysis of business problems.
2. Strengthening communication skills through class discussions, written assignments, and oral presentations.
3. Increasing organizational and leadership skills through team projects.
4. Broadening comprehension of the dynamics of the business environment through emphasis on the role of environmental variables affecting organizational performance.
5. Emphasizing the global nature of today's business environment and its impact on decision making.

6. Enhancing decision making skills in complex environments through the use of quantitative techniques, computer simulations, database management, and business games.
7. Bridging the gap between the theoretical and practical aspects of business through case analysis and projects with local businesses.
8. Providing professional development and networking opportunities through business-to-student seminars and speaker programs sponsored by the Graduate Business Association.

The program has been structured with flexibility so as to serve both holders of baccalaureate degrees in business administration and those who hold degrees in other disciplines. The M.B.A. program is accredited by the American Assembly of Collegiate Schools of Business (AACSB).

Concentration in International Business

Students wishing to concentrate in international business may, as part of their elective courses, select from two program options.

Option 1 - Business Focus
BA 580 International Business Operations
ANTH 402 People and Culture
and two of the following:
ACCT 548 Interjurisdictional Tax
BA 522 Global Manufacturing and Operations
BA 553 Multinational Marketing
BA 545d International Strategic Management

Option 2 - Business and Area Studies
BA 580 International Business Operations
ANTH 402 People of Culture
and one of the following:
ACCT 548 Interjurisdictional Tax
BA 535 International Finance
BA 522 Global Manufacturing & Operations
BA 553 Multinational Marketing
BA 545d International Strategic Management
and International Experience: one summer or semester abroad in course work

The first option allows a student to obtain a depth of understanding by taking courses in the functional areas that focus on the international aspects of marketing, finance, etc. The second option is an attempt to approach a degree of competency within the constraints of the international concentration. Students who choose either option one or option two may also participate in the language certificate program. Students choosing option two are encouraged to participate in the certificate program.

Language Certificate Program

Students enrolled in the Master of Business Administration degree program in the College of Business and Administration at Southern Illinois University at Carbondale have the option of participating in a language certificate program. This certificate program will allow students the opportunity to obtain a foreign language certification using standards established by the American Council of Teachers of Foreign Language (ACTFL).

Eligibility. To be eligible for participation in the certificate program, a student must be enrolled in the M.B.A. program and have two years (or equivalent) of college courses in the language in which the student is seeking certification. A student may not seek certification in his or her native language.

Program. Students electing the certificate program will be evaluated by faculty in the Department of Foreign Languages and Literatures using ACTFL standards. Following evaluation, a program of recommended courses will be provided to the student. Upon completion of these courses, the student will be evaluated again and awarded a certificate indicating the level of proficiency attained.

Languages. Certification will be offered in the following languages:
- French
- German
- Spanish

Admission Requirements

Prospective degree candidates are expected to demonstrate a readiness for graduate study and an aptitude for successful performance in graduate level work in business administration. Admission to the program is based on the applicant's undergraduate record, a satisfactory score on the Graduate Management Admission Test, and other evidence pertaining to ability to perform well in graduate work in business administration. Special circumstances and work experience may be considered if presented. More specifically, the applicant must:

1. Meet all admission requirements set forth by the Graduate School. These requirements are outlined elsewhere in the catalog.
2. Complete the Graduate Management Admission Test and have the results of the test mailed directly to graduate programs, College of Business and Administration.

Information regarding this test is available by writing to: Graduate Management Admission Test, Educational Testing Service, PO Box 6103, Princeton, NJ 08541-6103 USA.

To apply, one needs to complete and submit a Graduate School application and an M.B.A. program application. Application materials may be obtained from: Graduate Programs, College of Business and Administration, Southern Illinois University at Carbondale, Carbondale, IL 62901-4625, (618) 453-3030.

A non-refundable application fee of $20.00 must be submitted with any application to the M.B.A. or D.B.A. program. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable in U.S. funds cleared through a United States bank will be accepted.

Application Deadlines

	Fall	Spring	Summer
Assistant Applicants	March 15	September 15	February 15
Fellowship Applicants	Nov. 15 of previous year (fall awards only)		
Other U.S. Applicants	June 15	November 15	April 15
Other International Applicants	April 15	September 15	February 15

Degree Requirements

A minimum of 32 semester hours of course work is required. Students must earn a 3.0 grade point average (4.0 = *A*). Candidates who receive permission to write a thesis must complete a minimum of 29 semester hours of course work plus an acceptable thesis, for which 6 semester hours of credit are assigned.

Students who enter the M.B.A. degree program without the necessary foundation courses in the common body of knowledge of business and administration as specified by the American Assembly of Collegiate Schools of Business must complete them in a satisfactory manner. These students may be required to complete up to 37 semester hours of acceptable course work to satisfy this require-

ment. In addition, students must satisfy a computer ability requirement for spreadsheet programs.

For courses previously taken to be evaluated as possible equivalents to M.B.A. foundation courses at SIUC, one needs to have earned a grade of *C* or higher in each and supply the M.B.A. academic adviser with the course syllabus for each course to be evaluated. Where syllabi are not available, a course catalog, or catalogs as appropriate, for the years the courses were completed may be presented. Transcripts may not be substituted for syllabi/catalog descriptions. This supporting documentation needs to be provided to the M.B.A. academic adviser at least 2 weeks in advance of one's first M.B.A. advisement appointment and subsequent registration.

The M.B.A. degree program course work to be taken beyond the foundation courses is determined on an individual basis in conference with the M.B.A. program academic adviser. All core and elective requirements must be met. For up-to-date information regarding the core and elective courses of the M.B.A. program, contact: Graduate Programs, COBA, Southern Illinois University at Carbondale, Carbondale, IL 62901-4625.

Students may choose to take all of their electives in a particular area such as accounting, finance, management, or marketing in fulfilling their electives, or, alternatively, take electives across 2 or more areas. Students may request approval to take one or more substantive electives outside of business which would provide training unavailable through business courses and would facilitate the student meeting career goals.

Transfer Credit

Within limits imposed by the policies of the Graduate School, an incoming student may receive transfer credit for up to 6 semester hours of equivalent course work if the courses were taken at an AACSB accredited graduate school.

A graduate student who has 6 hours or less of course work remaining in their program may petition the master's programs committee for permission to complete up to 6 hours of equivalent course work at another AACSB accredited graduate school. The determination of equivalency is to be made by the director of the Master of Business Administration degree program.

Course work from other than AACSB accredited graduate schools must be approved by the master's programs committee.

Academic Retention

In addition to the retention policies of the Graduate School, a student may earn no more than 7 hours of *C* or lower in the M.B.A. core classes, or he/she will be suspended from the M.B.A. program. A student who has 3 outstanding recorded grades of *Inc* or *Def* remaining on the grade record at the end of any semester or session, for any reason, will be deemed to be not making normal progress and will be placed on probationary status. If the student has 3 outstanding grades of *Inc* or *Def* remaining on record at the end of the next semester or session, the student will be suspended from the program. The definitions of *Inc* and *Def* may be found in the *Graduate Catalog.*

A student who is to receive a grade of *Inc* in a course is to meet with the instructor to work out a time and conditions for completion of the course within policy guidelines. Typically, a Notification of Incomplete Grade Agreement form is completed and the student is provided with a copy.

M.B.A./J.D. Concurrent Degree Program

The College of Business and Administration (COBA) and the School of Law, together, offer the M.B.A./J.D. concurrent degree program. The J.D. degree alone requires completion of 90 semester hours of course work and the M.B.A. degree alone requires completion of 32 semester hours of course work; however, in the

M.B.A./J.D. concurrent degree program the School of Law accepts 9 semester hours of business course work toward meeting the J.D. semester hour requirement and COBA accepts 9 semester hours of law toward meeting the M.B.A. semester hour requirement. The end result is that the concurrent degree program actually entails completion of 81 semester hours of law courses and 23 semester hours of business courses, with an 18 semester hours savings over pursuing both degrees separately outside of the M.B.A./J.D. concurrent degree program.

A student interested in enrolling in the M.B.A./J.D. concurrent degree program must apply both to the graduate program in law (which involves a law school application) and to the graduate program in business (which involves a Graduate School application and an M.B.A. program application) and be accepted by each program. The student may then request permission to pursue the concurrent degree program. This request must be made both to COBA and the School of Law and should be made prior to commencing the second-year law curriculum.

During the first academic year of concurrent work on the two degrees, the student enrolls only in the first-year law curriculum. In any subsequent academic term, the student may enroll for courses either in the School of Law or in the Master of Business Administration program. A student registered for both law and graduate courses in the same term must enroll for a minimum of 10 hours in law, and 12 semester hours in total, in order to meet A.B.A. residence requirements and the academic requirements of the School of Law.

M.A. in Telecommunications/M.B.A. Concurrent Degree Program

The College of Business and Administration (COBA) and the Department of Radio-Television (R-TV) in the College of Mass Communication and Media Arts (MCMA) together offer an M.A. in telecommunications/M.B.A., a concurrent degree program leading to both the Master of Business Administration and the Master of Arts with a major in telecommunications. The M.B.A. degree requires completion of 32 semester hours of course work; the M.A. with a major in telecommunications requires the completion of 30 semester hours of course work. In the concurrent M.A. in telecommunications/M.B.A. degree program, COBA accepts 6 semester hours of R-TV approved course work, and R-TV accepts 6 semester hours of COBA approved course work. The end result is that the concurrent degree program entails completion of 26 semester hours of COBA approved courses and 24 semester hours of Radio-Television approved courses, for a total of 50 hours; this is a savings of 12 semester hours over pursuing both degrees separately outside of the M.A. in telecommunications/M.B.A. concurrent degree program.

Students interested in enrolling in the M.A. in telecommunications/M.B.A. concurrent degree program must apply to both the graduate program in COBA and the graduate program in R-TV and be accepted by both programs. This initiates the process to pursue the concurrent degrees.

Students enrolled only in the M.B.A. in the College of Business and Administration or the M.A. in telecommunications may request admission into the other program and approval to pursue the concurrent degree program. Admission to the concurrent degree program must be done at least one semester before the last semester of registration at SIUC.

M.B.A./M.S. in Agribusiness Economics Concurrent Degree Program

The College of Business and Administration (COBA) and the Department of Agribusiness Economics (ABE) in the College of Agriculture (COA) together offer an M.B.A./M.S., a concurrent degree program leading to both the Master of Business Administration and the Master of Science with a major in agribusiness economics. The M.B.A. degree requires completion of 32 semester hours of

course work; the M.S. with a major in ABE requires the completion of 30 semester hours of course work. In the concurrent M.B.A./M.S. degree program, COBA accepts 6 semester hours of ABE approved course work, and ABE accepts 6 semester hours of COBA approved course work. The end result is that the concurrent degree program entails completion of 26 semester hours of COBA approved courses and 24 semester hours of ABE approved courses, for a total of 50 hours; this is a savings of 12 semester hours over pursuing both degrees separately outside of the M.B.A./M.S. concurrent degree program.

Students interested in enrolling in the M.B.A./M.S. in agribusiness economics concurrent degree program must apply to both the graduate program in COBA and the graduate program in ABE. The student must be accepted by both programs. This initiates the process to pursue the concurrent degrees.

Students enrolled only in the M.B.A. in the College of Business and Administration or the M.S. in agribusiness economics may request admission into the other program and approval to pursue the concurrent degree program. Admission to the concurrent degree program must be done at least one semester before the last semester of registration at SIUC.

Doctor of Business Administration

The Doctor of Business Administration (D.B.A.) degree program is designed to prepare individuals for faculty research and teaching positions in academic institutions and for high-level administrative or staff positions in business, government, and other organizations. Candidates for the D.B.A. degree must demonstrate in-depth knowledge of business and administration and high potential to undertake significant research.

Admission Requirements

To be eligible for admission, students must have completed a master's degree or its equivalent. A grade point average in all graduate level work of 3.5 ($A = 4.0$) is preferred, but not less than 3.33 is permitted for admission.

In certain instances admission to the D.B.A. program directly from the baccalaureate degree is permitted. To be considered for this admission route, students must have demonstrated promise of success in the D.B.A. program through outstanding achievement at the undergraduate level (minimum grade point average of 3.5 on a 4.0 scale) and superior performance in both the verbal and quantitative components of the Graduate Management Admission Test (minimum GMAT score of 600).

Applicants with exceptional research potential or outstanding academic preparation may have the option to enter the D.B.A. program after at least one semester as an M.B.A. student at SIUC.

To apply to the D.B.A. program, each applicant is required to take the Graduate Management Admission Test (of the Educational Testing Service) and have an official report of these scores sent to SIUC. The applicant needs to complete and submit a Graduate School application and a D.B.A. program application. Application materials may be obtained from: Graduate Programs, COBA, Southern Illinois University at Carbondale, Carbondale, IL 62901-4625.

A non-refundable application fee of $20.00 must be submitted with any application to the D.B.A. program. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable in U.S. funds cleared through a United States banks will be accepted.

Degree Requirements

Students in the program must complete course work in certain foundation areas. A student who has completed successfully the requirements for the M.B.A. degree from an AACSB-accredited graduate business program will have met the

foundation requirements. A student with a M.Acc. from an AACSB-accredited program will be expected to take some courses, to be determined by the student's advisory committee, outside the accounting area. All other students will either complete the following courses or demonstrate proficiency based on prior academic work:

BA 410-3 Financial Accounting
BA 526-3 Managerial Economics
MATH 140-4 Short Course in Calculus
EPSY 506-4 Inferential Statistics
and 5 courses from any 3 of the following 4 areas:

a. BA 430, BA 510, BA 530
b. BA 450, BA 550, BA 598
c. BA 540, BA 598
d. BA 452, BA 520, BA 560

In addition, the student must demonstrate proficiency in computer programming.

The student must complete a prescribed program of doctoral course work beyond the foundation work. A minimum of 60 semester hours is required: 12–18 hours in the major field; 6–12 hours in a support field; 6–12 hours of research tools; and 24 hours of dissertation credit. Additional hours may be required as prescribed by the student's advisory committee.

It is expected that all doctoral course work will be completed at SIUC. In exceptional cases, the advisory committee may consider petitions to accept credit, not to exceed 6 hours, for doctoral course work done at other institutions.

In addition to the retention policy of the Graduate School, for the D.B.A. program the third grade below *B* or the second grade below *C* in any graduate level course not designated as a foundation course will result in automatic dismissal from the D.B.A. program without any right of appeal.

Advisement

For each student an advisory committee is constituted and approved according to procedures described in the D.B.A. policies and procedures document of the COBA. The advisory committee is responsible for developing and approving a program of study for the student which meets all requirements of the Graduate School and the D.B.A. program. The specific program is designed in terms of the individual student's career objectives.

Preliminary Examinations

The preliminary examination is designed to determine the breadth and depth of the student's knowledge within the discipline. A minimum of 2 years of study (48 semester hours) beyond the baccalaureate must be completed before the student is permitted to sit for the preliminary examination, and the student must be in the last semester of all scheduled course work.

The preliminary examination has a written and oral portion. After successful completion of the written segment, the student will sit for the oral portion of the preliminary examination. Students who pass the oral portion will be recommended for candidacy when the residency and research tool requirements have been met. Students who fail the preliminary examination, or any part thereof, may petition to retake the examination or any part thereof.

Specific conditions may be stipulated before the student can sit for the examination a second time. Those who fail the preliminary examination a second time will be dismissed from the program.

Dissertation

Upon admission to candidacy, a dissertation committee is constituted and approved according to procedures described in the D.B.A. policies and procedures

document of the COBA. The student will prepare a written proposal and submit it to the dissertation committee and make an oral presentation of the dissertation proposal. On acceptance of the written and oral presentation of the dissertation proposal by the dissertation committee, the student will proceed with further work on the dissertation topic. The dissertation committee will monitor the student's progress in completing the dissertation. A final oral examination will be administered by the dissertation committee and will cover the subject of the dissertation and other matters related to the discipline. Upon successful completion of the final oral examination, the candidate will be recommended for the D.B.A. degree.

Other Graduate Degrees Offered by COBA

The college also offers the Master of Accountancy (M.Acc.) degree. In addition, jointly with the School of Law the college offers the J.D./M.Acc. concurrent degree program. The reader is referred to the accountancy section of this catalog for details regarding the M.Acc. and J.D./M.Acc. programs.

For More Information

Additional information regarding the M.B.A. degree program or D.B.A. degree program may be obtained by contacting Graduate Programs, COBA, Southern Illinois University at Carbondale, Carbondale, IL 62901-4625. Additional information regarding the M.Acc. degree program may be obtained by contacting the School of Accountancy in the College of Business and Administration.

Courses (BA)

Students desiring to enroll in these courses must be admitted to the Master of Business Administration, Master of Accountancy, or Doctor of Business Administration degree program or have permission of the associate dean for graduate study in business administration or accountancy.

410-3 Financial Accounting Concepts. Basic concepts, principles, and techniques used in the generation of accounting data for financial statement preparation and interpretation. Asset, liability, equity valuations and income determination is stressed. Prerequisite: Enrollment in M.B.A. program or consent of department.

420-3 Production/Operations Management. A survey of the design, operation and control of systems that produce goods and services. Topics include forecasting, production planning, facility location and layout, inventory management, scheduling and quality control. Prerequisite: enrollment in M.B.A. program or consent of department.

426-3 Managerial Economics. Develops conceptual framework for business decision making with emphasis on demand, costs, prices and profits. Prerequisite: enrollment in M.B.A. program or consent of department.

430-3 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. Prerequisite: enrollment in M.B.A. program or consent of department; 410, Educational Psychology 506 and M.B.A. program "computer ability" foundation requirement met, or equivalent.

440-3 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. Prerequisite: enrollment in M.B.A. program or consent of department.

450-3 Introduction to Marketing Concepts. An overview of the role of marketing within an economic system and of the major marketing activities and decisions within an organization. Emphasis is on developing an understanding of the marketing process. Prerequisite: enrollment in M.B.A. program or consent of department.

451-3 Methods of Quantitative Analysis. (Same as Mathematics 457.)

452-3 Operations Research. A survey of operations research techniques with emphasis on problem formulation, model building, and model solution. Topics include mathematical programming, waiting-line models, simulation and decision theory. Prerequisite: enrollment in the M.B.A. program or consent of department; 451, Educational Psychology 506 or equivalent.

470-3 Legal and Social Environment. An overview of the legal, social, and ethical dimensions which influence business with particular attention to the role of law as a control factor of society in the business world. Prerequisite: enrollment in MBA program or consent of department.

500-3 Research Applications in Business and Organizations. The analysis of actual problems in research: project design, data collection, analysis, interpretation, dissemination and application in business and organizational settings. This includes an understanding of the proper utilization of appropriate research statistics and involves use of the computer for problem solving. Three lecture

and two laboratory hours per week. Prerequisite: enrollment in M.B.A. program or consent of department; M.B.A. program foundation.

502-3 Business in our Capitalistic Society. Study of the external environment in which business in America operates; social, political, legal and ethical dimension, inter-relationships and requirements. Prerequisite: enrollment in M.B.A. program or consent of department; all M.B.A. program foundation.

503-3 Management of Change. The methods and processes of planned change are examined. Special emphasis is placed on the design and implementation of continuous improvement systems and related issues of managing constant change. Change models are viewed in the context of international competitiveness and a dynamic global environment. Prerequisite: enrollment in M.B.A. or D.B.A. program, or consent of department.

510-3 Managerial Accounting and Control Concepts. Basic cost concepts, measures, methods and systems of internal accounting useful for managerial planning, implementation, control and performance evaluation. Includes cost analysis relevant for non-routine decision-making. Prerequisite: enrollment in M.B.A. program or consent of department; 410 and M.B.A. program "computer ability" foundation requirement met, or equivalent.

513-3 Accounting Concepts in Business Organizations. Accounting theory and practice as it applies to business and other organizations. Emphasis is on current problem areas in accounting and on research methods being used to resolve these problems. Prerequisite: enrollment in the D.B.A. program or consent of department.

514-3 Ethics of Business. Philosophical implications of contemporary issues in business ethics. Prerequisite: enrollment in M.Acc. or M.B.A. Program.

519-3 Seminar in Accounting. Discussion of current accounting theories, principles, standards and problems. Prerequisite: enrollment in M.B.A. program or consent of department.

521-3 Business Conditions Analysis. Emphasis is given to macro-economic theory as it affects economic forecasting. Particular emphasis is given to GNP forecasting models, industry forecasts and forecasting for the firm. Prerequisite: enrollment in M.B.A. program or consent of department; 430 or equivalent.

522-3 Operations Strategy for Global Competition. Study of the development of competitive strategy for the operations function, how that strategy relates to organizational strategy and how the operations function can contribute to an organizations' competitive capabilities in the global marketplace. Prerequisite: enrollment in M.B.A. or D.B.A. programs or consent of department; 420 or equivalent.

530-3 Financial Management. A study of financial principles and practices with special emphasis on their relation to managerial planning and control. Prerequisite: enrollment in M.B.A. program or consent of department; 430, 510 and either 526 or Economics 441 and 440 or equivalent.

531-3 Advanced Financial Management. An evaluation of selected financial policies connected with the acquisition and disposition of funds by the firm. An emphasis is placed on quantitative solutions to these problems. Prerequisite: enrollment in M.B.A. program or consent of department; 430 or equivalent.

532-3 Financial Institutions and Markets. The principal financial institutions and markets will be studied in relation to their contribution to the efficient operation of the individual enterprise and the total company. Prerequisite: enrollment in M.B.A. program or consent of department; 430 or equivalent.

533-3 Investment Concepts. A study of fixed return and variable return securities, investment services, industry and issue analysis, empirical studies of groups and individual stock price movements. Prerequisite: enrollment in M.B.A. program or consent of department; 430 or equivalent.

534-3 Financial Decision Making. Study of the scope and nature of advanced financial decision making and the application of quantitative tools and techniques to decisions relating to working capital, fixed assets, cost of capital, value of the firm and financial structure. Prerequisite: enrollment in the D.B.A. program or consent of department.

535-3 Multinational Financial Management. Discussion of international monetary system, parity conditions, foreign exchange markets and financial markets. Special focus on financial management of the multinational firm, including risk assessment, hedging, capital budgeting and performance evaluation and control. Prerequisite: 530.

536-3 Advanced Financial Analysis. Deals with examination of classical and various modern treatments of investment, valuation, cost of capital and capital structure. Portfolio, state-preference, capital markets, options pricing, mergers and exchange rate theories are explored. Prerequisite: enrollment in M.B.A. or D.B.A. program or consent of department; 430 or equivalent.

539-1 to 15 Seminar in Finance. A series of doctoral seminars on theoretical and empirical issues in finance. Sections (a) through (d) may be taken only once. Section (e) may be repeated as topics vary. **(a)** Corporate financial theory. **(b)** Financial institutions and markets. **(c)** Portfolio theory and speculative markets. **(d)** International financial theory. **(e)** Selected topics. Prerequisite: enrollment in D.B.A. program or consent of department.

540-3 Managerial and Organization Behavior. Case analyses of human problems in the business organization. Application of findings of behavioral science research to organization problems. Development of direction and leadership skills. Prerequisite: enrollment in M.B.A. program or consent of department; 440 or equivalent.

541-3 Operations Research II. Continuation of the survey of topics and approach taken in 452. Problem formulation; model building and elementary mastery of state-of-the-arts solution techniques are emphasized. Topics include integer programming, traveling sales representative problems, probabilistic programming, queuing, simulation and inventory theory. Prerequisite: enrollment in M.B.A. program or consent of department; 452 or equivalent.

543-3 Personnel Management. An overview of the field of personnel administration, based on a

review of the relevant literature and on practice in simulations of problems typically encountered in the field. Prerequisite: enrollment in M.B.A. program or consent of department, 440 or equivalent.

544-3 Advanced Production Planning and Inventory Management. An in-depth study of analytical models and techniques for production planning, scheduling and inventory management. Designed to prepare students for relevant portions of American Production and Inventory Control Society (APICS) certification examinations. Prerequisite: enrollment in M.B.A. or D.B.A. program or consent of department, 420 or equivalent.

545-3 to 21 (3,3,3,3,3,3,3) Seminar in Organization Studies. A series of advanced seminars in organization studies. Sections (a)-(g) can be taken only once. **(a)** Foundations in Organization Studies. **(b)** Advances in Organizational Behavior. **(c)** Advances in Organization Theory. **(d)** Advances in Strategic Management. **(e)** Special Topics in Organizational Behavior. **(f)** Special Topics in Organization Theory. **(g)** Special Topics in Strategic Management. Prerequisite: enrollment in D.B.A. program or consent of department.

546-3 Leadership and Managerial Behavior. This course will concentrate on leader and manager behavior at middle and upper organizational levels. Emphasis will be placed on leader and manager effectiveness and the factors that impact effectiveness. Prerequisite: enrollment in M.B.A. program or consent of department, 540 or equivalent.

547-3 to 15 (3,3,3,3 to 6) Seminar in Production/Operations Management. Series of advanced seminars in Production/Operations Management. Sections **(a)** through **(c)** may be taken only once. **(a)** Total Quality Management. **(b)** Service Operations Management. **(c)** Production/Operations Management and Information Systems. **(d)** Special Topics in Production/Operations Management. Prerequisite: **(a)**, **(b)**, **(c)** enrollment in M.B.A. or D.B.A. programs or consent of department; **(d)** enrollment in D.B.A. program or consent of department.

548-3 to 18 (3,3,3,3,3 to 6) Seminar in Management Information Systems. A series of advanced seminars on Management Information Systems (MIS). Sections **(a)** through **(d)** may be taken only once. Section **(e)** may be repeated as topics vary. **(a)** Advances in Management Information Systems. **(b)** Decision Support and Information Systems. **(c)** Quantitative and Computer Methods for Decision Support and Information Systems. **(d)** Strategic Management of Information. **(e)** 3 to 6 Special Topics in Management Information Systems. Prerequisite: **(b)** enrollment in M.B.A. or D.B.A. programs or consent of department; **(a),(c),(d),(e)** enrollment in D.B.A. program or consent of department.

550-3 Marketing Management. A managerial approach to the study of marketing. Emphasis is on the nature and scope of the marketing manager's responsibilities and on marketing decision making. Prerequisite: enrollment in M.B.A. program or consent of department, 450 or equivalent.

551-3 Product Strategy and Management. Designed to treat product management and its relationships with business policies and procedures; the development of multiproduct strategies, means of developing such strategies and the problems and methods of commercialization. Prerequisite: enrollment in M.B.A. program or consent of department, 550 or equivalent.

552-3 Research Methodology for Marketing. The study of theory, method and procedure for quantitative and qualitative analysis of primary and secondary marketing data. Emphasis is placed on application of specific research tools to the process of formulating and testing research hypotheses. Prerequisite: enrollment in D.B.A. program or consent of department.

553-3 Multinational Marketing Management. The basic elements of marketing management are identified in the setting of a global business environment. Emphasis is given to variables in the international markets that effect strategic business planning such as cultural, ethical, political and economic influences. The course focuses on current trends in the marketing practices of organization. Prerequisite: enrollment in the M.B.A. program or consent of department, 550 and Marketing 435 or equivalent.

554-3 Strategic Issues in Marketing and Society. A critical view of the social, political, legal and economic impact of strategic marketing decision making. Emphasis is on the ethical and moral ramifications of marketing activities in a complex social environment. Prerequisite: enrollment in M.B.A. program or consent of department.

555-3 Seminar in Consumer Behavior. Emphasis on the theories and research relating behavioral science to the discipline of marketing. Development of sophisticated comprehension of the consumption process is undertaken. Prerequisite: enrollment in D.B.A. program or consent of department.

556-3 Seminar in Marketing Strategy. Long run market opportunities are identified and evaluated. Methods of implementation and execution affecting the relationship of strategic marketing planning to the allocation decisions of top management are emphasized. The orientation is toward theoretical development to provide a base for continuing research in the field. Prerequisite: enrollment in D.B.A. program or consent of department.

557-3 Seminar in Marketing Theory. The philosophical bases underlying the development of theory in marketing. The process of development of marketing ideations through research is emphasized. Prerequisite: enrollment in the D.B.A. program or consent of department.

558-3 Promotional Strategy and Management. The study of the elements of the promotional mix including advertising, personal selling, sales promotion and publicity and how they apply in the profit and not-for-profit sectors of the market place. Prerequisite: enrollment in the M.B.A. program or consent of department, 550 or equivalent.

559-3 Seminar in Marketing. Study of current issues and problems in marketing and an evaluation of contemporary marketing theory and practice. Prerequisite: enrollment in M.B.A. program or consent of department, 450 or equivalent.

560-3 Management of Information Systems. A survey of information system design, analysis and operations. Topics include systems concepts,

systems analysis and design, database management, software and hardware concepts, decision support systems, expert systems, distributed processing and telecommunications and information systems planning. Applications of information technology will be emphasized. Prerequisite: enrollment in M.B.A. program or consent of department; 452 or equivalent.

561-3 Database Design and Applications. Database planning, design and implementation; application of data modeling techniques-entity-relationship diagrams, hierarchical, network, relational and object-oriented data modeling; physical design and data administration; Distributed and Expert Database Systems. Prerequisite: enrollment in M.B.A./M.A.C.C./D.B.A. programs or consent; 560 or equivalent.

562-3 Information Systems and Design. Principles and concepts; strategic systems planning; tools and techniques for analysis and design; construction and quality management; reusability; methodology evaluation; full life cycle CASE tools.

570-1 to 2 (1,1) Professional Development Dimensions. To aid the professional development of M.B.A. students by providing a variety of experiences to address attitudes, values and ethical standards. Executive guest speakers, roundtable discussion, simulations and role playing will be used. To be taken as **(a)** one hour and **(b)** one hour. Additional charges of approximately $20 may be assessed for field trips. Prerequisite: enrollment in M.B.A. program.

573-3 Planning Systems and Strategic Decisions. A critical review of theory and research on the structure, content and process of strategic decisions. The design and implementation of planning systems also is emphasized. Prerequisite: enrollment in M.B.A. or D.B.A. program or consent of department.

574-3 Advanced Research Methods in Business Administration. A capstone research course in business administration that exposes the student to a full range of research experiences. Emphasis is on integrating learning and creative thinking in the execution of the research process. Prerequisite: enrollment in D.B.A. program.

574B-3 Advanced Research Methods II. This course is a practicum in advanced research methods. It will focus on analysis of data, interpretation of results and synthesis of conclusions based on a clear understanding of the objectives of research, the characteristics of data and techniques for manipulating data. Prerequisite: 574.

580-3 International Dimensions of Business and Management. International business and activities are examined in the international environment. The course will focus on concepts and issues of international business and will analyze the marketing, financial, accounting, managerial, logistical and production functions of international operations. Emphasis is on integrating, learning and creative thinking through lecture and case analysis. Prerequisite: enrollment in M.B.A. program or consent of program; functional M.B.A. coursework should be completed.

591-1 to 15 (3 per semester per 700 number) Independent Study. Directed independent study in selected areas of business administration. May be repeated as topics vary. Prerequisite: enrollment in M.B.A. or D.B.A. program or consent of department; consent of instructor.

595-1 to 6 Internship – Work Experience. Current practical experience in a business or other work directly related to course work in a College of Business and Administration program and to the student's educational objectives may be used as a basis for granting credit to the college. Credit is given when specific program credit cannot be granted and is usable for elective credit only. Credit is sought by petition and must be approved by the COBA dean before registration. Graded S/U or DEF only.

598-3 Business Policies. Study of the development and evaluation of business strategies and policies as they relate to the overall performance of the firm within its environment. Knowledge of the functional areas of administration, available business data and analytical tools will be utilized in solving comprehensive business cases and simulation games. Prerequisite: enrollment for past semester in M.B.A. program.

599-3 to 6 Thesis. Prerequisite: enrollment in M.B.A. program or consent of department, consent of instructor.

600-1 to 24 (1 to 16 per semester) Dissertation. Minimum of 24 hours to be earned for the Doctor of Business Administration degree. Prerequisite: advancement to candidacy for the D.B.A. program.

601-1 per semester Continuing Enrollment. For those graduate students in business who have not finished their degree programs and who have one or more INCs or DEFs on their records and/or are in the process of completing their degree requirements. The student must have previously enrolled in a minimum of 36 hours of course work that meets MBA program core and elective requirement or have completed a minimum of 24 hours of BA 600 before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S / U* or *DEF* only.

Courses (FIN)

There is no graduate program offered through the Department of Finance. Four-hundred-level courses may be taken for graduate credit unless otherwise indicated in the course description.

433-3 Portfolio Theory and Management. Examination of modern concepts relating to management of security portfolios. Topics include security analysis, Markowitz Portfolio Theory, efficient market hypothesis, portfolio performance measurement, risk and portfolio construction. Prerequisite: passed 331 with a grade of *C* or better, 361 (361 may be taken concurrently).

462-3 Working Capital Management. Short-term budgeting and forecasting techniques used in business; alternative approaches to working capital management including consideration of certainty, risk and uncertainty; theory and applications of management of cash, marketable securities, accounts receivables, inventory, banking relationships, and short-term sources of funds. Prerequisite: 361 or concurrent enrollment.

463-3 Forecasting and Capital Budgeting. Long-term forecasting techniques used in business; alternative approaches to capital structure decisions, cost of capital measurement; and performance measurement for investment decisions including mergers and leasing; explicit consideration of certainty, risk and uncertainty in investment analysis; theory and applications in private and public sectors. Prerequisite: 361 or concurrent enrollment.

464-3 International Financial Management. Financial behavior of multinational firms. Emphasis on the modification of conventional financial models to incorporate uniquely foreign variables. Prerequisite: 361 or concurrent enrollment.

480-3 Problems in Labor Law. Social, economic, and legal evaluations of recent labor problems, court decisions and legislation. Concern is on long run legislative impact on manpower planning, dispute settlement and utilization of employment resources.

Courses (MGMT)

There is no graduate program offered through the Department of Management. Four-hundred-level courses in this department may betaken for graduate credit unless otherwise indicated in the course description.

420-3 Database Management. Database planning; entity-relationship diagrams; relationed, network and hierarchical data models; normalization theory; query languages; distributed databases; applications development.

421-3 Automated Information System Applications Development. Principles of information engineering; information strategy planning; business area analysis and design; construction; quality assurance; use of CASE technology. Prerequisite: Management 420.

431-3 Organizational Design and Structures. The study of modern theories of complex organizations. Particular emphasis is placed on open-systems perspectives of administrative theory and the adaption of the organization to a changing environment. Prerequisite: 341 and junior standing or consent of department.

453-3 Advanced Quantitative Models for Systems Analysis. A continuation of 352. Mathematical model building in organizations and solution techniques commonly used to solve such models. An extension of topics in deterministic and probabilistic modeling introduced in 352. Prerequisite: 352, junior standing or consent of department.

456-3 Building Decision Support and Expert Systems. Investigation of selected systems and computer based methods for aiding management decision-making. Topics include systems analysis applications, simulation and decision models. Prerequisite: 345.

471-3 Seminar in Entrepreneurship. Investigation of selected special or advanced topics in seminar format. Topics may include but are not limited to entrepreneurship, small business analysis or topics related to the ownership and management of a business. Activities will include library and field research, data analysis, report writing and active participation in seminar presentations and discussions. Designed particularly for the student who has completed the three small business courses numbered 350 and has discussed personal small business or entrepreneurial objectives with the instructor prior to registration. Prerequisite: consent of department.

474-3 Management's Responsibility in Society. Analysis of the cultural, social, political, economic and immediate environment of the organization. Particular emphasis is given to the manner in which the manager adapts to and is influenced by the environment and its conflicting demands. Prerequisite: senior standing or consent of department.

483-3 Advanced Production-Operations Management. In-depth study of analytical planning, scheduling and control theory and techniques in the context of production/operations systems. Case exercises will be utilized to illustrate production management problems and methods. Prerequisite: 318, 352, junior standing or consent of department and must be a business (not prebusiness) major.

Courses (MKTG)

There is no graduate program offered through the Department of Marketing. Four-hundred-level courses may be taken for graduate credit unless otherwise indicated in the course description.

401-3 Retail Management. Designed to present the basic principles in decision areas such as location, layout, organization, personnel, merchandise control, sales promotion, advertising, etc. Retail merchandising through managerial perspective. Prerequisite: 304 and junior standing or higher.

435-3 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: 304 and junior standing or higher.

438-3 Sales Management. Analysis of the management of the sales effort within the marketing system. Philosophies, concepts and judgment criteria of the sales function in relationship to the total marketing program. Prerequisite: 304, Management 304 and junior standing or higher.

439-3 Business to Business Marketing. Analysis of decision criteria related to the marketing of business to business products. Emphasis on team marketing, team selling, formulation of marketing mix factors and the behavioral relationships in contemporary organizations. Prerequisite: 304 and junior standing or consent of department.

452-3 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: 304 and junior standing or higher.

463-3 Advertising Management. Advertising from the viewpoint of business management. Develops an understanding of the role of advertising under various conditions. Problems of integrating

advertising strategy into the firm's total marketing program. Prerequisite: 304 and 363 and junior standing or higher.

493-3 Marketing Policies. A comprehensive and integrative view of marketing policy formulation. Marketing decisions analyzed and discussed. Prerequisite: 329, 363 and 390 (not more than one to be taken concurrently) and junior standing or higher and must be a business (not prebusiness) major or consent of department.

Center for the Study of Crime, Delinquency, and Corrections

(See Administration of Justice.)

Chemistry and Biochemistry

E-mail: chemistry@chem.siu.edu

COLLEGE OF SCIENCE

Bartholomew, Blaine, Assistant Professor, Ph.D., University of California, Davis, 1988; 1991. Biochemistry, protein-DNA interactions, gene regulation, photoaffinity labeling, eukaryotic transcription, modified nucleotides, protein structure/function.

Bausch, Mark J., Associate Professor, Ph.D., Northwestern University, 1982; 1987. Organic radical anion basicities, radical acidities, stability of organic cations.

Davis, Joe M., Associate Professor, Ph.D., University of Utah, 1985; 1987. Analytical, mass transport, separations, electrochemistry.

Gaston, Rick D., Assistant Professor, Ph.D., Indiana University, 1987; 1989. Synthetic organic chemistry, organometallic chemistry.

Groziak, Michael P., Associate Professor, Ph.D., Northwestern University, 1983; 1989. Organic, bioorganic and medical chemistry, nucleoside/heterocycle synthesis, organic/enzymatic reaction mechanisms, mechanism-based enzyme inactivation.

Gupta, Ramesh, Associate Professor, Ph.D., University of Illinois, 1981; 1984. Biochemistry, molecular biology of archaebacteria.

Guyon, John C., Professor, Ph.D., Purdue University, 1961; 1974.

Hardwicke, Peter, Professor, Ph.D., M.D., University of London, 1969; 1984. Biochemistry, calcium ion transport across muscle membrane, properties of actin and myosin.

Hinckley, Conrad C., Professor, Ph.D., University of Texas, 1964; 1966. Inorganic, magnetic resonance of transition metal complexes, osmium chemistry, iron chemistry in coal.

Koropchak, John A., Professor and *Chair*, Ph.D., University of Georgia, 1980; 1984. Analytical, atomic spectroscopy, atmospheric pressure ionization mass spectrometry, metal speciation, plasma chemistry.

Koster, David F., Professor, Ph.D., Texas A&M University, 1965; 1967. Physical, molecular structure, NMR, vibrational spectroscopy, laser-induced reactions.

Lim, Louis W., Assistant Professor, Ph.D., Washington University, 1979; 1991. Biochemistry, X-ray crystallography, protein structure/function, folding and stability of proteins, structural basis of enzyme inhibition.

Meyers, Cal Y., Professor, Ph.D., University of Illinois, 1951; 1964. Organic, nucleophilic vs electron-transfer reactions and reactivities of anions, halogenation of anions with CX4, electron-transfer pathways in biological reactions, correlation of structure with in vivo and receptor-site activity of estrogens.

Niederhoffer, Eric C., Assistant Professor, Ph.D., Texas A&M University, 1983; 1990. Metal ion uptake, transport, effects on gene expression, toxic metal bioremediation, metalloprotein structure.

Phillips, John B., Professor, Ph.D., University of Arizona, 1977; 1977. Analytical, chromatography, surface chemistry, laboratory computing, instrumentation.

Scheiner, Steve, Professor, Ph.D., Harvard University, 1976; 1978. Physical, theoretical biophysical chemistry, protein conformation, hydrogen bonding, proton transfers.

Schmidhauser, Thomas J., Assistant Professor, Ph.D., University of California at San Diego, 1986; 1989. Biochemistry, photoregulation of gene expression, molecular biology of filamentous fungi.

Schmit, Joseph G., Associate Professor, Ph.D., Purdue University, 1971; 1976. Biochemistry, developmental biochemistry and genetics, regulation of enzymatic activity, genetic and biochemical control of amino acid metabolism, molecular basis of circadian rhythms.

Schmulbach, C. David, Professor, *Emeritus*, Ph.D., University of Illinois, 1958; 1965.

Shriver, John W., Professor, Ph.D., Case Western Reserve University, 1977; 1981. Biochemistry, nuclear magnetic resonance spectroscopy, mechanism of muscle contraction, energy transduction, myosin structure changes associated with force production in muscle.

Smith, Gerard V., Professor, Ph.D., University of Arkansas, 1959; 1966. Organic, mechanisms of surface reactions, heterogeneous catalytic hydrogenation and exchange, asymmetric catalysis, catalytic oxidation and ozonation, molecular probes for characterization of metal surfaces,

metallic glasses as catalysts, iron sulfides as catalysts, coal conversion catalysis, stereo-chemistry, hydrodesulfurization.

Tyrrell, James, Professor, Ph.D., University of Glasgow, 1963; 1967. Physical, theoretical calculations on atoms and molecules.

Vermeulen, Lori, Assistant Professor, Ph.D., Princeton University, 1994; 1994. Materials chemistry, electron transfer.

Zhu, Xiaoyang, Assistant Professor, Ph.D., University of Texas, 1989; 1993. Experimental physical chemistry, photochemistry and photophysics at gas-solid interfaces, physical chemistry of materials growth.

Programs leading to the Doctor of Philosophy and Master of Science degrees may be undertaken in the general areas of analytical, inorganic, organic, and physical chemistry, and in biochemistry and molecular biology.

The doctoral degree in chemistry is a research degree. To be awarded this degree, the student must demonstrate to the satisfaction of the graduate committee the ability to conduct original and independent research within some area of chemistry and must, in fact, make an original contribution to the science. The master's degree also requires a research project, but with less emphasis on originality and independence.

Admission

Each student must have a baccalaureate degree in one of the sciences, mathematics, or engineering to be considered for admission to an advanced degree program. An undergraduate major in chemistry, with the following courses, is desirable:

(1) One year of organic chemistry (lecture and laboratory).
(2) One year of calculus-based physical chemistry (lecture and laboratory).
(3) One year of analytical chemistry including instrumental analysis.

Prospective students wishing to pursue the degree in the area of biochemistry and molecular biology are expected to have completed courses in organic chemistry, calculus-based physical chemistry, physics, and biology.

Students with deficiencies in any area may be admitted, but such deficiencies may restrict the research areas available to the student and lead to requirements for additional courses during graduate study.

Prospective students are encouraged to contact faculty in areas of the students' research interest.

Applicants are strongly encouraged to submit Graduate Record Examination (GRE) general test scores. Tests from one of the GRE subject test areas (chemistry or biology for students interested in biochemistry and molecular biology) are also encouraged.

Foreign students whose native language is not English will be required to obtain at least 550 on the Test for English as a Foreign Language (TOEFL).

Placement Examinations. One week before the beginning of classes, each admitted student will be given a written examination (ACS standard or equivalent examination) in the division of chemistry in which the student proposes to work. Students who are undecided about a division or who wish to work in a cross-divisional area should take examinations in 2 or more divisions. The results of these examinations are used to place the student in appropriate courses and to advise the student regarding any deficiencies to be corrected.

Formal Course Work Requirement. All graduate students must satisfy core course requirements of the major division. Students in the doctoral program must take for credit at least 6 semester hours of formal 500-level course work outside the major division. At least 3 of these 6 hours must be within the department. Students in the master's program must take for credit at least 3 semester hours of formal 500-level course work outside the major field. Certain 400-level courses within or without the department may be used to meet this requirement. Students may major in cross-divisional areas. In such cases the for-

mal course work requirement will be modified by agreement of the student's committee and the graduate adviser.

Students in the doctoral program must present 3 departmental seminars for credit (CHEM 595). These include one based on a literature review, the second on the topic of an original research proposal, and the final seminar on the student's own research. Only the last 2 seminars are required of students entering the doctoral program with a recognized master's degree. Students in the master's program must present 1 departmental seminar for credit.

All students must take 1 hour of CHEM 597, Professional Training, each semester in residence.

All course work requirements of the department or the major division are minimum requirements which may be increased by the student's graduate committee.

Research Director and Graduate Committee Selection. Each student should select a research director and graduate committee preferably during the first semester, but no later than the end of the second semester in residence. The student must obtain a selection form provided by the graduate adviser and must interview at least 5 faculty members before selecting a research director and graduate committee. The committee shall consist of the research director (chair), at least 1 member of the major division other than the research director, a member outside the major division, and for a Ph.D. degree candidate a member outside the department. The chair of the Department of Chemistry and Biochemistry, if not otherwise appointed, is an ex-officio member of every graduate committee. A division may increase this requirement.

Graduate Committee Functions. The functions of the graduate committee are listed below.

1. To plan and approve the student's program of study.
2. To review the student's progress in courses and suggest and approve changes in the program of study.
3. To evaluate the student's progress in research and to make appropriate recommendations.
4. To determine whether a student may continue toward a degree. If continuation is denied, the committee must notify in writing the department chair of the reasons for this denial.
5. To read and evaluate the student's thesis or dissertation.
6. To conduct required oral examinations.

As soon as possible after being appointed, the committee will meet to plan the student's program. At this time the progress and program form is completed and filed with the graduate adviser. The committee may require preparation of a master's thesis even if directly pursuing a Ph.D. degree has been previously approved by the faculty.

Research Tools. The department requires no specific research tools. A student's graduate committee, taking into account the student's background and the needs of the research area, may require that the student acquire one or more research tools (e.g., foreign language, computer programming, statistics, and so on). Any research tool requirement must be completed before scheduling the preliminary oral examination for doctoral degree students or the final oral examination for master's degree students.

Assistantship Support. Continuation of assistantship support is contingent upon the student making satisfactory progress toward a degree. In addition, continuation of teaching assistantship support depends upon satisfactory performance of

assigned duties. The Graduate School has established time limits for financial support.

First Year Evaluation. The faculty, meeting as a committee of the whole, will review the progress of all graduate students at the end of their first year in residence. For students in the doctoral program the faculty can:

1. recommend continuation in the doctoral program.
2. recommend transfer in the doctoral program.
3. request that the Graduate School terminate the student from the program (giving cause).

For students in the master's program the faculty can:

1. recommend petitioning the Graduate School to allow entry to the doctoral program (accelerated entry option). Such petition can be made any time after one semester in residence.
2. recommend continuation in the master's program with the option to petition the Graduate School to grant a master's degree equivalency. When granted, this allows the student to apply for entrance to the doctoral program without writing and defending a thesis.
3. recommend continuation in the master's program with option to petition to enter the doctoral program after completion of a master's thesis.
4. recommend continuation in a terminal master's program.
5. request that the Graduate School terminate the student from the program (giving cause).

Preliminary Examination for the Ph.D. Degree.
Each student in the doctoral program must pass a preliminary examination before being advanced to candidacy. The written portion of the preliminary examination is given cumulatively with 10 examinations scheduled each calendar year. The student must pass 4 examinations in no more than 10 consecutive trials. Students must begin cumulative examinations no later than the semester following completion of the divisional core course requirements. After the student completes the cumulative examinations, the preparation and defense of an original research proposal will serve as the oral portion of the preliminary examination.

Summary of Ph.D. Degree Requirements. Each student must fulfill the requirements of both the Graduate School and the Department of Chemistry and Biochemistry. These requirements are:

1. to fulfill the divisional course requirements.
2. to complete at least 6 hours of formal course work at the 400/500 level outside the major division, at least 3 of which must be within the department.
3. to complete a course of study as determined by the graduate committee.
4. to maintain at least a 3.00 grade point average.
5. to attend weekly seminars and earn 2 semester hours of CHEM 595 beyond the master's degree requirement by presenting departmental seminars.
6. to earn at least 32 semester hours in research and dissertation (CHEM 598 and 600).
7. to satisfy any research tool requirement established by the student's graduate committee.
8. to pass a series of cumulative examinations which shall serve as the written portion of the preliminary examination.
9. to prepare and defend an original research proposal which shall serve as the oral portion of the preliminary examination.
10. to complete a research project and to prepare a dissertation acceptable to the student's graduate committee and the Graduate School.

11. to schedule and pass a final oral examination (defense of dissertation).

Summary of Master's Degree Requirements. Each student must fulfill the requirements of both the Graduate School and the Department of Chemistry and Biochemistry. These requirements are:

1. to fulfill the divisional course requirements.
2. to complete at least 3 hours of formal course work at the 400/500 level outside the major division.
3. to complete at least 21 hours of formal course work at the 400/500 level with grades of *A, B,* or *C.*
4. to earn at least 30 semester hours at the 400/500 level, at least 15 of which are at the 500 level.
5. to maintain at least a 3.00 grade point average.
6. to attend weekly seminars and earn 1 semester hour of CHEM 595 by presenting a departmental seminar.
7. to earn at least 8 semester hours in research and thesis (CHEM 598 and 599).
8. to satisfy any research tool requirement established by the student's graduate committee.
9. to prepare and present a thesis on the research carried out.
10. to schedule and pass a final oral examination.

Courses (CHEM)

All laboratory courses in chemistry and biochemistry require the student to purchase either special notebooks or workbooks, costing within the range of $1.50 to $8.50. All students enrolled in a chemistry class that includes a laboratory session will be assessed a breakage charge for all glassware broken. This policy will apply to undergraduate and graduate students.

411-3 Intermediate Inorganic Chemistry. Fundamentals of inorganic chemistry, covering bonding and structure, coordination compounds and the chemistry of some familiar and less familiar elements. Three lectures per week. Prerequisite: 456 or 462 or concurrent enrollment.

431-3 Environmental Chemistry. Chemical principles applied to the environment and environmental problems. Chemical kinetic, thermodynamic and equilibrium concepts as they relate to the atmosphere, water and soil will be discussed to include current problems of pollutants, pollutant evaluation and pollutant remediation. Discussion of methods for the chemical analysis of environmental samples will also be included. Prerequisite: 230 and 340.

434-2 or 4 Instrumental Analytical Chemistry. Theory and practice of instrumental measurements, including emission and absorption spectroscopic, electroanalytical, and chromatographic methods and an introduction to applied electronics. Two lectures and two three-hour laboratories per week for four credits. Enrollment for two credit hours is restricted to graduate students in the Department of Chemistry and Biochemistry who are advised to take instrumental analysis. Prerequisite: one semester of physical chemistry or concurrent enrollment in 461 or 462; 230 or consent of instructor.

439-3 Forensic Chemistry. A one-semester course in forensic methods of analysis offered in conjunction with the Southern Illinois Forensic Science Centre. Topics include identification and quantitation by gas chromatography (GC), GC/mass spectrometry (GS/MS) of drugs and arson residues, selected ion monitoring by GC/MS, Fourier-transform infrared spectroscopy (FTIR) and GC/FTIR of drugs, scanning electron microscopy, energy dispersive X-Ray analysis of paints and metals, X-Ray diffraction of inorganics and UV spectroscopy. One lecture by SIUC faculty and two labs directed by forensic scientists at the Forensic Science Centre per week. Those enrolled must submit to background checks due to presence of sensitive materials. Enrollment limited to 3-4 students per class; students with high academic standing considered. Prerequisite: 434 and instructor consent.

444-3 Intermediate Organic Chemistry. A transitional course between introductory and graduate level chemistry. The chemistry of carbon compounds based upon a mechanistic approach will be discussed. Three lectures per week. Prerequisite: 340, 342 or one year of organic chemistry.

451-6 (3, 3) Biochemistry. (Same as Microbiology 451) **(a)** Chemistry and function of amino acids, proteins and enzymes; enzyme kinetics; chemistry, function and metabolism of carbohydrates; citric acid cycle; electron transport and oxidative phosphorylation. **(b)** Chemistry, function and metabolism of lipids; nitrogen metabolism; nucleic acid and protein biosynthesis; metabolic regulation. Three lectures per week. Must be taken in a,b sequence. Prerequisite: one year of organic chemistry.

455-4 Biochemistry Laboratory. Modern biochemical laboratory techniques for isolation, pu-

rification and characterization of constituents of living cells and for investigations of pathways, kinetics, energetics and regulatory mechanisms related to metabolism and enzymic activity. One lecture and eight hours of laboratory per week. Prerequisite: 451a and 230 or concurrent enrollment.

456-3 Biophysical Chemistry. A one semester course in biophysical chemistry intended for biochemists and molecular biologists. Emphasis will be on solution thermodynamics, kinetics and spectroscopy applied to biological systems. Prerequisite: Mathematics 141 or 150, Chemistry 340 and 342, Chemistry 451a or concurrent enrollment.

461-3 Quantum Mechanics and Spectroscopy. An introduction to quantum mechanics and spectroscopy. Prerequisite: Mathematics 221 or 305 or concurrent enrollment.

462-3 Classical Physical Chemistry. An introduction to chemical, statistical thermodynamics and kinetics. Prerequisite: Mathematics 150; Mathematics 250 recommended.

466-1,1 Physical Chemistry Laboratory. A two semester laboratory sequence. One three hour laboratory per week per semester. **(a)** Experiments relating to topics covered in 462. Prerequisite: 462 or 456 or concurrent enrollment. **(b)** Experiments relating to topics covered in 461. Prerequisite: 461 or concurrent enrollment.

468-3 Application of Symmetry to Chemistry. The concepts of symmetry elements, groups and character tables will be taught. Symmetry will be applied to molecules in order to simplify and characterize their wave functions and vibrational frequencies. Prerequisite: 461 or consent of instructor.

489-1 to 3 Special Topics in Chemistry. Prerequisite: consent of instructor and of chair.

511-6 (3,3) Advanced Inorganic Chemistry. **(a)** Principles of group theory and their application to molecular structure, ligand field theory and its application and magnetic properties of matter. **(b)** Energetics, kinetics and mechanisms of inorganic systems. Prerequisite: one year of physical chemistry, 411 or satisfactory completion of 500.

519-1 to 9 (1 to 3 per semester) Advanced Topics in Inorganic Chemistry. Metal ions in biological processes and other selected topics to be announced by the department. Maximum credit nine semester hours. Prerequisite: consent of instructor.

531-3 Introduction to Analytical Separations. An introduction to the basic principles underlying separation science, with emphasis on all major chromatographies, gel and capillary electrophoresis, isoelectric focusing, field-flow fractionation, rate and isopynic sedimentation, filtration, reverse osmosis and related methods. Prerequisite: Mathematics 250.

532-3 Analytical Chemistry Instrumentation. Theories of design and methods of interfacing components of instruments with applications to optimization of systems for determinations of chemicals in trace concentrations. Two lectures and one three-hour laboratory per week. Prerequisite: 434.

535-3 Advanced Analytical Chemistry. Theory and applications of chromatography; statistics; uses of laboratory computers in chemical instrumentation and data evaluation. Three lectures per week. Lectures will occasionally be used for laboratory operations. Prerequisite: 434.

539-1 to 9 (1 to 3 per semester) Advanced Topics in Analytical Chemistry. Selected topics of interest to practicing analytical chemists such as microanalytical chemistry, functional-group chemical determinations, absorption spectroscopy and electroanalytical chemistry. Maximum credit nine semester hours. Prerequisite: 434.

541-3 Organic Structure and Reactivity. Structure and reactivity of organic compounds: steric, electronic, kinetic and thermodynamic aspects. NMR, ESR, IR, and mass spectrometry in structure characterization. Prerequisite: Master's degree in chemistry, or a grade of *B* or better in 446, or passing grade on the organic diagnostic examination.

542-3 Mechanistic Organic Chemistry. Reaction mechanisms in organic chemistry. Orbital symmetry, photochemistry and the chemistry of the common transient intermediates. Prerequisite: Master's degree in chemistry, or a grade of *B* or better in 446, or passing grade on the organic chemistry diagnostic examination.

543-3 Synthetic Organic Chemistry. Organic synthesis: classical and modern methods. Prerequisite: Master's degree in chemistry, or a grade of *B* or better in 446, or passing grade on the organic chemistry diagnostic examination.

549-1 to 9 (1 to 3 per semester) Advanced Topics in Organic Chemistry. Specialized topics in organic chemistry. The topic to be covered is announced by the department. Maximum credit nine semester hours. Prerequisite: 542.

556-1 to 7 (2,1,2,2,) Advanced Biochemistry. A critical treatment of the topics indicated below. A student may select any one, two, three or all four topics for the indicated credit. **(a)** Eurkayotic molecular biology. Prerequisite: 451a,b or equivalent; MICRO 460 recommended. **(b)** Chemical data analysis. Data reduction and analysis with a laboratory microcomputer with examples from chemistry and biochemistry. Prerequisite: 451a,b or equivalent; Microbiology 460 recommended. **(c)** Chemistry and biochemistry of biological membranes. An advanced level introduction to the techniques used to study biological membranes including: electron microscopy, X-Ray diffraction, spectroscopy, electrophysiological and biochemical. Topics will include the latest information from biophysics to molecular biology. Prerequisite: 556a,b. **(d)** Biophysical methods. Prerequisite: 556a,b,c.

559-1 to 12 (1 to 3 per semester) Selected Topics in Biochemistry. Topic to be announced by the department. Maximum credit twelve semester hours. Prerequisite: 451b.

560-3 Introduction to Quantum Chemistry. Basic principles and applications of quantum mechanics to chemistry. Topics include operator and vector algebra, classical mechanics, angular momentum, approximate methods, hydrogen-like atoms and molecular electronic structure. Three lectures per week. Prerequisite: one year of undergraduate physical chemistry.

561-3 Molecular Orbital Theory. An introduction to molecular orbital theory. Applications and

limitations of various methods. Three lectures per week. Prerequisite: one year of undergraduate physical chemistry including quantum mechanics.

562-3 Advanced Molecular Spectroscopy. Theory of rotational and vibrational spectroscopy, electronic spectroscopy of molecules. Three lectures per week. Prerequisite: 468 or consent of instructor.

564-3 Statistical Thermodynamics. Principles of statistical mechanics and applications to equilibrium and nonequilibrium systems. Topics include ideal gases, monatomic crystals, lattice statistics, the cluster method, correlation functions, Brownian motion, the Boltzmann equation and the Kubo-Green technique. Three lectures per week. Prerequisite: 465a,b or consent of instructor.

569-1 to 9 (1 to 3 per semester) Advanced Topics in Physical Chemistry. Topic to be announced by the department. Maximum credit nine semester hours. Prerequisite: consent of instructor.

590-1 to 3 Introduction to Research and Teaching. Introduction to currently active research efforts in the department; training in the teaching of chemistry; training in the use of chemical English language, library use and literature searching. Only for graduate students in their first semester in residence. This course does not count towards a graduate degree.

594-2 to 3 Special Readings in Chemistry. Assigned library work in any of the six fields of chemistry with individual instruction by a staff member. **(a)** Analytical, **(b)** Biochemistry, **(c)** Inorganic, **(d)** Organic, **(e)** Physical, **(f)** History of chemistry. Maximum credit three hours.

595-1 Advanced Seminar in Chemistry. Advanced level talks presented by graduate students. **(a)** Analytical, **(b)** Biochemistry, **(c)** Inorganic, **(d)** Organic, and **(e)** Physical chemistry.

596-1 to 6 (1 to 3 per semester) Master's Degree Research. Graded research for Master's Degree only. Maximum 6 credit hours. Prerequisite: admission to Master's program in Chemistry and Biochemistry. Completion of at least 9 hours of graded graduate course work in the program. Permission of student's graduate advisory committee.

597-1 to 15 Professional Training. Experience in teaching of chemistry, instrument operation and special research projects. One hour required each semester in residence. Graded *S/U* only. Prerequisite: graduate standing.

598-1 to 50 (1 to 12 per semester) Research. Maximum credit 50 hours, except by permission of the student's graduate advisory committee. Graded *S/U* only. Prerequisite: consent of chair.

599-1 to 6 Thesis. Maximum credit six hours. Prerequisite: consent of chair.

600-1 to 30 (1 to 12 per semester) Dissertation — Doctoral. Requirement for Ph.D. degree, 24 hours. Maximum credit 30 hours, except by permission of the student's graduate advisory committee. Prerequisite: 598.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Cinema and Photography

E-mail: gwessel@siu.edu

COLLEGE OF MASS COMMUNICATION AND MEDIA ARTS

Blumenberg, Richard M., Professor, Ph.D., Ohio University, 1969; 1970. Screenwriting and cinema studies.

Boruszkowski, Lilly A., Associate Professor, M.F.A., Northwestern University, 1979; 1982. Cinema production.

Cocking, Loren D., Assistant Professor, M.A., Ohio State University, 1969; 1976. Cinema production.

Covell, Michael D., Assistant Professor, M.F.A., Ohio University, 1975; 1975. Cinema production.

Duhig, Susan, Assistant Professor, Ph.D., Cornell University, 1994; 1994. Cinema studies.

Gilmore, David A., Associate Professor, M.F.A., Ohio University, 1969; 1969. Photography.

Kolb, Gary P., Associate Professor and *Chair*, M.F.A., Ohio University, 1977; 1979. Photography.

Logan, Fern, Assistant Professor, M.F.A., School of the Art Institute of Chicago, 1993; 1995. Photography.

Mercer, John, Professor, *Emeritus,* Ph.D., University of Nebraska, 1952; 1958.

Overturf, Daniel, Assistant Professor, M.F.A., Southern Illinois University at Carbondale, 1983; 1991. Photography.

Paine, Frank, Associate Professor, *Emeritus,* B.S., Iowa State University, 1950; 1960.

Roddy, Jan Peterson, Associate Professor, M.F.A., University of Illinois, 1987; 1988. Photography.

Swedlund, Charles A., Professor, M.S., Illinois Institute of Technology, 1961; 1971. Photography.

The Master of Fine Arts degree in cinema and photography is intended to provide substantial advanced training for a small number of highly talented indi-

viduals. Emphasis in the program is upon the artistic development of the individual student and the student's creative utilization of cinema or photography.

Students may elect to concentrate in cinema or photography. While concentration is a vital component of the program, our philosophy is that graduate study should increase the options available to the student upon graduation; therefore, cross-disciplinary study is encouraged. Strong supporting course work is available in the areas of theory, history, and scriptwriting; through the School of Art and Design, course work in the other fine arts is also available. A distinguished faculty of 12, excellent facilities, and a large variety of curricular offerings allows the students to individually tailor programs to meet their post-graduation goals.

Acceptance into the program and subsequent continuation in it are at the discretion of the Graduate School and the Department of Cinema and Photography. Minimal admission requirements are those of the Graduate School. Students should contact the director of graduate studies, Cinema and Photography, regarding admission procedures to the program.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Prior to admission to the program, students must satisfy the departmental faculty that they are artistically qualified by presenting evidence of exceptional talent in 1 of the 2 concentrations offered in the degree program. This evidence will ordinarily consist of a portfolio of photographs or 1 or more films. In addition, applicants must arrange for 3 letters of recommendation to be forwarded in support of their application. It is assumed that most of the students applying for admission to the M.F.A. program will be graduates of institutions other than SIUC. All such students would ordinarily provide evidence of having completed training of a thoroughness and quality equivalent to that offered in the undergraduate program of the Department of Cinema and Photography. Students with an M.A. or M.S. degree will also be considered for admission. It is recommended that students wishing to emphasize in still photography have a course work background equivalent to C&P 310, 311, 320, and 322. It is recommended that students wishing to emphasize in cinema have a course work background equivalent to C&P 355, 356, 360, and 368.

In addition to the above admission requirements, an interview with the department's graduate committee is highly recommended, particularly for students with minimal course work in the field.

A graduate student entering the M.F.A. program is normally expected to spend the equivalent of 2 academic years fulfilling required work. If the student lacks adequate course work preparation, or if the student serves as a graduate assistant, a longer period may be required. Students' creative work and artistic abilities are reviewed at the end of their first year in the program. If the faculty should conclude that a student has not made sufficient progress, such a person would be dropped from the program. In the second year of residence, each student would be engaged in a great deal of independent artistic work culminating in the M.F.A. creative project, involving the completion of one or more photographic exhibits or the completion of one or more motion pictures. The exact nature of the project would be determined in consultation between students and their committees. All creative projects would have to be exhibited publicly before the department would consider this requirement satisfied.

After the first semester the department chair appoints, in consultation with the student, and the director of graduate studies a major adviser and a committee of two additional graduate faculty members. This committee develops a specific plan of study with the student, considering not only the requirements of the Graduate School and of the degree program, but also the goals of the student. The major adviser supervises the creative project. The University reserves the

right to retain a portfolio of each student's work. An oral examination by the faculty advisory committee would focus on an evaluation of the project. A formal report describing the project must be filed with the Graduate School.

Degree requirements are 60 semester hours, including 30 hours at the 500 level.

Course Requirements

Photography

12 hours from C&P 401, 402, 404, 405, 418, 420, 421, 422, 423, 424;
6 hours from C&P 471a/b;
9 hours from C&P 597;
6 hours from C&P 541a/b;
6 hours from C&P 575;
4 hours from C&P 595a;
14 hours from general electives;
6 hours from C&P 598.

Cinema

12 hours from C&P 452, 454, 455, 456, 470b;
6 hours from C&P 472a/b;
9 hours from C&P 597;
6 hours from C&P 542a/b;
6 hours from C&P 468 and 574;
4 hours from C&P 595b;
14 hours from general electives;
6 hours from C&P 598.

Completion of an M.F.A. creative project (registration for at least 6 hours in C&P 598 required).

An oral final examination over the M.F.A. creative thesis.

Courses (CP)

Graduate work in the Department of Cinema and Photography is offered toward the Master of Fine Arts degree. Four hundred-level courses in this department may be taken for graduate credit unless otherwise indicated in the course description.

Students provide photographic materials for all cinema and photography production courses, students supply their own film, photographic paper, certain specialized chemicals, a fully adjustable 35mm or 120 roll film camera and $15 additional cost for laboratory materials for each production course. In motion picture production courses, students provide their own film, processing, recording materials and editing supplies. In courses which involve analysis and screening of a number of films, a cost of $10 per course for screenings will be required.

401-3 Large Format Photography. Introduction to the aesthetics and techniques of large format (sheet film cameras) photography with emphasis on personal expression and commercial/professional applications. Students purchase texts and provide photographic materials and chemicals. $15 for additional laboratory materials. Prerequisite: 320 and consent of department.

402-3 Sensitometry. An advanced course dealing with the technical and visual applications of the black and white process. Explores the zone system, density parameter system and practical chemistry. Also deals with the visual application of these systems. Laboratory fee: $15. Prerequisite: 320 and consent of department.

404-3 Introduction to the Studio. Problems and possibilities in the aesthetics and techniques of studio photography: lighting, visual perception, environment, history, theory. Students purchase texts and provide photographic materials. $15 laboratory fee. Prerequisite: 320 and consent of department.

405-3 Applied Photography I. Theory and practice of contemporary commercial/industrial photography. Students provide materials and may purchase texts. Laboratory fee: $15. Prerequisite: 322 and consent of department.

406-3 Applied Photography II. Practice and ideas of advertising/illustrative and editorial photography. Students purchase materials and may purchase props, texts and equipment. Laboratory fee: $15. Prerequisite: 405 and consent of department.

407-3 Photography and the Mass Media. Exploration of the use, context, and meaning of photography in the mass media. The photograph as a

communications tool will be evaluated along with the role and responsibility of the photojournalist. Students will apply theoretical concepts through group and individual assignments. Students purchase texts and provide photographic materials. Laboratory fee: $15. Prerequisite: 320 and consent of department.

408-3 Documentary Photography: Method, Format and Distribution. Exploration of the techniques, history and contemporary context of documentary photography. Audience, publication, and distribution of documentary projects will be addressed. Each student will produce an in-depth documentary photographic project. Students purchase texts and provide photographic materials. $15 laboratory fee. Prerequisite: 322 and consent of department.

420-3 Experimental Camera Techniques. Experimental approaches to the creation of photographic images in the camera. Students provide materials and may be required to purchase texts. Laboratory fee: $15. Prerequisite: 322 and consent of department.

421-3 Experimental Darkroom Techniques. Experimental darkroom manipulations of the straight camera image. Students provide materials and may purchase texts. Laboratory fee: $15. Prerequisite: 322 or consent of department.

422-3 Advanced Color Photography. Advanced study and production of color photographs with emphasis on experimental techniques using Kwik Proof and other forms of photo-mechanical reproduction. Students provide materials and may purchase texts. Laboratory fee: $15. Prerequisite: 322 and consent of department.

425-3 to 9 (3,3,3) Studio Workshop. An intensive workshop focusing on current trends in photography. Topics have included landscape photography, architectural photography, environmental portraiture and imagemaking, among others. Students provide photographic materials and may purchase texts. Laboratory fee: $15. Prerequisite: 322 and consent of department.

426-3 Non-Silver Photography. Intensive introduction to hand-applied emulsions of cyanotype, vandyke brownprinting, gum printing, etc. Students purchase materials and may purchase texts. Laboratory fee: $15. Prerequisite: 322 and consent of department.

449-3 Survey of Film History. Intensive study of major historical periods of the cinema, including technological developments, national cinema movements, sociological and aesthetic determinations, and concerns of film historiography. Prior completion of 349 and 360 is strongly recommended for cinema and photography majors. Screening fee: $10.

452-3 Film Planning and Scripting. The screenplay as a basis for production. Practice in preparing film plans, treatments, storyboards and scripts. Examination of the film industry. Prerequisite: 355, junior standing or consent of department.

454-3 Animated Film Production. Practical course for visual expression exploring various animation techniques: developmental, filmographic, rear lit, cut out, line, cel, etc. Students purchase texts, art supplies, film materials and processing. Equipment usage fee: $10. Prerequisite: 355 and/or consent of department.

455-3 Film Production III. Advanced production by individuals or crews of 16mm sound films from pre-production through shooting. Intensive study of budgeting, production planning, scripting, casting, location and studio shooting techniques, equipment rental, lighting and double system sound filming. Students provide film stock, processing and sound materials. Equipment usage fee: $50. Prerequisite: 356 and consent of department.

456-3 Film-Production IV. Continuation of 455 through post production to a first answer print. Intensive study of editing, sound mixing, laboratory procedures and distribution. Students provide editing and sound materials and are responsible for laboratory costs. Equipment usage fee: $50. Prerequisite: 455 and consent of department.

462-3 History of the Documentary Film. Study of the development of the non-fiction film with emphasis on the documentary. Screening fee: $10. Students purchase texts.

463-3 History of the Experimental Film. Study of experimentation in cinema from the turn of the century to contemporary avant-garde films. Student purchase texts. Screening fee: $10.

466-3 to 6 (3,3) Film Styles and Genres. Intensive study of specific body of films grouped by similarities in style, genre, period and cultural origin. Emphasis of historical, theoretical and critical issues. Topics vary each semester. Sample topics: the Western; the French new wave; Third World cinema; Surrealism in film. May be taken two times if topic differs. Screening fee: $10.

467-3 to 6 (3,3) Film Authors. Intensive study of the work of one or more film authors (directors, screenwriters, etc.) Emphasis is on historical, theoretical and critical issues. Topics vary each semester. Sample topics: the films of Alfred Hitchcock, the films of Jean Renoir. May be taken two times if topic differs. Screening fee: $10.

470-3 to 9 (3,3,3) Advanced Topics. An advanced course concentrating on special topics in cinema and photography. **(a)** Advanced studies in cinema history/theory. Topics offered have been the information film, feminist and ideological criticism of film. Screening fee: $10. **(b)** Advanced topics in film production. Topics offered include motion picture sound workshop, narrative film workshop. Equipment fee: $50. **(c)** Advanced studies in photography. Topics offered have included publication and presentation, the figure, multi-image, fantasy photography among others. Laboratory fee: $15. **(d)** Advanced studies in interdisciplinary topics. Not more than six semester hours may be counted for graduate credit. Prerequisite: consent of department.

471-3 to 6 (3,3) Problems in Creative Production: Photography. Conceptual exercises involving different aspects of photographic production. Emphasis is placed upon individual creative response to assignments. Topics vary; may be repeated for a total of six credits. Students provide photographic materials and chemicals and may purchase texts. Prerequisite: 322 and consent of department.

472-3 to 6 (3,3) Problems in Creative Production: Cinema. An intensive examination, through readings, screenings, and filmmaking, of a cinematic genre, style, movement, or technical challenge. Theory is combined with practice, re-

sulting in a group film production. Previous problems studied have been the pseudo-documentary, 35mm filmmaking, and film as performance. Topics may vary; may be repeated for a total of six credits. Equipment usage fee: $50. Prerequisite: consent of department.

541A-3 Seminar: History of Photography, 1839 to World War II. Advanced study of the history of photography with emphasis on the development of technique and content. Students purchase texts.

541B-3 Seminar: Contemporary History of Photography. Advanced study of the history of photography with emphasis on the development of technique and content. Students purchase texts.

542A-3 Seminar in Film History: American. Analysis of the films and ideas associated with a particular director or a significant movement in motion picture history. Screening fee. Students purchase texts. Course content varies each semester; may be repeated for a total of six credits.

542B-3 Seminar in Film History: International. Analysis of the films and ideas associated with a particular director or a significant movement in motion picture history. Screening fee. Students purchase texts. Course content varies each semester; may be repeated for a total of six credits.

574-3 Contemporary Theory and Analysis of Cinema. An intensive examination of the dominant recent theoretical approaches to the cinema. The application of cinema of semiology and structuralism, with very recent branches into psychoanalysis and ideology, will be concentrated upon. Films related to the issues under study are assigned for viewing. Students purchase texts.

575-6 (3,3) Contemporary Theory and Analysis of Photography. Selected readings in the aesthetics and philosophy of photography. Students purchase texts. Weekly reading assignments, discussions, midterm exam and final paper. Topics vary; may be repeated for a total of six credits. Prerequisite: consent of instructor.

591-1 to 6 Individual Study in Cinema and Photography. Supervised research or independent creative work, the area of study to be determined by the student in consultation with cinema and photography faculty. Prerequisite: consent of department.

595-1 to 15 Graduate Seminar. A seminar for graduate degree candidates focusing on the artistic development of the participants. Prerequisite: admission to the M.F.A. Program in Cinema and Photography.

597A-1 to 16 M.F.A. Projects - Cinema. Supervised independent creative work, the amount and exact nature of which is to be determined in consultation with the Cinema and Photography faculty. Equipment usage fee: $50. Prerequisite: admission to the M.F.A. program and consent of department.

597B-1 to 16 M.F.A. Projects - Photography. Supervised independent creative work, the amount and exact nature of which is to be determined in consultation with the Cinema and Photography faculty. Laboratory fee $15. Prerequisite: admission to the M.F.A. program and consent of department.

598A-1 to 6 M.F.A. Final Creative Project - Cinema. Supervised independent creative work leading to the completion of the M.F.A. creative project requirement. Registration for six hours of 598 is required of each M.F.A. candidate. Equipment usage fee: $50. Prerequisite: admission to the M.F.A. program and consent of the department.

598B-1 to 6 M.F.A. Final Creative Project - Photography. Supervised independent creative work leading to the completion of M.F.A. creative project requirements. Registration for six hours of 598 is required of each M.F.A. candidate. Laboratory fee $15. Prerequisite: admission to the M.F.A. program and consent of the department.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Civil Engineering

E-mail: lindab@ce.siu.edu

COLLEGE OF ENGINEERING

Bravo, Rolando, Assistant Professor, Ph.D., University of Houston, 1990; 1991. Surface and subsurface hydrology, hydraulics and fluid mechanics.

Chevalier, Lizette R., Assistant Professor, Ph.D., Michigan State University, 1994; 1995. Environmental restoration of groundwater aquifers, experimental investigation of immiscible flow, and numerical modeling of subsurface transport.

Cook, Echol E., Professor, *Emeritus*, Ph.D., Oklahoma State University, 1970; 1971. Biological waste treatment, fixed bed reactors, solid waste disposal.

Craddock, James N., Associate Professor, Ph.D., University of Illinois, 1979; 1980. Solid mechanics, stress analysis; computational mechanics, composite materials.

Davis, Philip K., Professor, *Emeritus*. Ph.D., University of Michigan, 1963; 1964.

DeVantier, Bruce A., Associate Professor, Ph.D., University of California-Davis, 1983; 1983. Water quality modeling, sediment transport, turbulence modeling, finite element methods.

Evers, James L., Associate Professor, Ph.D., University of Alabama, 1969; 1969. Compressible fluid flows, dynamics, pneumatic transport, hydraulic transients.

Ghafoori, Nader, Associate Professor, Ph.D., University of Miami, 1986; 1989. Recycling and utilization of industrial wastes for construction applications, wastes in concrete, durability, strength and behavior of concrete systems.

Hamed, Jihad T., Assistant Professor, Ph.D., Louisiana State University, 1990; 1991. Geotechnical engineering, design, soil behavior, soil remediation.

Kassimali, Aslam, Professor, Ph.D., University of Missouri, 1976; 1980. Structural engineering, nonlinear structural analysis, structural dynamics and stability.

Molls, Thomas R., Assistant Professor, Ph.D., Washington State University, 1992; 1993. Hydraulic engineering, computational fluid mechanics.

Nowacki, C. Raymond, Associate Professor, *Emeritus,* Ph.D., University of Illinois, 1965; 1963.

Puri, Vijay K., Associate Professor, Ph.D., University of Missouri-Rolla, 1984; 1986. Geotechnical engineering, soil dynamics, machine foundations, liquefaction of soils.

Ray, Bill T., Associate Professor, Ph.D., University of Missouri-Rolla, 1984; 1985. Chemical and biological treatment, fixed-film reactors, residuals management, toxic waste treatment.

Rubayi, Najim, Professor, *Emeritus,* Ph.D., University of Wisconsin, 1966; 1966.

Sami, Sedat, Professor and *Chair,* Ph.D., University of Iowa, 1966; 1966. Fluid mechanics, hydraulics and hydrology.

Yen, Max Shing-Chung, Professor, Ph.D., Virginia Polytechnic Institute, 1984; 1984. Composite materials, experimental mechanics, solid mechanics, and structural dynamics.

Ziegler, Timothy W., Associate Professor, M.S., University of Illinois-Urbana-Champaign, 1969; 1982. Geotechnical and highway engineering. Development and application of interactive video technology in engineering curriculum.

Master of Science Degree in Civil Engineering

Graduate work leading to the Master of Science degree in civil engineering is offered by the College of Engineering. The program is designed to provide advanced study in the areas of environmental engineering, geotechnical engineering, hydraulic engineering and water resources, structural engineering, fluid mechanics, solid mechanics and engineering materials.

Admission

Students seeking admission to the graduate program in civil engineering must meet the admission standards set by the Graduate School and have a bachelor's degree in engineering or its equivalent. A student whose undergraduate training is deficient may be required to take coursework without graduate credit.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Requirements

A graduate student in civil engineering is required to develop a program of study with a graduate adviser and establish a graduate committee of at least three members at the earliest possible date. Each student majoring in civil engineering may, with the approval of the graduate committee, also take courses in other branches of engineering or in areas of science and business, such as physics, geology, chemistry, mathematics, life science, administrative sciences, or computer science.

For a student who wishes to complete the requirements of the master's degree with a thesis, a minimum of thirty semester hours of acceptable graduate credit is required. Of this total, eighteen semester hours must be earned in the civil engineering department. Each candidate is also required to pass a comprehensive examination covering all of the student's graduate work including thesis.

If a student prefers the non-thesis option, a minimum of thirty-six semester hours of acceptable graduate credit is required. The student is expected to take at least twenty-one semester hours within the civil engineering department including no more than three semester hours of the appropriate 592 course to be devoted to the preparation of a research paper. In addition, each candidate is required to pass a written comprehensive examination.

Each student will select a minimum of three engineering graduate faculty members to serve as a graduate committee, subject to the approval of the chair of the civil engineering department. The committee will:

1. approve the student's program of study;
2. approve the student's research paper topic;
3. approve the completed research paper; and
4. administer and approve the written comprehensive examination.

Teaching or research assistantships and fellowships are available for qualified applicants. Additional information about the program, courses, assistantships, and fellowships may be obtained from the College of Engineering or the Department of Civil Engineering.

Courses (CE)

Graduate work in the Department of Civil Engineering is offered toward a Master of Science degree in civil engineering. Safety glasses are required for some of the courses in this department. Four-hundred-level courses in this department may be taken for graduate credit unless otherwise indicated in the course description.

410-3 Solid and Hazardous Waste Engineer. Engineering aspects of solid and hazardous waste prevention, treatment, recycling and disposal. Design of recycling programs, solid and hazardous waste treatment and disposal facilities. State and federal regulations. Problems, sources and effects of solid and hazardous waste. Design projects required. Prerequisite: 310.

411-3 Physical and Chemical Treatment in Environmental Engineering. Physical and chemical treatment as applied to water and wastewater. Topics include coagulation, flocculation, sedimentation, adsorption, ion exchange, reverse osmosis and oxidation in dilute aqueous systems. Design of systems. Laboratory. Prerequisite: 310.

415-3 Wastewater Treatment. A study of the design equations used in physical, chemical and biological treatment processes and comparison to design by state standards. Basics of bacteria and their metabolic processes in the degradation of organic wastes. Treatment and disposal of sludges produced in wastewater treatment. Advanced wastewater treatment processes and reuses of wastewater. Prerequisite: 310, Engineering 313 and 351.

417-1 Water Quality Laboratory. Measurements of water quality parameters performed. Use of modern instrumental techniques demonstrated. Safety glasses are required. Laboratory supply fee: $15. Prerequisite: 310.

419-3 Water Supply and Treatment. Water quality requirements, water sources, water treatment to include coagulation and flocculation, mixing and sedimentation basins, filtration, disinfection processes and water softening. Consideration of toxic elements in water (sources, problems, and treatments). Prerequisite: 310 and Engineering 313.

421-3 Foundation Design. Application of soil mechanics to the design of the foundations of structures; bearing capacity and settlement analysis; design of shallow footings; stability of earth slopes; design of retaining walls, design of pile foundations, coffer dams. Prerequisite: 320.

422-3 Environmental Geotechnology. Geotechnical aspects of land disposal of solid waste and remediation, solute transport in saturated media, diffusion in soil, hydraulic conductivity and its measurement in laboratory and field, soil-water interactions, compact, construction quality control of liners, flexible membrane liners used in disposal facilities, slope stability/settlement considerations, cap design using the HELP model. Prerequisite: 320.

431-3 Pavement Design. Design of highway and airport systems: subgrades, subbases, and bases; soil stabilization; stresses in pavements; design of flexible and rigid pavements; cost analysis and pavement selection; and pavement evaluation and rehabilitation. Prerequisite: 320 and 330.

440-3 Statically Indeterminate Structures. Analysis of trusses, beams, and frames. Approximate methods. Method of consistent deformations. Three-moment theorem. Slope deflection. Moment distribution. Column analogy. Plastic analysis. Matrix methods. Prerequisite: 340.

441-3 Matrix Methods of Structural Analysis. Flexibility method and stiffness method applied to framed structures. Introduction to finite elements. Prerequisite: 340 and Engineering 222.

442-3 Structural Steel Design. An introduction to structural steel design with emphasis on buildings. Composite design. Plate girders. Rigid frames. Design project and report required. Prerequisite: 340.

444-3 Reinforced Concrete Design. Behavior and strength design of reinforced concrete beams, slabs, compression members and footings. Prerequisite: 340.

445-3 Reinforced Masonry Design. Materials. Loads. Walls. Columns and pilasters. Beams. Lateral-load resisting elements. Connections and joints. High-rise structures. Environmental features. Quality control. Design project and report required. Prerequisite: 444.

446-3 Prestressed Concrete Design. Fundamental concepts of analysis and design. Materials. Flexure, shear, and torsions. Deflections. Prestress losses. Composite beams. Indeterminate structures. Slabs. Bridges. Prerequisite: 444.

451-3 Introduction to Finite Elements in Engineering Applications. (Same as Engineering Mechanics 451.) Introduction to finite element

techniques and computer methods in finite element applications. Theory and structure of algorithms for one-dimensional and multi-dimensional problems. Introduction to boundary element methods. Applications in solid mechanics, structural analysis, groundwater flow and heat transfer. Prerequisite: Engineering 351 or equivalent.

471-3 Modeling Ground Water Flow and Pollution. Mathematical and numerical models for the analysis of groundwater flow and the transport of pollution by moving groundwater. Finite difference and finite element methods. Transport by advection and dispersion. Application to the design of production wells and remediation of polluted areas. Prerequisite: 474 or consent of instructor.

472-3 Intermediate Fluid Mechanics. A detailed derivation of the Navier-Stokes equations is presented. A working knowledge of these equations is obtained by analyzing several potential flows and some simple viscous flows. Next, the Reynolds equations are derived followed by an introduction to turbulence. Contaminant transport is covered by introducing the concepts of diffusion and dispersion. Finally, the foundations of computational fluid dynamics are presented culminating in the numerical solution of several simple viscous flows. Prerequisite: Engineering 313 and Mathematics 305.

473-3 Hydrologic Analysis and Design. Hydrological Cycle, Stream-flow analysis, Hydrographs generations, Frequency analysis, Flood routing, Watershed analysis, urban hydrology, Flood plain analysis. Application of hydrology to the design of small dams, spillways, drainage systems. Prerequisite: Engineering 222, 313.

474-3 Hydraulic Engineering Design. Hydrostatics, flow in pipes, open channels and porous media metering devices. Includes two to three week projects involving identification, modeling, analysis and design of hydraulic engineering systems. Prerequisite: Engineering 313, 351.

500-1 to 4 Seminar. Collective and/or individual study of selected issues and problems relating to various areas of civil engineering. Prerequisite: graduate standing.

510-3 Hazardous Waste Engineering. Analysis of hazardous waste generation, storage, shipping, treatment, and disposal. Source reduction methods. Government regulations. Remedial action. Prerequisite: 427 and Engineering 300.

512-3 Aqueous System Analysis. Applied environmental chemistry as it relates to the natural environment and engineered treatment systems. Topics include thermodynamics and kinetics, acid-base equilibria, computer modeling of aqueous systems, the carbonate system, precipitation and dissolution, coordination chemistry and oxidation-reduction reactions. Prerequisite: 310, 415, 417.

516-3 Water Resources Management. Water quality factors and control methods. Technical, economic, social and legal aspects concerned with implementation of various engineered systems for water quality management. Case studies. Prerequisite: 415.

517-3 Industrial Waste Treatment. Theories and methods of treating industrial wastes. Case studies of major industrial waste problems and their solutions. Prerequisite: 415.

518-3 Advanced Biological Treatment Processes. The biochemical and microbial aspects of converting substrate to bacterial cell mass or products and its use in various phases of industry (both fermentation and wastewater treatment). Design of activated sludge and trickling filter plants from lab data obtained on explicit wastes from both industry and municipalities. Prerequisite: 415.

520-3 Advanced Geotechnical Engineering I. Advanced theories of soil mechanics including stress distribution, seepage through soils, consolidation and settlement analysis; their applications in foundation engineering. Prerequisite: 320 and Engineering 311.

521-3 Advanced Geotechnical Engineering II. Shear strength of cohesive and cohesionless soils; stability problems including bearing capacity, slope stability and earth pressure distribution. Prerequisite: 520.

522-3 Advanced Foundation Engineering. Case histories of foundation failure, bearing capacity theories, shallow foundations, deep foundations, piles under vertical and horizontal loads, pier foundations, foundations for difficult soil conditions, soil improvement. Prerequisite: 421.

523-3 Soil Dynamics. Problems in dynamic loading of soils, dynamic soil properties, liquefaction, dynamic earth pressure, foundations for earthquake and other dynamic loads. Prerequisite: 320 and 421.

540-3 Structural Dynamics. Analysis of the dynamic response of multidegree-of-freedom framed structures. Structural idealizations. Matrix formulation. Lagrange's equations. Response calculation by modesuperposition and direct integration methods. Analysis for earthquakes. Prerequisite: 340 or consent of instructor.

542-3 Nonlinear Structural Analysis. Analysis of the nonlinear response of framed structures subjected to static and dynamic loads. Structural idealizations. Response calculation by incremental and iterative techniques. Instability phenomena of snap-through and bifuraction. Post-buckling behavior. Approximate formulations. Detection of instability under dynamic loads. Prerequisite: 441 or 551 or consent of instructor.

544-3 Advanced Design of Reinforced Concrete. Deep beams, shear friction. Slab, beam, girder systems. Monolithic joints. Retaining walls. Deflections. Length effects on columns. Two-way floor systems. Yield line theory. Torsion. Seismic design. Prerequisite: 444.

545-3 Advanced Steel Design. Economical use of high strength steel; behavior and design bolted and welded building connections, plate girders and composite steel-concrete beams; brittle fracture and fatigue; and low-rise and industrial-type buildings. Prerequisite: 442.

551-3 Finite Element Analysis. (Same as Mechanical Engineering 565). Finite element analysis as a stress analysis or structural analysis tool. Derivation of element stiffness matrices by various means. Application to trusses, plane stress/strain and 3-D problems. Dynamic and material nonlinearity problems. Prerequisite: Engineering 311 and Mathematics 305.

552-3 Theory of Elasticity. Stress and strain and equations of elasticity; equilibrium equations; compatibility equations; stress functions; applications of elasticity in solving engineering problems in two- and three-dimensions. Prerequisite: Engineering 311 and Mathematics 305.

553-3 Theory of Plasticity. (Same as Mechanical Engineering 513) Criteria for onset of yielding, isotropic and kinematic strain hardening; flow rules for plastic strains; elastic plastic bending and torsion, slip line field theory; plane stress problems; limit analysis. Prerequisite: Engineering 311 and Mathematics 305 or consent of instructor.

554-3 Experimental Mechanics. An introduction of various experimental techniques that are commonly used to determine properties such as deformation, straining, surface contour, etc. The topics to be covered include the principles of strain gage technology, theory of photoelasticity, pizeoelectric accelerometer, laser based interferometry, image processing and analysis, and reverse mechanics. The specific areas of practical application of each experimentation will be discussed. Prerequisite: 311.

556-3 Theory of Laminate Composite Structures. Orthotropic and Anisotropic Materials, Laminated Plate Theory, Ritz Method, Galerkin's Method, bending, buckling and vibration of laminated structures. Prerequisite: Engineering 311 and Mathematics 215.

557-3 Advanced Mechanics of Materials. (Same as Mechanical Engineering 566). Advanced topics in mechanics of materials including: elasticity equations; torsion of non-circular sections; generalized bending including curved beams and elastic foundations; shear centers; failure criteria including yielding, fracture and fatigue; axisymmetric problems including both thick and thin walled bodies; contact stresses; and stress concentration. Prerequisite: Engineering 222 and 311.

570-3 Computational Fluid Dynamics. Advanced topics in the computer solution of complex 2-D and 3-D fluid flows. Consideration of various finite difference formulations in different coordinate systems. Upwind differencing, stability analysis, explicit methods, implicit methods, boundary condition formulation. Introduction to finite element approach. Prerequisite: 472 and Engineering 351 or consent of instructor.

571-3 Mechanics of Viscous Fluids. Theory of laminar viscous flows using the continuum approach. The stress and rate-of-deformation tensors; exact solutions including slow motion and problems of the laminar boundary type. Introduction to hydrodynamic stability. Prerequisite: 472 or consent of instructor.

572-3 Mechanics of Inviscid Fluids. A study of stream functions, the velocity potential, Euler equations, Bernoulli equations, various solutions to Laplace's equation, added masses, Taylor theorem, Blasius and Legally theorems, two-dimensional irrotational flows, Cauchy-Riemann equations, conformal mapping, vortex flow, thin airfoil theory, and free-streamline flows. Prerequisite: 472 or consent of instructor.

573-3 Open Channel Hydraulics. Open channel flow; energy and momentum; design of channels; gradually varied flow computations; practical problems; spatially varied flow; rapidly varied flow; unsteady flow; flood routing; method of characteristics. Prerequisite: 474 or consent of instructor.

592-1 to 5 Special Investigations in Civil Engineering. Advanced Civil Engineering Topics and/or problems in **(a)** Structural Engineering, **(b)** Hydraulic Engineering, **(c)** Environmental Engineering, **(d)** Geotechnical Engineering, **(e)** Fluid Flow Analysis, **(f)** Computational Mechanics, **(g)** Composite Materials, and **(h)** Stress Analysis. Prerequisite: graduate standing and consent of instructor.

599-1 to 6 Thesis.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S / U* or *DEF* only.

Communication Disorders and Sciences

See Rehabilitation Institute for program description.

Courses (CDS)

408-3 Communicative Disorders: Craniofacial Anomalies. An introduction to the ontology, teratology, and management of cleft palate and various craniofacial syndromes important to majors and non-majors interested in this aspect of communication and its disorders. Associated problems of personal and social adjustments are also examined. Prerequisite: 214 or consent of instructor.

410-3 Multicultural Aspects of Communication Disorders. Students will explore different cultures and communication within these cultures. Emphasis will be placed on the relationship between cultural differences and communication disorders. Review of speech and language disorders in multicultural populations, as well as assessment and intervention strategies for use with this diverse group will be provided. Prerequisite: 302, 303 or consent of instructor.

417-3 Stuttering. Reviews the data and theories that relate to the etiology, onset and development of stuttering.

418-3 Parameters of Voice. Physio-acoustic parameters of voice quality variables evidenced in verbal communication. Lectures and demonstrations emphasize basic information necessary to study for the treatment of voice disorders.

419-3 Communication Problems of the Hearing Impaired. Objectives and techniques for the teaching of lip reading, speech conservation, and auditory training. Prerequisite: 302, 303 and 420 or equivalents and consent of instructor.

420-3 Introduction to Audiological Disorders and Evaluation. Bases of professional field of audiology (orientation, anatomy and physiology of the auditory system), major disease processes influencing hearing and their manifestations, measurement of hearing loss. Prerequisite: 203 and 214.

428-3 Communication Disorders and the Classroom Teacher. Etiology and therapy of common speech defects. May be taken by all in-service teachers, seniors and graduate students in education.

431-1 to 6 Speech Physiology. Course focuses on the physiologic parameters of the supraglottal tract, and respiratory and laryngeal systems related to speech production. Discussion and laboratory experiences involve physiological characteristics of normal and disordered speech production, measurement and research procedures, and implications for neuromotor control of speech. Prerequisite: 203 and 214 or consent of instructor.

438-2 Problems of Communication and the Process of Aging. Reviews problems of communication related to the aging process and examines relevant diagnostic and therapeutic techniques. Prerequisite: senior or graduate standing.

450-3 Neuroanatomical Basis of Human Communication. Examination of the central nervous system (brain and spinal cord) as it relates to normal and disordered human communication. Presentation of basic neuroanatomy, common neuropathologies relevant to communication disorders, and strategies in neurogenic problem solving. Prerequisite: 314 or consent of instructor.

460-3 Augmentative and Alternative Communication Systems. An introduction to alternative and augmentative communication systems for non-vocal clients. Discussions include: use of aided and unaided augmentative systems, assessment procedures and training. Prerequisite: 301 or consent of instructor.

485-1 to 9 (1 to 3 per section) Special Topics in Communication Disorders and Sciences. Topical presentations of current information on special interests of the faculty not otherwise covered in the curriculum. Designed to promote better understanding of recent developments related to disorders of verbal communication. Open to advanced undergraduate and graduate students with consent of instructor. The student may take only one section per 700 number.

491-1 to 9 (1 to 3 per semester) Individual Study. Activities involved shall be investigative, creative, or clinical in character. Must be arranged in advance with the instructor, with consent of the chair. Prerequisite: consent of chair.

492-3 Diagnostic Procedures in Communication Disorders. A course devoted to discussion of the role of the speech and hearing clinician as a differential diagnostician. Special emphasis is placed on correlating information obtained from the oral-peripheral examination, articulation and language evaluation, audiometric and case history information in constructing the initial evaluation report. Prerequisite: consent of instructor.

493-3 Basic Clinical Practice. Current information regarding diagnostic, treatment and documentation procedures in speech-language pathology will be presented through active observation in the clinical environment and classroom instruction. Prerequisite: consent of instructor.

500-3 Research Design in Speech Pathology and Audiology. Evaluation of the strategies and procedural tactics of behavioral research.

503-3 Laboratory Instrumentation in Speech-Language and Hearing Science. Physiological, acoustical, and biomedical recording, measurement and analysis of the speech encoder, decoder, and code for clinical and research applications. Prerequisite: 203 or consent of instructor.

505-3 Phonological Acquisition. An introductory discussion of the important linguistic, physiological and acoustic variables which affect language production at the segmental and suprasegmental level of language; and an historical examination of the growth and development of distinctive feature systems from 1920 to the present. Concentration upon the mathematical, logical, physiological and acoustic assumptions of the various matrices which have been developed. Prerequisite: 302 or equivalent and consent of instructor.

507-3 Language Disorders. Discussion of the application of current theoretical implications and research findings to the syntactically impaired. This course emphasizes diagnostic and therapeutic models applicable to language disorders. Opportunities for research and clinical experience with young children displaying developmental language problems will be provided. Required for master's students. Prerequisite: 303 or consent of instructor.

510-3 Stuttering: Behavior Assessment and Therapy. Explores the assumptions underlying diagnosis and assessment. Procedures specific to the differential assessment of fluency failures are examined, evaluated and related to therapeutic strategies and the tactics of behavior change. Prerequisite: 319 or equivalent and consent of instructor.

512-3 Voice Disorders. An intensive study of the variables of air stream modulation resulting from impaired structures and function of head and neck. Prerequisite: 318 or equivalent and consent of instructor.

517-3 Seminar: Language Disorders Birth to Three. Recent research and trends in language intervention have pointed to the need for very early intervention to optimize the development of handicapped children, In this course we will explore methods of identifying children from birth to 36 months who have language delays or are at-risk for having a language delay or disorder. Current assessment instruments will be reviewed. The course will also review contemporary service delivery models for this population and discuss therapy approaches and materials. Video taped and in-class evaluations will supplement the lectures. Prerequisite: 303 or equivalent or consent of instructor.

521-3 Audiology II: Peripheral and Central Auditory Tests. Application of special behavioral auditory techniques used for site-of-lesion

testing, basic anatomical and neurological correlates of abnormal auditory behavior. Prerequisite: 420 or equivalent and consent of instructor.

525-3 Amplification for the Hearing Impaired. Clinical and laboratory methods of evaluating hearing aid performance; counseling of adult clients, parents and teachers; professional relationship of audiologist to otologists and to hearing aid dealers; use and evaluation of individual and classroom auditory trainers. Prerequisite: 420 and consent of instructor.

526-3 Audiology III: Objective Procedures and Hearing Conservation. Theory and practice in the use of objective auditory procedures such as acoustic immittance measures, auditory brainstem response, and event related potentials; also a consideration of techniques used in hearing conservation such as environmental noise controls and identification audiometry. Prerequisite: 420 and consent of instructor.

528-3 Seminar: Physio- and Psycho-Acoustics of the Ear. Advanced study of the physiological responses of the middle and inner ear to the acoustic stimulus, in relation to major theories of auditory function; advanced study of behavioral responses to the major parameters of the acoustic stimulus; threshold sensitivity, loudness, pitch, localization, beats and masking. Prerequisite: 316 or equivalent and consent of instructor.

530-3 Aural Rehabilitation/Auditory Perceptual Disorders. Advanced study of aural (re) habilitative principles and practices for children and adults as well as diagnoses and remediation of auditory perceptual disorders. Prerequisite: 420, 521, 525 and consent of instructor.

533-3 to 6 (3,3) Seminar: Speech and Auditory Perception. Special problems in hearing and communication science. Students may choose from a wide range of topics: speech acoustic, kinesthetic and vibrotactile perception, voiceprint identification, synthetic and compressed speech, digital speech, electro stimulation of hearing, and neurophysiological basis for perception. One or more topics are pursued in depth. The seminar may be repeated for a total of six hours with different content. Prerequisite: consent of instructor.

536-3 Seminar: Administration of Speech and Hearing Programs. Program settings, organizational procedures, and professional interrelationships in adult speech and hearing therapy. Field trips to rehabilitation centers and related agencies.

540-3 Neurogenic Disorders of Communication I. Focus on aphasia and neurolinguistic science. A clinically oriented presentation of the aphasias, and related CNS language disturbances, will be integrated with an introduction to the broader field of neurolinguistics. Clinical aspects will focus on assessment of rehabilitation approaches in aphasia and related disorders. Other topics include cortical language representation, hemispheric functions (general), and review of basic neurolinguistic literature. Prerequisite: 450 or consent of instructor.

541-2 Neurogenic Disorders of Communication II. Focus on the role of the pyramidal and extrapyramidal motor systems in speech production and speech disorders related to abnormalities in these motor systems. Discussion of the neurological basis and clinical management of the dysarthrias and verbal apraxia. Prerequisite: 540 or consent of instructor.

544-1 to 6 Seminar: Computer Techniques for Phonological Disorders in Children. A laboratory based examination of the distinctive features used by children in the normal and abnormal acquisition of phonology. Discussions and practical projects are developed to further the students's understanding of current assumptions concerning the acoustical aspects of abnormal phonation and speech sound production. Group projects are developed using computer based speech sound digitizing equipment. Course credit is based upon the time involved and the complexity of the topic. Digital software and laboratory examination topics are varied to meet individual student needs. May be repeated as topics vary to a total of 6 hours.

548-3 Seminar: Stuttering Behavior-Theory and Research. Examines modern learning theory approaches to fluency failure. The learning models dealt with are critically examined in relation to clinical and experimental data. Also reviews the research data on stuttering in relation to design, methodology, and technology. Discussions serve as the background for original investigations. Prerequisite: 319 or equivalent and consent of instructor.

550-1 to 15 Professional Training Seminar. A special seminar that provides doctoral students the opportunity to prepare and present papers on various aspects of speech-language pathology and audiology. Liberal discussion will follow each paper. All doctoral students are required to enroll for one credit each semester until admitted to candidacy. Graded *S/U* only. Only four credit hours are counted toward the Ph.D. degree.

590-1 to 4 (1 to 2, 1 to 2) Readings in Speech-Language Pathology and Audiology. Supervised and directed readings in specific areas of speech pathology and in audiology. Maximum of two hours counted toward master's degree. Prerequisite: consent of chair.

593-1 to 3 Research Problems in Speech-Language Pathology and Audiology. Individual work upon selected problems for research. Prerequisite: consent of chair.

594-1 to 18 (1 to 3 per semester) Advanced Clinical Practice Therapy/SLP. Active, supervised participation in the clinical process with emphasis on individualized assessment, treatment, counseling and documentation procedures. Overview of clinical practice in various settings, federal legislation and standards of ethical practice. Prerequisite: consent of instructor required.

595-1 to 18 (1 to 3 per semester) Advanced Clinical Practice: Diagnostic/SLP. Advanced clinical practicum in speech and language diagnosis. Populations of children and adults will be evaluated. Emphasis will be placed on diagnostic techniques used in evaluation, as well as preparation of evaluation reports. Prerequisite: CDS majors only and consent of instructor.

596-1 Advanced Clinical Practice: Hearing Diagnostics. Advanced clinical practice in hearing diagnostics. Emphasis will be placed on diagnostic techniques used in the preparation of basic and advanced audiological reports. Graded *S/U* only. Prerequisite: consent of instructor.

597-12 Public School Practicum. Public School internship provides the student with clinical experience under the supervision of a school-based certified speech-language pathologist. The student should receive experience with the disorders of fluency, articulation, voice, organics, language and hearing. The student should also gain administrative experience. Prerequisite: 150 to 200 clock hours and consent of instructor.

598-12 Internship Communication Disorders. Internship in a selected medical center, hospital clinic, community agency, or private clinic. The internship provides the student with an intensive, professional, clinical experience under supervision of qualified and certified resident staff members. Prerequisite: consent of instructor.

599-1 to 6 Thesis.

600-1 to 32 (1 to 16 per semester) Dissertation.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Computer Science

E-mail: csinfo@cs.siu.edu

COLLEGE OF SCIENCE

Carver, Norman F., III, Assistant Professor, Ph.D., University of Massachusetts, 1990; 1995. Distributed AI, sensor interpretation and (distributed) situation assessment, architectures for knowledge-intensive control of AI systems, reasoning under uncertainty and symbolic representations of uncertainty, abductive inference, real-time AI, parallel AI.

Chu, Jiang-Hsing, Associate Professor, Ph.D., University of Maryland, 1989; 1989. Analysis and design of computer algorithms, data structures, storage and retrieval algorithms, computer graphics and artificial intelligence.

Danhof, K. J., Professor and *Chair*, Ph.D., Purdue University, 1969; 1969. Analysis and complexity of computer algorithms, combinatorics, logic programming.

Gupta, Bidyut, Associate Professor, Ph.D., University of Calcutta, 1986; 1988. Fault-tolerant computing, VLSI design, graph theory, computer networks.

Hou, Wen-Chi, Associate Professor, Ph.D., Case Western Reserve University, 1989; 1989. Statistical, real-time databases, query optimization.

Mark, Abraham M., Professor, *Emeritus,* Ph.D., Cornell University, 1947; 1950.

McGlinn, R. J., Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1976; 1981. Computer education, social issues of computing, software engineering, object-oriented programming.

Phillips, Nicholas C.K., Associate Professor, Ph.D., University of Natal, 1967; 1988. Theoretical computer science, language constructs, computational combinatorics.

Tragoudas, Spyros, Assistant Professor, Ph.D., University of Texas at Dallas, 1991; 1991. Computer aided design for VLSI layout, built-in self testing, sequential/parallel algorithms, combinatorial optimization, networking, graph theory.

Wainer, Michael S., Associate Professor, Ph.D., University of Alabama at Birmingham, 1987; 1988. Computer graphics, HCI, parallel and distributed processing, visual programming.

Wright, W. E., Professor, D.Sc., Washington University, 1972; 1970. File organization, disk architecture, database systems, application software development.

Zargham, M. R., Professor, Ph.D., Michigan State University, 1983; 1983. Computer architecture, fuzzy logic, parallel processing, VLSI design.

The Department of Computer Science offers a graduate program leading to the Master of Science degree with a major in computer science. Application forms for admission to the Graduate School may be obtained from the department.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Admission and Retention

Decisions concerning the admission of students to, and retention of students in, the graduate program will be made by the department faculty subject to the requirements of the Graduate School.

The evaluation of applicants for admission is based primarily on the student's academic record with particular attention being given to past performance in relevant undergraduate course work. Applicants are expected to have a substantial background in undergraduate computer science courses covering high level and assembly language programming, data structures, computer organization,

logic design as well as discrete mathematics, calculus, and linear algebra. In most cases, it would be expected that the applicant has completed course work in the above subject areas prior to admission. Normally, a GPA of at least 3.0/4.0 is required by the Department of Computer Science. In addition, applicants must submit Graduate Record Examination (GRE) general test scores. It is recommended that results from the GRE subject area test (computer science or a related field) also be submitted.

Requirements. A student who has been admitted to the graduate program in computer science can meet the requirements for the Master of Science degree by completing 30 hours of graduate credit subject to the following constraints:

1. Each of the courses CS 401, CS 414, CS 451, and CS 455 must be taken. (If a specific course, or its equivalent, is already part of the student's academic background, an alternate course will be substituted.)
2. The 30 hours of graduate work must include at least four 500-level lecture courses.
3. Students are required to write a thesis carrying credit under CS 599. After completion of all work, the student will be given a final oral examination over the thesis and other course work.

Courses (CS)

401-3 Computer Architecture. Review of logical circuit design. Hardware description languages. Algorithms for high speed addition, multiplication and division. Pipelined arithmetic. Implementation and control issues using PLA's and microprogramming control. Cache and main memory design. Input/Output. Introduction to interconnection networks and multiprocessor organization. Prerequisite: 315 with a grade of *C* or better.

402-3 Theory and Applications of Computer Aided Design. A study of algorithmic techniques which solve high complexity design rules. Graph algorithms and formulations, randomized solutions, techniques from operations research and statistics, computational geometry algorithms and data structures are introduced. The techniques are mainly applied on the physical design/automation problem for integrated circuits and systems. Prerequisite: 315 and 355 each with grade of *C* or better.

414-3 Operating Systems. An extended treatment of the components of operating systems, including I/O programming, memory management, virtual memory, process management, concurrency, device management and file management. Prerequisite: 306 and 330 each with a grade of *C* or better.

416-3 Compiler Construction. Introduction to compiler construction. Design of a simple complete compiler, including lexical analysis, syntactical analysis, type checking and code generation. Prerequisite: 306 and 311 each with a grade of *C* or better.

420-3 Parallel and Distributed Computing. This course serves as an introduction to the areas of parallel and distributed computing. The major approaches to parallel programming, including shared-memory multiprocessing and message-passing multicomputing, will be covered in some detail. Students will have programming experience in each of these paradigms. Architectural considerations, algorithm design and measures of performance will be covered. In addition, the course will provide an introduction to distributed computing on a network of computers. Parallel and distributed computing will be contrasted. Other approaches to parallelism including data parallelism (SIMD) and vector processing will be surveyed. Prerequisite: 306 and 355 each with a grade *C* or better.

430-3 Database Systems. A comprehensive treatment of database systems, including network, hierarchical and relational systems. Prerequisite: 330 with a grade of *C* or better.

435-3 Software Design and Development. An exercise in the analysis, design, implementation, testing, and maintenance of a large modular application system. Team production of a system is the focal point for the course. Topics include the system life cycle, system specification, human interfaces, modular design, improved programming techniques and program verification and validation. Prerequisite: 306 and 330 each with a grade of *C* or better.

436-3 Artificial Intelligence I. Search and heuristics, problem reduction. Predicate calculus, automated theorem proving. Knowledge representation. Applications of artificial intelligence. Parallel processing in artificial intelligence. Prerequisite: 311 and 355 each with a grade of *C* or better.

440-3 Computer Networks. Design and analysis of computer communication networks. Topics to be covered include queuing systems, data transmission, data link protocols, topological design, routing, flow control, security and privacy and network performance evaluation. Prerequisite: 315 and 355 each with a grade of *C* or better.

447-3 Introduction to Graph Theory. (Same as Mathematics 447.) Introduction to theory of graphs, digraphs, and networks and applications to electrical systems and computer science. Topics include blocks and cutpoints, Eulerian graphs, trees, cycle and cocycle spaces, planarity and Kuratowski's Theorem, connectivity and Menger's Theorem, Hamiltonian graphs, colorability and

Heawood's Theorem, flows in networks and Ford-Fulkerson Theorem, critical path analysis. Prerequisite: Mathematics 349 or consent of instructor.

449-3 Introduction to Combinatorics. (Same as Mathematics 449.) An introduction to combinatorial mathematics with computing applications. Topics include selections and arrangements, generating functions, recursion, inclusion and exclusion, coding theory, block designs. Prerequisite: Mathematics 349 or consent of instructor.

451-3 Theory of Computing. The fundamental concepts of the theory of computation including finite state acceptors, formal grammars, Turing machines and recursive functions. The relationship between grammars and machines with emphasis on regular expressions and context-free languages. Prerequisite: 311 and 355 each with a grade of *C* or better or graduate standing.

455-3 Design and Analysis of Algorithms. An extensive treatment of the design, analysis and complexity of algorithms. Efficient algorithms for classical problems. Introduction to complexity theory. Prerequisite: 330 and 355 each with a grade of *C* or better or graduate standing.

464-6 (3, 3) Numerical Analysis. (Same as Mathematics 475.) An introduction to the theory and practice of computation with digital computers. Topics include the solution of nonlinear equations, interpolation and approximation, solution of systems of linear equations, numerical integration, solution of ordinary differential equations, computation of eigenvalues and eigenvectors and solution of partial differential equations. Prerequisite: **(a)** Mathematics 221 and 250 and Computer Science 202 or equivalent programming proficiency; **(b)** Mathematics 305 and Computer Science 464a.

470-3 Computer Simulation Techniques. Applications and rationale. Design and analysis of discrete simulation models. Generation of random sequences and stochastic variates. Simulation languages. Prerequisite: 202 and Mathematics 380.

471-3 Introduction to Optimization Techniques. (Same as Mathematics 471.) Nature of optimization problems. General and special purpose methods of optimization, such as linear programming, classical optimization, separable programming, integer programming and dynamic programming. Prerequisite: 202 and Mathematics 221 and 250.

472-3 Linear Programming. (Same as Mathematics 472.) Nature and purpose of the linear programming model. Development of the simplex method. Application of the model to various problems. Duality theory. Transportation. Assignment problem. Postoptimality analysis. Prerequisite: 202 and Mathematics 221.

484-3 User Interface Design and Development. Human-computer interaction and the importance of good interface design. Interface quality and methods of evaluation. Interface design examples and case studies. Prototyping and implementation techniques. Task analysis and the iterative design cycle. Dialogue techniques, basic computer graphics, I/O device, color and sound. Use of at least one interface toolkit and development methodology to complete an interface design project. Prerequisite: 306 with a grade *C* or better.

485-3 Computer Graphics. Study of the devices and techniques for the use of computers in generating graphical displays. Includes display devices, display processing, transformation systems, interactive graphics, 3-dimensional graphics, graphics system design and configuration, low and high level graphics languages and applications. Prerequisite: 306 with a grade of *C* or better; Mathematics 150 and 221 are recommended.

490-1 to 6 (1 to 3 per semester) Readings. Supervised readings in selected subjects. Prerequisite: consent of instructor and department.

491-1 to 4 Special Topics. Selected advanced topics from the various fields of computer science. Prerequisite: consent of instructor.

492-1 to 6 (1 to 3 per semester) Special Problems. Individual projects involving independent work. Prerequisite: consent of department.

493-1 to 4 Seminar. Supervised study. Preparation and presentation of reports. Prerequisite: consent of instructor.

501-3 Advanced Computer Architecture. Hardware and software elements of multiprocessors, multicomputers, pipeline and array machines, data flow architecture and other state-of-the-art architectures. Design principles related to machine structures, interconnection networks, control software and hardware, data storage and access. Prerequisite: 401.

502-3 Design and Analysis of VLSI Systems. This course covers the theory, technology, fabrication and design of digital integrated circuits as they are commonly used in modern digital computers. The topics covered include techniques for solving problems occurring in VLSI and ULSI layouts, built-in self-testing, design for testability and logic synthesis. The course also treats additional selected advanced topics. Prerequisite: 401 and either 402 or consent of instructor.

503-3 Fault-Tolerant Computing Systems. An introduction to different aspects of fault-tolerance in computing systems. Concurrent checking techniques. Redundancy techniques. Evaluation methods. System-level diagnosis and fault-tolerant VLSI architectures. Prerequisite: 401.

511-3 Formal Specification of Programming Languages. A survey of modeling techniques and meta languages for the formal specification of the syntax and semantics of high-level programming languages. Prerequisite: 311.

512-3 Declarative Programming. An advanced level course on nonprocedural programming with emphasis on logic programming, pure functional programming, and the characteristics of the declarative style common to these two paradigms. Topics include logic programming, functional programming, implementation consideration for each along with current research topics in the areas. Prerequisite: 311.

514-3 Advanced Operating Systems. Rigorous treatment of advanced topics in operating systems. Multiprocessor and distributed operating systems. Highly concurrent machines. Performance analysis of memory management and scheduling algorithms. Security in operating systems. Prerequisite: 414.

516-3 Advanced Compilers. A continuation of 416 including advanced topics in lexical and syn-

tax analysis, error recovery, sematic analysis, code optimization and compiler compilers. Prerequisite: 416.

520-3 Advanced Topics in Parallel & Distributed Computing. An advanced treatment of parallel and distributed computing; review of hardware and software considerations for parallel computation; development and analysis of parallel algorithms (with particular attention to the communication and synchronization costs associated with parallel algorithms); effect of granularity on performance; a comparison of the parallel and distributed programming paradigms including a detailed study of the central features of each approach; software systems for distributed computing including exposure to one or more distributed programming environments; the direction of parallel computing as suggested by recent, high level parallel languages; parallelizing serial programs; parallelizing compilers; future directions of parallel and distributed computing systems. The course will include a student project. Prerequisite: 420.

530-3 Advanced Data Base System. A detailed treatment of advanced topics in data base systems including, but not limited or restricted to, relational database theory, query optimization, recovery techniques, concurrency control, distributed database systems, security and integrity and database machines. Prerequisite: 430.

532-3 to 6 Topics in Information Systems. A detailed study of two or three topics relevant to information systems. Topics may include but are not limited to sorting, searching, information retrieval and automatic text processing, database security and encryption, distributed databases and data communication. Prerequisite: 430 and consent of instructor.

536-3 Artificial Intelligence II. Theorem proving, the Resolution Principle, strategies, and achievements. Program verification. Natural language processing. Other selected topics. Prerequisite: 436.

553-3 Formal Languages and Automata. The Chomsky hierarchy of formal grammars and the corresponding classes of automata. Turing machines and basic concepts of computability. Recursive and recursively enumerable languages. Closure properties. Undecidable problems about Turing machines and context-free languages. Deterministic context-free languages and the construction of LR parsers. Prerequisite: 451.

555-3 Computability and Complexity. Turing machines and other models of computation. Computable functions. Church's thesis. Solvable and unsolvable problems. Introduction to complexity theory including the classes P and NP. Polynomial time approximation algorithms for NP-complete problems. Prerequisite: 451.

564-1 to 12 Advanced Topics in Numerical Analysis. (Same as Mathematics 572.) Selected advanced topics in Numerical Analysis chosen from such areas as: approximation theory; numerical solution of initial value problems; numerical solution of boundary value problems; numerical linear algebra; numerical methods of optimization; functional analytic methods. Prerequisite: consent of instructor.

570-3 to 9 per topic (3,3,3) Topics in Operations Research. (Same as Mathematics 570.) **(a)** Netflows. Builds on network and generalized network models for the transportation, transshipment, assignment, shortest path, maximal flow. Prerequisite: 472 or Mathematics 472. **(b)** Advanced computer simulation. Review of GPSS. Advanced topics in GPSS. Generation of random variates. Validation, parametric, and nonparametric tests. Design of experiments, optimization, parameter tuning. Analysis of variance, spectral analysis, and variance reduction. Prerequisite: 470 and Mathematics 480 or 483. **(c)** Large scale linear programming. Advanced L.P. techniques for sparge matrices and reinversion routines. Prerequisite: 472 or Mathematics 472. **(d)** Nonlinear programming. Integer programming with branch and bound and cutting plane methods for solving integer programming problems. Basic dynamic programming with emphasis on the methods and applications. Prerequisite: 472 or Mathematics 472.

585-3 Advanced Topics in Computer Graphics. Study of computer graphics for realistic image synthesis. Object modeling and associated date structures. Advanced rendering techniques such as raytracing and radiosity. Efficiency considerations. Image composition and compression. Current advances and research problems in realistic computer graphics. Prerequisite: 485.

586-3 Pattern Recognition and Image Processing. An introduction to the area of computer vision for the purpose of restoration, segmentation, encoding, analysis and recognition of pictures. Topics include: image transforms, edge detection, smoothing, filtering, pseudo-coloring, syntactic methods in scene analysis, parametric decision theory, non-parametric decision theory, linear discriminant functions, parameter estimation, supervised learning and unsupervised learning. Prerequisite: 220 and Mathematics 380 or consent of instructor.

590-1 to 9 Readings. Supervised readings in selected subjects. Graded *S / U* only. Prerequisite: consent of instructor and department.

591-1 to 9 (1 to 3 per topic) Special Topics. Selected advanced topics from the various fields of computer science.

593-1 to 4 Seminar. Preparation and presentation of reports. Graded *S / U* only. Prerequisite: consent of instructor.

599-1 to 5 Thesis. Minimum of three hours to be counted toward a master's degree. Prerequisite: consent of department.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S / U* or *DEF* only.

Curriculum and Instruction

E-mail: MsMusic@siu.edu

COLLEGE OF EDUCATION

Aikman, Arthur L., Professor, *Emeritus*, Ph.D., Southern Illinois University at Carbondale, 1965; 1964.

Barrette, Pierre P., Associate Professor, Ed.D, University of Massachusetts, 1971; 1978.

Bauner, Ruth E., Associate Professor, *Emerita*, Ph.D., Southern Illinois University at Carbondale, 1978; 1956.

Becker, Jerry P., Professor, Ph.D., Stanford University, 1979; 1967.

Bedient, Douglas, Professor, Ph.D., Southern Illinois University at Carbondale, 1971; 1969.

Boykin, Arsene O., Associate Professor, *Emeritus,* Ed.D., University of Illinois, 1964; 1972.

Bradfield, Luther E., Professor, *Emeritus,* Ed.D., Indiana University, 1953; 1955.

Butts, Gordon K., Professor, *Emeritus,* Ed.D., Indiana University, 1956; 1950.

Campbell, James A., Associate Professor, Ph.D., Ohio State University, 1978; 1989.

Casey, John P., Professor, *Emeritus,* Ed.D., Indiana University, 1963; 1964.

Copenhaver, Ron, Associate Professor, Ed.D., Indiana University, 1979; 1978.

Coscarelli, William, Professor, Ph.D., Indiana University, 1977; 1986.

Cox, Dorothy, Assistant Professor, *Emerita*, Ph.D., Southern Illinois University at Carbondale, 1976; 1965.

Dale, Doris C., Professor, D.L.S., Columbia University, 1968; 1969.

Dixon, Billy G., Associate Professor and *Chair,* Ph.D., Southern Illinois University at Carbondale, 1967; 1961.

Eddleman, E. Jacqueline, Associate Professor, *Emerita,* Ph.D., Southern Illinois University at Carbondale, 1970; 1969.

Erickson, Lawrence, Professor, Ph.D., University of Wisconsin, 1972; 1984.

Gilbert, Sharon L., Associate Professor, Ph.D., Ohio State University, 1988; 1988.

Gordon, Kimberly, Assistant Professor, Ph.D., Stanford University, 1993; 1994.

Gulley, Beverly, Professor, Ph.D., Southern Illinois University at Carbondale, 1974; 1975.

Harrington, Mary-Margaret, Assistant Professor, Ed.D., Peabody College of Vanderbilt University, 1995; 1995.

Hill, Margaret K., Professor, *Emerita,* Ed.D., Boston University, 1948; 1965.

Hungerford, Harold R., Professor, *Emeritus,* Ph.D., Southern Illinois University at Carbondale, 1970; 1965.

Jackson, James, Associate Professor, Ph.D., University of Wisconsin, 1976; 1976.

Jackson, Michael, Associate Professor, Ed.D., University of Florida, 1971; 1971.

Jones, Dan R., Associate Professor, Ed.D., Indiana University, 1978; 1978.

Karmos, Ann, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1975; 1975.

Killian, Joyce, Professor, Ph.D., Pennsylvania State University, 1980; 1981.

Lamb, Morris L., Associate Professor, *Emeritus,* Ed.D., University of Oklahoma, 1970; 1970.

Leming, James, Professor, Ph.D., University of Wisconsin, 1973; 1977.

Lindberg, Dormalee H., Professor, Ed.D., University of Missouri-Columbia, 1969; 1969.

Malone, Willis E., Professor, *Emeritus,* Ph.D., Ohio State University, 1950; 1939.

Matthias, Margaret, Professor, *Emerita*, Ph.D., Southern Illinois University at Carbondale, 1972; 1969.

McIntyre, D. John, Professor, E.D., Syracuse University, 1977; 1977.

Mees, John D., Professor, *Emeritus,* Ed.D., Indiana University, 1950; 1946.

Moore, Eryn E., Assistant Professor, *Emerita,* Ph.D., Southern Illinois University at Carbondale, 1976; 1968.

Nelson, Joann N., Assistant Professor, *Emerita,* Ph.D., University of Illinois, 1980; 1982.

Norris, William, Associate Professor, *Emeritus,* Ed.D., Indiana University, 1973; 1977.

Paige, Donald D., Professor, Ed.D., *Emeritus,* Indiana University, 1966; 1966.

Pearlman, Susan F., Associate Professor, Ph.D., University of Missouri-Columbia, 1987; 1989.

Post, Donna M., Assistant Professor, Ph.D., Pennsylvania State University, 1990; 1990.

Pultorak, Edward G., Associate Professor, Ph.D., Indiana University, 1988; 1988.

Quisenberry, James D., Associate Professor, *Emeritus*, Ph.D., Indiana University, 1972; 1971.

Quisenberry, Nancy L., Professor, Ed.D., Indiana University, 1971; 1971.

Randolph, Victor, Professor, *Emeritus,* Ph.D., George Peabody College for Teachers, 1942; 1933.

Seiferth, Berniece B., Professor, *Emerita,* Ed.D., University of Missouri, 1955; 1955.

Shepherd, Terry R., Associate Professor, Ph.D., University of Illinois, 1971; 1971.

Shrock, Sharon A., Associate Professor, Ph.D., Indiana University, 1978; 1984.

Sloan, Fred A., Professor, *Emeritus,* Ed.D., George Peabody College for Teachers, 1959; 1968.

Smith, Lynn C., Associate Professor, Ph.D., University of Georgia, 1984; 1984.

Solliday, Michael, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1975; 1967.

Volk, Gertrude, Associate Professor, Ph.D., Southern Illinois University, 1983; 1987.

Waggoner, Jan E., Assistant Professor, Ed.D., Memphis State University, 1990; 1990.

Wise, Kevin C., Assistant Professor, Ed.D., University of Georgia, 1983; 1986.

The Department of Curriculum and Instruction offers graduate programs leading to the Master of Science in Education and the Doctor of Philosophy in Education degrees. Within the programs, the student may select a specialty area from one of the following: curriculum and instruction, computer-based education, early childhood, elementary education, gifted and talented education, instructional development, instructional technology, mathematics education, reading and language studies, science and environmental education, secondary education, social studies education, and teacher education and supervision.

Admission

The applicant must complete the applications for admission to both the Graduate School and the department. General requirements for admission to graduate programs are described in Chapter 1 of this catalog. A selection and review committee screens the applicant on the basis of prior undergraduate and graduate work, grade point average, standardized test scores, work experience, and letters of recommendation, if needed. The committee may possibly recommend admission for a student with some deficiency if, in its opinion, the student shows unusual professional promise.

Application materials may be obtained by addressing a request to: Coordinator of Graduate Studies, Department of Curriculum and Instruction, Southern Illinois University at Carbondale, Carbondale, IL 62901-4610. Specific information may be obtained by calling 618-536-2441.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Master of Science in Education Degree

The Master of Science in Education degree in Curriculum and Instruction requires the completion of a minimum of 32 or 36 hours of course work, depending on the research requirement selected. At least 15 of the required semester hours must be at the 500 level and taken at SIUC. The student must also meet Curriculum and Instruction core course requirements, research requirements, and specialty area requirements. No more than 11 semester hours of credit earned at another college or university may be accepted toward this degree.

Each candidate's program is planned in consultation with a faculty adviser from the specialty area selected by the student, with consideration for the student's interests, experience, and specialty area. Unclassified graduate students are advised to consult with the department chair concerning admission to the master's program.

A student desiring teacher certification (preschool, elementary, secondary, or K–12) must be admitted to the Teacher Education Program and must follow the teacher certification entitlement process established by SIUC in conjunction with the Illinois State Board of Education.

Several areas of study offer coursework designed to meet certification or endorsement requirements set by the Illinois State Board of Education. Consultation with an adviser and a carefully determined program of study can lead to the desired certification or endorsement.

Admission and Retention. Admission to the master's program requires an overall minimum undergraduate GPA of 2.7 as well as the recommendation of the specialty area faculty. A TOEFL score is also required for international students. Students must maintain an overall 3.0 graduate GPA to be retained in the master's program. The progress of each student is reviewed periodically. Students who do not make satisfactory progress, or who violate the regulations of the department, college, or university, may be dropped from the program.

Program Requirements. The Master of Science in Education degree in curriculum and instruction requires a 9 semester hour professional core, specialty area courses (12 to 15 semester hours), and research. The professional core consists of C&I 500, Research Methods in Education; C&I 503, Introduction to the Curriculum; and C&I 504, Systematic Approaches to Instruction. The specialty area program consists of either 23 semester hours of coursework including a thesis or 27 semester hours of coursework and a research paper or project. The minimum number of required semester hours is 32 for students completing a thesis and 36 for students completing research papers or projects.

Each student is required to demonstrate research skill by preparing a thesis, research paper, or project. Each student must also successfully complete a final comprehensive examination. This examination may be written or oral, or both.

Doctor of Philosophy in Education Degree

The Doctor of Philosophy in Education degree with a concentration in curriculum and instruction is designed for teachers and other educational personnel who seek to improve their performance in general and specialized areas in either the public schools or the private sector. This program is designed for students who desire positions requiring advanced preparation at the highest level with emphasis on theories of curriculum and instruction and in-depth preparation in research. For example, this program is oriented toward students who aspire to positions with institutions of higher education, state departments of education in the United States, ministries of education in foreign countries, educational sections of human service agencies, business and industry, and public schools.

Admission. In addition to the application for admission to the Graduate School, the applicant must also complete the departmental application for admission to the concentration and the related specialty area. A selection and review committee screens the applicant on the basis of prior graduate work, grade point average, standardized test scores (Miller Analogies Test or Graduate Record Examination), research ability, work experience, and letters of recommendation. The TOEFL score is required for international students. The selection committee recommends admission of the student only if the specialty area has an appropriate sponsor for the applicant and if a faculty member who is qualified to direct dissertations agrees to serve as chair of the student's doctoral committee.

The admissions committee may possibly recommend a student for admission who shows some deviation from departmental standards if, in the committee's opinion, the student shows unusual professional promise.

Retention. Any prospective doctoral candidate with a grade point average of less than 3.25 and 20 semester hours of doctoral work will not be allowed to continue in the program and will not be re-admitted at a later date. Students must accumulate an overall grade point average of 3.50 for all doctoral work to qualify to take the preliminary examination.

Prior to the completion of 30 semester hours of course work, students meet with their major professors to determine whether or not to continue as doctoral students. Such matters as grade point average, progress in the program, course completion, motivation, and general academic scholarship skills in writing and research are considered. A report is then made to the doctoral committee and the department chair. Students who are not making satisfactory progress or who violate the regulations of the department, college, or university, may be dropped from the program.

Program Requirements. The concentration in curriculum and instruction has both College of Education and C&I requirements. A minimum of 64 semester

hours beyond the master's degree is required. The College of Education professional core of 8 semester hours consists of EDUC 590, Doctoral Seminar in Cultural Foundations of Education and EDUC 591, Doctoral Seminar in Behavioral Foundations of Education.

The C&I requirements include a core of 9 semester hours; at least 23 semester hours in the selected specialty area; research tools usually totaling 8 semester hours or the equivalent (hours for research tools are not counted in the total of 64 semester hours); and a minimum of 24 semester hours of dissertation. An internship of 2 to 8 semester hours is highly recommended. Courses comprising specialty area hours other than the core courses are determined by the student and the doctoral committee. The professional core of courses in the curriculum and instruction concentration is as follows: C&I 583, Instructional Theory, Principles, and Practices; C&I 584, Curriculum Theory, Foundations, and Principles; and C&I 582, Advanced Research Methods in Education.

Research Requirements. Research tools are selected on the basis of their appropriateness for the area of concentration, specialization, and type of dissertation research. At least one research tool, as outlined by the College of Education is selected by the doctoral committee in cooperation with the graduate student. The 8 options available are: quantitative methods, historical methods, foreign language methods, philosophical methods, qualitative methods, symbolic methods, and evaluative methods.

Preliminary Examination. The preparation and direction of the preliminary examination are the responsibility of the specialty faculty and the student's doctoral committee. Concepts related to curriculum, instruction, and research/evaluation will be integrated into the preliminary examination. Additional oral and written examinations may be required by the student's doctoral committee.

The examination will be offered 3 times a year: Wednesday, Thursday, and Friday of the fifth week of each term. A student may take the examination no more than 3 times.

Prospectus, Dissertation, and Final Oral Examination. Students may not register for more than 6 dissertation hours until they have been advanced to candidacy. Having been admitted to candidacy, students submit prospectuses to their doctoral committees for approval. The dissertation must show high attainment in an independent original, scholarly, and creative effort. A student's dissertation will be circulated to members of the doctoral committee at least 3 weeks in advance of the proposed defense.

The Department of Curriculum and Instruction requires an oral examination conducted by the doctoral committee. Oral examinations are open to all interested observers. Notice of the time and place of the examination and the abstract of the dissertation are circulated throughout the department and the University.

Courses (CI)

400-3 Simulation and Gaming. Analyzes the role of simulation and gaming in instruction, the availability of commercial games, board games, simulation devices and computer games and preparation of teacher-made games and simulations.

402-3 The Study of Cultural Diversity in Education and Family Services. The student examines origins, characteristics of behavior, learning patterns, family constellations and lifestyles of the diverse cultural groups in our community, state and nation. Students will identify their own cultural background and biases; recognize diversity resulting from ethnic origin, gender, age or disability; and experience ways of learning about cultures other than their own that promote constructive communication and integration into all aspects of schooling, teaching and family services.

404-3 Infant Development. Current theories and knowledge concerning growth and development of infants with related laboratory field experiences. Prerequisite: 237 or Psychology 301 or equivalent.

405-4 Methodologies For Group Care of Infants and Toddlers. Application of theories of development of children up to age 3 in a care and child-centered environment. Development of competencies and skills needed by Early Childhood professionals. Two hour seminar and four hour practicum required.

407-3 to 9 (3 per topic) Diagnostic Teaching Strategies for Classroom Teachers. Diagnostic instruments and teaching techniques with an emphasis on understanding and teaching students underachieving in the areas of **(c)** Language arts, **(e)** Mathematics, and **(f)** Reading. Prerequisite: 423 for **(c)**, 315 for **(e)**, 312 for **(f)** and/or consent of instructor.

409-3 Creative Teaching. To assist pre- and in-service teachers in acquiring methods and materials that will improve instruction in the public school classroom, with special attention to the characteristics and needs of students. Prerequisite: Education 315.

410-2 Creative Writing in the Public School. Techniques of encouraging creative writings in the schools.

412-3 to 15 (3 per topic) Improvement of Instruction in Early Childhood Education (Preschool-Grade 3). Examines recent findings, current practices and materials used in early childhood education in the fields of **(c)** Language arts, **(d)** Science, **(e)** Mathematics, **(f)** Reading and **(g)** Social studies. Prerequisite: specialized methods course for the field of study selected by the student.

413-3 Language Development of the Young Child, 0-8 Years. The normal language development and communication skills of the young child will be the focus of this course; attention will be given to an integrated, holistic philosophy toward development and learning in young children ages 0-8; specifically focusing upon social and environmental influences on the development of language and literacy, students will observe, listen, record and analyze samples of young children's communication.

415-3 Modern Approaches to Teaching Middle School Mathematics (Grades 4-8). Examines current mathematics materials and teaching approaches. Hands-on experience with a multitude of teaching aids including microcomputers and problem solving materials. Student exchange of ideas and discussion of activities for classroom use. Prerequisite: 315 or consent of instructor and an overall gpa of 2.5.

417-3 Administration of Early Childhood and Family Programs. Planning and organizing programs for pre-school or residential facilities including budgeting, staffing, programming and evaluation. Prerequisite: 318 and 319.

418-3 History and Philosophy of Early Childhood Education. A survey of the history and philosophies of early childhood education with its implication for current program practices. Students' analysis of their personal philosophy of early childhood education. Prerequisite: 318, 319, senior or graduate standing.

419-3 Child, Family and Community Involvement. This course is designed to provide students with the knowledge and skills needed to work successfully with parents and parent groups in individual and community settings. The focus will be on strengthening adult-child relationships and parent-staff relationships in home, school and community settings. Parent involvement in early childhood programs and parent education will be stressed. Prerequisite: 318 or consent of instructor for non-early childhood majors and/or graduate students.

420-3 Teaching the Adult Functional Illiterate. The emphasis in the course will be on understanding the problems of the individual whose literacy level does not permit full participation in the economic, social and civic opportunities available to the majority of citizens. Prerequisite: permission of instructor.

423-3 Teaching Elementary School English Language Arts. Oral and written communication processes with emphasis on the structure and process of the English language arts in the elementary school. Specific attention to the fundamentals of speaking English, writing, spelling and listening. Study of learning materials, specialized equipment and resources. Prerequisite: English 101, 102, Speech Communication 152 or 153 or equivalent, and a 2.5 overall gpa.

424-3 Teaching Elementary School Social Studies. Emphasis on the structure and process of teaching social studies in the elementary school setting. Specific attention to the fundamentals of 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: Completion of two of the following: Political Science 114, Psychology 102, History 110; and overall gpa of 2.5.

426-3 An Introduction to Teaching Elementary School Science. Content and methods of elementary school sciences, 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: junior standing and an overall gpa of 2.5.

427-4 Science Process and Concepts for Teachers of Grades N-8. (Same as Botany 462.) Specifically designed to develop those cognitive processes and concepts needed by elementary school teachers in the teaching of modern science programs. Lecture three hours per week, laboratory two hours per week. One or two additional field trips required.

428-3 Inquiry Skills for Teaching Junior and Senior High School Science. The major focus will be the application of inquiry skills as used in all areas of science instruction at the junior and senior high school levels; students will be expected to demonstrate mastery of basic and integrated science process skills through conducting and reporting results of science investigations.

435-3 Literature for Children. Studies types of literature; analysis of literary qualities; selection and presentation of books and other media for children; and, integration of literature in preschool, elementary and library settings. Prerequisite: junior standing, a minimum of 6 hours of college-level English and an overall gpa of 2.5.

437-3 Instructional Technology in Training Programs in Business and Industry. Examines the role that performance and instructional technology plays in current training practices in

business and industry. The organization, staffing, budgeting and evaluation of training and development departments is presented. The kinds of performance problems typically encountered by corporate training departments are addressed. Field trips are expected.

441-3 Multicultural Literature for Children. Identification, selection and evaluation of books and audiovisual materials dealing with various cultural groups such as African Americans, Asian Americans, Native Americans, Hispanic Americans and European Americans. Prerequisite: 435 or consent of instructor.

445-3 Literature for Young Adults. The selection and use of books and other educational media for students in the junior and senior high school.

452-3 Small Format Video Production in Education. An introduction to small format black-and-white and color video equipment in educational settings. Emphasis is on understanding the role of video as an instructional and informational tool and on the principles of design that determine instructional video's effectiveness.

455-3 Design and Development of Self-Instruction Systems. Introduction to the theory and practice of self-instruction systems with a particular emphasis on the creation of instruction for mastery. Various self-instruction systems are reviewed and procedures for designing, developing and evaluating these systems are discussed. Includes planning a teaching unit and creating a self-instruction package for the unit.

458-3 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.

461-3 Content Literacy Strategies. For middle grade teaches who desire strategies for helping students comprehend content encountered in narrative and expository text. Materials, lesson plans and teaching strategies to help middle grade students move from basic to more advanced reading, writing, studying and learning skills are featured. Prerequisite: 312 or 512.

462-3 Middle and Junior High School Programs. Focuses on the development of middle and junior high school curriculum and the identification of instructional activities which relate to the pre and early adolescent student. It is anticipated that the student will be able to plan and develop teaching units and evaluate procedures complementary to this portion of the school structure.

463-3 Meeting in Social and Emotional Needs of Gifted Children. Deals with strategies for meeting the social and emotional needs of gifted children in the classroom. In particular, this course focuses on low-incidence gifted students, including underachievers, minorities and females. The course will not only cover particular curriculum and instruction strategies designed for this population but also will emphasis strategies for teachers to be more facilitative in assisting these students to accept and realize their potential. Prerequisite: 467 or consent of instructor.

464-2 Student Activities. Analysis of extra-class activities and programs in public schools with a focus on the status, trends, organization, administration and problems.

465-3 Advanced Teaching Methods. The focus is on a variety of teaching methods and strategies which are appropriate for secondary and/or post-secondary educators. Both individual and group methods are emphasized.

467-3 Methods and Materials in the Education of the Gifted. Content focuses on the most appropriate instructional strategies and materials to be utilized with the gifted. Time spent practicing teaching models, designing materials and developing teaching units. Emphasis placed on techniques for individualizing instruction for the gifted and talented students.

468-3 Science Methods for Junior and Senior High Schools. A performance-based approach to instructional skills common to teaching natural science at the junior and senior high school levels. Three class hours and one micro teaching laboratory hour per week. Prerequisite: Education 315 or consent of instructor.

469-3 Teaching Social Studies in the Secondary School. Emphasis is placed upon instructional strategies and curricular designs in social studies at the junior and senior high school levels. Prerequisite: 315 or consent of the instructor.

473-3 Teaching in Middle Level Schools. Designed to acquaint students with the issues of teaching young adolescents and the unique role teachers must play as interdisciplinary team members, advisors and resource persons to connect schools and communities. Information from current research, area specialists and exemplary practitioners will be used to extend appropriate teaching strategies and supplement background knowledge on special topics related to social, emotional and physical development as it relates to the curricula. Attention is given to the development of classroom resource files for interdisciplinary and advisory programs. Prerequisite: 462, Education 310, 315 or permission of the instructor.

480-3 Introduction to Computer Based Education. Introduction to microcomputers and their uses in the classroom, including computer evolution, languages and authoring systems, instructional modalities, word processing, instructional management and software evaluation. Utility functions and basic commands in programming are also introduced.

481-3 Instructional Applications of Mainframe Computers. Design, development and programming of computer-assisted instructional materials using interactive, timesharing computer systems. Study of lesson design and programming, including branching and program flow, display techniques, response judging, teaching strategies, organization and style.

482-3 Instructional Internet Telecommunications. An introduction to the use of the Internet for instruction. Emphasis is placed upon examining the emerging use of Internet based resources and the role of the teacher in preparing to integrate network based learning activities in the classroom. Additional emphasis is placed on identifying skills needed by learners for involvement

with network resources. A variety of selected commercial and non-commercial computer based networks linked to the Internet are examined.

483-6 (3,3) Instructional Applications for Microcomputers. A study of the development and use of microcomputers systems in educational settings. Emphasis is upon the characteristics, capabilities, applications and implications of microcomputers and microcomputer lessons, with case studies of their integration into the teaching, learning process.

484-3 Multimedia Presentation Systems. Provides learners with skills in designing, developing and conducting classroom based multimedia presentations that involve computer and other electronic delivery systems including videodiscs and CDROMS. Emphasis is placed upon identifying major activities that contribute to effective multimedia presentations regardless of computing software or visual delivery system employed.

486-3 Instructional Authoring Systems. Designed to give students experience using authoring systems, languages and utilities for the design, production and integration of computer assisted instruction into educational settings. Tools will include Superpilot, Author and various commercial and consortium authoring tools. Prerequisite: 480 or consent of instructor.

487-3 Microcomputer Applications for Teachers. Laboratory instruction in the use of the microcomputer and software applications representative of those used by the teacher or education specialist in educational settings. An emphasis is placed upon developing skills used by teachers or education specialists which enhance and facilitate the education process.

495-2 to 8 Field Experience. Supervised learning experiences in settings for children and families and public agencies. Prerequisite: 318, 319, 405 and consent of instructor.

496-2 to 6 (2 to 4 per semester) Field Study Abroad. Orientation and study before travel, readings, reports and planned travel. Includes visits to cultural and educational institutions. Maximum credit hours in any term is 4.

498-1 to 15 (1 to 3 per topic) Workshops in Education. Critical evaluation of innovative programs and practices. Acquaints teachers within a single school system or in a closely associated cluster of school systems with the philosophical and psychological considerations and methods of implementation of new programs and practices in each of the following areas: **(a)** Curriculum, **(b)** Supervision for instructional improvement, **(c)** Language arts, **(d)** Science, **(e)** Mathematics, **(f)** Reading, **(g)** Social studies, **(h)** Early childhood education, **(i)** Elementary education, **(j)** The middle school, **(k)** Secondary education, **(l)** School library media, **(m)** Instruction, **(o)** Environmental education. **(p)** Children's literature, **(q)** Family studies, **(r)** Computer based education, **(s)** Gifted and talented education, and **(t)** Teacher education. Maximum of six hours toward a master's degree. Prerequisite: consent of instructor.

500-3 Introduction to Research Methods in Education. An introduction to research methodology as it is applied in carrying out educational studies. Basic skills of planning, executing and reporting educational research will be studied and applied, with the construction of a research proposal as a term project.

501-3 Improving School Reading Programs. For teachers, reading specialists, instructional leaders. Current issues, trends, practices in improving school reading programs at all levels. Special emphasis on school based management, teachers as change agents, curriculum evaluation, staff development and roles of school personnel. Participants assess existing programs and develop improvement plans. Prerequisite: 512, 513 or 561.

503-3 Introduction to the Curriculum. Deals with the nature, purposes and functions of curriculum planning and development; curriculum design and organizations; curriculum implementation and maintenance; and curriculum evaluation as each component relates to the total curriculum.

504-3 Systematic Approaches to Instruction. Gives graduate students an opportunity to investigate, discuss and apply systematic approaches to instruction. Special emphasis is given to that element of the instructional system which allows for the integration of instructional media into the process.

506-3 Professional Services for Diverse Family Structures. Case analysis of different family structures through seminar teams. Each team will be responsible for analysis of the interaction of the family structure and the economic, nutritional, and socializing activities carried out within the family-household. Role and sources of assistance through current programs will be included. Prerequisite: consent of instructor.

507-3 Impact of Public Intervention on Family Life. An analysis of implications of pending and existing legislation as it relates to the economic, nutritional and interactive aspects of the family treated as a system. Prerequisite: consent of instructor.

508-3 Systematic Observation and Analysis of Instruction. Students will learn to use conferencing techniques and to construct and use valid and reliable systematic observation instruments to provide the basis for analysis and feedback about classroom instruction.

509-3 Foundations of Environmental Education. Designed specifically to provide teachers, administrators and curriculum specialists with the knowledge and skills necessary to implement environmental education strategies in both elementary and middle schools. Includes work in ecological foundations, programs currently in use, unit designs, methods and research. One or two field trips may be required.

510-3 Values Education Curriculum. Alternative views of the impact of schooling on children's values will be explored. Current curricular approaches to moral education will be examined with special emphasis given to values clarification and the cognitive-developmental approach of Lawrence Kohlberg. Psychological and philosophical assumptions underlying the major approaches to moral education will be critically examined.

511-3 Seminar in Psychology of Elementary School Subjects. Psychological principles of learning theories as applied to the mastery of materials used in elementary and early childhood

education school subjects. Emphasis is placed on implications of theories of learning for curriculum development and instruction.

512-3 Reading in the Elementary School. First course in the reading sequence. Survey of the reading process. Introduction to factors affecting the reading process, the common core of skills, teaching strategies, materials and research.

513-3 Emergent Literacy. A study of early literacy. Explores the foundations of family literacy as the basis for continued development of reading and writing in kindergarten and the primary grades.

514-3 The Pre-School Child. Growth of the child from birth to six years with emphasis on the various aspects of growth and the interrelationships.

515-3 Advanced Remediation in Mathematics. Strategies for the design of prescribed systematic instruction for correcting identified mathematics difficulties. Experience in designing and preparing materials for corrective purposes. Prerequisite: 407e or consent of instructor.

516-3 Teaching Mathematics in the Elementary School. Master's degree level course which acquaints the student with approaches to teaching, development of curriculum materials and authoritative positions on the mathematics of grades K-8. Emphasis on teaching aids, problem solving and recent developments at this level. Prerequisite: 315 or consent of instructor.

517-3 Early Childhood Programs: Organization and Administration. Presents an overview of the organization and administration of programs for children ages three to eight with experiences in planning for operating and administering such programs. Prerequisite: 316, 518 or consent of instructor.

518-3 Early Childhood Curriculum and Methods. A survey of current problems and practices in early childhood education for children from three to eight years of age, with emphasis on reading in current research literature. Prerequisite: consent of the instructor.

519-3 Early Child Development Through Home and Preschool. The normal health development of children as it takes place in the home and is promoted by the curriculum of early childhood facilities. Prerequisite: Early childhood graduate students in curriculum and instruction who have completed all core courses.

521-4 Advanced Diagnostic Teaching of Reading. Emphasizes diagnostic teaching strategies that teachers and reading specialists employ when dealing with under achievement in reading. Students use informal and formal tests, observation and trial lessons to select instructional materials and activities appropriate to different reading/writing problems. Each student tutors persons while being supervised in the Clinical Center. Prerequisite: 512 or 513 or 561, 407f and consent of instructor.

523-3 Language Arts in the Elementary School. The practical bearing of investigation and theory on the improvement of current practices in the teaching of the language arts other than reading. Attention given to evaluation of teaching materials in these areas. Prerequisite: 423.

524-3 Teaching the Social Studies in the Elementary School. A study of theory and practices of teaching and developing programs in elementary school social studies. Particular attention to be given to trends and issues in social studies. Various social studies models will be examined and evaluated for practical use. Students must demonstrate behaviorally the competencies and skills related to successful performance in the teaching of social studies.

525-3 Applications of Microcomputers to Mathematics Education. Emphasis placed on using the microcomputer as a tool in problem solving. Instruction in programming in Pascal and operating the Apple microcomputer with special attention to practical use of materials in the mathematics classroom and exploration of various other uses of the microcomputer.

526-3 Problems in Elementary School Science Education. Emphasis upon identifying problems and trends within elementary school science education and planning for research in this field. Prerequisite: 426.

527-3 Advanced Family Studies. A study of factors that promote satisfactions with the immediate family; planning and preparing teaching units, and source materials in this field.

528-3 Methods for Teaching Mathematics in the Preschool and Early Childhood Grades (Pre K-3). Acquaints the student with the learning characteristics of children and teaching methods at grades pre K-3. Emphasis on concrete manipulative teaching aids, learning readiness and diagnosis of learning difficulties. Prerequisite: 315 or consent of instructor.

529-3 Modern Approaches to Teaching Secondary School Mathematics. (Same as Mathematics 511.) Topics will include problem solving, applications of mathematics and teaching proofs in secondary school mathematics. Practical classroom use of materials will also be emphasized. Prerequisite: consent of instructor.

530-3 Teaching Problem Solving in School Mathematics (Grades K-8-8). Designed to acquaint teachers with problem solving processes and how to integrate problem solving into their teaching. Emphasis is placed on teaching the process of problem solving. Prerequisite: graduate standing or consent of adviser.

531-3 The Elementary School Curriculum. An introductory course in curriculum designed to assist teachers and administrators in making operational decisions in elementary education which are based on knowledge of foundations of elementary education, organization of learning experiences, research in specialized areas, materials and methods, instructional programming and evaluation. Students are required to exhibit curriculum competencies through the creation of products and through demonstration of skill.

532-3 Courseware Design and Analysis. The analysis of principles and strategies employed in the design of computer based courseware and computer based training materials. Emphasisis upon examining educational, social and psychological learning principles and the assumptions used by authors of computer software in the design of K-12 software and computer based training materials.

533-3 Instructional Leadership in Elementary Education. A study of research and related literature concerning various instructional leadership styles and behaviors. Major attentions given to such behaviors as they apply to the local school and the individual classroom situation.

534-3 Organization of the Elementary School. An analysis of types of elementary school organizations with special attention to influence of school organization upon the educational program. Application of research findings to selection and use of materials of instruction. Special consideration to classroom teacher's professional problems.

535-3 Reading and Language Arts Research Seminar. Students survey current research in Reading and Language studies and present a research paper to the seminar participants. Prerequisite: 500, nine hours coursework in reading and language arts, and consent of instructor.

540-3 Mass Communication in Education. The communication theories of recognized authorities in the field will be studied. These theories will be applied to the use of mass media in education. Radio, television, comic books, newspapers, magazines and motion pictures will be discussed.

551-3 Survey of Research and Developments in Educational Media. Survey of research, research techniques, needed research and new developments and programs in educational media. Prerequisite: consent of instructor.

553-3 Instructional Development. Intended for media specialists and instructional developers, this course applies current research and technology to the solution of instructional problems. The student is guided through the systematic process of identifying instructional problems, specifying objectives, analyzing tasks and learners, organizing resources, specifying methods and media and assessing outcomes. The role of the instructional developer as a helping professional will also be examined. Prerequisite: 504.

554-3 Utilization of Educational Media. The utilization of print and nonprint materials in instructional implementation and curriculum development. Structured for teachers, media directors, administrators and instructional designers. The increasing role of technological advances in education is stressed as they relate to learning theory and curriculum development.

555-3 Visual Communication. How to communicate with pictures in the classroom, the design of still and motion pictures, pictures used in teaching perception and the place of pictures in advertising and communication.

556-3 Learning Discovery Systems in the Computerized Classroom. Survey and use of learning discovery systems for microcomputers, especially LOGO. Course includes microcomputer operation, software utilization, program evaluation, creation and use of micro worlds in the classroom and cross-curriculum applications. Prerequisite: 480 or consent of instructor.

557-3 Task Analysis. Builds competence in applying the most current task and content analysis techniques used to make explicit the components of complex human performances and knowledge. Includes learning hierarchy analysis, information processing analysis, path analysis, job task analysis, skills analysis, fault tree analysis, concept analysis, knowledge engineering, matrix analysis, and pattern noting. Prerequisite: 504 or consent of instructor.

560-3 Instructional Television. The field of educational broadcasting is explored, with special emphasis on public and school television. History and philosophy are included. Problems of programming and their effect on society are studied. The relationship between broadcasting and the viewing public is investigated, and the responsibility of each is established. Emphasis is also placed upon principles of ITV administration and inservice training.

561-3 Reading and Learning Content and Technical Text. For secondary and college teachers, and others who desire strategies to help students and workers learn from texts. Special emphasis is on how to help others improve their ability to comprehend, study and use texts and other print material encountered in secondary school and the workplace.

564-3 Curriculum Development for Gifted Students. Presentations related to the knowledge and decision-making required to develop curriculum for gifted students, including philosophy, goals and objectives; designing and sequencing activities; curriculum models for gifted students; evaluation and modification of curriculum. Emphasis is placed on the development of curriculum for gifted students to be used in schools.

566-3 Instructional Strategies for Problem Solving. The focus is on developing those teaching strategies which will foster and enhance problem solving skills and heuristic thinking. Representative of these teaching skills would be inductive and deductive approaches, discovery and inquiry techniques, and questioning strategies.

569-3 Principles and Trends in Secondary School Social Studies Education. An evaluation and study of social studies trends and practices as they are related to curriculum, organization and instruction at the junior and senior high school and community college levels.

571-3 Secondary School Curriculum. An introductory course designed to explore the nature and development of the curriculum at the secondary school level. Historical perspective and foundations of curriculum are examined. Functional applications to the public secondary schools are emphasized.

573-3 Perspectives on the Future and Its Schools. Deals with the future development of education and social trends which will influence that development. Emphasis is placed upon alternative models of education and their social bases.

575-3 Critical Issues in Instructional Supervision. Students will examine the history, nature and evolution of supervision for instructional improvement. Students will be introduced to concepts, theory and research findings from many fields of study that have implications for today's supervisory process. Supervisory assumptions and practices will be examined in light of current knowledge of teaching effectiveness.

576-3 Critical Issues in Teacher Education. Students will examine critical issues, problems, and trends in teacher education. Emphasis is placed on strategies for clarifying the issues, solving the problems and examining the possible impact of the trends.

577-3 Seminar in International Mathematics in Education. Deals with goals, contents, teaching methods, teacher training, curriculum development and research literature on mathematics education at the international level. Prerequisite: graduate standing or consent of adviser.

578-3 Advanced Study of Mathematics Education. Study of the practical and theoretical development of mathematics curricula and instruction, and viewing mathematics curricula and instruction from philosophical and psychological perspectives. Prerequisite: advanced graduate study or consent of adviser.

580-3 Current Trends in Education. Trends, issues, problems in education related to the student, program, school organization, staff, material and media, the school building, and the process of innovation and change.

582-3 Advanced Research Methods in Education. The study and application of advanced skills used in planning, executing, reporting and utilizing educational research. Prerequisite: 500 or evidence of equivalent research competencies.

583-3 Instructional Theory, Principles, and Practices. Presentation of conceptual formulations and skills concerning instructional theory and principles; foundations of instruction; instructional systems and models; delivery processes (logistics), systems, and maintenance of quality control; and evaluation of teachers and students.

584-3 Curriculum Theory, Foundations, and Principles. Presentation of conceptual formulations concerning curriculum theory and propositions; foundations: philosophy, sociology, and learning theories; the curriculum system and its components; crucial issues in developing a curriculum theory; and theoretical curriculum models: analysis and assessment.

585-1 to 15 (1 to 3 per semester) Topical Seminar. A graduate level seminar that involves the study of special problems and related research associated with practical educational situations. Problems available for critiquing and analyzing are the following: **(a)** Curriculum, **(b)** Supervision for instructional improvement, **(c)**Language arts, **(d)** Science, **(e)** Mathematics, **(f)** Reading, **(g)** Social studies, **(h)** Early Childhood education, **(i)** Elementary education, **(j)** The Middle school, **(k)** Secondary education, **(l)** School library media, **(m)** Instruction, **(n)** Educational technology, **(o)** Environmental education, **(p)** Children's literature, and **(q)** Family studies, **(r)** Computer based education, **(s)** Gifted and talented education, **(t)** Teacher education. Maximum of six hours toward a master's degree. Prerequisite: consent of instructor.

586-3 Curriculum Design and Development. Presentations concerning educational planning and curricular decision-making relating to curriculum: aims, goals, and objectives; nature of knowledge, disciplines, and subjects; curriculum structures: sequence and scope; substantive structural models; content and activity selection, product analysis and production; evaluation; and curriculum modification and change.

587-3 Curriculum Implementation and Evaluation. Attention is given to preparing the curriculum specialist to use appropriate techniques and skills to put curriculum programs into practice and to assess the effectiveness of such programs in terms of a wide range of variables which indicate success or need for curricular modification.

589-3 The Work of the Director of Curriculum and Instruction. The role of the director of curriculum and instruction is the focus of this course. Such topics as the background, current status, and tasks and functions of the position are examined. Additionally, such broad areas of the director's role as needs assessment, program planning and evaluation, and in-service education planning are covered. Prerequisite: 586 or 587 or consent of instructor.

590-1 to 15 (1 to 3 per topic) Independent Readings. Directed readings in literature and research in one of the following areas: **(a)** Curriculum, **(b)** Supervision for instructional improvement, **(c)** Language arts, **(d)** Science, **(e)** Mathematics, **(f)** Reading, **(g)** Social studies, **(h)** Early childhood, **(i)** Elementary education, **(j)** Middle school, **(k)** Secondary education, **(m)** Instruction, **(n)** Educational technology, **(o)** Environmental education, **(p)** Children's literature, **(q)** Family studies, **(r)** Computer based education, **(s)** Gifted and talented education, and **(t)** Teacher education. Maximum of four hours toward a master's degree. Prerequisite: consent of instructor.

593-1 to 15 (1 to 3 per topic) Individual Research in Education. The selection, investigation and writing of a research topic under the personal supervision of a member of the departmental graduate staff, in one of the following areas: **(a)** Curriculum, **(b)** Supervision for instructional improvement, **(c)** Language arts, **(d)** Science, **(e)** Mathematics, **(f)** Reading, **(g)** Social studies, **(h)** Early childhood, **(i)** Elementary education, **(j)** Middle school, **(k)** Secondary education, **(m)** Instruction, **(n)** Educational Technology, **(o)** Environmental education, **(p)** Children's literature, **(q)** Family studies, **(r)** Computer based education, **(s)** Gifted and talented education, and **(t)** Teacher education. Maximum of three hours counted toward a master's degree. Prerequisite: consent of instructor.

594-(2 to 9 per topic) Practicum. For master's degree students: professional consultation, teaching demonstration, practical application of advanced theory, work with clinical cases, or program development implementation, and evaluation in school systems, community colleges, or universities. In addition, may involve reading and research directed to special problems involved in on-site situations. Practicum is available in the following areas: **(a)** Curriculum, **(b)** Supervision for instructional improvement, **(c)** Language arts, **(d)** Science, **(e)** Mathematics, **(f)** Reading, **(g)** Social studies, **(h)** Early childhood, **(i)** Elementary education, **(j)** Middleschool, **(k)** Secondary education, **(m)** Instruction, **(n)** Educational technology, **(o)** Environmental education, **(p)** Children's literature, **(q)** Family studies, **(r)** Computer based education, **(s)** Gifted and talented education, and **(t)** Teacher education. A Maximum of nine hours credit may be applied toward a Master's degree. Prerequisite: consent of instructor.

595-(2 to 8 per topic) Internship. Culminating experience for Ph.D. or specialist degree students. Students engage in specialized service areas either in their own or a cooperating school or school

system or university. Weekly on-campus or on-site seminar will be held with the intern supervisor. Internship areas are: **(a)** Curriculum, **(b)** Supervision for instructional improvement, **(c)** Language arts, **(d)** Science, **(e)** Mathematics, **(f)** Reading, **(g)** Social studies, **(h)** Early childhood, **(i)** Elementary education, **(j)** Middle school, **(k)** Secondary education, **(m)** Instruction, **(n)** Educational media, **(o)** Environmental education, **(p)** Children's literature, **(q)** Family studies, **(r)** Computer based education, **(s)** Gifted and talented education, and **(t)** Teacher education. A maximum of eight hours credit may be applied toward a Ph.D. or specialist degree. Prerequisite: consent of instructor.

599-1 to 6 Thesis. Minimum of three hours to be counted toward a master's degree. Prerequisite: admission to master's degree program.

600-1 to 32 (1 to 12 per semester) Dissertation. Minimum of 24 hours for the Doctor of Philosophy degree.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Economics

E-mail: mallett@siu.edu

COLLEGE OF LIBERAL ARTS

Chau, Nancy, Assistant Professor, Ph.D., Johns Hopkins University, 1995; 1995. Economics development, international economics.

Cribari-Neto, Francisco, Assistant Professor, Ph.D., University of Illinois, 1994; 1994. Econometrics, macroeconomics.

Dibooglu, Selahattin, Assistant Professor, Ph.D., Iowa State University, 1993; 1993. International economics.

Ellis, Robert J., Jr., Associate Professor, *Emeritus,* Ph.D., University of Virginia, 1966; 1962.

Edelman, Milton, Professor, Ph.D., *Emeritus,* University of Illinois, 1951; 1950.

Färe, Rolf, Professor, Docent, University of Lund, Sweden, 1976; 1978. Microeconomic theory, mathematical economics.

Foran, Terry G., Associate Professor, Ph.D., Pennsylvania State University, 1970; 1969. Labor economics, monetary theory.

Grabowski, Richard, Professor, Ph.D., University of Utah, 1977; 1979. Economic development, international economics.

Grosskopf, Shawna, Professor, Ph.D., Syracuse University, 1977; 1977. Public finance, labor economics.

Jensen, Mark, Assistant Professor, Ph.D., Washington University, 1994; 1994. Monetary economics, econometrics, macroeconomics.

Laumas, G. S., Professor, Ph.D., Wayne State University, 1966; 1990. Macroeconomics, monetary economics.

Layer, Robert G., Professor, Ph.D., *Emeritus,* Harvard University, 1952; 1955.

Mitchell, Thomas M., Associate Professor, Ph.D., Brown University, 1985; 1983. Microeconomic theory; international trade.

Myers, John G., Professor, Ph.D., *Emeritus,* Columbia University, 1961; 1977.

Primont, Daniel, Professor and *Chair*, Ph.D., University of California, Santa Barbara, 1970; 1978. Microeconomic theory, mathematical economics, econometrics.

Sharma, Subhash C., Professor, Ph.D., University of Kentucky, 1983; 1983. Econometrics, statistics.

Trescott, Paul B., Professor, Ph.D., Princeton University, 1954; 1976. Monetary theory, economic development.

Wiegand, G.C., Professor, Ph.D., *Emeritus,* Northwestern University, 1950; 1956.

The Department of Economics offers graduate programs that lead to both master's and doctoral degrees. The master's degree is designed to be a twelve- to sixteen-month program in which the student takes courses in theory as well as an applied specialization. The doctoral program is built around a core of courses in microeconomics and macroeconomics and allows the student to specialize in two fields. The coursework towards the doctoral degree is expected to take three years and the writing of a dissertation one year.

Admission

The overall scholastic record and potential of the applicant for admission is more important than prior preparation in specific areas of economics. While undergraduate specialization in economics is desirable, the program is open to students whose undergraduate specialization has been in other fields. However, if the student has not had intermediate level microeconomics, macroeconomics, and statistics, remedial work may be required before admission to the department.

Application forms must be submitted to the Department of Economics. Application materials, as well as additional information, may be obtained from: Director of Graduate Studies, Department of Economics, Southern Illinois University at Carbondale, Carbondale, IL 62901-4515. Phone 618-536-7746.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

All applicants should take the aptitude portion of the Graduate Record Examination. Information on testing dates and places may be obtained by writing to Educational Testing Service, Princeton, New Jersey 08540. Scores should be sent to Southern Illinois University at Carbondale marked "Attention: Department of Economics." All exam scores must be received before admission.

Evaluations of applicants by the department are based on information from the application form, GRE scores, transcripts, and other information.

Applications not admitted to the Department of Economics who meet the Graduate School requirements may register for remedial courses as unclassified students. Such persons may be considered for admission to the Department of Economics at a later date, based on their performance in such remedial courses. This option is not available for international students.

Foreign applicants whose native language in not English must take the Test of English as a Foreign Language (TOEFL). The Department of Economics requires that the applicant score 550 or above for admission to the graduate program. The TOEFL must be taken no more than 24 months prior to the date when admission is sought. For information concerning TOEFL testing dates and locations, write to Educational Testing Service, Princeton, New Jersey 08540.

Entry into Ph.D. Program. A student with a master's degree must meet Graduate School admission requirements with a graduate grade point average of 3.25 (A = 4.0) or better. A student with a bachelor's degree must meet Graduate School admission requirements with an undergraduate grade point average of 2.7 or better. After meeting these requirements the bachelor's degree student will be initially admitted as a master's student. Upon passing the qualifying exam, taken after the first year of graduate study, the student will be given entry into the doctoral program. Application for entry should be made to the director of graduate studies in the Department of Economics.

Entry into the Master of Science Program. The master of science program is intended to serve as a terminal degree. A student with a bachelor's degree must meet Graduate School admissions requirements with a grade point average of 2.7. Application materials are available from the director of graduate studies in the Department of Economics.

Requirements for the Master of Science Degree

The master's degree prepares students for positions in government and business and for teaching at the junior college level. The general requirements for the Master of Science degree may be conveniently classed under two broad headings, course and hour requirements and thesis requirements.

Course and Hour Requirements. Those students who plan to receive the Master of Science degree as a terminal degree are required to have the following courses:

Economics 465 Mathematical Economics I
Economics 463 Applied Econometrics
Economics 540a Microeconomic Theory I
Economics 541a Macroeconomic Theory I

Each master's student must take at least one graduate director-approved, two-course specialization. In addition, each master's student must accumulate a minimum total of 30 graduate-level semester hours approved by the director of graduate studies. Of this minimum, 21 hours must be in Economics courses, excluding Economics 408, 440, 441, 443, 507, and 590, and 15 must be in 500-level courses.

Any student who earns six semester hours of *C* or below in Economics courses taken for graduate credit is subject to dismissal from the graduate program in economics. A 3.0 GPA in 400- and 500-level economics courses excluding Economics 408, 425, 436, 440, 441, 471, 501, 502, 510, 525, and 598 and in all other graduate courses must be maintained. Only 400- and 500-level courses may count toward the master's degree. Graduate students in economics cannot take Economics 408, 440, 441, or 443 for credit toward a degree in economics.

Thesis Requirements (M.A. and M.S.) The master's candidate in economics can fulfill the thesis requirement in one of two ways:

First, he/she may write a master's thesis. The thesis shall be supervised by a committee of at least three members of the graduate faculty and may be counted for 6 semester hours of credit as Economics 599. (Thus the thesis constitutes 6 of the required 30 semester hours.) Two copies of the approved thesis must be presented to the Graduate School at least three weeks prior to the date of graduation, to be bound and shelved in the library. One copy of the thesis is to be submitted to the Department of Economics. Upon completion of the thesis, the student will be awarded the Master of Arts degree.

Second, the student may enroll for 3 hours in Economics 598. The research paper required in Economics 598 will be accepted in lieu of a master's thesis when approved by the director of graduate studies for that purpose. Thus the research paper constitutes 3 of the required 30 semester hours. One copy is to be submitted to the Graduate School at least three weeks prior to the date of graduation, and one copy is to be submitted to the Department of Economics. Under this option, the student must take an additional graduate-level course for 3 semester hours. Upon completion the student will be awarded the Master of Science degree.

Doctor of Philosophy Degree

The Ph.D. degree prepares students for teaching and research positions in the academic world, for positions such as senior economist in private industry and consulting firms, and for government positions requiring advanced economic training.

Course Requirements and Qualifying Exam. In the student's first year of graduate work he/she will be required to take the following courses:
Economics 541a Macroeconomic Theory I
Economics 541b Macroeconomic Theory II
Economics 540a Microeconomic Theory I
Economics 540b Microeconomic Theory II
Economics 465 Mathematical Economics I
Economics 567a Econometrics I

At the end of the first year (June) the student will take a qualifying examination in microeconomic and macroeconomic theory. The student will be allowed at most two attempts at passing the qualifying exam.

Fields of Specialization. The student is required to pass examinations in two specialized areas in economics after completion of the appropriate coursework for credit and with the prior consent of the director of graduate studies. The Department of Economics offers the following fields of specialization: economic de-

velopment, international economics, monetary theory and policy, applied microeconomics, advanced economic theory, and finance. The first field exam will normally be taken at the end of the second year and the second field exam at the end of the third year. The student will be allowed to take a field exam at most two times.

Other Required Courses. Students are required to pass either Economics 450 (History of Economic Thought) or 420 (History of American Growth in the Twentieth Century). In addition, students are required to pass the following courses:
Economics 511 Mathematical Economics II
Economics 540c Microeconomic Theory III
Economics 541c Macroeconomic Theory III
Economics 567b Econometrics II
Economics 567c Econometrics III

Dissertation

Upon completion of the coursework and passing of the exams discussed above, the student will then be admitted to candidacy for the Ph.D. This will normally occur after the third year of work. Following this, the candidate, in consultation with his/her dissertation chairperson, will form a dissertation committee and develop a proposal. After the proposal is approved, the student must complete a dissertation based on original research and successfully defend the dissertation before the faculty.

Courses (ECON)

408-3 Economics and Business Statistics II. A continuation of 308 which includes the construction, interpretation and use of economic data. Topics include correlation, regression, decision-making, index numbers, time series analysis, forecasting and other statistical techniques used in analyzing economic and business data. This course will not count as graduate credit for economics majors. Prerequisite: 308 or equivalent.

416-3 Money and Banking II. An examination of the principle institutions whose joint actions determine the supply of money in the United States economy. Emphasis is placed on the commercial bank operating as a firm within the Federal Reserve System. Policy issues are examined for the regulation of the banking industry as well as for the control of the domestic money supply. Prerequisite: 315 or 340 or 341 or consent of instructor.

419-3 Latin American Economic Development. Special attention to contemporary policy issues and alternative strategies for development. Among the topics included are inflation and financial reform, international trade and economic integration, foreign investment and agrarian reform. Prerequisite: 322 or 340 or 341 or consent of instructor.

420-3 The History of American Growth in the 20th Century. An analytical survey of American growth in the present century. Concentrates on problems associated with the United States' role as a world economic power and changes in economic institutions engendered by rapid technological change and the need to cope with such problems as income distribution, equity, the growing public sector, inflation, unemployment and others. Prerequisite: 340 or 341 or consent of instructor.

429-3 International Trade and Finance. Analysis of the pattern and volume of world trade and capital flows; effects of trade and payments on the domestic economy; problems and methods of adjusting to change in the balance of payments. Prerequisite: 340 and 341 or consent of instructor and Mathematics 140 or 150 or consent of instructor.

431-3 Public Finance II. State and local. Analysis of the economic effects, problems and alternative solutions concerning state and local government expenditures, revenues and debt. Prerequisite: 330 or 340 or 341 or consent of instructor.

436-3 Government and Labor. Influence of government and law on collective bargaining, on the internal operation of unions, and on job discrimination in the public and private sectors. Prerequisite: Political Science 114 and Economics 113 or equivalents or consent of instructor.

440-3 Price, Output and Allocation Theories. A systematic survey of theories of product prices, wage rates, rates of production and resource utilization under conditions of competition, monopolistic competition, oligopoly and monopoly markets. Emphasis is on developing analytical tools useful in the social sciences. Not open to students who have had Economics 340. Prerequisite: 215 or consent of instructor.

441-3 Contemporary Macroeconomic Theory. An examination in the causes of inflation, unemployment, and fluctuations in aggregate economic activity, factors affecting consumption and investment, and the sources of economic growth. Emphasis is on understanding contemporary United States macroeconomic problems and the options for fiscal, monetary and income policies facing the United States government. Not

open to students who have had 341. Prerequisite: 214 or consent of instructor.

450-3 History of Economic Thought. An analytical study of the development of economic ideas, with special reference to historical and societal context, central thrust and impact. Such benchmark figures as Smith, Marx, Marshall, Veblen and Keynes are highlighted and major schools of economic thought are identified. Prerequisite: 214 and 215; or Economics 113; or consent of instructor.

463-3 Introduction to Applied Econometrics. Applications of statistical tools to specific economic problems. Numerous examples will be examined in order to achieve this goal. Emphasis will be given to model misspecification, non-classical estimation techniques, data analysis and simultaneous equations. Prerequisite: 408 or consent of instructor.

465-3 Mathematical Economics I. A systematic survey of mathematical economics. Application of basic mathematical tools to economic analysis, and a restatement of economic theory in mathematical terms. Prerequisite: 340 or 440 and Mathematics 140, or consent of instructor.

474-3 Antitrust and Regulation. The theory and practice of government policy toward imperfectly competitive markets. Includes such topics as merger policy, unfair trade practices, regulation of natural monopolies, peak load pricing, safety and environmental regulation, and consumer protection. Prerequisite: 340 or 374.

479-3 Problems in Business and Economics. Application of economic theory and tools of analysis to practical business problems. Cost and demand functions, and forecasting are analyzed from a policy standpoint. Prerequisite: 240; 308 or Management 208; Marketing 304; Mathematics 140 or 150, or consent of instructor.

500-3 to 24 (3 per topic) Economics Seminar. A study of a common, general topic in the field of economics with individual reports on special topics. Prerequisite: consent of instructor.

501-1 to 21 Economics Readings. Readings from books and periodicals in economics. Master's degree students limited to a total of six hours. Prerequisite: consent of instructor and chair.

502-1 to 4 Readings in Resource Economics. (See Forestry 590.)

507-1 to 4 (1,1,1,1) Practicum in Undergraduate Teaching. Emphasizes teaching methods, source materials, and preparation of classroom materials. All teaching assistants must enroll. One hour of credit per semester. Graded *S*/*U*only.

510-2 Research in Economics: Design, Methodology and Presentation. Systematic approach to economic research. Includes research planning and design, exploration of the various sources of data and most frequently used methodology. The last part of the course is concentrated on techniques for communicating the results of research. Prerequisite: consent of instructor.

511-3 Advanced Mathematical Economics. A continuation of topics in 465 with more emphasis on proofs. Topics include economic applications of integration, differential equations and real analysis. Prerequisite: 465 and Mathematics 211, or consent of the instructor.

512-3 Seminar in Labor Institutions. Multidisciplinary approach to collective bargaining in the private and public sectors, considering industrial relations theory and the economic effects of collective bargaining. Readings and cases. Prerequisite: 310 or equivalent or consent of instructor.

517-3 Monetary Theory and Policy. A survey of contemporary monetary theory and related policy issues. Prerequisite: 541 or consent of instructor.

518-3 Monetary Theory and Policy II. Contemporary topics in monetary theory and policy, including analysis of the roles of money in inflation and economic growth, and an appraisal of the conduct and impact of monetary policy. Prerequisite: 517 or consent of instructor.

520-6 (3,3) Economic Development Theory and Policy. (a) Classical, neoclassical, and modern contributions to the theory of development; theories of underdevelopment.**(b)** Basic approaches to economic development; laissez-faire; balanced growth; unbalanced growth, role of government; methods of planning; and foreign aid. Must be taken in a,b, sequence. Prerequisite: consent of instructor.

522-3 Microeconomic Foundations of Labor Markets. The approach is theoretical. Topics include the theory of wage and employment determination, labor mobility, labor market imperfections, the special problems of minority group labor and trade union issues. Prerequisite: 538 or 540b or consent of instructor.

525-4 Seminar in Economics in Geography and Planning. (Same as Geography 522.) Public expenditure criteria based on free-market allocation, public, private, and merit goods and services, and related planning; expenditure criteria based on comprehensive plans; expenditure criteria and planning in the absence of general optimality; multiple objectives, measurement of benefits and costs, shadow prices, choice of techniques in planning; consideration of uncertainty. Critical evaluations of applied work and models of development projects and programs by students. Prerequisite: 422 or consent of instructor.

530-3 Foreign Trade. Emphasis on the advanced theory of international trade, survey of significant literature in international theory. Study of more advanced tools of analysis. Prerequisite: 340 or 440 or consent of instructor.

531-3 International Finance. Application of theory to current international economic developments. Empirical studies. Prerequisite: 329 or consent of instructor.

532-3 Economics of Human Resources. The study of institutions and policies designed to solve manpower problems. Emphasizes such topical areas as unemployment, underemployment, manpower training and development, labor market behavior, vocational education, labor problems of the handicapped, the aged, women, and minority groups, health economics, economics of education and poverty. Prerequisite: consent of instructor.

533-3 Public Finance Theory and Practice. Historical development of public finance theories with analysis of their policy implications. Prerequisite: 330 or consent of instructor.

534-3 Economics of Taxation. This course examines from a theoretical and applied point-of-view, various economic aspects of taxation. Other government revenue sources may also be analyzed

such as inter-governmental grants and debt. Emphasis is on application of microeconomic theory to problems in taxation. Usual topics include: equity in taxation, shifting and incidence of taxes, excess burden of taxes, other economic effects of taxes, tax reform, debt. Prerequisite: 330 and 340, or 440, or consent of instructor.

540A-3 Microeconomic Theory I. The course provides the basic theoretical knowledge necessary for microeconomic research in business and government. Prerequisite: 340 or 400 or consent of instructor.

540B-3 Microeconomic Theory II. A contemporary course in partial equilibrium analysis. Topics include the theory of the firm, market structure and the theory of the consumer. The course frequently takes an axiomatic approach; consequently there are many formal statements and proofs of theorems. Prerequisite: 465 and Mathematics 221, or Mathematics 150, 221 and 250 or consent of instructor.

540C-3 Microeconomic Theory III. A contemporary course in general equilibrium analysis. Topics include equilibrium in an exchange economy, equilibrium with production and welfare implications of general equilibrium. The existence and uniqueness of equilibrium and the concept of the core of an economy are studied in detail. Prerequisite: 511, 540b or Mathematics 352, or consent of instructor.

541A-3 Macroeconomic Theory I. The Rigorous development of general equilibrium macroeconomic models to analyze the determination of national income in the context of Classical, Keynesian, Neoclassical and Monetarist economic systems. Also included is the study of key sectoral demand functions. Prerequisite: 341 or 441 or consent of instructor.

541B-3 Macroeconomic Theory II. Continuation of 541A. Analyzes the ideas of New Classical and New Keynesians on the determination of national income. Focuses on the impact of rational expectations and the natural rate hypotheses on the effectiveness of macroeconomic policy. Also included are recent developments in the area of business cycles. Prerequisite: 541a.

541C-3 Macroeconomic Theory III. Recent developments and major issues in contemporary macroeconomic theory. Focuses on incorporating uncertainty, stochastic tools and dynamic analysis into macroeconomic theory. Prerequisite: 541b.

542-6 (3,3) Industrial Organization. (a) Industrial organization I. A study of the variety of forms of competition among firms. Topics include theories of the firm, oligopoly theory, theories of entry, product differentiation and innovation. Prerequisite: 440 and 441. **(b)** Industrial organization II. A survey of government policy toward industry. Topics include antitrust: mergers, concentration and unfair trade practices, regulation of public utilities, peak load pricing, product, safety and environmental regulation. Prerequisite: 440 and 441.

545-3 Resource Economics. A survey of theoretical and institutional aspects of energy production, distribution, consumption and regulation. Topics covered include cartel theory, history of energy use, theory of resource exhaustion, models of energy demand and supply, past and current policy issues, and environmental protection. Prerequisite: 467 and 440, or consent of instructor.

546-3 Workshop in Resource Economics. A research seminar on topics related to energy production, distribution, consumption and regulation. Meetings will be divided among presentations of research of (a) faculty, (b) students, and (c) outside speakers, offered every semester. Maximum of three hours toward master's degree in economics. Prerequisite: 545.

552-3 Seminar in Economic Thought. An exploration of the basic philosophic assumptions which underlie the various types of economic thought with special emphasis upon the historical development of the premises of modern day economic theories. Prerequisite: 450a or 450b or consent of instructor.

566-3 Mathematical Economics II. Linear economic models. Linear programming. Input-output analysis and general equilibrium models. Prerequisite: 340 or 440 or 465 or consent of instructor.

567A-3 Econometrics I. Topics include distribution theory, statistical inference, hypothesis testing and classical linear multiple regression. The emphasis is on both theory and application. Prerequisite: 408, 465 and Mathematics 150, or consent of instructor.

567B-3 Econometrics II. Further topics in the theory and application of single equation econometric models including model specification, data problems, large sample results, non spherical disturbances, heteroscedasticity, autocorrelation and time series analysis. Prerequisite: 567a or consent of instructor.

567C-3 Econometrics III. Topics will include systems of regression equations and simultaneous equation models. Additional topics will be selected by the instructor from the following: models with discrete dependent variables, limited dependent variable model, nonlinear regression model, nonlinear optimization and estimation of stochastic equilibrium models. Prerequisite: 567b or consent of instructor.

570-3 Seminar in Contemporary Microeconomic Theory. An investigation of recent developments and current controversies in economic theory with emphasis on microeconomic problems. Prerequisite: 540b.

571-3 Seminar in Contemporary Macroeconomic Theory. An investigation of recent developments and current controversies in economic theory with emphasis on macroeconomic problems. Prerequisite: 541b or consent of instructor.

575-6 (3,3) Economic Theory I and II. (a) A rigorous treatment of the foundations of econometrics theory. Asymptotic theory is stressed. The single equation model is developed. **(b)** Rigorous treatment of simultaneous equations systems including identification, limited information estimation and full information. Properties of dynamic simultaneous equation models are developed. Inference is introduced into models which combine time series and cross-sectional data. To be taken in sequence. Prerequisite: 567b.

580A-3 Performance Measurement. Analysis of measurement of efficiency and productivity using frontier techniques. Focuses on theoretical and empirical specification of production frontiers and the evaluation of performance relative to

those frontiers. Duality theory is exploited to investigate performance in various economic environments. Prerequisite: 540a and 465, or consent of instructor.

580B-3 Welfare Measurement. A study of the theory and methods of constructing economic measures of price, quantity and other welfare indictors. Prerequisite: 540a, 540b and 465 or consent of instructor.

590-1 to 8 (1 per semester) Seminar in Contemporary Economics. Presentation and discussion of current research in economics. One hour credit per semester. Graded *S* / *U* only.

598-1 to 3 Research Paper. Preparation of a research paper for a master's degree. Prerequisite: consent of instructor.

599-1 to 6 Thesis. Minimum of four hours to be counted toward a master's degree. Graded *S* / *U* only.

600-1 to 36 (1 to 16 per semester) Doctoral Dissertation. Hours and credit to be arranged by director of graduate studies. Graded *S* / *U* only.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S* / *U* or *DEF* only.

Doctoral Program in Education

Faculty in the concentrations listed below participate in this program. Refer to specific concentrations elsewhere in the catalog.

One may pursue a program of study leading to the Doctor of Philosophy degree in education through any of 6 approved concentrations: curriculum and instruction, educational administration, educational psychology, health education, special education, and workforce education and development.

Students must satisfy the requirements of the Graduate School in addition to the College of Education requirements for the Doctor of Philosophy degree in education. General policies pertaining to the Doctor of Philosophy degree in education are enumerated in this section; policies specific to each concentration may be obtained from the appropriate departmental chair.

For program descriptions of Master of Science in Education degrees, the student should review the material listed in this publication in the appropriate departmental section or consult the appropriate department.

Application

Applicants must submit the standard application materials to the department into which they wish to gain admission. A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted. Additional data may be requested by the faculty of the specific concentration. The student is encouraged to contact the appropriate departmental executive officer for specific guidelines.

Admission and Retention

The appropriate department reviews all documents relative to the student and makes a recommendation to the academic affairs committee of the College of Education; this committee makes the final admission recommendation through the dean of the College of Education to the Graduate School. Retention standards beyond minimum Graduate School standards are established by each concentration and are available from the departmental executive officer of the appropriate department.

Advisement

For each student a doctoral committee consisting of a minimum of 5 members is constituted and approved according to procedures described in the *Ph.D. Policies and Procedures Manual of the College of Education.* Copies of the manual can be

obtained from the dean of the College of Education. The doctoral committee also serves as the student's dissertation committee.

The program, planned to include all graduate study beyond the master's degree, should be approved at a meeting of the student's committee. The program is then forwarded to the dean of the College of Education for final approval and filing.

Program Requirements

Each doctoral student in education must successfully complete a prescribed core of 8 semester hours in social and philosophical foundations of education (EDUC 590) and in psychological foundations of education (EDUC 591). For each concentration there are also basic courses which should be completed prior to the student taking the preliminary examination. Information about these specific courses can be obtained from the appropriate departmental executive officer.

Research Competencies. The Ph.D. degree in education is a research-oriented degree. As such, it consists of a program of studies and other appropriate experiences designed to facilitate the acquisition of knowledge, attitudes, and skills necessary to conduct systematic intellectual inquiry. This overall aim is accomplished via two major program components: (a) general research competencies, including an understanding of the fundamental nature of approaches to problem solution and an appreciation for the role of research in professional education, are developed through completion of a minimum of 32 semester hours of course work in any of 8 approved concentrations, and (b) specific technical and methodological competencies are developed through completion of individually prescribed research tools. Such tools are selected on the basis of their appropriateness for the area of concentration in which the student is working and their relevance to the student's research interests. Research tools are applied in the process of completing requirements for the doctoral dissertation. A list of approved research tools for the Ph.D. degree in education is available in the *Ph.D. Policies and Procedures Manual of the College of Education.*

Preliminary Examination. All students in the Ph.D. program in education must take the preliminary examination over areas determined by the student's doctoral committee. In addition, the examination may cover areas specific to a concentration. The examination is offered 3 times a year: Wednesday, Thursday, and Friday of the fifth week of each term.

A student may petition the doctoral committee for permission to take the preliminary examination after successful completion of the research requirement, successful completion of all or most of the course work, and successful completion of the doctoral seminar sequence in education. A student who fails the examination on the initial attempt may take the examination 2 additional times. If at that time the student has not passed the examination, the student is dropped from the program.

Admission to Candidacy. A student may be advanced to candidacy after the student has completed the 2 doctoral seminars, EDUC 590 and 591, fulfilled the residency requirements for the doctoral degree (see degree requirement in Chapter 1), met the research tool requirement, and passed the preliminary examination. The doctoral committee chair should initiate the admission to candidacy forms and forward the forms to the dean of the College of Education. Admission to candidacy is granted by the dean of the Graduate School upon the recommendation of the dean of the College of Education. The doctoral degree may not be conferred less than six months after admission to candidacy, except upon approval of the dean of the Graduate School.

Dissertation. The doctoral committee consists of a chair who is authorized to direct doctoral dissertations and at least 4 others who are authorized to serve on doctoral committees. The committee is appointed by the dean of the Graduate School upon the recommendation of the dean of the College of Education. At least one member of the committee must be from a department other than that of the student and at least one member from a unit outside the College of Education.

In choosing a topic for the dissertation, the candidate should prepare a prospectus for the dissertation and submit the prospectus to the doctoral committee for approval. After the doctoral committee approves the prospectus, the chair of the committee files one copy of the approved prospectus in the office of the dean of the College of Education.

Satisfactory completion of the dissertation requirement includes the passing of an oral examination covering the dissertation and related areas.

Courses (EDUC)

450-1 to 10 Experimental Education. Offered for purposes of testing new and experimental courses and series of courses within the College of Education. Prerequisite: consent of instructor.

550-1 to 10 Experimental Education. Offered for purposes of testing new and experimental courses and series of courses within the College of Education. Prerequisite: consent of instructor.

590-4 Doctoral Seminar in Cultural Foundations of Education. This seminar is one of two courses required for all students pursuing a doctoral program in the College of Education. The primary objectives are to aid in the development of the Doctoral student's own nature and reflective theory of education; to help students pursue their scholarly activities in relation to the whole field of education; and to make the student aware of the resources of scholarship in other disciplines which might be said to be foundational to education. Prerequisite: admission to the Ph.D. program in education.

591-4 Doctoral Seminar in Behavioral Foundations of Education. This seminar is one of two courses required for all students pursuing a doctoral program in the College of Education. The primary objectives are to aid the student in describing the attitudes, assumptions and practices which underlie empirical inquiry; to help the student to recognize the strengths and weaknesses of the various types of research in terms of methodology employed; and to aid the student in identifying and refining a research question and constructing a research design appropriate to answer the research question. Prerequisite: admission to the Ph.D. program in education.

Educational Administration

COLLEGE OF EDUCATION

Buser, Robert L., Professor, *Emeritus*, Ed.D., Indiana University, 1966; 1967.

Dennis, Lawrence J., Professor, Ph.D., Southern Illinois University at Carbondale, 1968; 1968.

Dunn, Randy J., Associate Professor, Ed.D., University of Illinois at Urbana-Champaign, 1991; 1995.

Eaton, William E., Professor and *Chair,* Ph.D., Washington University, 1971; 1971.

Evans, John, Associate Professor, *Emeritus*, Ph.D., Southern Illinois University at Carbondale, 1968; 1970.

Goldman, Samuel, Professor, Ph.D., University of Chicago, 1961; 1980.

McCadden, Brian M., Assistant Professor, Ph.D., University of North Carolina at Chapel Hill, 1995; 1995.

McKerrow, K. Kelly, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1986; 1994.

Sharp, William, Associate Professor, Ph.D., Northwestern University, 1978; 1991.

Verduin, John R., Jr., Professor, Ph.D., Michigan State University, 1962; 1967.

The Department of Educational Administration and Higher Education offers an approved major in educational administration leading to the Master of Science in Education degree. It also provides courses and instructional personnel for doctoral students who wish to concentrate in educational administration at the doctoral level. All degrees are NCATE approved. Interested applicants should direct inquiries to the admissions clerk of the department.

The Department of Educational Administration and Higher Education works cooperatively with the departments of Curriculum and Instruction, Educational Psychology and Special Education, and Workforce Education and Development in administering the State of Illinois General Administrative Certificate for per-

sons seeking positions as principals or directors of special education or vocational education. A master's degree and two years of public school teaching (or its equivalent), are required for the certificate. Students must make application for the administrative certification program through the department.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Master of Science in Education Degree

At the master's level, a concentration in educational administration is offered.

The Master of Science in Education degree in educational administration includes a 36 semester hour core consisting of:

EAHE 500-3 Education Research Methods
EAHE 501-3 and 503-3 Introduction to Educational Administration
EAHE 504-3 Introduction to Evaluation for Administrators
EAHE 505-3 School Finance and Facilities
EAHE 509-3 School-Community Relations
a principalship course (e.g. EAHE 507-3 The Secondary School Principal or EAHE 533-3 The Elementary School Principalship)
a curriculum course (e.g. EAHE 511-3 Organization and Administration of Curriculum)
a social foundations course (e.g. EAHE 430, 432, 454, or 560)
a supervision course (e.g. EAHE 523-3 Supervision of Instruction)
a school law course (e.g. EAHE 517 or 519); and EAHE 595-3 Internship.

A research report and comprehensive oral examination are also required.

Doctor of Philosophy Degree in Education

The Department of Educational Administration and Higher Education participates in the doctoral program in education with an approved concentration in educational administration. See the description of the Ph.D. degree in education.

Inquiries regarding application to their programs should be directed to the admissions clerk of the Department of Educational Administration and Higher Education.

Courses (EAHE)

402-1 to 3 Principles of Student Personnel Group Work. Acquaints the student with group work possibilities and functions in higher education.

430-3 History of Education in the United States. An historical study of the problems of American education.

432-3 Education and Social Forces. A study of the social forces that shape educational policies in the United States.

454-3 Contrasting Philosophies of Education. An examination of current educational problems and trends in the light of contrasting philosophies of education.

455-3 Introduction to Adult and Continuing Education. Introduces the multifaceted areas of adult and continuing education in traditional and non-traditional settings by reviewing and studying philosophies, directions, program efforts and activities associated with them.

495-3 to 9 (3,3,3) Workshop in Adult Education. The foci for these workshops are to provide quality educational experiences for students and practitioners in the field of adult and continuing education in three major areas: **(a)** current issues, **(b)** improvement of instruction and programs in adult education, and **(c)** evaluation in adult education.

500-3 Educational Research Methods. Introduction to educational research and the variant methodologies used in conducting studies within institutional settings. Both quantitative and qualitative approaches will be examined.

501-3 Educational Administration: Tasks and Processes. An examination of the administrative tasks and processes dealing with interaction within the school organization and between the organization and its environment. Components will be viewed for their essential Inter relatedness as well as their unique aspects. Emphasis will be placed upon the processes by which change is brought about in dealing with decision making, programming, communication, motivating, controlling and evaluating.

503-3 Educational Administration: Introduction to Theory. Examination of the various administrative tasks in light of established organizational models and leadership theories. The student will be introduced to a variety of theories, models, and concepts that have pertinence to the

field of educational administration. Emphasis will be placed upon the methods of theory construction and the development of a theoretical orientation to the solution of administrative problems. The course draws heavily upon research done in the behavioral sciences.

504-3 An Introduction to Evaluation for Administrators. This course is designed to familiarize prospective and practicing administrators with the areas of personnel, program, and school evaluation. Specific topics include: purposes, constructs, models, instrumentation, procedures and responsibilities appropriate for school administrators.

505-3 Introduction to School Finance & Facilities. A study of the principles and issues of public school finance and facilities aimed at building level administrators. Included are the following: basic economy theory; local, state, and federal revenue systems; the state foundation concepts; equity; maintenance of school facilities; energy; technology and environmental factors; funding school facilities; and budgeting at the building level.

507-3 Secondary School Principalship. Deals with problems met specifically by the high school principal. Emphasizes the principal's role in relation to guidance, curriculum, schedule-making, extra-curricular activities, public relations, budgeting of time, etc.

508-3 Student Development Theories. A study of the major theories of human development as applied to college students with implications for the student affairs specialist.

509-3 School-Community Relations and Development. Practical and theoretical aspects of public relations as applied in general and as applied specifically to educational institutions and efforts. Involved are the practical and theoretical considerations of educational institutions assisting in the further development of the community or communities in which they find themselves.

510-3 Higher Education in the United States. An overview of American higher education in historical and sociological perspectives: its development, scope, characteristics, issues, problems, trends and criticism.

511-3 Organization and Administration of Curriculum. The organization and administration of the curriculum including the elements and sub-elements comprising a curriculum are the primary focus. Emphasis placed on a rationale, including the socio-cultural and psycho-philosophical factors, political forces and factors, goals, instructional activities and evaluation. This course has general application to both elementary and secondary curriculum organization.

512-3 Higher Education in Selected Nations. A study of higher education systems and trends outside the United States and of the role of the university in world affairs.

513-3 Organization and Administration in Higher Education. Theories and practices in governance of various types of higher education institutions with attention to problems of formal and informal structures, personnel policies, decision making, institutional self-study and societal-governmental relations.

514-3 Foundations of Adult Education. This course reviews the socio-cultural, historical, psychological, economic and philosophical considerations found in the broad field of adult and continuing education and which serves as a foundation for instructional and curriculum development work in the field.

515-3 College Student Development: Operations and Policies. Study of organization, functions, and under girding principles and policies of student development and the related student personnel services and programs in contemporary colleges and universities including community colleges.

516-3 College Students and College Cultures. Study of the nature of students, the impact of the college on student development, and the nature of the college as a unique social institution. Study of student subcultures and the interaction between students, institutions, and communities.

517-3 The Legal Framework of Education. A study of administrative, judicial, statutory and constitutional laws which have application in American public schools.

518-3 College Teaching. Emphasis is given to teaching and learning styles, the teaching-learning process, specific methods of teaching, strategies to improve teaching, resources available to the classroom teacher, and methods of evaluating teaching. Other topics will include: models of effective teaching behavior, academic freedom and due process. Course also open to teaching assistants from other departments.

519-3 Illinois School Law. A study of administrative, judicial, statutory, and constitutional laws which have application in the Illinois public schools.

520-1 to 12 Current Issues in Educational Administration. An examination of current issues that affect the various administrative levels in educational systems. The issue selected receives intensive treatment and review.

523-3 Supervision of Instruction. The function of the principal and supervisor in the improvement of instruction and in curriculum development. Activities, methods and devices for improving the effectiveness of instruction stressed. Prerequisite: 511 or consent of instructor.

524-3 Curriculum Design and Policy. A study of assumptions, materials, methods and evaluation in the designs of various curricula in colleges and universities, with attention to curriculum resources and policy.

526-3 The Community College. A study of the characteristics and functions of the community or junior college in American higher education. Course content aids the student in developing a general understanding of the philosophy, objectives, organization, and operations of this significant institution.

527-3 School Business Administration. A study of the principles and practices governing management of business affairs of a public school system. Included are such topics as revenues, expenditures, accounting, auditing, reporting and applications of electronic data processing as a management tool. Practical experience is given in using the Illinois financial accounting manual as well as other managerial procedures. Detailed study is made of the role of the school business administrator in the local school district.

528-3 Finance in Higher Education. A study of financing higher education in American society and related economic aspects. Emphasis is given to sources of funds and management of financing in colleges and universities including budgeting, control, accountability and current trends.

530-3 Historical Research in Education. Seminar designed to explore the literature, methods and possibilities of historical research in education.

531-3 The School Superintendent and Board of Education. Focuses on superintendent-school board relationships. It investigates the administrative team's role and functions as they relate to leadership in educational policy making.

533-3 Elementary School Principalship. A critical study of research and writing with implications for the elementary principalship. Designed to meet many of the particular needs of persons interested in becoming elementary principals. Other persons such as teachers, superintendents and staff personnel will gain insight into problems and responsibilities of the elementary principal's role.

535-1 to 14 (a-n-1 to 3 each, s-1 to 6) Higher Education Seminar I. A series of seminars for specialized study of areas of administrative practice and policy. **(a)** Student personnel group work, **(b)** Law and higher education,**(c)** Student financial assistance, **(d)** Admissions and records, **(e)** Academic advisement, **(f)** Academic and faculty administration, **(g)** Current issues in student affairs, **(h)** Housing, **(j)** Non-traditional students/non-traditional delivery, **(k)** Women and higher education, **(m)** Student center, **(n)** Supervisory management in higher education, and **(s)** Selected topic.

537-3 The Adult Learner. The focus of study will be adult learners, their motivations, learning styles, needs, goals, life stages, life cycles and developmental patterns. Implications for adult learning will be sought.

539-3 Program Evaluation. This course is designed to enable an administrator to evaluate a school or agency program from inception through implementation, operation and final assessment. An emphasis will be placed upon formal and informal means of formative and summative processes utilizing evaluation diagnostics and instrumentation. Formalized accreditation standards and guidelines will also be examined.

540-3 Classics in Education. Primary attention will be given to Plato's *Republic,* Castiglione's *Courtier,* Rousseau's *Emile,* and Dewey's *Experience and Education.* Other authors such as Aristotle, Quintilian, Francis Bacon, Montaigne, John Bunyan, Benjamin Franklin, A. S. Neill, Karl Marx, and B. F. Skinner will receive additional consideration.

541-3 Personnel Evaluation and Administration. This course will provide the administrator with the concepts, strategies and assessment measures to evaluate and manage personnel in both simple and complex organizational settings.

543-3 Professional Negotiations. An investigation of the theory and practice of professional negotiations. Emphasis will be placed on understanding the roles of adversarial negotiations. Use will be made of cases and simulations.

545-1 to 16 (a through j, 1 to 3 each; s, 1 to 8) Higher Education Seminar II. A series of seminars for scholarly inquiry into significant aspects of higher education. **(a)** Community college administration, **(b)** Federal government and higher education, **(c)** Institutional research, **(d)** Current issues in higher education, **(e)** Problems of central administration, **(f)** Business and fiscal affairs, **(g)** History of higher education, **(h)** Sociology of higher education, **(j)** Adult and continuing education, **(s)** Selected topic.

547-3 Evaluating Educational Research. Emphasis on development of student skills as critical consumers of research in education. Standards and practices in research are reviewed with attention to evaluating and judging the quality of research reported in professional literature. The focus of the course is on quantitative research, although qualitative research will also be discussed. Prerequisite: 500 or equivalent.

548-3 Survey Research Methodology. A detailed examination of the methodology of survey research in the social sciences. In addition to the historical and philosophical foundations of social research, the techniques of developing indicators, sample selection, questionnaire construction and data collection by mail, telephone or personal interview will be outlined and practiced. Considerable attention will be directed towards the analysis of survey data using the university mainframe computer and statistical software. Prerequisite: 500 and Educational Psychology 506 (or equivalent) or permission of instructor.

549-3 Naturalistic Research Methodology. An advanced seminar dealing with the foundations, design, application, and implementation of the naturalistic or qualitative method of conducting research. The student is expected to develop a dissertation prospectus or an original research report using the naturalistic method of inquiry. Prerequisite: Doctoral standing or consent of instructor.

550-1 to 4 Higher Education Seminar III. An advanced seminar for doctoral students in higher education. Two hours required for all doctoral students. Prerequisite: Doctoral students only.

551-3 Politics of Education. An examination of the political setting of educational administration selected leadership practices, and a general study of leadership theory. This course is open to students in approved sixth-year and doctoral programs only. In addition to educational leadership related to the politics of education, emphasis is given to innovative and contemporary practices of school administration.

552-3 Seminar in Comparative/International Education. The formulation of a conceptual framework necessary to engage in analytical studies of educational systems here and abroad. This frame of reference will enable the professional educator or social scientist to analyze educational provisions that foster or retard social progress and change.

553-3 Planning Processes and Policy Development. Surveys issues involved with accountability in education. Explores in some detail various planning models. Examines concepts and strategies in public policy development. Open to approved sixth year specialist and Doctoral students.

554-3 Seminar in Philosophy of Education. An interpretation of modern educational problems and trends in the light of basic philosophical viewpoints. Excerpts from the leading philosophical writings are used. Prerequisite: 454 or consent of instructor.

555-3 Advanced Educational Administration Theory. An advanced seminar devoted to the study of classical and modern theories concerning the administration of complex organizations. Particular emphasis is placed on organizations as social units that pursue specific goals which they are structured to serve. The major areas of study are organizational goals, organizational structure and organizations and their social environment. Prerequisite: 503 or equivalent.

560-3 Education and Culture. A study of the concept of culture and its relation to the process of education.

588-3 to 6 General Graduate Seminar. Selected topics or problems in cultural foundations of education. Prerequisite: advanced standing and consent of instructor.

589-1 to 3 Doctoral Research Seminar. Limited to doctoral students formulating and preparing research designs for investigation and implementation. Graded *S/U* only. Prerequisite: consent of instructor.

590-1 to 6 Readings. Advanced reading in one of the following areas. **(a)** Administration, **(b)** Buildings, **(c)** Supervision of curriculum, **(d)** Finance, **(e)** School law, **(f)** Supervision,**(g)** Comparative education, **(h)** History of education, **(i)** Philosophy of education, **(j)** Sociology of education, **(k)** Adult and community education, **(l)** Higher education. Prerequisite: consent of instructor. Graded *S/U* only.

591-1 to 6 Individual Study. Individual inquiry into selected problems or special topics in higher education under supervision of a graduate faculty member. Graded *S/U* only. Prerequisite: consent of instructor.

593-1 to 3 per topic Individual Research. Maximum of six hours toward master's degree. Selection, investigation and writing of a research assignment under the personal supervision of a graduate faculty member in one of the following areas.**(a)** Administration, **(b)** Buildings, **(c)** Supervision of curriculum, **(d)** Finance, **(e)** School law, **(f)** Supervision, **(g)** Comparative education, **(h)** History of education, **(i)** Philosophy of education, **(j)** Sociology of education, **(k)** Adult and community education, **(l)** Higher education. Graded *S/U* only. Prerequisite: consent of instructor.

595-1 to 8 Internships. Theory and practice in educational administration or higher education with a work experience in an educational setting.

596-1 to 6 Independent Investigation. Field study required of each student working for the sixth year specialist degree. Graded *S/U* only.

597-1 to 6 Superintendent Internship. An internship conducted in a central administrative setting for fulfillment of the state of Illinois' Level III Administrative Certificate. Consent of student's adviser is required.

599-1 to 6 Thesis.

600-1 to 36 (1 to 12 per semester) Dissertation. Minimum of 24 hours to be earned for the Doctor of Philosophy degree.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Educational Psychology

E-mail: lviernum@siu.edu

COLLEGE OF EDUCATION

Baeza, Jesus, Jr., Assistant Professor, Ph.D., University of Iowa, 1990; 1991.

Bardo, Harold R., Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1972; 1968.

Beggs, Donald L., Professor and *Dean* of the College of Education, Ph.D., University of Iowa, 1966; 1966.

Bradley, Richard W., Professor, Ph.D., University of Wisconsin, 1968; 1968.

Brown, Beverly, Associate Professor, Ph.D., University of Iowa, 1974: 1974.

Cody, John J., Professor, Ph.D., University of Wisconsin, 1961; 1965.

Daniels, M. Harry, Professor, Ph.D., University of Iowa, 1978; 1978.

Deichmann, John W., Associate Professor, Ph.D., St. Louis University, 1969; 1969.

DeWeese, Harold L., Professor, *Emeritus,* Ed.D., University of Illinois, 1959; 1959.

Dillon-Sumner, Ronna, Professor, Ph.D., University of California, Riverside, 1978; 1978.

Elmore, Patricia B., Professor, Ph.D., Southern Illinois University at Carbondale, 1970; 1967.

Kelly, Francis J., Professor, Ph.D., University of Texas, 1963; 1965.

Leitner, Dennis W., Associate Professor, Ph.D., University of Maryland, 1975; 1974.

Lewis, Ernest, Professor, Ph.D., Southern Illinois University at Carbondale, 1971; 1970.

Mouw, John T., Professor, *Emeritus*, Ed.D., University of South Dakota, 1968; 1968.

Pohlmann, John T., Professor and *Chair*, Ph.D., Southern Illinois University at Carbondale, 1972; 1971.

Prichard, Karen K., Associate Professor, Ph.D., Kent State University, 1980; 1980.

Snowman, Jack, Professor, Ph.D., Indiana University, 1975; 1975.

White, Gordon, Assistant Professor, Ph.D., University of Iowa, 1969; 1971.

White, Lyle, Associate Professor, Ph.D., University of Iowa, 1988; 1989.

Woehlke, Paula L., Professor, Ph.D., Arizona State University, 1973; 1973.

Yates, J. W., Professor, *Emeritus,* Ed.D., University of Missouri-Columbia, 1951; 1964.

The Department of Educational Psychology and Special Education offers graduate studies that lead to the Master of Science and the Ph.D. degrees in educational psychology. In addition, completion of course work and supervised experiences that meet standards for state entitlement and certification of counselors is part of the degree programs. The purposes of these graduate programs are to prepare professional educational psychologists to engage in the practice of their specialization and to pursue research in their areas of interest. Programs are monitored to be in line with standards set forth by the American Association of Counseling and Development, the American Psychological Association, the North Central Association, and the National Council for Accreditation of Teacher Education. The counselor education program is accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP).

Professional experiences and interests of students along with the teaching and research capabilities of the faculty serve as a basis for individualized courses of study. Sufficient latitude in program planning is provided so that students in concert with their adviser and their committee plan programs to capitalize on student interests and faculty capabilities. Human learning and cognition, development, instructional psychology, child and adult counseling, marriage and family counseling, career development, measurement and statistics, and research design represent professional and research specialties of the faculty.

Master of Science in Education

Academic experiences leading to the Master of Science in Education degree are provided through concentrations in educational psychology and counselor education. Graduates from these programs are prepared to pursue advanced graduate studies and assume roles as professional counselors or educational psychologists in schools, colleges, and other agencies that serve the developmental needs of people.

Program Requirements. Core requirements consist of competencies in learning, quantitative methods, and development. Specific course selections to meet the degree program are determined by the students and their advisers with the approval of the department chair.

Completion of a thesis, research paper, or project (1–6 hours) is required to meet the requirements of a master's degree in education. A thesis requires a research format that follows a formal method of inquiry to provide answers to questions of a basic nature to the field. Research papers or projects focus on specific information-gathering procedures or a product that meets a need for specific purposes.

An oral or written comprehensive examination covering course work, thesis, research paper, or project is required before students can be recommended for graduation. The faculty of each concentration determines the specific nature of the examination.

Admission and Retention. Students seeking admission to master's degree studies in the department must apply to and meet requirements for admission to the Graduate School and be approved by the Department of Educational Psychology. Scores from the Graduate Record Examination (GRE), an undergraduate grade point average of 2.7 ($A = 4.0$) for unconditional admission (students with an undergraduate grade point average of 2.4 may be considered for conditional admission); letters of recommendation, and evidence of successful experience or commitment to the profession are required. Each student application is considered

on an individual basis. Professional qualifications, graduate courses taken, and student goals are also considered.

The adviser, along with the faculty of the specialty, is responsible for reviewing student progress each semester. Students are required to maintain a 3.0 grade point average and to be progressing toward their professional goals within the guidelines formulated in the advisement process. Failure to make progress or violations of department, college, or Graduate School regulations may result in dismissal from the program.

Specific information about programs and how to apply may be obtained by calling 618-536-7763 or writing to the chair, Department of Educational Psychology and Special Education, Southern Illinois University at Carbondale, Carbondale, IL 62901-4618.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

EDUCATIONAL PSYCHOLOGY

The master's degree concentration in educational psychology is a minimum 32-hour program. Students who wish to acquire fundamental knowledge and inquiry skills in human learning and research design are required to write a thesis (6 hours). Students who are more interested in applied positions may elect the research paper or project option.

Graduates from this program have taken positions as teachers, researchers, and instructional designers and evaluators in the military, schools, industry, and other institutions. Others have continued to pursue their education at the Ph.D. level.

COUNSELOR EDUCATION

Students who complete this program also fulfill the requirements of the entitlement program for certification in Illinois. This is a minimum 48-hour CACREP approved program that prepares students to work with children and adults in elementary and secondary schools, higher education, mental health settings, and other agencies or settings. Emphasis is placed on child, adolescent, adult, and marriage counseling. Programs that focus primarily on handicapped or abnormal populations are centered in other departments in the University.

Students who first pursue the program in educational psychology as a preparation for counseling certification should indicate this intent at the beginning of their program. In this manner, experiences can be planned to better meet the needs of the student.

Doctor of Philosophy Degree in Education

Advanced studies leading to a Ph.D. degree are offered by the Department of Educational Psychology. Individualized programs of sequential studies, based on a general core of foundation knowledges, are required for each candidate. Students along with their doctoral committee plan programs related to student background and interests, the professional requirements of the program, and the professional competencies of the faculty.

Faculty in the department provide research and professional competencies in counseling, cognitive development, instructional psychology, and measurement and statistics.

Application. Students must apply to the chair, Department of Educational Psychology and Special Education, Southern Illinois University at Carbondale, Carbondale, IL 62901-4618, 618-536-7763. Specific questions about programs and how to apply should be directed to the address identified above or by phone.

Admission and Retention. Applications are reviewed by the department faculty and recommendations forwarded to the College of Education and the Graduate School. Test scores from the Graduate Record Examination are required. A personal interview with a candidate may be required.

The performance of each doctoral candidate is reviewed each semester. Maintenance of 3.0 grade point average and compliance with policies of the department, the college, and Graduate School are also required.

Core Requirements. Students are required to meet core competence in learning, measurement, statistics, research methodology, and effective behavior. Specific courses or other means used to satisfy these areas are determined by the department upon recommendation from the student's doctoral committee. Students are expected to bring to the doctoral program a background of course work and experiences commensurate with a master's degree in educational psychology that includes foundations in psychology, education, and other related areas.

Research, Teaching, and Practicum Experience. Each student is required to demonstrate professional competence through supervised experiences. These experiences include research, teaching, and personal interactions in consulting, psychometric, or counseling situations. It is recommended that doctoral students take an approved internship in their area of professional specialization. Such internships are usually of a year's duration and must be approved by the department.

Preliminary Examinations. All Ph.D. candidates must complete a preliminary examination over their doctoral course work before formal admission to candidacy. The doctoral committee with the concurrence of the department is responsible for the development and evaluation of the preliminary examination.

Doctoral Committees. Students are assigned a doctoral adviser upon admission to the program. Before the end of the first year of doctoral study a doctoral committee is constituted. At this time a new chair may be chosen to head the committee which assists and evaluates students in their program. The committee is also responsible for an oral examination over the completed dissertation and student's general knowledge of the professional field.

Courses (EPSY)

Courses in this department may require the purchase ofsupplemental materials. Field trips are required for certain courses.

402-3 Basic Statistics. A master's level terminal statistics course. Emphasis on descriptive statistics and graphical representation of data. Includes a brief introduction to hypothesis testing procedure.

412-3 Human Behavior and Mental Health. A study of the principles of human needs, mechanisms of adjustment and factors and conditions in life that tend to affect mental health. Prerequisite: junior or senior standing.

418-3 Psychology of the Classroom. Intended to develop interpersonal skills such as values clarification, empathy and listening. Strategies for the resolution of conflicts and reasons for students demonstrating disruptive behavior will be discussed. Role-playing, group processes, concepts and activities in behavior modification, and activities related to concepts of discipline will be examined. Content should be suited to parents, teachers and other professionals.

422-3 Introduction to Individual and Group Assessment. The student will be introduced to the basic testing process and the problems related to individual group assessment and will be expected to choose a project for study and investigation. The project must be related in some way to the role and function of the counselor in different settings. The various types of assessment instruments and the manner in which the data derived therefrom can be employed in consultation.

442-3 Introduction to Counseling. The following topics will be covered: purposes of counseling; counselor roles in various settings; approaches to counseling; counseling activities; and application of the above.

481-1 to 12 Seminar. Conducted by staff members and distinguished guest lecturers on perti-

nent topics. Prerequisite: consent of instructor and department.

482-1 to 3 Seminar in Marriage and Family Counseling. Seminar will focus on current clinical and research topics in the field of marriage and family counseling and the general issues that emerge from the marriage and family counseling practicum. Prerequisite: 494a or b, 490, concurrent enrollment in 494e and permission of instructor.

490-3 Introduction to Marriage and Family Counseling. Problems and techniques of premarital, marital, divorce, family, and family crisis counseling. Counseling individuals singly, in family units, and in groups.

491-1 to 6 Special Research Problem—Individual Study. For majors. Formulating, investigating, and reporting on a problem in the area of applied psychology. Prerequisite: advanced standing and consent of department.

493-3 Counseling Skill Development. Through simulated counseling situations and extensive examination of counseling case studies, counseling skills are examined and practiced.

494A-3 School Counseling Practicum. A combined seminar, laboratory, and field experience representing the central focus of the program in school counseling. Enables the student to practice the role of the counselor under close supervision. Graded *S/U* only. Prerequisite: 493, 538; admitted to counseling program.

494B-3 Counseling Practicum. Practice of counseling skills with different populations in varied settings. The professional setting depends on the student's interest area. Individual and group supervision are provided. Use of tape recorder is required. Graded *S/U* only. Prerequisite: 493, 538, admitted to counseling program.

494C-3 Career Group Practicum. Supervision in the creation and maintenance of small group process for the purpose of career development. Application of theoretical models is stressed concurrently with entry level skills in the facilitation of small groups and career counseling. Graded *S/U* only. Prerequisite: 542, 543, admitted to counseling program.

494D-3 to 6 Practicum in School Psychology. Observation and participation in case conferences related to the development of psycho-educational assessment and planning, including teacher and parent consultation, field observations and psychometric applications. Graded *S/U* only. Prerequisite: 533, 546 and consent of instructor.

494E-1 to 6 Practicum in Marriage and Family Counseling. Supervised on-campus counseling experience with couples and families. Supervision will be individual as well as within the context of a therapy team. Graded *S/U* only. Prerequisite: 490, 493, 494a or b, concurrent enrollment in 482 and consent of instructor.

506-4 Inferential Statistics. Covers basic descriptive techniques such as central tendency, measures of variability and graphical presentation of data. In addition, hypothesis testing, analysis of variance, nonparametrics and simple linear prediction will be covered.

507-4 Multiple Regression. The general linear model is presented which allows for hypothesis testing including correlational analysis, analysis of variance and analysis of covariance. Non-linear relationships are presented. Emphasis is placed on testing the stated research hypotheses. Prerequisite: 506.

508-4 Experimental Design in Educational Research. Strategies of designing research studies and the analysis of data from studies using linear models are examined. Emphasis will be placed on internal and external validity and factors that affect power in variance designs including completely randomized designs, Latin square, repeated measures and analysis of covariance with each of the above designs. Prerequisite: 506 or equivalent.

511-3 Instructional Psychology. Critical review of empirical, methodological and theoretical developments in the experimental study of instructional variables as related to student behavior. Prerequisite: Psychology 407 or equivalent is recommended.

512-3 Life-Span Development. Investigates physical, intellectual and social development throughout the life span. Provides information regarding learner characteristics and transitions. Focus is on applications for education, counseling and related services.

513-3 Psychological Trends in Education. Study of literature from B. F. Skinner, Carl Rogers, Erik Erickson, Abraham Maslow, John Dewey, Laurence Cremin, Jerome Bruner, Haim-Ginott, Clark Moustakas, A. S. Neill, John Holt, Charles Silberman, Thomas Gordon, Jean Piaget, Jerome Kagan, Sigmund Freud, etc., to provide the student with knowledge of contemporary psychological trends in education.

515-3 The Psychological Aspects of Instructional Design. Survey of applications of psychology to the design, delivery, and evaluation of instruction for cognitive and effective learning among individuals of differing abilities, including the gifted. Prerequisite: 511.

521-3 Consultation of Schools and Organizational Systems. Surveys the theories and available research on several approaches to consultation with families, schools and other organizational systems. Systemic approaches to consultation are emphasized.

525-3 Cross Cultural Factors Affecting Counseling. Designed to cover special problems of different cultural groups in the counseling process. The influence of culture upon values, beliefs, interests and feelings will be explored as they relate to the rights of the client.

530-3 Appraisal in Counseling. Principles and procedures for gathering appraisal and assessment information about people. Theoretical basis for describing and comparing individuals as well as assessing developmental stages and types will be covered. Particular emphasis will be the validity and reliability of data collection methods, interpretation of this information to individuals and procedures for selection of instruments.

531-3 Principles of Measurement. Intended to provide theoretical principles of measurement which are applicable to both teaching and research. Part of the course will be devoted to current issues in measurement and to practical applications to these theoretical principles. Prerequisite: 506.

532-3 Theories of Intelligence. Nature and assessment of intellectual behavior with empha-

sis on the historical, theoretical, and developmental aspects of intelligence. Special attention is given to test standardization and interpretation of the Stanford-Binet and Wechsler Scales.

533-4 Individual Measurement and Practice. Psycho-educational assessment of individual mental factors with attentions to all aspects of administration, scoring, interpreting and utilizing the results of the Stanford-Binet Intelligence Scale, Wechsler Intelligence Scales for children and the Wechsler Adult Intelligence Scales. Additional charges not to exceed $22 may be assessed for test kit rentals. Prerequisite: consent of instructor.

537-3 Counseling Children: Theory, Techniques, and Practice. The foundations and techniques of individual and group counseling with particular emphasis on theories, operational approaches, tools and related procedures. Prerequisite: 493 or concurrent enrollment.

538-3 Theories of Counseling. This course presents an overview of current theories of counseling with a special focus on the philosophical assumptions, key concepts, techniques and practical applications of each approach. Each of the theories will be examined critically such that the student can begin to formulate an integrated personal theory of counseling.

540-3 Issues and Trends in Counseling. Students will examine current problems, issues, and trends with an emphasis on strategies for solving the problems; clarifying the issues and placing them in proper perspective; examining possible ramification of the trends.

542-3 Career Development Procedures and Practices. For pupil personnel workers, teachers, and administrators to give an orientation to theoretical, economic, and informational aspects of career guidance and to provide experience with using career information in counseling and decision making. Obtaining occupational and information materials for use in guidance and teaching.

543-3 Group Theory and Practice. Focuses on the theory, functions, and techniques of group procedures appropriately applied to decision making, problem solving and resolution of conflict. Major emphasis is given to the dynamics of group behavior, the social-psychological interaction of small groups and their applications to group counseling. Dual emphasis is placed upon interpersonal self-understanding and the familiarity with group procedures. Prerequisite: 493.

546-4 Personality Assessment. Assessment of individual interest patterns, motivations, and perceptual systems with attention to theories and assumptions of selected projective and objective diagnostic tests. Focuses on student related problems in elementary and secondary education. Additional charges not to exceed $22 may be assessed for test kit rentals.

547-3 Implementation of Counseling Services. Designed to furnish the prospective school counselor with knowledge and competency in planning and implementing a complete and integrated pupil personnel program for public schools. During the semester attention will be given to the parameters of such an integrated program, i.e., the function of a philosophical base; the principles which emerge from the philosophical position; the planning strategies best suited to implementing such a program; the actual recommendations for personnel, facilities, and materials; evaluation techniques and strategies; methods of reporting progress to students, school personnel and the community, and an estimate of the per pupil cost. Prerequisite: experience in school counseling work, advanced standing in the counselor education program or equivalency to either of the above.

551-3 The Supervision of Practicum. Doctoral students will: become familiar with models of counseling supervision; practice supervision with master's students; and be acquainted with the research in the counselor training and supervision. Individual and group supervision are provided. Tape recording of supervision sessions is required.

555-3 to 6 (3,3) Seminar in School Psychology. Major professional issues and responsibilities; the school as a social system; ethical considerations; school related agencies and facilities; and professional organizations. Assists the student to prepare the project proposal required for the Specialists' degree. Prerequisite: consent of instructor.

562-6 (3,3) Human Development in Education. Theories and research evidence regarding child development and behavior are investigated. These considerations focus upon implications for research and educational practices. **(a)** Childhood.**(b)** Adolescent.

567-2 to 9 (2 to 6 per semester) Topical Seminar in Educational Psychology. Contemporary topics and problems in the area of educational psychology. Conceptual and empirical activities. Prerequisite: consent of instructor.

568-3 to 12 (3,3,3,3) Topical Seminar in Counseling. A series of advanced seminars in counseling. Sections a through c are to be taken only once. Section d may be repeated as topics vary. Students may take up to 12 credits only for 568. **(a)** Professional Orientation. **(b)** Advanced Theory. **(c)** Conducting Research. **(d)** Selected Topics. Prerequisite: admission to Ph.D. program.

570-3 Humanistic and Behavioral Theories in Education. Doctoral students will critically examine major humanistic and behavioral systems; evaluate the research dealing with the systems; and be able to apply the systems to educational problems.

580-2 to 29 (3,3,3,3,2,3,3,3,2 to 6) Doctoral Seminar in Educational Measurement and Statistics. A series of advanced seminars on statistics and measurement. Sections **a** through **h** may be taken only once each. Section **i** may be repeated as topics vary. **(a)** Advanced regression analysis. **(b)** Factor analysis. **(c)** Multivariate methods. **(d)** Nonparametric methods. **(e)** Evaluation methods. **(f)** Experimental design. **(g)** Advanced measurement theory. **(h)** Computer applications. **(i)** Selected topics.

590-3 Family and Systems. This course provides students with advanced study into the philosophical foundations, theoretical orientations, current research and practical applications of selected approaches to marriage and family counseling/therapy. Prerequisite: 490, 494e, 482, consent of instructor; 494e and 482 may be concurrent.

591-3 to 6 Internship in Counseling. For each three credits a supervised internship of 300 clock hours at a site that offers opportunities for individual counseling and group work. The internship provides an opportunity for the student to perform a variety of activities that a regular employed staff member would be expected to perform. A minimum of 120 hours of client services with clients is expected with on-site and on-campus supervision. Graded *S*/*U* only. Prerequisite: 494a or b and 494c.

592-1 to 8 (1 to 6 per semester) Independent Study and Investigation. For advanced graduate students. Topics of interest to the individual student are studied under supervision of a department staff member. Prerequisite: consent of department.

593-1 to 4 Individual Research. For doctoral students in educational psychology. Formulating, investigating, and reporting of research problems in the area of guidance and educational psychology. Prerequisite: consent of department.

594-1 to 6 Advanced Practicum. Primarily for advanced master's or doctoral students who want to continue developing their counseling skills. Counseling settings are individually arranged, however, they typically follow the 494 practicum experience. Graded *S*/*U* only.

595-1 to 8 Internship in the Psychology of Teaching. Full- or half-time teaching practice in the management of classroom behavior, and the design, delivery, and evaluation of instruction. Interns will be supervised by University staff. Graded *S*/*U* only. Prerequisite: consent of department.

596-15 (5 per semester) Internship in School Psychology. The purpose of the internship is to provide an opportunity to integrate the broad range of skills requisite to a position in school psychology. The internship provides the student with a full-year of full-time supervised experience in a pre-approved setting. Enrollment assumes completion of a master's degree in educational psychology or a related area and all course requirements for the Specialist's degree in educational psychology. Graded *S*/*U* only.

597-12 (6,6) Doctoral Internship in Counseling. Doctoral or post-doctoral level students will be placed in an appropriate, full-time setting to engage in a variety of counseling services. On-campus and off-campus supervision will be provided by doctorate level counselors. Graded *S*/*U* only. Prerequisite: 591 and 594.

599-1 to 6 Thesis. Prerequisite: consent of department.

600-1 to 32 (1 to 16 per semester) Dissertation.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S*/*U* or *DEF* only.

Electrical Engineering

E-mail: eedept@siu.edu

COLLEGE OF ENGINEERING

Botros, Nazeih M., Associate Professor, Ph.D., University of Oklahoma, 1985; 1985. Digital hardware design, digital signal processing, digital instrumentation, neural networks, robot sensing, bioeengineering.

Brown, David P., Professor, Ph.D., Michigan State University, 1961; 1983. Active network theory, circuit and system theory, graph theory, matrix theory, large scale networks and systems, signal processing.

Daneshdoost, Morteza, Associate Professor, Ph.D., Drexel University, 1984; 1984. Electric power systems, linear systems and circuits, control systems optimization techniques, expert systems, computer graphics, MMI.

Dhali, Shirshak K., Professor, Ph.D., Texas Tech University, 1984; 1984. Plasma processing, gaseous electronics, lasers, superconductors.

Etienne-Cummings, Ralph, Assistant Professor, Ph.D., University of Pennsylvania, 1994; 1995. Analog and digital VLSI systems for machine perception, biological and artificial computational sensors, visual motion detection and navigation in hardware, image processing and computer vision.

Feiste, Vernold, K., Associate Professor, Ph.D., University of Missouri-Columbia, 1966; 1966. Electric power systems, electrical machines, electric power distribution, distribution automation.

Galanos, Glafkos D., Professor and *Chair*, Ph.D., University of Manchester, England, 1970; 1987. Power systems, HVDC transmission, power electronics systems.

Goben, Charles A., Professor, Ph.D., Iowa State University, 1965; 1980. Physical electronics, surface and interface properties, nuclear and space radiation effects, integrated optics, fiber optics, optical, infrared and microwave surface wave properties.

Gupta, Lalit, Associate Professor, Ph.D., Southern Methodist University, 1986; 1986. Computer vision, pattern recognition, neural networks, digital signal processing.

Harackiewicz, Frances J., Assistant Professor, Ph.D., University of Massachusetts-Amherst, 1990; 1989. Electromagnetics, antenna theory and design, microwaves, microstrip phased arrays and anisotropic materials.

Hatziadoniu, Constantine, Associate Professor, Ph.D., West Virginia University, 1987; 1987. Power systems, high voltage DC transmission, power electronics, modeling and simulation of non-linear circuits.

Hu, Chia-Lun John, Professor, Ph.D., University of Colorado, 1966; 1981. Microwaves and ap-

plied optics (Fourier optics, holograph, electro-optics), nonlinear and parametric wave systems (phase conjugation), neural networks.

Kagaris, Dimitrios, Assistant Professor, Ph.D., Dartmouth College, 1994; 1995. VLSI Design Automation, digital circuit testing, communication networks.

Manzoul, Mahmoud A., Associate Professor, Ph.D., West Virginia University, 1985; 1985. Fuzzy logic: hardware and applications, digital VLSI systems microprocessors.

Pourboghrat, Farzad, Associate Professor, Ph.D., University of Iowa, 1984; 1984. Systems control, robust and adaptive control, robotics, motion planning and self-organization, neural networks and learning systems.

Rawlings, Charles A., Professor, Ph.D., Southern Illinois University at Carbondale, 1974; 1964. Biomedical engineering, clinical engineering, instrumentation, electronics.

Sayeh, Mohammad R., Associate Professor, Ph.D., Oklahoma State University, 1985; 1986. Neural networks, optical computing, image processing, stochastic modeling, quantum electronics.

Schoen, Alan, Professor, Ph.D., University of Illinois, 1958; 1973. Computational geometry, optimization, tiling theory, theory of polyhedra, elementary number theory, minimal surfaces.

Smith, James G., Professor, Ph.D., *Emeritus*, University of Missouri-Rolla, 1967; 1966.

Viswanathan, Ramanarayanan, Professor, Ph.D., Southern Methodist University, 1983; 1983. Detection and estimation theory, spread spectrum communication, communication theory, signal processing.

Master of Science Degree in Electrical Engineering

Southern Illinois University at Carbondale offers graduate programs of study and research leading to the Master of Science degree in electrical engineering. The Department of Electrical Engineering provides a rich environment for educational and professional advancement in the following areas: digital systems, computer engineering, artificial neural systems, expert systems, pattern recognition, communication systems, information theory, signal processing, robust systems, control systems, robotics, power systems, power electronics, electromagnetics, microwaves, solid state electronics, gaseous electronics, laser electronics, optical computing, and biomedical instrumentation.

The programs of study provide a balance between formal classroom instruction and research, and are tailored to the individual student's academic and professional goals. Graduates of the program enjoy excellent employment opportunities and are highly recruited for positions nationwide in industry, government, and academia.

Admission

The program is open to qualified individuals with a Bachelor of Science in electrical or computer engineering who satisfy the minimum admission requirements set by the Graduate School and the additional requirements of the department. Normally, a GPA of 3.0/4.0 is required by the electrical engineering department. Qualified applicants with Bachelor of Science in another branch of engineering, physics, chemistry, materials science, mathematics, statistics, or computer science may be able to enroll in the program with additional preparation. Admission to the program is granted by the chair of the department upon recommendation by the faculty.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Requirements

The thesis program leading to the Master of Science degree in electrical engineering requires 30 semester hours of credit. Of this total, a minimum of 18 hours must be within the department, a minimum of 21 hours must be at the 500 level, 6 must be for thesis research and 1 must be for EE 580, Seminar. The comprehensive examination refers to all of the candidate's program of study, including the thesis.

The nonthesis program leading to the Master of Science degree in electrical engineering requires 36 semester hours of credit. Of this total, a minimum of 21

hours must be within the department, a minimum of 24 hours must be at the 500 level, 3 must be for EE 592, the research paper, and 1 must be for EE 580, Seminar. The comprehensive examination refers to all of the candidate's program of study, including the research paper.

Assistantships, fellowships, and scholarships are available to the most qualified graduate students.

Further information about the program is available at the Department of Electrical Engineering, Tech. Building B, Room 139, Southern Illinois University at Carbondale, Carbondale, Illinois 62901-6603. The telephone number is 618-536-2364, and the facsimile number is 618-457-7455.

Courses (EE)

Graduate work in the Department of Electrical Engineering is offered toward a concentration for the Master of Science degree in engineering. Safety glasses are required for some of the courses in this department. Four-hundred-level courses in this department may be taken for graduate credit unless otherwise indicated in the course description.

424-4 Microprocessor-Based System. Microprocessor technology. Design, construction and programming of microprocessor-based systems. Lecture and laboratory. Cost of parts for microprocessor-based system, approximately $80. Prerequisite: 427 or concurrent enrollment or consent of instructor.

425-3 Computer-Aided Design of Digital VLSI Systems I. Principles of using CAD tools in designing digital VLSI systems: stick diagrams, design rules and layout diagrams for CMOS technology. Design and implementation of custom VLSI integrated circuits. Projects. Prerequisite: 336 and 345 and 427.

427-4 Structure of Digital Computers. Introduction to structure and design of digital computers: central processing unit, arithmetic unit, memory organization including cache and virtual memory concepts, input and output systems, interrupts, direct memory access, hardwired and microprogrammed control units. Trends in computers. Lecture and laboratory. Prerequisite: 327.

428-4 Digital Hardware Design. Introduction to theoretical concepts and experimental design and construction of digital systems with a microprocessor as system controller. FPGA (Field Programmable Gate Arrays) or similar logic. Lecture and laboratory. Laboratory fee of $10 to help defray cost of consumable items. Prerequisite: 427 or the consent of the instructor.

446-4 Electronic Circuit Design. Analysis and design of electronic circuits, both discrete and integrated. Computer-aided circuit design and analysis. Consideration of wideband, power and tuned amplifiers; switching circuits; feedback; and oscillators. Design projects. Lecture and laboratory. Laboratory fee of $10 to defray cost of consumable items. Prerequisite: 336; 355 or concurrent enrollment; 345.

447-4 Electronic Devices. Physical mechanisms governing the operation of a wide variety of semiconductor devices. Applications of specific devices to illustrate performance characteristics. Device design related to terminal properties. Term paper on design. Lecture and laboratory. Prerequisite: 336 and 345.

448-4 Laser Electronics. Excitation and lasing in various liquid, solid and gas lasers. Techniques and principles in design of laser system. Lecture and laboratory. Prerequisite: 375.

456-3 Control Theory. Fundamentals and techniques for analysis and design of linear, dynamic systems: Laplace transformation, signal-flow graphs, state variable equations, stability conditions, time-domain analysis, frequency-domain analysis, root-locus method and controller design. Prerequisite: 336 and 355.

458-3 Communications Theory. Signal transmission through linear system. Applications of Fourier transform in communications. Sampling theory. Digital coding of analog sources: pulse code, differential pulse code and delta modulations. Data transmission through telephone channels. Amplitude and frequency modulations; signal-to-noise ratio. Prerequisite 336 and 355.

459-3 Digital Control. Analysis and design of linear, discrete-data and digital control systems: z-transformation, state variable equations, stability criteria, time-domain analysis, frequency-domain analysis and digital controller designs. Prerequisite 456 or concurrent enrollment.

462-3 Biomedical Instrumentation. (Same as Physiology 462.) Diagnostic and therapeutic modalities related to engineering. Cardiovascular, neural, sensory and respiratory instrumentation. Prerequisite: consent of instructor.

465-3 Instrumentation. Measurement systems for research and manufacturing. Instrument characteristics. Digital and analog techniques and devices in instrumentation. Transducers. Signal conditioners. Displays. Control devices. Statistics of measurement. Lecture and laboratory. Laboratory fee of $10 to help defray cost of consumable items. Prerequisite: 336 and 345.

468-3 Digital Signal Processing. Discrete-time signals and systems; sampling; z-transform; discrete Fourier transform; fast Fourier transform algorithms; digital filter design; digital filter realizations. Prerequisite: 355, 336.

476-3 Introduction to Broadband Communication Systems. Digital transmission fundamentals. Satellite, microwave, video coding and optical transmission. Prerequisite: 355 and 375.

477-4 Electromagnetic Waves. Transmission-line analysis. Phasor diagrams. Smith chart. General eigen-wave analysis. Guided waves.

Plane waves including optical waves. Oblique reflection and transmission. Non-reciprocal wave systems. Design of electromagnetic systems. Lecture and laboratory. Prerequisite: 375 or consent of the instructor.

478-3 Digital Communication. Application of probability theory and random processes in digital communication systems. Behavior of digital communication systems in noise. Performance comparisons of digital modulation systems. Optimum signal detection. Entropy and channel coding. Prerequisite: 355.

479-3 Electromagnetic and Optical Measurements. Fundamental measurement techniques in electromagnetic wave systems and optical systems. Accurate measurements of microwave properties of materials, laser transmission and reception, modulations and holographs. Prerequisite: 375.

483-4 Power Electronics. Power semiconductor devices. Power converters. Solid-state control of electro-mechanical systems. Lecture and laboratory. Prerequisite: 336, 345 and 385.

484-3 Computer-Aided Circuit Analysis. Network topology. Nodal analysis of linear and nonlinear networks. Standard form of state equations of linear networks. Numerical solution of state equations. Sensitivity calculations. Prerequisite: 336.

486-3 Electric Energy Sources. Principles and utilization of nuclear, solar and fossil-fuel generators. Direct energy-converters. Energy-storage devices. Cost of generating power. Prerequisite: 336 and 385, or consent of instructor.

487-4 Power Systems Analysis. Introduction to analysis of electric power systems. Modeling of power system components. Power system configuration. Per-unit quantities. Network analysis applied to power systems. Load flow. Lecture and laboratory. Prerequisite: 385.

488-3 Power Systems Engineering. Economic operation of power systems; symmetrical components; short circuit analysis; stability. Prerequisite: 487.

489-3 Electric Power Distribution. Design of primary and secondary distribution networks. Load characteristics. Voltage regulation. Metering. System protection. Technical and legal requirements in power distribution. Prerequisite: 487.

493-1 to 3 Special Topics in Electrical Engineering. Lectures on topics of special interest to students in various areas of electrical engineering. Designed to test new and experimental courses in electrical engineering. Prerequisite: consent of instructor.

521-3 Fault-Tolerant Computer Design. Concepts of error detection, location, and correction in digital systems. Codes for error detection and correction. Models and simulations of faults. Design of tests for combinatorial and sequential circuits. Testability. Design of digital systems with testability. Prerequisite: 427.

522-3 VLSI Circuit Testing. Theoretical and practical aspects of production testing of VLSI circuits. Relations between physical defects and fault models. Procedures for generating test inputs. Design modifications for test application and theory of built-in self-test. Prerequisite: 425, 527.

527-3 Switching Circuit Theory. Study of both combinational and sequential switching circuits with emphasis on sequential networks. Threshold logic. Fault detection and location in combinational circuits. Finite-state machines including: minimization, state assignment, races, state-identification. Asynchronous sequential circuits. Linear sequential machines. Prerequisite: 427.

528-3 Advanced Computer Design. Problems in analyzing and designing advanced architectures of advanced computers. Single-instruction, multiple data; multiple-instruction, multiple data machines. Overlap, pipeline, parallel and associative processing. Design of hardware for advanced input/output systems and interconnections among processors and memories. Memory organizations. Methods for evaluating performance of advanced computers. Prerequisite: 427.

529-3 Analog-to-Digital Conversion and Related Devices. Principles, analysis and design of analog-to-digital converters, video converters, voltage-to-frequency (V/F) and frequency-to-voltage (F/V) converters; universal synchronous/asynchronous receiver/transmitter circuits; hardware implementation of: Fourier analysis, infinite/finite impulse response (IIR/FIR) filters; microcoded systems, fixed and floating point accumulators. Two projects. Prerequisite: 428 and 465 or consent of instructor.

536-3 Network Synthesis. Introduction to modern network synthesis. Driving point and transfer functions. Positive real functions, Foster networks, and Cauer networks. Active network elements. Synthesis using active elements. Prerequisite: 445 or consent of instructor.

542-3 Optical Information Processing. Fraunhofer and Fresnel diffraction, the reciprocity theorem, Kirchoff's integral. General aspects of mutual coherence. Basic properties of recording materials. Phase transformation of thin lenses, Fourier transform properties of lenses, coherent optical information processing systems and applications. Introduction to holography and its applications. Prerequisite: 355.

544-3 Radiation Effects in Semiconductor Materials and Devices. A study of the effects of energetic photon, electron, and heavy particle bombardment effects on the properties of semiconductor materials and devices. Theory of material and device properties and operation. Theory of the interaction of radiation with matter. Acquisition and interpretation of experimental data. Prerequisite: consent of instructor.

545-3 Advanced Semiconductor Devices. Physical principles and operational characteristics of solid-state devices. p-n junction devices, Interface and thin-film devices, optoelectronic devices, and bulk-effect devices. Fabrication and circuit model of devices. Prerequisite: 447 or consent of instructor.

546-3 Gaseous Electronics. Basic science of gas discharges and plasmas. Electrode phenomenon and plasma oscillations. Application of gas discharges to dry etching, plasma-assisted chemical vapor deposition, and sputtering. Prerequisite: consent of instructor.

547-3 Solid-State Theory of Electronic Materials. Electronic properties of materials and their application to practical devices. Quantum and statistical mechanics. Semiconductor principles

and devices. Thermo-electric phenomena. Magnetic materials. Quantum electronics and lasers. Prerequisite: consent of instructor.

548-3 Advanced Electronic Devices. A study of techniques in fabricating microelectronic and discrete electronic devices and influences on device design. Thick-film hybrid, thin-film hybrid, monolithic bipolar, and monolithic MOS technologies will be examined. Prerequisite: 447 and Engineering 345.

549-3 Fiber Optics Communication. Fundamentals of step index and graded index fiber waveguides using geometrical optics and Maxwell's equations. Other topics include design criteria, practical coupling techniques, discussion of optical sources and detectors used in light-wave communications, system examples, characterization and measurement techniques. Prerequisite: 447 or 448 or consent of instructor.

551-3 Probability and Random Processes. Axioms of probability, random variables and vectors, joint distributions, correlation, conditional statistics, sequences of random variables, stochastic convergence, central limit theorem, stochastic processes, stationary, ergodicity, spectral analysis, mean square estimation, prediction, filtering. Prerequisite: 478 or Mathematics 483 or consent of instructor.

552-3 Detection Theory. Signal detection in white and colored noise. Random waveforms. Matched filtering. M-ary signal detection, nonparametric detection, sequential hypothesis testing, decision theoretic schemes. Applications in communication and radar signal processing. Prerequisite: 551 or consent of instructor.

553-3 Data Communications Network. Layering. Data link control. Capacity assignment. Time delay. Queuing theory. Routing and flow control. Multiple-access networks. Collision-resolution algorithms. ISDN and metropolitan area networks. Mobile radio. Prerequisite: 551, or equivalent course in probability theory and consent of instructor.

554-3 Spread Spectrum Communication. Concepts of spread spectrum systems, frequency hopping, and direct sequence systems. Anti-jamming performance analysis, synchronization schemes, and systems with forward error correction. Prerequisite: 552 or consent of instructor.

555-3 Information Theory. Introduce the foundations of information theory as related to data compression and transmission of information. Contents: Entropy, block encoding, Huffman code, universal code, capacity, channel coding, Ergodic Theorem, Shannon-McMillan Theorem, rate-distortion theory, quantization, predictive coding, multiterminal information networks. Prerequisite: 551 or Mathematics 480 or consent of instructor.

557-6 (3,3) Complex Systems. Theory, techniques, and philosophy of analyzing and designing complex engineering systems. Methods which maintain generality in dealing with complex combinations of diverse subsystems such as electrical, mechanical, chemical, transport, and biological. Prerequisite: 457 or consent of instructor.

558-3 Digital Image Processing. Basic concepts and techniques for digital image processing. Topics include image fundamentals and representation, image transforms, enhancement, restoration, segmentation, description and classification. Prerequisite: 355 and 468.

559-3 Robust Methods in Communication. Introduce qualitative and quantitative robustness and several robust methods from the areas: estimation theory, detection theory and information theory. Topics: Robustness via continuity, Prohorov metric, breakdown point, influence function, minimax games, robust: parameter estimation, Kalman filter, prediction, hypothesis testing, matched filter, source and channel coding, quantization. Prerequisite: consent of instructor.

562-3 Advanced Biomedical Instrumentation. Scientific and mathematic analysis of instrumentation in diagnostics, therapeutics, and medical research. Purposes of instrumentation related to physiology and pathology. Prerequisite: 462 and 465.

563-3 Estimation Theory and Filtering. Parameter estimation for deterministic systems: least-squares, projection and persistent excitation methods. State and parameter estimation of stochastic systems. Bayesian estimation theory, maximum likelihood and maximum a-posterior estimation. Optimal filtering. The Kalman recursive filter. Nonlinear estimation. Estimation bounds. Applications to communications and control. Prerequisite: 551 or consent of instructor.

564-3 Optimal Control. Optimization techniques for linear and nonlinear systems. Variational calculus. Dynamic programming. Pontryagin's maximum principle. Hamilton-Jacobi theory. Linear regulator. Bang Bang control, minimum time control, singular control. Discrete variational calculus. Combined estimation and control. Computational methods in optimal control. Prerequisite: 456 or consent of instructor.

565-3 Nonlinear Systems Analysis. Nonlinear systems, autonomous systems. Analytical approximation methods. Nonlinear differential equations. Stability of time-varying and nonlinear systems. Liapunov's method, input-output stability. Nonlinear discrete systems. Prerequisite: 456 or consent of instructor.

566-3 Adaptive Control. Adaptive systems and adaptation mechanisms. Error system models, direct and indirect adaptive control methods, self-tuning control, model reference adaptive control, variable structure adaptive control, robust control, learning control. Design techniques and applications. Prerequisite: 456 or consent of instructor.

572-3 Neural Networks. Anatomy and physiology of the cerebral cortex. Feed-forward Networks, Linear Associator, Multilayer Perceptrons. Feedback Networks, Hopfield Networks, ART. Applications to pattern recognition, robotics and speech processing. Optical and electronic implementations. Prerequisite: Mathematics 305 or consent of instructor.

573-3 Field Analysis of Guided Waves. Techniques of boundary value problems, general theories of guided waves, closed wave guides of arbitrary cross sections, open wave guides, Goubau lines and optical wave guides, Green functions applied to wave guide analysis. Prerequisite: 375 or consent of instructor.

574-3 Nonlinear Optics. Coupled-mode-analysis applied to nonlinear wave interactions, harmonic generation, parametric amplification, backward

wave amplifiers, backward oscillation in laser systems, phase conjugation and multiple-wave mixing systems, Pockel and Kerr effects, and electro-optical modulations in optical communication systems. Prerequisite: 375 or consent of instructor.

575-3 Analysis and Design of Neural Networks. Biological and artificial neural networks. Feedback and feed forward systems. Liapunov theories and numerical methods of solving nonlinear differential equations that describe artificial neural networks. Geometric properties in state space. Iterative and noniterative learning schemes in perceptrons. Application and optimal design of artificial neural networks. Prerequisite: Mathematics 305 (Differential Equations) or consent of the instructor.

576-3 Numerical Electromagnetics. Numerical solution of electromagnetic problems by methods that include finite element, integral equation, moment, spectral domain and finite difference. Examination of electromagnetic problems and their solutions in current literature. Prerequisite: 375, ability to program in FORTRAN, and consent of the instructor.

577-3 Antenna Theory and Design. The application of Maxwell's equations to radiating structures. Theory and design of antennas. Prerequisite: 477 or consent of instructor.

580-1 Seminar. Study and formal presentation by student of selected research in electrical engineering. Prerequisite: enrollment in program leading to Master of Science in Electrical Engineering.

582-3 HVDC Transmission. Static power conversion. Harmonics. Control of HVDC systems. Interaction between AC and DC systems. Design considerations. Faults and protection. Prerequisite: 487 or consent of instructor.

583-3 Control of Power Electronics and Drives. Properties of power semiconductor devices. Operating characteristics of AC and DC machines. Converters and cycloconverters principles and operation. Control of the DC motor. Control of the induction motor. Microcomputer application. Prerequisite: 483 or consent of instructor.

584-3 Advanced Computer Aided Circuit Analysis and Design. Network topology, nodal and mesh analysis of networks. Nonlinear networks, harmonics. State space analysis of networks. Sensitivity analysis. Prerequisite: consent of instructor.

586-3 Power Systems Analysis II. Techniques for solving power system problems. Network reduction. Load-flow, short-circuit, and transient-stability studies. Utilization of digital and analog computers. Prerequisite: 487.

587-3 Power System Operation and Control. Advanced mathematical and operations research methods applied to power systems such as economic dispatch, unit commitment, transmission losses, control of generation, power pools and power system security. Prerequisite: 488 or consent of instructor.

588-3 Advanced Electrical Network Theory. Graph theory. Steady-state solution of linear and nonlinear networks. Transfer function techniques. Sensitivity analysis for networks. Prerequisite: 484 or consent of instructor.

589-3 Advanced Electric Power Distribution. Analysis and design of distribution networks. Includes study of load characteristics, substations, feeders, and voltage-control and protection devices. Prerequisite: 489 or consent of instructor.

592-1 to 3 Special Investigations in Electrical Engineering. Individual advanced projects and problems selected by student or instructor. Prerequisite: graduate standing and consent of instructor.

593-1 to 3 Advanced Topics in Electrical Engineering. Lectures on advanced topics of special interest to students in various areas of electrical engineering. This course is designed to offer and test new experimental courses in electrical engineering. Prerequisite: consent of instructor.

599-1 to 6 Thesis.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Engineering

E-mail: shellie@engr.siu.edu

The College of Engineering offers graduate programs leading to the Master of Science degree in civil engineering, electrical engineering, mechanical engineering, mining engineering and manufacturing systems and a Doctor of Philosophy degree in engineering science. To support these graduate programs, the college has well equipped laboratories and computer facilities that are housed in a modern engineering complex. Additional research opportunities and funding are provided through the Coal Research Center, the Materials Technology Center, and the Office of Research Development and Administration.

Doctor of Philosophy in Engineering Science

Faculty in the departments of Civil Engineering, Electrical Engineering, Mechanical Engineering and Energy Processes, and Mining Engineering participate in this program.

The Doctor of Philosophy degree in engineering science is available for three concentrations in four engineering departments. The areas of concentration are as follows:

Areas of Concentration

Mechanics (solids, fluids, geotechnical, and materials). This area provides students with in-depth knowledge in solid mechanics, fluid mechanics, structures, experimental stress analysis, soil and rock mechanics, mine ground control, materials science and materials engineering. A student may select course work from 85 hours of existing 500 level engineering courses. Additional relevant courses may be taken in physics, mathematics, and geology.

Research thrusts include nonlinear response, ultimate strength, and instability behavior of structures under static and dynamic loading conditions; soil mechanics and foundation engineering; finite element modeling of fluid and mechanical systems; mechanics of composite materials and rocks; solid/liquid separation mechanics; field geotechnical studies in underground mines and tunnels; ceramics processing; and surface and interface phenomena.

Electrical Systems (computer engineering, communications and controls, power systems, electromagnetic and solid state electronics). A student interested in advanced study in this area of concentration may select from the following areas: digital systems, computer engineering, artificial neural systems, expert systems, pattern recognition, communication systems, information theory, signal processing, robust systems, control systems, robotics, power systems, power electronics, electromagnetics, microwaves, solid state electronics, gaseous electronics, laser electronics, optical computing and biomedical instrumentation. Approximately 114 semester hours of electrical engineering course work at the 500 level are currently available. An additional group of courses at the 500 level is available in the Departments of Computer Science, Mathematics, and Physics.

Current research in this area includes advanced voltage control systems, power systems, power electronics, neural networks, automatic speech recognition, multivalued and fuzzy logic, computer architecture, fault-tolerant computing and design, circuit and system theory, robust methods in communication, detection and estimation theory, computer vision, advanced control systems, optical computing, microwaves and antennas, plasma processing, and superconductivity.

Fossil Energy (mining, coal conversion, combustion, heat transfer, coal utilization, and pollution control). A student with interests in fossil fuel extraction and utilization and associated environmental problems or thermal sciences may specialize in this area. Typical course work includes mining, processing, combustion, thermodynamics, heat transfer, energy management, and conversion of fossil fuels, as well as environmental problems' abatement associated with fossil fuels. Over 75 semester hours of engineering course work at the 500 level are currently available. Other relevant courses in this area may be taken in physics, chemistry, and geology.

Current areas of research include desulfurization and refining of coal using a multitude of physical and chemical processes; recovery of coal from waste materials; surface-mined land reclamation; systems simulation of coal mining; coal conversion; advanced combustion systems; and combustion residues' disposal and utilization.

Admission and Retention

Regular Admission. Admission to the doctoral program requires a master's degree in engineering or its equivalent. Applicants for the doctoral degree must meet Graduate School admission requirements and be approved by the college graduate studies committee. A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted. In addition to Graduate School and other college requirements, the committee ordinarily requires a grade point average of 3.5 (4 point scale) in graduate level work. Applicants are required to submit GRE scores in support of their application for admission. Except for persons from English-speaking countries, international students are required to have a TOEFL score of 600 or higher for admission.

Accelerated Entry. After at least two semesters in residence in an engineering M.S. program and after completing 18 hours of approved coursework, a student may petition for accelerated entry into the Ph.D. program. Such entry is permitted only in special circumstances to superior students who have exhibited evidence that he/she is prepared to begin the research activities of doctoral-level study. In addition, the student must have an undergraduate grade point average of 3.5 or higher, have GRE scores that are at or above the 45th percentile for the verbal component, 80th percentile of the quantitative component and 80th percentile for the analytical component or a combined total percentage score of 225 or higher and have a TOEFL score of at least 600. In addition, the student must pass a college-administered qualifying examination.

Upon admission to the doctoral program, an interim graduate adviser will be assigned for each student by the college associate dean for academic affairs. This adviser will be responsible with the student for planning the student's course work. The college graduate studies committee will be kept informed of the student's program of study.

Transfer credit will normally be given for some of the graduate level courses suitable to the program upon review by the college graduate studies committee. Proficiency examinations may be authorized by the committee for areas in which questions of transfer credit arise. No credit will be given for industrial experience.

Notwithstanding the number of credits transferred towards the Ph.D. program, every student must complete at least 18 semester hours of approved course work at SIUC prior to taking the candidacy examination.

Retention is governed by the rules of the Graduate School. Students should avoid the accumulation of incomplete grades. No student with more than two incomplete grades can be awarded a graduate assistant appointment, and a student holding a graduate assistant appointment is subject to having the appointment terminated upon acquiring two or more incomplete grades.

Curriculum

A minimum of 32 semester hours of course work and 24 semester hours of dissertation research is required. The course work must be completed in 2 areas; area of concentration and program core. A student must complete a minimum of 15 hours of course work relevant to an area of concentration. The course work in this area will consist of courses in engineering, mathematics, or science. A minimum of 12 hours of electives must be taken in 500-level courses. Of these, a minimum of 9 hours must be taken in 500-level courses in engineering science. The course work in the area of concentration is intended to provide depth in the student's area of research. The program core consists of 17 hours of course work

in systems theory, design of engineering experiments, experimental data acquisition—theory and practice, advanced numerical methods in engineering, advanced engineering analysis (I and II), and engineering science seminar. A dissertation must be completed in the student's areas of research interest with the approval of the dissertation committee.

Program Core

ENGR 501-3 Advanced Engineering Analysis I (prerequisite: MATH 452 or equivalent)
ENGR 502-3 Advanced Engineering Analysis II (prerequisite: ENGR 501-3 or equivalent)
ENGR 520-3 Systems Theory (Prerequisite: MATH 305 or equivalent)
ENGR 530-3 Experimental Data Acquisition—Theory and Practice
ENGR 540-3 Design of Engineering Experiments (prerequisite: MATH 483 or equivalent)
ENGR 545-3 Advanced Numerical Methods in Engineering (prerequisite: EM 351 or EE 421, or MATH 475 or equivalent)
ENGR 580-2 Engineering and Science Seminars

A student must complete at least one of the advanced engineering analysis courses, the engineering science seminars and 4 of the 5 remaining courses. The research tool requirement is satisfied by completing the core courses.

Candidacy

A Ph.D. student must satisfy all Graduate School requirements. Acceptance to Ph.D. candidacy is contingent upon the successful completion of written examinations composed of questions that require substantive knowledge of experimental and theoretical topics in the program core and elective courses. However, questions are not limited to post-M.S. course work. The examinations are designed to evaluate the breadth and depth of the student's education, to encourage the student to organize and integrate knowledge, and to demonstrate the student's competence. The examination in the program core area will be the same for all students taking the examination at any one time. The examination in the area of concentration will vary depending upon the student's area of research. Each student is expected to pass the candidacy examination the first time it is taken. If a student fails to pass any component of the candidacy examination, the college graduate studies committee and the student's candidacy committee will review the student's examination performance, academic progress, and potential for successful completion of the degree. The joint committee will decide which examinations the candidate must retake, or it may decide to terminate the student's enrollment. In any event, the student will not be permitted to take the examination in areas more than twice.

Dissertation

A dissertation must be written under the direction or co-direction of an engineering faculty member and approved by a dissertation committee consisting of a minimum of five members, one of whom must be from outside the College of Engineering. The dissertation adviser must be chosen by the end of the student's first academic year. The dissertation committee must be formed no later than immediately after successful completion of the candidacy examination. The members of this committee need not be the same as the members of the candidacy examination committee.

A dissertation research proposal must be approved by the dissertation committee. Candidates will be required to present an acceptable dissertation describing original research performed with minimal supervision. Dissertation approval is based on a successful oral defense of the dissertation research and ap-

proval of the dissertation. This requires approval of at least 80 percent of the dissertation committee.

Graduation

1. All requirements of the Graduate School must be met.
2. A minimum of 32 hours of doctoral level course work must be completed with a minimum grade point average of 3.25.
3. An acceptable dissertation must be completed within five years after admission to candidacy or the student will be required to repeat the candidacy examinations.

Master of Science Programs

See Civil Engineering, Electrical Engineering, Manufacturing Systems, Mechanical Engineering, or Mining Engineering.

Courses (ENGR)

455-3 Engineering Geology. (See Geology 455.)
501-3 Advanced Engineering Analysis I. Series solution of ordinary differential equations, special functions of engineering analysis, vector analysis, partial differential equations of engineering analysis, the calculus of variations. Prerequisite: Mathematics 305, 450 or consent of instructor.
502-3 Advanced Engineering Analysis II. Origins of eigenvalue problems, operators on inner product spaces, spectral theorem with applications, Fourier series, two-point boundary value problems, special functions of engineering analysis, calculus of Fouriem transforms with applications, generalized functions, discrete transforms, other related transforms. Prerequisite: 501 or consent of instructor.
520-3 Systems Theory. Analysis of continuous and discrete systems, equations of state for systems, z-transform analysis, concepts of stability, controllability, and observability. Prerequisite: Mathematics 450, or equivalent.
530-3 Engineering Data-Acquisition: Theory and Practice. Theory of data-acquisition and measurement systems. Methods of measurement of electrical, mechanical, fluidic, and thermal properties. Criteria for selection of instruments and components of management systems.
540-3 Design of Engineering Experiments. Planning of experiments for laboratory and field studies, similitude and modeling, statistical design of experiments, data analysis, generalization of research findings. Prerequisite: Mathematics 450, 483 or consent of instructor.
545-3 Advanced Numerical Methods in Engineering. Engineering applications of linear and nonlinear equations, unconstrained optimization, linear and nonlinear programming, numerical solutions of ordinary and partial differential equations, eigenvalue problems. Prerequisite: Mathematics 305 and consent of instructor.
550-3 to 9 (Maximum of 3 per topic) Advanced Topics in Mechanics. Topics will be offered in fluid mechanics, solid mechanics, structures, or materials. Advanced topics in fluid mechanics include: **(a)** Turbulence modeling, **(b)** Fluid transients, **(c)** Flow through porous media, and **(d)** Rheology. Advanced topics in solid mechanics include: **(e)** Theory and analysis of shells, **(f)** Theory of elasticity, **(g)** Viscoelasticity. Advanced topics in structure include: **(h)** Structural dynamics, **(i)** Nonlinear structural analysis. Advanced topics in materials include: **(j)** Fracture mechanics and dislocation theory **(k)** Advanced rock mechanics, and **(l)** Numerical methods in geomechanics. Prerequisite: consent of instructor.
551-3 to 9 (Maximum of 3 per topic) Advanced Topics in Fossil Energy. Studies of fossil energy extraction and conversion process with emphasis on scientific principles, analytical methods, and recent technological developments. Topics include: **(a)** Physical coal processing, **(b)** Fine coal beneficiation, **(c)** Coal chemistry and characterization, **(d)** Environmental issues of air and hazardous waste, **(e)** Advanced mining systems, **(f)** Network theory in mine ventilation, **(g)** Operations research applications to mining, **(h)** Solid carbon and coal derived materials. Prerequisite: consent of instructor.
580-1 to 2 Seminar. Study and oral presentation of selected problems in advanced engineering and science. Graded *S*/*U* only. Prerequisite: enrollment in the Ph.D. in engineering science program and consent of instructor.
590-1 to 6 (Maximum of 3 per semester) Special Investigations in Engineering Science. Investigation of individual advanced projects and problems selected by student or instructor. Prerequisite: admission into Ph.D. program in engineering science.
600-1 to 36 (1 to 16 per semester) Doctoral Dissertation. Dissertation research. Hours and credit to be arranged by director of graduate studies. Graded *S*/*U* only. Prerequisite: admission to Ph.D. in engineering science program.
601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S*/*U* or *DEF* only.

English

E-mail: gradengl@siu.edu

COLLEGE OF LIBERAL ARTS

Appleby, Bruce C., Professor, *Emeritus*, Ph.D., University of Iowa, 1967; 1967.

Bennett, Paula, Associate Professor, Ph.D., Columbia University, 1970; 1991.

Blakesley, David, Assistant Professor, Ph.D., University of Southern California, 1989; 1989.

Brown, William J., Associate Professor, Ph.D., Duke University, 1966; 1966.

Brunner, Edward J., Professor, Ph.D., University of Iowa, 1974; 1991.

Cogie, Jane N., Assistant Professor, Ph.D., University of Iowa, 1984; 1991.

Collins, K. K., Associate Professor and *Director of Graduate Studies,* Ph.D., Vanderbilt University, 1976; 1976.

Cruz, Ricardo C., Assistant Professor, M.S., Illinois State University, 1991; 1993.

Dively, Ronda, Assistant Professor, D.A., Illinois State University, 1994; 1994.

Donow, Herbert S., Professor, *Emeritus*, Ph.D., University of Iowa, 1966; 1966.

Fanning, Charles F., Professor, Ph.D., University of Pennsylvania, 1972; 1993.

Fox, Robert Elliot, Associate Professor, Ph.D., SUNY at Buffalo 1976; 1991.

Friend, Jewell, Professor, *Emerita,* Ph.D., Southern Illinois University at Carbondale, 1970; 1967.

Geyh, Paula, Assistant Professor, Ph.D., University of Pennsylvania, 1994; 1995.

Goodin, George V., Associate Professor, Ph.D., University of Illinois, 1962; 1966.

Griffin, Robert P., Associate Professor, *Emeritus,* Ph.D., University of Connecticut, 1965; 1965.

Haruf, Kent A., Associate Professor M.F.A., Iowa University, 1973; 1991.

Hatton, Thomas J., Associate Professor, Ph.D., University of Nebraska, 1966; 1965.

Hawes, Clement, Assistant Professor, Ph.D., Yale University, 1986; 1990.

Hillegas, Mark, Professor, *Emeritus,* Ph.D., Columbia University, 1957; 1965.

Howell, John M., Professor and *Chair*, Ph.D., Tulane University, 1963; 1963.

Humphries, Michael L., Assistant Professor, Ph.D., The Claremont Graduate School, 1990; 1991.

Hurley, Paul J., Professor, *Emeritus,* Ph.D., Duke University, 1962; 1965.

Jones, Rodney G., Professor, M.F.A., University of North Carolina at Greensboro, 1973; 1984.

Joseph, Allison, Assistant Professor, M.F.A., Indiana University, 1992; 1994.

Klaver, Elizabeth T. Assistant Professor, Ph.D., University of California at Riverside, 1990; 1991.

Knopp, Lisa, Assistant Professor, Ph.D., University of Nebraska, 1993; 1995.

Krappe, Edith S., Associate Professor, *Emerita,* Ph.D., University of Pennsylvania, 1953; 1929.

Kvernes, David M., Assistant Professor, *Emeritus*, Ph.D., University of Minnesota, 1967; 1968.

Lamb, Mary A., Professor, Ph.D., Columbia University, 1975; 1975.

Lang, Susan, Assistant Professor, Ph.D., Emory University, 1992; 1995.

Lawson, Richard A., Professor, *Emeritus,* Ph.D., Tulane University, 1966; 1963.

Light, James F., Professor, *Emeritus,* Ph.D., Syracuse University, 1953; 1979.

Little, Judy R., Professor, Ph.D., University of Nebraska, 1969; 1969.

Lordan, E. Beth, Assistant Professor, M.F.A., Cornell University, 1987; 1991.

McClure, Lisa J., Associate Professor, D.A., University of Michigan, 1988; 1988.

McEathron, Scott J., Assistant Professor, Ph.D., Duke University, 1993; 1993.

Morey, Ann-Janine, Professor, Ph.D., University of Southern California, 1979; 1989.

Moss, Sidney P., Professor, *Emeritus,* Ph.D., University of Illinois, 1954; 1964.

Nelms, Ralph G., Assistant Professor, Ph.D., Ohio State University, 1990; 1990.

Partlow, Robert B., Jr., Professor, *Emeritus,* Ph.D., Harvard University, 1955; 1957.

Perillo, Lucia Maria, Associate Professor, M.A., Syracuse University, 1986; 1991.

Person, Leland S., Jr., Professor, Ph.D., University of Indiana, 1977; 1987.

Peterson, Richard F., Professor, Ph.D., Kent State University, 1969; 1969.

Piper, Henry Dan, Professor, *Emeritus,* Ph.D., University of Pennsylvania, 1950; 1962.

Rainbow, R.S., Associate Professor, *Emeritus,* Ph.D., University of Chicago, 1959; 1949.

Riedinger, Anita R., Associate Professor, Ph.D., New York University, 1985; 1989.

Rudnick, Hans H., Professor, Ph.D., University of Freiburg, Germany, 1966; 1966.

Schonhorn, Manuel R., Professor, Ph.D., University of Pennsylvania, 1963; 1968.

Simeone, William E., Professor, *Emeritus,* Ph.D., University of Pennsylvania, 1950; 1950.

Stibitz, E. Earle, Professor, *Emeritus,* Ph.D., University of Michigan, 1951; 1952.

Vieth, David Muench, Professor, *Emeritus,* Ph.D., Yale University, 1953; 1965.

Webb, Howard W., Jr., Professor, *Emeritus,* Ph.D., University of Iowa, 1953; 1956.

Williams, Tony, Associate Professor, Ph.D., University of Manchester, 1973; 1984.

Zimra, Clarisse, Associate Professor, Ph.D., University of Washington, 1974; 1988.

The Department of English offers programs leading to the Master of Arts and the Doctor of Philosophy degrees with a major in English. Students enrolled in a

program leading to the Master of Science in Education degree in secondary education or higher education may take courses in English to satisfy requirements for the teaching specialty. Students enrolled in the Ph.D. degree in education program may take courses in English for the elective portion of the program when permitted by the specific department participating in the degree.

Admission

Students seeking admission to the graduate program in English must first be admitted by the Graduate School before they can be admitted to the Department of English.

Students seeking admission to the M.A. degree program are strongly advised to take the verbal and advanced section of the Graduate Record Examination, especially those students wishing to compete for fellowship support. Those seeking unconditional admission to the Doctor of Philosophy degree program must present a score of the 70th percentile or above in the advanced section of the Graduate Record Examination.

Information about admission and the necessary admission forms to the graduate programs in English may be obtained by calling (618-453-5321) or by writing: Director of Graduate Studies, Department of English, Southern Illinois University at Carbondale, Carbondale, IL 62901-4503.

Transfer Credit

Within limits imposed by the Graduate School, transfer credits will be accepted by the Department of English subject to the following restrictions.

The student must petition the director of graduate studies giving the following information: the number and level of hours being submitted for credit, where and when the work was done, the grade received, and course descriptions and syllabi. As nearly as possible, the course to be transferred should be equated with a course offered by the SIUC Department of English. An appropriate faculty member will recommend whether the transfer credits should be accepted and whether the course satisfies the course distribution requirements of the department. The director of graduate studies will forward a recommendation to the proper authorities.

Retention

In the entire graduate program, the student may accumulate up to 3 hours of work below *B,* so long as a 3.0 M.A. or 3.25 Ph.D. average is maintained. If the student has accumulated more than 3 hours, but fewer than 10 hours, of grades below *B,* these must be replaced by an equal number of hours of *A* or *B* in addition to maintaining the required average. That is, the minimum number of semester hours of course work may be increased from 30 to a maximum of 36. A student who accumulates more than 9 hours of *C* will be dropped from the program.

A student who is granted a deferred or incomplete grade must complete the work by the end of the next term in residence. Exception to this rule will be made only in a very special case and must be made through petition to the graduate studies committee. A student who has accumulated more than 6 hours of such work will not be allowed to register for more course work until the total of deferred work is reduced to not more than 3 semester hours. Deferred or incomplete work will be regarded as finished when a student has submitted all examinations, papers, etc., to the instructor. Deferred or incomplete grades in ENG 595, 600, and 601 are not included in the above regulations.

Course Work

Students may offer work from outside the department (in a single field or in two or more related fields) toward either the Master of Arts or the Ph.D. degree pro-

vided that the work does not interfere with regular requirements of the Department of English and has relevance to their program.

Master of Arts Degree

The Master of Arts degree major in English requires satisfactory completion of 30 semester hours, of which 15 must be earned in 500-level courses at Southern Illinois University at Carbondale. M.A. students may elect to focus their study either on a literature concentration or on the study of literature combined with a concentration in either composition or creative writing.

All students must satisfy the following requirements:

1. Core courses.
   English 502 — 3 hours
   Four literature courses:
   two from Group I, representing two different historical periods; and two from Group II, representing two different historical periods — 12 hours

Group I:
(a) Anglo-Saxon and Medieval English literature
(b) Renaissance and 17th Century English literature
(c) Restoration and 18th Century English literature
(d) 19th Century English literature

Group II:
(a) American literature before 1900
(b) American literature since 1900
(c) Modern British literature
(d) Modern Continental literature

2. *Concentrations*. Satisfactorily complete one of the concentrations detailed below.
3. *Foreign Language*. This requirement may be satisfied by completing, with an average not less than *B,* two years of college-level work in one foreign language or FL 488, a research-tool course, or ENGL 402 plus ENGL 506 (Beowulf), or the equivalent. Equivalent work will be judged on an ad-hoc basis by the director of graduate studies. Otherwise the requirement must be satisfied by passing the ETS examination.
4. *Research paper/thesis*. This requirement may be satisfied either by submitting to the director of graduate studies two copies of a research paper which has received a grade of not less than *B* in a 500-level English course (a composition course for students in that concentration), or by taking English 599 (3 hours) and writing an acceptable thesis.
5. *Final examination*. This requirement must be satisfied as specified below.

Literature Concentration
English 401 or 402 or 403 — 3 hours
Two additional literature courses so that a student has covered three periods in Group I and three periods in Group II — 6 hours
Electives should include a literary criticism/theory course and may include English 599 — 6 hours
Satisfactory completion of a written examination over six historical periods and a reading list. If a student writes a thesis, the examination is oral over the thesis and course work.

Composition Concentration
English 401 — 3 hours
English 501 — 3 hours
English 581 — 3–9 hours (English 581 may be taken two or three times so long as the topic differs from one matriculation to the other. The additional 3 or

6 hours may, with the permission of the director of graduate studies, substitute for 3 or 6 hours of the other course requirements in the composition concentration.)

Either English 490 or 491 — 3 hours

One of the following:

English 403, English 596, or Speech 440 — 3 hours

Satisfactory completion of a written examination over the literature and composition course work and a reading list. If a student writes a thesis, the examination is oral over the thesis and the course work. (Students choosing to write a thesis may substitute English 599 for one of the courses in the composition concentration.) — 3 hours

Creative Writing Concentration

English 592 — 3–9 hours (English 592 may be repeated so long as the topic differs from one matriculation to the other.

English 594 — 3 hours

English 599 — 3 hours

Satisfactory completion of an oral examination over the thesis and the course work.

Doctor of Philosophy Degree

Students must apply formally for admission to the Doctor of Philosophy degree program, including students who have earned a master's degree at SIUC. Admission to the Ph.D. program is decided by the graduate studies committee, which makes its decision according to the following criteria:

1. An M.A. degree in English or its equivalent
2. Appropriate grade-point average (normally, a 3.25 is the acceptable minimum)
3. A satisfactory score on the GRE advanced literature examination (normally the 70th percentile will constitute an acceptable minimum score)

A full-time student holding a master's degree can complete the doctoral program in two years, though most prefer three. Students are considered Ph.D. candidates when they have (1) completed the prescribed course of study, (2) satisfied the research-tool requirements, (3) passed the preliminary examination, and (4) been recommended by the English graduate faculty. The Graduate School recognizes students as Ph.D. candidates after it receives notification that the students have passed the preliminary examinations. Students must be admitted to candidacy at least 6 months prior to the final examination on the dissertation.

Accelerated Entry into the Ph.D. Degree Program

A student enrolled in the M.A. degree program may petition the graduate director after 2 semesters in residence for waiver of the requirement of the M.A. degree as prerequisite for admission to the doctoral program and for direct entry into the Ph.D. in accordance with the following conditions. First, the student must be an exceptional graduate student whose outstanding academic achievements must be supported by a wide range of conclusive evidence including, but not restricted to, the G.P.A., G.R.E. scores, M.A. degree research tool requirement, and evaluative letters from graduate instructors. Second, the student must present one graduate research paper of outstanding quality, or a published article of appropriate quality, or the equivalent for the departmental files. The petition shall be presented to the graduate studies committee for approval. If accelerated entry is granted, the student will proceed toward the Ph.D. degree in accordance with the established rules of the department and the Graduate School. Students admitted into the Ph.D. program under the accelerated entry

option will have to fulfill all M.A. degree requirements as part of the Ph.D. degree work, but will not receive the M.A. degree.

Course of Study

There is no prescribed number of hours for the Ph.D. degree in English. Required courses are as follows:

1. If students have never had courses, graduate or undergraduate, in Chaucer, Shakespeare, and Milton, they are required to remedy this deficiency;
2. Students are required to have taken at least one graduate course in 6 major fields (see M.A. course requirements) and ENG 401 and either ENGL 402 or 403 or the equivalents, and a literary criticism or theory course.
3. In addition, courses may be prescribed by the students' advisory committee to insure that they will have a comprehensive knowledge of a major and 2 related minor areas;
4. Ph.D. students are normally required to complete for credit, with no grade lower than *B,* at least one 500-level course in each minor area of study.

Research Tool Requirements

A student may satisfy the research tool requirement by fulfilling 1 of the 3 options listed below. The choice of option and languages selected must be approved by the student's advisory committee.

1. A reading knowledge, demonstrated by examination, of 2 languages in addition to English. Each must be a language in which there is a substantial literature for research and which is germane to the student's field. Foreign students may specify their native language as one of the foreign languages, provided it is one which meets the above requirements. Foreign students choosing this option will be required to demonstrate fluency in oral and written English.
2. A command of one foreign language and its literature demonstrated by examination or by at least 3 courses numbered 400 or above, or the equivalent, with an average grade not lower than 3.0. Satisfaction of this requirement normally requires the equivalent of 3 years of study at the college level with grades of *B* or better. Foreign students may use their native languages provided those languages are appropriate to the particular fields of major emphasis. Foreign students choosing this option will be required to demonstrate fluency in oral and written English.
3. A reading knowledge of a single foreign language, demonstrated by examination, and a special research technique, completion of ENGL 402 and 506 (Beowulf), or a collateral field of knowledge. A special research technique should represent the acquisition of any special skill that will effectively contribute to the research proficiency of the student (provided that such a skill is not an assumed or traditional part of the major). The collateral field of knowledge is expected to broaden the student's scholarly background by permitting exploration of knowledge in a field related to the major.

To satisfy the research technique or collateral field requirement the student may complete a total of 2 semester courses numbered 400 or above, with an average grade not lower than 3.0.

The department has expanded its Ph.D. program into interdisciplinary studies on a cooperative basis with departments that deal with one pertinent subject matter and which are interested in such interdisciplinary cooperation, e.g., the Departments of Philosophy, Foreign Languages and Literatures, History, Cinema and Photography, Speech, Theater, Sociology, etc. Permission for an interdisciplinary minor must be approved by the student's committee and the graduate studies committee.

Preliminary Examinations. Students on a fellowship or a graduate assistantship will be expected to take preliminary examinations no later than 2 or 3 years, respectively, after receipt of their M.A. degree.

Preliminary examinations covering 3 areas are prepared and graded by the student's advisory committee. A major area examination consists of one 6 hour written exam, the minor areas of two 3 hour written exams. Preliminary examinations will be scheduled only twice in a single term.

At the discretion of the committee, a 2 hour oral examination may follow the decision on the written examinations.

Courses (ENGL)

Students desiring to enroll in 400- or 500-level courses must have been admitted to the M.A. or Ph.D. degree program in English or must have permission of the director of graduate studies in English.

401-3 Modern English Grammars. Survey of the structure of English, with emphasis on phonetics and phonology, morphology, syntax, semantics, pragmatics, grammar instruction, stylistics and language variation. Specifically designed to meet the needs of prospective teachers of composition and language arts at the secondary and college levels. Prerequisite: enrollment in English degree program or consent of department.

402-3 Old English Language and Literature. Introduction to the language, literature and culture of Anglo-Saxon England, with emphasis on Old English heroic and elegaic poetry, exclusive of *Beowulf*. Prerequisite: enrollment in English degree program or consent of department.

403-3 History of the English Language. The development of the language from its Indo-European roots through Early Modern English and selected American dialects. Emphasis on the geographical, historical and cultural causes of linguistic change. Prerequisite: enrollment in English degree program of consent of department.

404-3 Middle English Literature Excluding Chaucer. Selected writing from A.D. 1200-1500 with emphasis on the High Middle Ages. Readings include such works as *The Owl and the Nightingale, Piers Plowman, Pearl, Sir Gawain and the Green Knight*, selections from Arthurian legend, and medieval drama, lyric and ballad. Prerequisite: enrollment in English degree program or consent of department.

405-3 Middle English Literature: Chaucer. Major works, including *Troilus and Criseyde* and selections from *The Canterbury Tales*. Prerequisite: enrollment in English degree program or consent of department.

412-3 English Non-Dramatic Literature: The Renaissance. Topic varies, but usually lyric poets, especially 17th-century metaphysical poets such as Donne, Herbert and Marvell. Prerequisite: enrollment in English degree program or consent of department.

413-3 English Non-Dramatic Literature: The Restoration and Earlier Eighteenth Century. Major works of Dryden, Pope and Swift, and the non-dramatic specials of Behn, Addison and Steele. Prerequisite: enrollment in English degree program or consent of department.

414-3 English Non-Dramatic Literature: The Later Eighteenth Century. Major poets from Thomson to Blake, and major prose writers, with emphasis on Johnson, Boswell and their circle. Prerequisite: enrollment in English degree program or consent of department.

421-3 English Romantic Literature. Wordsworth, Coleridge, Byron, Shelley, Keats and other writers of the era. Prerequisite: enrollment in English degree program or consent of department.

422-3 Victorian Poetry. Tennyson, Browning, Arnold, and other poets in England. Prerequisite: enrollment in English degree program or consent of department.

423-3 Modern British Poetry. Major modernists: Yeats, Eliot, Pound; with selected works of Auden, Owen, Thomas, Heaney and others. Prerequisite: enrollment in English degree program or consent of department.

425-3 Modern Continental Poetry. Representative poems by major 20th century poets of France, Italy, Germany, Spain, Russia, and Greece. Prerequisite: enrollment in English graduate degree program or consent of department.

426-3 American Poetry to 1900. Trends and techniques in American poetry to 1900. Prerequisite: enrollment in English degree program or consent of department.

427-3 American Poetry from 1900 to the Present. The more important poets since 1900.

433-3 Religion and Literature. Introduces students to the study of religious meaning as it is found in literature. Prerequisite: enrollment in English degree program or consent of department.

436-3 Major American Writers. Significant writers from the Puritans to the present. May be repeated only if topic varies and with consent of the department. Prerequisite: enrollment in English degree program or consent of department.

437-3 American Literature to 1800. Representative works and authors from the period of exploration and settlement to the Federal period. Prerequisite: enrollment in English degree program or consent of department.

445-3 Cultural Backgrounds of Western Literature. A study of ancient Greek and Roman literature, Dante's *Divine Comedy*, and Goethe's *Faust*, as to literary type and historical influence on later Western writers. Prerequisite: enrollment in English graduate degree program or consent of department.

446-3 Caribbean Literature. Representative texts from drama, poetry and fiction that have shaped black diaspora aesthetics in the Caribbean, with special reference to black literature of

the North American continent. Prerequisite: enrollment in English graduate degree program or consent of department.

451-3 Eighteenth Century English Fiction. The novel from Defoe to Jane Austen, including works by Fielding, Richardson and others. Prerequisite: enrollment in English degree program or consent of department.

452-3 Nineteenth Century English Fiction. The Victorian novel from 1830, including works by the Brontës, Dickens, George Eliot, Thackeray and others. Prerequisite: enrollment in English degree program or consent of the department.

453-3 Modern British Fiction. Major writers (including Conrad, Joyce, Woolf, and Lawrence) with selected fiction from mid-century and later. Prerequisite: enrollment in English degree program or consent of department.

455-3 Modern Continental Fiction. Selected major works of European authors such as Mann, Silone, Camus, Kafka, Malraux, Hesse. Prerequisite: enrollment in English graduate degree program or consent of department.

458-3 American Fiction to 1900. Trends and techniques in the American novel and short story. Prerequisite: enrollment in English degree program or consent of department.

459A-3 American Prose from 1900 to Mid-century: The Modern Age. Representative narratives from the turn of the century to the post-World War II period. Prerequisite: enrollment in English degree program or consent of the department.

459B-3 American Prose from Mid-century to the Present: The Postmodern Age. Representative narratives from the post-World War II period to the present. Prerequisite: enrollment in English degree program or consent of department.

460-3 Elizabethan and Jacobean Drama. Elizabethan drama excluding Shakespeare: such Elizabethan playwrights as Greene, Peele, Marlowe, Heywood, Dekker; and Jacobean drama: such Jacobean and Caroline playwrights as Jonson, Webster, Marston, Middleton, Beaumont and Fletcher, Massinger, Ford, Shirley. Prerequisite: enrollment in English graduate degree program or consent of department.

462-3 English Restoration and 18th Century Drama. After 1660, representative types of plays from Dryden to Sheridan. Prerequisite: enrollment in English graduate degree program or consent of department.

464-3 Modern British Drama. Major writers (including Shaw and Synge), with selected works of later dramatists such as Churchill and Bond. Prerequisite: enrollment in English degree program or consent of department.

465-3 Modern Continental Drama. The continental drama of Europe since 1870; representative plays of Scandinavia, Russia, Germany, France, Italy, Spain and Portugal. Prerequisite: enrollment in English graduate degree program or consent of department.

468-3 American Drama. The rise of drama, with emphasis on the 20th century. Prerequisite: enrollment in English degree program or consent of department.

471-3 Shakespeare: The Early Plays, Histories, and Comedies. Such plays as *A Midsummer Night's Dream, The Merchant of Venice, The Tamng of the Shrew, Henry IV Part I, Henry V,* and *Much Ado about Nothing.* Prerequisite: enrollment in English degree program or consent of department.

472-3 Shakespeare: The Major Tragedies, Dark Comedies and Romances. Such plays as *Hamlet, Macbeth, Othello, King Lear, Measure for Measure, The Winter's Tale* and *The Tempest.* Prerequisite: enrollment in English degree program or consent of department.

473-3 Milton. A reading of a selection of the minor poems, of *Paradise Lost, Paradise Regained, Samson Agonistes,* and the major treatises. Prerequisite: enrollment in English graduate degree program or consent of department.

481-3 Young Adult Literature in a Multicultural Society. Introduction to the evaluation of literary materials for junior and senior high school, with emphasis on critical approaches and the multicultural features of schools and society. Prerequisite: enrollment in English degree program or consent of department.

485-3 Problems in Teaching Composition, Language, Literature and Reading in High School. Prerequisite: enrollment in English graduate degree program or consent of department

490-3 Expository Writing. Advanced composition with emphasis on a variety of rhetorical strategies. Prerequisite: English 290, 390, or equivalent, enrollment in English graduate degree program, or consent of department.

491-3 Technical Writing. Introduction to technical communication; open to entire university community. Training also provided for students interested in teaching technical writing. Prerequisite: English 290, 291, 390, 391, or equivalent.

492-3 to 9 Creative Writing Seminar. Topic varies among the writing of poetry, fiction or literary nonfiction prose. A directed written project will be submitted at the end of the semester in fiction, poetry or literary nonfiction prose. A collection of short stories or poems, a novel or nonfiction work of what instructors consider to be acceptable quality will fulfill the seminar requirement. Prerequisite: consent of instructor.

493-3 to 9 (3 per topic) Special Topics in Literature and Language. Topics vary and are announced in advance; both students and faculty suggest ideas. May be repeated as the topic varies. Prerequisite: enrollment in English degree program or consent of department.

494-3 Literary Theory Applied to Film. Introduction to contemporary literary theory with emphasis on the literary features of cinema and their interpretation. A $10 screening fee is required. Prerequisite: enrollment in English degree program or consent of department.

495-3 A Survey of Literary Criticism. Introduction to the history of criticism and major recent schools of literary criticism and theory. Prerequisite: enrollment in English degree program or consent of department.

498-3 to 9 Internships. For English majors only. Student may take up to nine semester hours to receive credit for internships with SIU Press, Special Collections, University Museum, Coal Center and other academic units. Prerequisite: written approval from department and academic unit.

499-1 to 6 (1 to 3, 1 to 3) Readings in Literature and Language. For English majors only. Prior written departmental approval required. May be repeated as the topic varies, up to the maximum of six semester hours. Prerequisite: enrollment in English graduate degree program or consent of department.

501-3 Research in Composition. Seminar in qualitative and quantitative research methods in composition and its teaching. Prerequisite: enrollment in English graduate degree program or consent of department.

502-3 Introduction to Graduate Study and Teaching College Composition. An introduction to research methods and materials which includes a survey of critical approaches to the study of English and American literature, combined with an introduction to methods and materials related to the teaching of basic compositional skills on the college level. This course is required of all graduate assistants who have no previous college teaching experience or no familiarity with basic research techniques. Prerequisite: enrollment in English graduate degree program or consent of department.

506-3 to 12 Anglo-Saxon and Medieval Studies. Seminars on various topics from Old and Middle English literature. May be repeated only with different topics and the consent of the department. Prerequisite: enrollment in English graduate degree program or consent of department.

510-3 to 12 Renaissance Studies. Seminars in varying topics concerned with the literature of the 16th and 17th centuries and the drama of Shakespeare. May be repeated only with different topics and the consent of the department. Prerequisite: enrollment in English graduate degree program or consent of department.

516-3 to 12 Restoration and 18th Century Studies. Seminars in varying topics concerning the literature of the period. May be repeated only with different topics and the consent of the department. Prerequisite: enrollment in English graduate degree program or consent of department.

530-3 to 12 19th Century English Literature. Seminars in various topics concerning the literature of the Romantic and Victorian periods. May be repeated only with different topics and the consent of the department.

533-3 to 12 American Literature Before 1900. Seminars in varying topics. May be repeated only with different topics and the consent of the department. Prerequisite: enrollment in English graduate degree program or consent of department.

539-3 to 12 American Literature After 1900. Seminars in varying topics. May be repeated only with different topics and the consent of the department. Prerequisite: enrollment in English graduate degree program or consent of department.

550-3 to 12 Modern British Literature. Seminars in varying topics concerning Modern British literature. May be repeated only with different topics and the consent of the department. Prerequisite: enrollment in English graduate degree program or consent of department

579-3 to 12 (3 per topic) Studies in Modern Literature. May be repeated only if the topic varies, and with consent of department. Prerequisite: enrollment in English graduate degree program or consent of department.

581-3 to 9 (3 per topic) Problems in Teaching English. May be repeated only if the topic varies, and with consent of department. Prerequisite: enrollment in English graduate degree program or consent of department.

589-3 to 12 Readings in Literature and Language. For English graduate students only. Prior written departmental approval required. May be repeated as the topic varies. Prerequisite: enrollment in English graduate degree program or consent of department.

591-3 to 9 Seminar in Literary Nonfiction. Critical reading and analysis of one of the major forms of literary nonfiction (biography, autobiography, popular science, the essay, literary journalism, and travel narratives). May be repeated only with different topics and the consent of the department. Prerequisite: enrollment in English graduate degree program or consent of department.

592-3 to 9 Creative Writing Seminar. Advanced workshops offered in both fiction and poetry. Class content derives primarily from student's work. Genre announced in advance. Prerequisite: enrollment in English graduate degree program or consent of department.

593-3 to 12 Special Topics. Seminars in varying topics concerning language and literature. May be repeated only with different topics and the consent of the department. Prerequisite: enrollment in English graduate degree program or consent of department.

594-3 Contemporary Literature Seminar. Advanced seminars offered in both contemporary poetry and contemporary fiction. Taught by creative writers and designed for students concentrating in creative writing. Prerequisite: enrollment in English graduate degree program or consent of department.

595-1 to 9 Independent Readings. Preparatory for preliminary examinations for doctoral students in English. May be taken once only, grade of *S/U,* according to the result of the preliminary examination. Prerequisite: twenty-four classroom credit hours beyond the M.A., exclusive of audits and readings, and enrollment in English graduate degree program or consent of department.

596-3 to 12 Language Studies. Seminars in varying topics concerning rhetoric, grammar and literacy. May be repeated only with different topics and the consent of the department. Prerequisite: enrollment in English graduate degree program or consent of department.

597-3 Composition Theory. Historical and analytical approaches to theories of discourse, theories of composing and theories of pedagogy. Prerequisite: 502 or equivalent and enrollment in graduate degree program or consent of department.

598-3 to 12 Studies in Issues of Literary Theory. Seminars on various issues literary theory. May be repeated only with different topics and the consent of the department, enrollment in English graduate degree program or consent of department.

599-3 Thesis. For Masters' students who elect to write a thesis in lieu of one three hour graduate course. Prerequisite: successful completion of 15 hours of graduate work on the master's degree and consent of the thesis director.
600-1 to 36 (1 to 16 per semester) Dissertation.
601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S / U* or *DEF* only.

Finance

(See Business Administration.)

Food and Nutrition

(See Animal Science for program description.)

Foreign Languages and Literatures

E-mail: DFLLl@siu.edu

COLLEGE OF LIBERAL ARTS

Bender, Lionel, Professor, Ph.D., University of Texas at Austin, 1968; 1971.
Betz, Frederick, Professor, Ph.D., Indiana University, 1973; 1978.
Bork, Albert W., Professor, *Emeritus,* Doctor en Letras, National University of Mexico, 1944; 1958.
Cáceres, Alejandro, Assistant Professor, Ph.D., Indiana University, 1992; 1994.
Davis, J. Cary, Professor, *Emeritus,* Ph.D., University of Chicago, 1936; 1930.
Edwards, Robert W., Assistant Professor, Ph.D., University of Texas, 1988; 1990.
Gobert, David L., Professor, Ph.D., University of Iowa, 1960; 1965.
Hammond, Charles E., Associate Professor, Ph.D., Columbia University, 1986; 1987.
Hartman, Steven Lee, Associate Professor, Ph.D., University of Wisconsin, 1971; 1971.
Hartwig, Hellmut A., Professor, *Emeritus,* Ph.D., University of Illinois, 1943; 1948.
Keller, Thomas, Associate Professor and *Chair*, Ph.D., University of Colorado, 1975; 1975.
Kilker, James, Professor, *Emeritus,* Ph.D., University of Missouri-Columbia, 1961; 1967.
Kim, Alan, Associate Professor, Ph.D., University of Southern California, 1985; 1988.
Liedloff, Helmut, Professor, *Emeritus,* Ph.D., Phillips University, Germany, 1956; 1959.
Lowe-Dupas, Hélène, Assistant Professor, Ph.D., Ohio State University, 1993; 1994.
Meinhardt, Warren, Associate Professor, Ph.D., University of California, Berkeley, 1965; 1969.
O'Brien, Joan, Professor, Ph.D., Fordham University, 1961; 1969.
O'Bryhim, Shawn, Associate Professor, Ph.D., University of Texas at Austin, 1991; 1996.
Orechwa, Olga, Associate Professor, *Emerita,* Ph.D., Universitas Ucrainiensis Libera, Munich, Germany, 1967; 1970.
Sanjabi, Maryam, Assistant Professor, University of Paris-Sorbonne, 1992; 1989.
Speck, Charles, Assistant Professor, Laurea in Diritto Canonico, Pontifical Lateran University, Italy, 1963; 1970.
Thibeault, Thomas, Assistant Professor, Universitat Salzburg, 1989; 1989.
Timpe, Eugene F., Professor, Ph.D., University of Southern California, 1960; 1972.
Ulner, Arnold R., Assistant Professor, Ph.D., University of Missouri, 1972; 1970.
Williams, Frederick, Associate Professor, Ph.D., Cornell, 1976; 1977.
Winston-Allen, C. Anne, Assistant Professor, Ph.D., University of Kansas, 1979; 1991.
Winters, Margaret, Professor, Ph.D., University of Pennsylvania, 1975; 1977.
Woodbridge, Hensley, Professor, *Emeritus*, Ph.D., University of Illinois, 1950; 1965.

The Department of Foreign Languages and Literatures offers graduate programs leading to the Master of Arts degree in foreign languages and literatures with concentrations in French or Spanish. A student whose degree program makes provision for a graduate minor may follow a program of study leading to a minor in these same subjects as well as in Russian.

Students may complete requirements for a teaching specialty in French, German, Russian, or Spanish for the Master of Science in Education degree majoring in secondary education or in higher education.

Students seeking the Master of Arts degree will be governed by the policies of the Graduate School with respect to admission, minimum credit hours, scholastic attainment, residence, and maximum time limits for completion of the program.

Admission

In addition to meeting requirements of the Graduate School, the applicant for admission to the programs in the Department of Foreign Languages and Literatures should hold a bachelor's degree with a major or at least 18 semester hours (27 quarter hours) of courses on the junior-senior level in French or Spanish. Students who meet requirements for admission to the Graduate School but do not meet departmental requirements may register as unclassified students for specific graduate courses in the department only with consent of the instructor and authorization from the head of their language section.

Requirements for Master of Arts

Students who have been admitted to graduate study will plan their course of study in periodic consultations with their graduate advisers. During such consultations, each student will decide upon either a thesis or a non-thesis (i.e., research paper) program. This program should be made before the end of the second semester of study. Students choosing to write a thesis will register for the thesis course (599), which provides from one to six semester hours of credit. Regardless of whether the thesis or non-thesis program is chosen, every candidate must pass a comprehensive written examination and a final oral examination at a time specified by the language section. For the student writing a thesis, this final oral examination is primarily a defense of the thesis.

A minimum of 30 semester hours are required, of which at least 15 must be in 500-level courses. All students must take FL 566-3, Bibliography and Research Techniques, which should be taken as early as possible during the course of studies; also required are the linguistics structure (411) or history (412) of the language concentration. FL 436-3, Methods in Teaching Foreign Language, is recommended for all teaching assistants and those who intend to make teaching their career. With approval of the adviser, graduate courses outside the language in which the degree is being taken may be counted towards the total unit requirement. Beyond such requirements as are specified for each language, students must demonstrate proficiency in a second foreign language by passing an exam in that language or by successfully completing approved course work in that language.

FRENCH

The program of study leading to the Master of Arts degree with a concentration in French is planned to give a balanced overview in the areas of French language, literature, and civilization, and to allow a high degree of flexibility in the elaboration of the student's total program in French. Required courses are:
FL 566 Bibliography and Research Techniques
FR 411-3 Linguistic Structure of French
or
FR 412-4 History of the French Language
FR 470-3 Backgrounds of French Civilization
FR 510-3 Masterpieces of French Literature
FR 525-3 Advanced Language Skills.

The student will consult with the graduate adviser in determining a suitable program beyond those requirements.

Thesis or Research Paper (option 1 or 2 is required).

Option 1. If writing a thesis either (a) 6 hours of FR 599 or (b) 3 hours of FR 599 plus 3 hours of an elective French graduate course.

Option 2. If writing a research paper either (a) 4 hours of elective French graduate course work, plus 2 hours of FL 506 or (b) 6 hours of elective French graduate course work.

SPANISH

The program of study leading to the Master of Arts degree with a major in Spanish is designed to survey at least 2 of the following: Hispanic linguistics, Peninsular literature, and Spanish American literature. Requirements are:
FL 566-3 Bibliography and Research Techniques
SPAN 411-3 Linguistic Structure of Spanish
or
SPAN 412-3 History of the Spanish Language
SPAN 410-3 Advanced Language Study.

The student will consult with the graduate adviser in determining a suitable program beyond those requirements.

Thesis or research paper (option 1 or 2 is required). SPAN 599 or (b) Option 1: If writing a thesis, either (a) 6 hours of 3 hours of SPAN 599 plus 3 hours of an elective Spanish graduate course. Option 2: If writing a research paper, either (a) 4 hours of elective Spanish graduate course work, plus 2 hours of FL 509 or (b) 6 hours of elective Spanish graduate course work.

Requirements for Master of Science in Education

The Master of Science in Education degree majoring in secondary education with a teaching emphasis in French, German, Russian, or Spanish requires a minimum of 30 hours, at least 13–17 semester hours in the subject matter area and 13–17 semester hours in secondary education. The Master of Science in Education degree major in higher education with a teaching emphasis in a foreign language requires at least 20 semester hours in the subject matter and 12 semester hours in higher education.

Further details as to specific requirements will be found in the respective program descriptions. For either degree, if the teaching emphasis is Russian, Russian 415 is required.

Courses (FL)

400-3 to 12 Variable Elementary Languages. Elementary conversational skills in a language not otherwise taught in this department. Since emphasis is on oral skills only, course does not fulfill any college or departmental language requirement. Language taught varies from year to year. Must be taken in **a, b** sequence.

436-3 Methods in Teaching 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 foreign languages in secondary schools. Prerequisite: concurrent or prior enrollment in 300-level course in French, German, Latin, Russian or Spanish.

506-1 to 4 Research Problems—French. Individual research on a literary or linguistic problem involving original investigation in areas not covered by seminars or thesis. Two hours may be used for a research paper for non-thesis programs.

507-1 to 4 Research Problems—German. Individual research on a literary or linguistic problem involving original investigation in areas not covered by seminars or thesis. Two hours may be used for a research paper for non-thesis programs.

508-1 to 4 Research Problems—Russian. Individual research on a literary or linguistic problem involving original investigation in areas not covered by seminars or thesis. Two hours may be used for a research paper for non-thesis programs.

509-1 to 4 Research Problems—Spanish. Individual research on a literary or linguistic problem involving original investigation in areas not covered by seminars or thesis. Two hours may be used for a research paper for non-thesis programs.

535-2 Critical Theory. Theories of literature and theories underlying literary criticism, taken logically rather than chronologically. Extensive reading, in the original language whenever possible, of both primary statements and exemplificative documents.

566-3 Bibliography and Research Techniques. Introduction to the use of the chief reference works in the humanities and social sciences as they pertain to foreign languages in general. Also, extensive work with bibliography and research methods in French, German, or Spanish.

568-2 Bibliography and Research Techniques—Russian. Bibliography and research methods in the target language and its culture. Introduction to the use of the chief reference works in the humanities and social sciences as they deal with areas in which the target language is spoken.

Chinese (CHIN)

No graduate program in Chinese is offered through the Eastern Languages and Civilization section. Four-hundred-level courses in this section may be taken for graduate credit unless otherwise indicated in the course description.

410-3 The Linguistic Structure of Chinese. (Same as Linguistics 411.) Phonology and syntax of Mandarin Chinese. Principal phonological features of major Chinese dialects. Special emphasis on the contrastive analysis between Mandarin Chinese and English. Theoretical implications of Chinese syntax for current linguistic theories. Prerequisite: one year of Chinese or Linguistics 401.

435-3 Business Chinese. An overview of China's business through reading in Chinese dealing with the major aspects of China's foreign trade ranging from broad principles and policies to concrete details of operation and procedure. Enhancement of conversational skills for business contexts. Prerequisite: 320 or equivalent.

490-1 to 6 Advanced Independent Study in Chinese. Directed individual study of some question, author, or theme of significance in the field of Chinese literature, language or culture. Prerequisite: consent of instructor.

Classics (CLAS)

No graduate program is offered through the classics section. Four-hundred-level courses in this section may be taken for graduate credit unless otherwise indicated in the course description.

Courses numbered 388 and 488 are designed to help graduate students prepare for proficiency examination required by certain departments as evidence of competency in Latin. No prerequisite is stipulated. Students must register for these courses and are advised to take them as part of, not in addition to, their graduate program. Students will not receive graduate credit for courses numbered below 400.

388-3 Latin as a Research Tool. Intensive study of Latin as basis for development of reading knowledge. Covers grammar and vocabulary portion of first-year sequence in basic skills. Intended for graduate students. Undergraduates who wish to enroll are encouraged to consult with course instructor.

405-2 Greek Literature in Translation. (Same as Women's Studies 463.) Reading and analysis of selected classical Greek author(s), genre(s), theme(s), such as the role of woman, the social life of the ancient Greeks, etc. Students taking the course for graduate credit will do a critical study of one aspect. No knowledge of Greek or Latin is required.

406-2 Latin Literature in Translation. Reading and analysis of selected Roman author(s), genre(s), theme(s). Students taking the course for graduate credit will do a critical study of one aspect. No knowledge of Greek or Latin is required.

415-1 to 9 (1 to 3 per topic) Readings from Greek Authors in Greek. Reading and interpretation of works of Greek literature at an advanced level. Students taking the course for graduate credit will do a critical study of one aspect. This course satisfies the COLA Writing Across the Curriculum requirement. Prerequisite: two semesters of 300-level Greek or consent of instructor.

416-1 to 9 (1 to 3 per topic) Readings from Latin Authors in Latin. Reading and interpretation of works of Latin literature at an advanced level. Students taking the course for graduate credit will do a critical study of one aspect. This course satisfies the COLA Writing Across the Curriculum requirement. Prerequisite: two semesters of 300-level Latin or consent of instructor.

488-3 Advanced Latin as a Research Tool. Concentrated and individualized training in the recognition and interpretation of basic and complex grammatical structures and in the systematic acquisition of the principles of word formation for vocabulary expansion. Techniques for intensive and extensive readings and for translation of unedited texts in the student's own field of study. Intended for graduate students. Undergraduates who wish to enroll are encouraged to consult with course instructor. With consent of student's own department, and with a grade of *B* or *A*, satisfies graduate program requirements for foreign languages as research tool. Prerequisite: 388 or one year of Latin or equivalent.

French (FR)

Courses numbered 388 and 488 are designed to help graduate students prepare for proficiency examination required by certain departments as evidence of competency in French. No prerequisite stipulated. Students must register for these courses and are advised to take them as part of, not in addition to, their graduate program. Students will not receive graduate credit for courses numbered below 400.

388-3 French as a Research Tool. Intensive study of Latin as basis for development of reading knowledge. Covers grammar and vocabulary portion of first-year sequence in basic skills. Intended for graduate students. Undergraduates who wish to enroll are encouraged to consult with course instructor.

410-3 Advanced Language Study. Designed to improve language skills beyond the level of 320. Selected grammar review and intensive practice in effective use of the written and spoken language through translations and free compositions. This course satisfies the COLA Writing Across the Curriculum requirement. Prerequisite 320b.

411-3 Linguistic Structure of French. (Same as Linguistics 413.) Study of the phonology, morphology, and syntax of modern spoken and written French, stressing interference areas for English speakers in learning French. Prerequisite: 320b and 321 or equivalent.

412-4 History of the French Language. A survey of the phonological and morphological changes from Latin through Vulgar Latin and Old French to Modern French; study of an original Old French text, such as the *Chanson de Roland* or a romance of Chretien de Troyes. Knowledge of Latin not required.

414-3 Translation Techniques. Practice in oral translation — simultaneous and subsequent; written translation practice, from and into French, of materials from sources varying from technical, commercial, political, to general interest. Advanced grammar and syntax review as they relate to translation, with practice through exercises and translation. Prerequisite: 320a or equivalent.

415-3 Literary Stylistics. A study of the aesthetics and theory of French Literary expression. Disciplined stylistic analyses of excerpts from representative works of great French authors. Appreciation of distinctive qualities of each writer's genius. Consideration is given to various stylistic methods.

419-3 Romance Philology. (Same as Spanish 419.) Historical and comparative study of the major Romance languages: their phonology, morphology, and syntax.

420-3 Medieval and Renaissance Literature. Study of the origins of French literature emphasizing the *Chanson de Roland, Tristan,* other courtly romances, and the lyric poetry of Villon, culminating with an examination of the development of the humanistic ideas and ideals of the French Renaissance.

430-4 Baroque and Classicism. An in-depth examination of artistic and social writings of baroque and classical literary figures such as Corneille, Racine, Moliere, La Fontaine, Descartes, Pascal, Mme de LaFayette, La Bruyere, and La Rochefoucauld. Discussion, reports, papers.

435-3 Business French II. Detailed treatment of postal facilities and services, types of banks and their operations, transport of goods, import-export, bills of exchange, billing and shipping, insurance, accounting and the stock market. These topics will be the subject of translations and of commercial correspondence. Prerequisite: 320a or equivalent, may be taken independently of 335.

440-3 Literature of the Enlightenment. Study and discussion of the novel, theater, and philosophic writing of 18th century France as literature and as expressions of the Enlightenment. Major attention given to Montesquieu, Voltaire, Diderot, and Rousseau.

450-4 Literary Movements of the 19th Century. Romanticism, Realism, and Naturalism in the novel and theater followed by an examination of the reaction to these movements and of the influence of symbolism.

460-4 Studies in Literature of the 20th Century. Examination of the major themes, forms, techniques, and style of novelists from Gide and Proust to Robbe-Grillet and dramatists from Giraudoux to Ionesco and Beckett.

470-4 French Culture and Civilization. Study of contemporary France: values, attitudes, beliefs, and instructions. French civilization (history, literature, and the arts) will be treated mainly as a means of better understanding present day France. Offered in French. Prerequisite: 320a or permission of instructor.

475-3 to 6 Travel-Study in France. Travel-study project, planned under supervision of French faculty and carried out in France. Amount of credit depending on scope of study. Prerequisite: 320a or equivalent.

476-3 to 6 (3, 3) French Civilization Outside of France. Encompasses a number of individual courses, each of which focuses on one of the many areas of the world in which France has played a significant role. Manifestations of French culture and civilization, past and present, are studied and evaluated within the framework of an evolving local and global historic context.

488-3 Advanced French as a Research Tool. Concentrated and individualized training in the recognition and interpretation of basic and complex grammatical structures and in the systematic acquisition of the principles of word formation for vocabulary expansion. Techniques for intensive and extensive readings and for translation of unedited texts in the student's own field of study. Intended for graduate students. With consent of student's department, and with a grade of B or *A*, satisfies graduate program requirement for foreign languages as research tool. Prerequisite: 388 or one year of French, or equivalent.

490-1 to 6 Advanced Independent Study in French. Individual exploration of some question, author, or theme of significance within the field of French literature, language or culture. Prerequisite: 320a, 321 and consent of instructor.

501-2 to 6 Studies on a Selected Topic or Author. Intensive study of one author or topic.

510-3 Masterpieces of French Literature. Appreciation and analysis of selected masterpieces in French literature with special attention given to required authors and works from the Master of Arts reading list.

520-1 to 3 Literature of the Middle Ages and Renaissance. A study of selected authors, literary movements, and expressions of the political realities and the philosophical currents of the Middle Ages and Renaissance.

525-3 Descriptive Stylistics. Consideration of levels of linguistic expression in contemporary French through the study of theoretical works and representative texts. Practice in composition and translation.

536-1 Teaching French at the College Level. Prepares graduate students in French for teaching at the college level. Required of all teaching assistants in French. May not be counted to satisfy secondary certification requirements.

539-1 to 3 Literature of the 17th Century. Collaborative research in selected works of neoclassical French authors. Lectures, reports, discussions, paper.

540-1 to 3 Literature of the 18th Century. Selected topics, movements, or authors in the literature of the 18th Century.

550-1 to 3 Literature of the 19th Century. Selected topics, movements, or authors in the literature of the 19th Century.

560-1 to 3 Literature of the 20th Century. Study of an author, theme, movement, or critical literary issue of contemporary interest. Topics may range from the Existentialist vision or the Quest for Self to the novel of commitment of the New Novel.

599-1 to 6 Thesis.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

German (GER)

The course numbered 488 is designed to help graduate students prepare for proficiency examination required by certain departments as evidence of competency in German. No prerequisite stipulated. Students register for this course are advised to take it as part of, not in addition to, their graduate program.

410-3 Advanced Language Study. Designed to improve language skills beyond the level of 320. Selected grammar review and intensive practice in effective use of written and spoken language through translations and free compositions. This course satisfies the COLA Writing Across the Curriculum requirement. Prerequisite: 320b or equivalent.

411-3 Linguistic Structure of Modern German. (Same as Linguistics 409) The descriptive study of phonology, grammatical structure, and vocabulary of modern German with consideration of its structural differences from English and application to teaching. Appropriate for students with at least two years of German. Conducted in English.

412-3 History of the German Language. Development of German from its Indo-European origin to the present in political and cultural context. The main linguistic aspects dealt with are lexical and semantic changes. Appropriate for students with at least two years of German. Readings in German. Conducted in English.

435-3 Business German. An overview of German business, presented through lectures, readings and discussions. Coursework with textbook and supplementary materials will focus on the major aspects of German business. Exercises will include vocabulary building, listening and reading comprehension, oral and written summarization, role playing in typical situations, mock telephone conversations and business correspondence. Prerequisite: 320b or consent of instructor.

440-3 Studies in Early German Literature. The literature of the German-speaking countries from the early Middle Ages through the seventeenth century, with varying emphasis on authors, themes, genres, periods. Prerequisite: 330 or 335, consent of instructor, or graduate standing.

450-3 Studies in 18th Century Literature. Examination of the major writers and movements with their social, historical, and intellectual background during the 18th century in Germany and Austria. Prerequisite: 330 or 335, consent of instructor, or graduate standing.

455-3 Studies in 19th Century Literature. Detailed focus on specific aspects rather than a general survey of 19th century literature, e.g., major periods and movements, or major genres and sub-genres, or major and representative authors. Prerequisite: 330 or 335, consent of instructor, or graduate standing.

480-3 Studies in 20th Century Literature. Detailed focus on specific aspects rather than a general survey of 20th century literature, e.g., major periods, movements, and tendencies, or major genres and sub-genres, or major and representative authors. Prerequisite: 330 or 335, consent of instructor, or graduate standing.

488-3 Advanced German as a Research Tool. Concentrated and individualized training in the recognition and interpretation of basic and complex grammatical structures and in the systematic acquisition of the principles of word formation for vocabulary expansion. Techniques for reading and for translation of unedited texts in the student's own field of study. Intended for graduate students. With consent of student's department, and with a grade of *B* or *A*, satisfies

graduate program requirement for foreign language as a research tool. Prerequisite: Passing of CLEP test in German; or one year of college-level German; or consent of instructor (as determined by examination).

490-1 to 6 (1 to 3, 1 to 3) Independent Study in German. Project-study under supervision of German faculty. Amount of credit depends on scope of study. May be repeated as the topic varies, up to the maximum of six semester hours. Prerequisite: senior or graduate standing and approval of supervising instructor.

493-3 to 9 (3 per topic) Seminars in Special Topics in Literature and Language. Topics vary and are announced in advance; both students and faculty suggest ideas. May be repeated as the topic varies. Primarily for undergraduates. Prerequisite: consent of instructor.

590-3 to 9 (3 per topic) Independent Study on Special Topics in Literature and Language. May be repeated only if the topic varies, and with consent of department.

599-1 to 6 Thesis.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Japanese (JPN)

No graduate program in Japanese is offered through the Eastern Languages and Civilization section. Four-hundred-level courses in this section may be taken for graduate credit unless otherwise indicated in the course description.

410-3 The Linguistic Structure of Japanese. (Same as Linguistics 412.) Inductive approach to the analysis of various aspects (such as phonology, morphology, syntax) of Japanese grammar with emphasis on syntactic structures within any of the current theoretical frameworks such as pragmatics, functionalism and formal linguistics. May include contrastive analysis between Japanese and English, and close examination of theories of comparative-historical linguistics of Japanese and Korean. Prerequisite: one year of Japanese or one previous course in linguistics or consent of instructor.

435-3 Business Japanese. An introduction to the language and culture of the Japanese business world and to the structure of the Japanese business economy. The emphasis will be on learning appropriate levels of formality and politeness in oral communication and on achieving competency in the specialized language of business. Prerequisite: 320 or equivalent.

490-1 to 6 Advanced Independent Study in Japanese. Directed individual study of some questions, author, or theme of significance in the field of Japanese literature, language or culture. Prerequisite: consent of instructor.

Russian (RUSS)

No graduate program is offered through the Russian section. (See Chapter 2 for Russian as a teaching specialty for the Master of Science in Education degree in secondary education or in higher education.) Four-hundred-level courses in this section may be taken for graduate credit unless otherwise indicated in the course description.

Courses numbered 388 and 488 are designed to help graduate students prepare for proficiency examination required by certain departments as evidence of competency in Russian. No prerequisite is stipulated. Students must register for these courses and are advised to take them as part of, not in addition to, their graduate program. Students will not receive graduate credit for courses numbered below 400.

388-3 Russian as a Research Tool. Intensive study of Russian as basis for development of reading knowledge. Covers grammar and vocabulary portion of first-year sequence in basic skills. Intended for graduate students. Undergraduates who wish to enroll are encouraged to consult with course instructor.

411-3 Russian Stylistics. Writing styles in Russian and its application to the development of skills in written expression. This course satisfies the COLA Writing Across the Curriculum requirement.

415-3 Russian Linguistic Structure. Structural analysis of present-day Russian with special attention to morphology and syntax.

430-4 Business Russian. A study of the style of commercial language and its application to the development of skill in business correspondence, such as: inquiries, offers, orders, contracts, agreements, as well as documents concerning transport, insurance and customs. Prerequisite: 201 or equivalent.

465-3 Soviet Russian Literature. Major fiction writers and literary trends since 1917. Lectures, readings and reports.

470-3 Soviet Civilization. Soviet culture and civilization is studied primarily through literary works, journalistic materials, and excerpts from non-literary works as general background reading. Lectures are illustrated with maps, slides, films and art works. Taught in English. Readings

are in English and in bilingual edition. No prerequisite: May count toward Russian major with consent of graduate adviser.

475-2 to 3 Travel-Study in USSR. Specialized course comprising part of the travel-study program in the Union of Soviet Socialistic Republics. Prerequisite: 201 or equivalent.

480-4 Russian Realism. Authors in 19th century Russian literature. Special attention to stylistic devices. Lectures, readings, and individual class reports.

485-3 Russian Poetry. A study of literary trends and representative works of Russian poets.

488-3 Advanced Russian as a Research Tool. Concentrated and individualized training in the recognition and interpretation of basic and complex grammatical structures and in the systematic acquisition of the principles of word formation for vocabulary expansion. Techniques for intensive and extensive readings and for translation of unedited texts in the student's own field of study. Intended for graduate students. With consent of student's department, and with a grade of *B* or *A*, satisfies graduate program requirement for foreign languages as a research tool. Prerequisite: 388 or one year of Russian or equivalent.

490-1 to 6 Advanced Independent Study in Russian. Directed independent study in a selected area of Russian studies. Prerequisite: consent of instructor.

493-3 to 9 (3 per topic) Seminars in Special Topics in Literature and Language. Topics vary and are announced in advance; both students and faculty suggest ideas. Students taking the course for graduate credit will do a critical study of one aspect. May be repeated as the topic varies. Prerequisite: consent of instructor.

501-2 Seminar on a Selected Russian Author. Intensive study of one author, including the author's life, work, and place in the literary and cultural development of civilization.

502-2 Seminar in Contemporary Russian Literature. Intensive study of the works of representative Russian authors, with special reference to the correlation existing between literary expression and social, economic, and political conditions since the Revolution. Lectures, outside readings, reports are required.

599-1 to 6 Thesis.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Spanish (SPAN)

Courses numbered 388 and 488 are designed to help graduate students prepare for proficiency examination required by certain departments as evidence of competency in Spanish. No prerequisite is stipulated. Students must register for these courses and are advised to take them as part of, not in addition to, their graduate program. Students will not receive graduate credit for courses numbered below 400.

388-3 Spanish as a Research Tool. Intensive study of Spanish as a basis for development of reading knowledge. Covers grammar and vocabulary portion of first-year sequence in basic skills. Intended for graduate students. Undergraduates who wish to enroll are encouraged to consult with course instructor.

410-3 Advanced Language Study. Intensive writing practice with emphasis on style, organization and problematic aspects of grammar. This course satisfies the COLA Writing Across the Curriculum requirement. Prerequisite: 320.

411-3 Linguistic Structure of Spanish. (Same as Linguistics 414.) Theory and practice in Spanish pronunciation and study of Spanish grammatical structure, in contrast to English, with application to teaching.

412-3 History of the Spanish Language. Survey of internal and external history, from Vulgar Latin to Modern Spanish.

419-3 Romance Philology. (Same as French 419.) Historical and comparative study of the major Romance languages: their phonology, morphology, and syntax.

425-3 Spanish Literature Before 1700. The literature of Spain from its beginnings in the Middle Ages through the Golden Age.

430-3 The Golden Age: Drama. Plays of Lope de Vega, Calderon, Tirso de Molina, and others.

431-3 Cervantes. *Don Quixote.*

434-3 Colonial Literature in Spanish America. Study of the literature of Spanish America before 1825.

435-3 Business Spanish. Discussion and practice of the vocabulary, styles, and forms used in Spanish business correspondence, as well as report writing and documents dealing with trade, transportation, payment, banking and advertising. Prerequisite: 320.

460-3 Spanish Literature of the 20th Century. The main currents and outstanding works in the literature of Spain since 1900.

463-3 Chicano Literature. An introduction to the literature written in the United States by Chicanos and other Hispanics.

485-3 The Spanish American Short Story. Survey of the genre in Spanish America.

486-3 Spanish American Drama. A survey of the development of the genre from the earliest times to the present.

487-3 The Spanish American Novel. Survey of the genre in Spanish America.

488-3 Advanced Spanish as a Research Tool. Concentrated and individualized training in the recognition and interpretation of basic and complex grammatical structures and in the systematic acquisition of the principles of word formation for vocabulary expansion. Techniques for in-

tensive and extensive readings and for translation of unedited texts in the student's own field of study. Intended for graduate students. With consent of student's department, and with a grade of *B* or *A*, satisfies graduate program requirements for foreign languages as research tool. Prerequisite: 388 or one year of Spanish or equivalent.

490-1 to 3 Advanced Independent Study. Individual exploration of some topic in Hispanic literature, language, or culture. Prior consent of instructor required.

493-3 to 9 (3 per topic) Special Topics in Literature and Language. Topics vary and are announced in advance. May be repeated as the topic varies. Prerequisite: consent of instructor.

502-3 to 6 (3,3) Seminar in Hispanic Linguistics. Involves intensive study of a selected topic.

503-3 to 6 (3,3) Selected Topics in Literature and Language. Topics in Spanish Literature, Spanish-American Literature and Hispanic Linguistics vary and are announced in advance.

504-3 to 6 (3,3) Seminar in Spanish Literature and/or Spanish American Literature. Intensive study of a selected topic.

521-3 Medieval Spanish Literature. Studies in epic and didactic literature, and lyric poetry.

530-3 Golden Age Drama. Intensive study of Golden Age drama.

535-2 to 4 (2,2) Spanish American Literature before 1900. Intensive study of a literary movement, trend, genre, or author of the period, as specified by the topic to be announced for each semester.

536-1 Teaching Spanish at the College Level. Prepares graduate students in Spanish for teaching at the college level. Required of all teaching assistants in Spanish.

540-3 Spanish Literature of the 18th and 19th Centuries. Intensive study of a literary movement, trend, genre, or author of the period, as specified by the topic to be announced for each semester.

560-3 Spanish Literature of the 20th Century. Intensive study of a literary movement, trend, genre, or author of the period, as specified by the topic to be announced for each semester.

565-3 to 6 (3,3) Spanish American Literature of the 20th Century. Intensive study of a literary movement, trend, genre, or author of the period, as specified by the topic to be announced for each semester.

599-1 to 6 Thesis.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Forestry

E-mail: jwilson@siu.edu

COLLEGE OF AGRICULTURE

Aubertin, Gerald M., Associate Professor, Ph.D., Pennsylvania State University, 1964; 1976.

Brown, Gregory G., Assistant Professor, Ph.D., University of Idaho, 1992; 1996.

Budelsky, Carl A., Assistant Professor, Ph.D., University of Arizona 1969; 1967.

Burde, John H. II, Associate Professor, Ph.D., University of Arizona, 1974; 1974.

Chilman, Kenneth C., Associate Professor, Ph.D., University of Michigan, 1972; 1973.

Fralish, James S., Associate Professor, Ph.D., University of Wisconsin, 1970; 1969.

Kung, Fan H., Professor, Ph.D., Michigan State University, 1968; 1970.

Mangum, Jean C., Assistant Professor, Ph.D., Purdue University, 1991; 1996.

McCurdy, Dwight R., Professor and *Chair,* Ph.D., Ohio State University, 1964; 1965.

Phelps, John E., Associate Professor, Ph.D., University of Missouri, 1980; 1990.

Roth, Paul L., Professor, Ph.D., Kansas State University, 1968; 1967.

The Department of Forestry offers advanced courses for the Master of Science degree with a major in forestry. In addition, curricula are available which permit graduate students with an interest in forestry to pursue their interest in Doctor of Philosophy degree programs in other departments.

Admission

In addition to requirements set forth by the Graduate School, the Department of Forestry requires the following:

1. A minimum grade point average of 2.7 is required for admission (*A* = 4.0). A grade point average of 2.7 or higher is required for stipend eligibility when available.
2. The student is required to provide proof of proficiency in technical writing. Normally an expository essay is required to evaluate whether the student should have remedial grammar or writing courses.

3. Three letters of recommendation from former professors, employers, or other responsible individuals are required.
4. The aptitude test of the Graduate Record Examination is required of all applicants. This test may be taken during the first semester of residence.
5. Each applicant must complete the statement of interest form. This form indicates the student's area of interest in forestry and the faculty member with whom the student desires to study. All correspondence should be directed to the chair of the Department of Forestry.

Retention and Completion Requirements

Upon the graduate student's arrival on campus, an advisory committee of 3–5 members of the graduate faculty will be formed to guide the student's work. The same committee will be responsible for preparation and administration of thesis exams and also for the review and evaluation of the thesis. The advisory committee chair and at least one other member of the committee shall be members of the forestry department. The other members may be selected from any academic unit including forestry.

Summary of Events.

1. The deadlines for receipt of applications and official transcripts in the office of the Graduate School are (a) the second Saturday in July for admission to the fall semester (b) the last Saturday in November for admission to the spring semester (c) the last Saturday in March for admission to the summer term.
2. Letters of recommendation should reach the forestry department chair by the same dates as above.
3. Acceptance by department and Graduate School should be announced one month or earlier than the desired matriculation date. A thorough review will be made by a screening committee of forestry department graduate faculty and the departmental adviser. Students rejected for admission will also be notified.
4. Registration for first semester's work after student's acceptance by the department.
5. Appointment of advisory committee chair, written plan for course work, and selection of tentative thesis areas all within first 2 months of residence.
6. Preparation of formal written thesis outline and preparation of research proposal by the eighth week of the second semester.
7. Completion of final, typed or reproduced review copies of thesis and submission of advisory committee at least 3 weeks in advance of oral defense of thesis. Handwritten or incomplete work will not be acceptable.
8. Oral exam to be followed by completion of required approval forms. If thesis requires modifications, this should be accomplished immediately to reach the graduate dean's office in due time set by the Graduate School. One bound copy of the thesis will be provided for the department, 1 for the chair of the advisory committee in addition to 2 copies required for the Graduate School and a copy for the author. Additional copies may be required for projects sponsored by outside agencies.

Master of Science Programs

The Department of Forestry offers 3 areas of concentration with specialties within each. Combination of emphasis is possible.

FOREST RESOURCE MANAGEMENT CONCENTRATION

Under this heading, a graduate program may be elected with an area of emphasis in forest management, forest ecology, forest resources measurements, forest resources economics, forest genetics, or forest policy and administration.

OUTDOOR RECREATION RESOURCE MANAGEMENT CONCENTRATION

Emphasis may be made in social, managerial, or natural science aspects of wildlands recreation and park planning and management in the given graduate program depending on the student's interest.

WOOD SCIENCE AND TECHNOLOGY

Physical, mechanical, or biological properties of wood or woodbase materials may be studied. Also, the production and marketing of forest products may be selected.

A specialty in environmental studies in forestry is available.

Assistantships and Fellowships. Research assistantships are sponsored each year by the McIntire-Stennis Cooperative Forest Research Act. Teaching assistantships funded by the School of Agriculture are also available.

In addition to general awards made through the Graduate School, stipends for research studies are available from the Federal Forest Service, the U.S. Department of Interior, other federal and state agencies, and private corporations.

Requirements

Since the normal minimum requirement for graduation is 32 semester hours, the completion of degree work for students holding assistantships should be accomplished within four semesters (including summer) which is also the normal maximum span for financial aid.

The student must attain a grade of *B* or better for all courses specifically required in the student's academic program and which are offered by the Department of Forestry.

To gain teaching experience, graduate students are expected to assist in the classroom or laboratory for at least 1 academic semester (20 hours per week) during their tenure with the forestry department. The remaining semesters will also involve either research or teaching at the rate of 20 hours a week. All graduate students are required to enroll in Seminar (FOR 501) for 2 semesters for which they will receive 1 semester hour of credit.

Staff

In addition to the faculty listed in the Graduate School Catalog, several adjunct professors also hold appointments with the forestry department. These professors are assigned to the Forest Science Laboratory of the North Central Forest Experiment Station and the Crab Orchard National Wildlife Refuge. They advise and serve on graduate guidance committees.

Research Facilities Land. SIUC is well endowed with a number of different forest types which are available to the forestry department for teaching and research purposes. In particular, we are conducting or planning research and demonstration programs on forest plots and experimental fields of the 3000 acres of the University and its experimental farms. We also have access to wooded lands of the 600 acres of the Touch of Nature Environmental Center, 400 acres at the Pine Hills Field Research Station, and other forests.

Through various memoranda of understanding and special use permits we have use of forested lands and plots on the 43,000 acres of the Crab Orchard

Wildlife Refuge, the 250,000 acres of the Shawnee National Forest, and the 4000 acres of the Trail of Tears State Forest, all of which are within an hour's drive of Carbondale. In addition, we can conduct basic research on the 640 acres tract of the Beall forest near Mt. Carmel, Illinois. The forests on this land represent one of the last central hardwoods remnants of virgin bottomlands and slopes and are under the jurisdiction of the Illinois Nature Preserves Commission.

Physical Facilities. A research greenhouse operated in cooperation with the U.S. Forest Service at the Tree Improvement Center on the western side of the campus is in operation for research and graduate teaching. Greenhouses and growth chamber facilities in the agriculture greenhouses in conjunction with the Department of Plant and Soil Science are also available.

A variety of laboratories for all phases of forestry research as well as access, through cooperative agreements, to laboratory facilities with other agencies on the campus are in service. The Forest Science Laboratory of the U.S. Forest Service, located adjacent to the forestry department offices, is available to our graduate students for research and other functions. In addition, a wood testing laboratory and a large wood products pilot plant is accessible at SIUC College of Technical Careers.

Courses (FOR)

Courses in this department may require the purchase of supplemental materials. Field trips are required for certain courses.

401-3 Fundamentals of Environmental Education. (See Agriculture 401.)

402-3 Wildland Hydrology. Fundamentals of hydrology as related to forest and wildland water resources will be emphasized. Considerations will include the hydrologic cycle with emphasis on soil and groundwater regimes, evapotranspiration, surface and subsurface runoff and the quantity and timing of water yield. Offered spring semester, odd years.

403-3 Introduction to Agroforestry. This introductory, lecture-discussion course will examine the various agroforestry concepts, systems, technologies and practices. Focus will be on the potential use and benefits of agroforestry, which involves the deliberate combining of woody perennials with herbaceous/agronomic crops and/or animals, on the same land management units, in some form of spatial arrangement and/or temporal sequence to produce desirable ecological and economical interactions among the different components. Prerequisite: junior standing or consent of instructor.

405-2 Forest Management for Wildlife. Interrelations between forest practices and wildlife populations. Emphasis is on habitat requirements of different wildlife species and ways to manipulate the forest to improve wildlife habitats. Prerequisite: forestry major, or consent of instructor.

408-4 Introduction to Remote Sensing and GIS. Introduction to the important characteristics of platforms and sensor systems used in modern remote sensing applications to forestry and the storage, analysis and display of this information by micro computers using vector and raster GIS configurations. Prerequisite: 414 and advance standing.

409-3 Forest Resources Decision-Making. Examines management planning decision-making for multiple-use forests particularly in the public sector. Reviews concepts useful for analyzing flow-resource problems, emphasizing systems approaches, introduces use of modern quantitative methods to evaluate resource use alternatives. Case studies. Prerequisite: 411, Mathematics 140.

410-3 Forest Resources Administration and Policy. Nature of administrative organizations and influences on behavior of organization members. Society influences causing changes in forestry related organizations. Policy formation and implementation, including roles of special interest groups.

411-3 Forest Resources Economics. Introduction to forest economics: Application of micro- and macro-economic principles to forest timber and non-timber production; capital theory; benefit-cost analysis; and economics of conservation. Prerequisite: Economics 240 or Agribusiness Economics 204; and Mathematics 140.

412-2 Tree Improvement. Basic theories and techniques of obtaining genetically superior trees for forest regeneration. Prerequisite: senior standing.

414-3 Information Management. The collection of physical, biological, and social variables in the field of forestry through sampling survey. The procedures of data manipulation and calculation and the presentation of graphs and tables.

416-3 Forest Resource Management. The application of business procedures and technical forestry principles to manage forest properties. Emphasis on integrated resource management for tangible and intangible benefits. Field trips and supplemental purchases approximately $25 for student. Prerequisite: summer camp or consent of instructor.

417-2 Forest Land-Use Planning. Principles of location theory as a basis for determining land use; supply of forest land; population pressure and demand; conservation principles; determina-

tion of forest land values; institutional factors influencing forest land-use; forest taxation; special taxes, and capital gains. Taught in alternate years. Prerequisite: 411 or consent of instructor.

418-2 Marketing of Forest Products. The role of marketing in the forest industries; review of economic principles; product policy, planning the product line, pricing, marketing channels, marketing programs, marketing organization and marketing research as influences on the marketing of lumber, wood products, pulp and paper. Taught in alternate years. Prerequisite: 411 or consent of instructor.

420-3 Park and Wildlands Management. The management of state and federal parks and recreation areas. A systems approach toward management and decision-making will be emphasized. Requires supplemental purchases of approximately $5 per student. Prerequisite: 320c.

421-3 Recreation Land-Use Planning. Principles and methods for land-use planning of park and recreation environments with emphasis on large regional parks. Focus on planning process and types of information to gather and organize. Application in group field projects. Prerequisite: 320, 420 or consent of instructor.

422C-4 Park and Wildlands Management Camp. A study of park conditions, visitors, and management practices at selected county, state, and federal park systems in the United States, including the federal wilderness preservation system. Course requires a field trip and supplemental purchases. Prerequisite: 320 and 320c and consent of instructor.

423-3 Environmental Interpretation. (See Agriculture 423.)

430-3 Wildland Watershed Management. Emphasis is placed on the principles, technical problems, procedures, alternatives and consequences encountered in managing wildland watersheds for the production of quality water in harmony with other uses. Prerequisite: 331.

431-3 Regional Silviculture. Designed to evaluate the various silvicultural practices as they are commonly employed in various regions of the United States. Offered alternate years. Prerequisite: 310.

451-2 Natural Resources Inventory. Theory and practical problems in biometrics to obtain estimates of natural resource populations. Use of computers and other advanced techniques. Case studies of inventory procedures. Field trip cost: maximum $20. Prerequisite: 351 or consent of instructor.

452-2 Forest Soils. Characterization and fundamental concepts of forest soils and their relationships to forest communities and forest management practices. Emphasis is on the origin of forest soil material, soil forming processes and the chemical, physical and biological properties of soils as related to forests and forest management. Prerequisite: Plant and Soil Science 240 and concurrent enrollment in Forestry 452l. Spring semester even years.

452L-2 Forest Soils Laboratory. Companion laboratory for 452. Emphasis is on methods to characterize and evaluate the chemical, physical, and biological properties of forest soils. Prerequisite: Plant and Soil Science 240 and concurrent registration in Forestry 452. Spring semester even years.

453-2 Environmental Impact Assessment in Forestry. Methods of assessing the environmental impact of land-use systems on forest resources and assessing the impact of forest management systems on environmental quality are presented. Case studies culminating in the preparation of environmental impact statements are emphasized. Field trips cost: $20. Prerequisite: senior standing in a natural resource major.

454-2 to 8 Forest Ecology Field Studies. A study of forest communities, soils and site conditions in one of the following ecosystems: **(a)** Boreal; **(b)** Lake states; **(c)** Southern Appalachians; **(d)** Southern pine. Course requires a field trip of about 10 days. Each trip is two semester credits; a maximum of 6 credits may be applied toward graduate credit. Estimated cost: $125.00 per trip. Prerequisite: senior standing in natural resources or biological sciences, courses in tree identification, forest ecology and soils and consent of instructor.

460-2 Forest Industries. Analysis of raw material requirements, the processes and the products of forest industries. The environmental impact of each forest industry will also be discussed.

470-2 Wilderness Management, Policy, and Ethics. Study of current management philosophy and practice in America's wilderness. Analysis of current wilderness policy and its historical evolution. Discussion of the evolution of the wilderness idea and the individuals that have influenced it. Weekend field trip required. Prerequisite: 320 or consent of instructor.

494-1 to 6 Practicum. Supervised practicum in a professional setting. Emphasis on administration, supervision, teaching and program leadership in community, school, park, forest, institution and public or private agencies. Students should enroll according to their curriculum specialization: **(a)** Forest environmental assessment, **(b)** Outdoor recreation resource management, **(c)** Forest resources management. Prerequisite: consent of instructor.

500-2 Principles of Research. Research philosophy, approaches to research; theory, hypotheses inference, and predicting; problem identification, project development and organization; methods of data collection, analysis and presentation; drawing conclusions and organizing results. Prerequisite: four hours in statistical methods or consent of instructor.

501-1 Graduate Seminar. Presentation and critiques of current research project of faculty, graduate student and selected resource persons.

511-2 Advanced Forest Resources Economics. Application of microeconomic, macroeconomic and capital theory to forest resource problems; introductory econometric methods; long range supply and demand projections; international forest economics and policy problems decision theory in forest resource management. Offered alternate years. Prerequisite: 411 or equivalent or consent of instructor.

512-2 Tree Selection and Breeding. Quantitative methods of describing variation patterns of trees, testing genetic and environmental effects and interactions and evaluations of tree im-

provement program. Prerequisite: 412 or consent of instructor.

516-2 Advanced Forest Management. Case studies in forest land management, management planning, utilizing computer programming, CFI and TSI role in long range management planning. Offered alternate years—odd. Prerequisite: 416, 331 and summer camp or consent of instructor.

520-2 Advanced Park Planning. Study of nature and functions of the recreation environmental planning process in theoretical and policy terms. Types of plans at local, regional and state levels. Evaluation of different types of planning approaches and their utility in particular situations. Offered alternate years. Prerequisite: 421 or consent of instructor.

521-2 Recreation Behavior in Wildlands Environments. Review of sociological and psychological theories relevant to outdoor recreation planning; management alternatives. Review of current behavior research in outdoor recreation. Application of behavioral concepts to recreation planning and administration. Offered alternate years.

530-2 Forest Site Evaluation. A discussion of the factors affecting site quality and their use in present site evaluation methods. Lectures will draw upon recently published scientific literature as well as forest research data collected and analyzed for southern Illinois forests. Laboratories will include sampling of forest sites and stands with subsequent analysis of data using graphic and statistical techniques and a computer to develop site evaluation models. Cost $20. Prerequisite: 300, Biology 307 or consent of instructor.

531-2 Biological Productivity of Forests. The production and accumulation of organic matter in forest ecosystems is analyzed in relation to vegetational composition and structure, biogeochemical cycles, and environmental factors. Methods of quantifying productivity are emphasized during laboratory period. Cost: approximately $15. Offered alternate years. Prerequisite: 331 or equivalent.

588-1 to 6 International Graduate Studies. University residential graduate program abroad. Prior approval by the department is required both for the nature of program and the number of hours of credit.

590-1 to 4 Readings in Forest Resources. Intensive consideration is given to current practices and problems in forestry. Prerequisite: consent of instructor.

593-1 to 4 Individual Research. Directed research in selected fields of forestry.

599-1 to 6 Thesis. Minimum of five hours to be counted toward a Master's degree.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S* / *U* or *DEF* only.

Geography

E-mail: absher@siucvmb.siu.edu

COLLEGE OF LIBERAL ARTS

Arey, David G., Associate Professor, Ph.D., Clark University, 1969; 1971.

Baumann, Duane D., Professor, Ph.D., Clark University, 1968; 1967.

Beazley, Ronald I., Professor, *Emeritus,* Ph.D., Purdue University, 1954; 1959.

Bennett, David A., Assistant Professor, Ph.D., University of Iowa, 1994; 1993.

Bhattacharyya, Jnanabrata, Associate Professor, Ph.D., University of Delhi, India, 1969; 1968.

Christensen, David E., Professor, *Emeritus,* Ph.D., University of Chicago, 1956; 1961.

Denise, Paul S., Assistant Professor, *Emeritus*, Ph.D., University of California, Berkeley, 1974; 1968.

Duram, Leslie, Assistant Professor, Ph.D., University of Colorado at Boulder, 1994; 1994.

Dziegielewski, Benedykt, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1983; 1985.

Horsley, A. D., Assistant Professor, Ph.D., Southern Illinois University at Carbondale, 1974; 1968.

Irwin, Daniel R., Associate Professor, *Emeritus,* Ph.D., Syracuse University, 1972; 1959.

Jones, David L., Professor, *Emeritus,* Ph.D., Pennsylvania State University, 1960; 1965.

Lant, Christopher L., Associate Professor and *Chair,* Ph.D., University of Iowa, 1988; 1988.

Lieber, Stanley R., Professor, Ph.D., University of Iowa, 1974; 1975.

Perk, H.F.W., Lecturer, *Emeritus,* A.B., University of California, Los Angeles, 1951; 1964.

Sharpe, David M., Professor, Ph.D., Southern Illinois University at Carbondale, 1968; 1966.

The Department of Geography offers programs that lead to the Master of Arts, Master of Science, and the Doctor of Philosophy degrees in geography.

The Department of Geography also participates in the Interdisciplinary Doctor of Philosophy program sponsored by the Graduate School. Past students have combined geography with a variety of other disciplines to broaden and strengthen their education. The interdisciplinary doctoral program is described

in greater detail elsewhere in the Graduate Catalog (cf. Degree Requirements: Interdisciplinary Doctor of Philosophy Programs).

Geography is the discipline that deals with the relationship between human beings and their environment. The Department of Geography emphasizes the applied aspects of this theme, environmental analysis, planning, and management. The graduate program includes the several dimensions of this emphasis, e.g., the role of resources in economic development and regional planning from physical/biological, technological, socioeconomic, policy, and spatial viewpoints. Students take courses that give them a foundation in these dimensions of environmental planning and management through a core program, then develop an area of strength within this theme. Students also develop the analytic and research skills appropriate to their emphasis.

The graduate program stresses a problem-solving perspective, for which habits of critical analysis and dialogue are essential. Students take the initiative in designing and carrying out their programs with the guidance of an advisory committee and the departmental faculty. Geography maintains major linkages with many other departments. Courses and faculty expertise in other departments complement those in geography, and students are encouraged to take advantage of this. Each student's progress is assessed at regular intervals by the faculty, and the student is notified of the faculty's assessment. The student is expected to show continued progress in carrying out the program of study, and in developing habits of scholarship and professionalism.

Requirements for the Master of Arts and Master of Science Degrees

Advisement. Students newly admitted to the master's degree program are advised by the graduate program director, with the assistance of departmental faculty. Students choose a permanent adviser at the end of the first semester in residence. The choice of permanent adviser and advisory committee is made in consultation with the graduate faculty, taking into consideration such matters as faculty expertise and faculty advisee loads.

Degree Requirements. To obtain the master's degree, the student shall:

1. Complete all degree requirements specified by the Graduate School, and explained under degree requirements, master's degree program in the *Graduate Catalog.*
2. Include as required courses the following: GEOG 500-2, Principles of Research, during the first fall semester in residence; GEOG 501-2, Seminar in Geographic Research, the following semester; GEOG 410, Techniques in Geography; and one research seminar.
3. In consultation with an adviser, develop a program of study, identifying courses to be taken, research skills to be developed, deficiencies to be rectified. This shall be approved by the faculty. The program of study shall include a core of substantive courses in geography, as explained in the policy statement on core curriculum for master's degree students, available from the graduate program director. The program of study may include non-geography courses. The graduate faculty will meet to review and approve/disapprove the program of study of each master's degree student enrolled in GEOG 500. An approved program of study will be filed with the graduate program director and department chair as part of GEOG 500.
4. Develop a thesis or research paper proposal. The thesis or research paper proposal must be approved by the student's master's advisory committee before the student registers for GEOG 599, Thesis or GEOG 593, Research in Geography. A total of 4–6 semester hours of GEOG 599 may be awarded for a thesis at the discretion of the advisory committee upon final examina-

tion on the thesis (see #5 below). A total of 2–3 semester hours maybe awarded for a research paper.

5. Submit a thesis or research paper to the advisory committee at least 2 weeks before the comprehensive examination. A student who writes a thesis will be examined by the committee, at a meeting that may be attended by other faculty and students. A research paper will be evaluated and approved by the advisory committee without public presentation.
6. Complete a comprehensive examination. The statement of departmental policy on the master's comprehensive examination is available from the graduate program director. The comprehensive examination and evaluation of thesis or research paper shall be at least 6 weeks prior to the student's projected graduation date. Upon approval of the comprehensive examination and the thesis or research paper, the advisory committee will request the chair of geography forward to the Graduate School the recommendation that the master's degree be awarded.

Accelerated Entry into a Doctoral Program. After completion of one semester of residence in the Master of Arts or Master of Science degree program the student may petition the graduate faculty for direct entry into the Ph.D. degree program. Prerequisite to petition is outstanding performance in GEOG 500, Principles of Research as judged by a majority of the faculty and clear promise of early development of requisite research skills. Additional evidence of a student's readiness to begin doctoral work includes undergraduate and graduate records, scores on exams such as the GRE, standardized tests, and reference letters. Students must meet all retention and exit requirements for the regular doctoral option. The student must submit the application materials required for regular admission to the Ph.D. degree program.

Requirements for the Doctor of Philosophy Degree

The doctoral degree in geography is a specialized research degree. The doctoral program assumes a broad background comparable to that provided by the department's masters core. It is designed to develop a comprehensive yet critically analytic knowledge of theory, literature, research design, and application related to environmental analysis, planning, and management. The doctoral student will emphasize two subfields in which to propose creative research.

Advisement. The doctoral student initially is advised by the graduate program director. Before the end of the first term of doctoral work, the student will select an adviser and they jointly will recommend a doctoral program of study and committee members to the graduate faculty for approval. The student and the doctoral committee will ascertain appropriate tools and cognate courses; proficiency in these will be certified by the doctoral committee. It is recommended that all doctoral students have a minimum of one semester of teaching or research assistant experience.

Degree Requirements. To obtain the Doctor of Philosophy degree, the student shall:

1. Complete all degree requirements specified by the Graduate School, and explained under degree requirements, doctoral degree program in the Graduate Catalog.
2. Include in the course of study the following: GEOG 500-2, Principles of Research during the first fall semester in residence; GEOG 501-2, Seminar in Geographic Research in the following semester; GEOG 510, Multivariate Techniques in Geography; and 3 research seminars.

3. Demonstrate a broad background comparable to the department's masters program by a procedure to be specified by the graduate faculty. The statement of departmental policy on core curriculum for doctoral students is available from the graduate program director.
4. In consultation with an adviser, develop a program of study, identify courses to be taken, research tools to be developed, general dissertation topic, and names of adviser and doctoral committee members. The graduate faculty will review the tentative program of study in a meeting at the end of GEOG 500, and provide advice for modifications. The graduate faculty will meet at the end of GEOG 501 to approve/disapprove the program of study. An approved program of study will be filed with the graduate program director and departmental chair as part of GEOG 501.
5. Pass a comprehensive (preliminary) examination. Upon completion of program of study, the student will complete a written and oral comprehensive examination in 2 subfields that relate to the student's research emphasis. The written portion of the comprehensive examination will be prepared by the student's doctoral committee, which will evaluate the performance and judge the student's success or failure. The examination then will be circulated to the graduate faculty. The oral examination will take place not less than 1 week or more than 2 weeks from the time of the written examination. The oral examination will be conducted by the student's doctoral committee with appropriate opportunity for all graduate faculty to ask questions. The student's success or failure of the oral examination will be judged by the student's doctoral committee. A student who fails the written or oral comprehensive examination may retake the examination after appropriate remedial action, as specified by the doctoral committee. A student who fails the second written or oral examination will be dropped from the doctoral program.
6. Having passed the comprehensive examination, present a dissertation proposal at an open meeting of the Department of Geography. The written and oral examination and presentation of the dissertation proposal are prerequisite to admission to candidacy.
7. Complete a dissertation. The student's written dissertation will be circulated to members of the doctoral committee at least 2 weeks in advance of the proposed dissertation defense. The doctoral committee will issue a public invitation a week in advance of the scheduled date of the dissertation defense. After necessary revisions have been made, the dissertation will be sent to the student's doctoral committee for final approval. The judgment of the doctoral committee will be expressed to the student and forwarded to the chair of the department for recommendation to the Graduate School for conferring of the doctoral degree.

Courses (GEOG)

400-3 Geography of Outdoor Recreation. Analysis of patterns of outdoor recreation with an emphasis on metropolitan areas. Selected topics include demand forecasting methods, cost-benefit analysis and the valuation of recreation resources and an analysis of the socioeconomic and spatial impacts of recreation facility provision.

404-3 Spatial Analysis. The purpose of this course is to equip the student with a series of perspectives and tools with which to view spatial phenomena. Emphasis is placed on methodological approaches to the analysis of areal distributions and phenomena. Longitudinal analysis of data is included. Prerequisite: 300. Geography 410 is advisable or consent of instructor.

406A-2 Introduction to Remote Sensing. An introduction to remote sensing as applied to the study of environmental systems. This course will examine the theoretical and practical concerns associated with the use and analysis of aerial photography and satellite imagery. Geography majors must take 406a and 406b concurrently. Others may take an approved alternative course in another department as a substitute for 406b.

406B-1 Introduction to Remote Sensing Laboratory. A hands-on, laboratory-based class that introduces students to remote sensing techniques as applied to geographical analysis. Emphasis is placed on the manual interpretation and analysis of remotely sensed photographs and imagery. However, students will be introduced to state of

the art digital image processing technology. Geography majors must take 406a and 406b concurrently. Others may take an approved alternative course in another department as a substitute for 406b.

408-3 Advanced Remote Sensing. Advanced techniques in the analysis of remotely sensed data. Emphasis is placed on digital image processing using state of the art technology. Students will be expected to develop individual problem-driven projects that use the knowledge, tools and techniques that are developed in this course. Two hours of lecture, two hours of lab each week. Prerequisite: 406a and 406b or consent.

410-4 Techniques in Geography. Geographic applications of basic and advanced statistical and mathematical techniques, including basic descriptive statistics, hypothesis testing, regression and correlation, analysis of variance and nonparametric statistics. Special emphasis on areal measures: nearest neighbor analysis, etc. Prerequisite: 300 or consent.

416-3 Analytical Cartography. An introduction to computer and analytical cartography. Students examine techniques for the representation, manipulation and display of spatial data using computer mapping techniques and software. Emphasis will be placed on algorithmic solutions to common cartographic problems. Students will be expected to complete a team based project that uses automated cartographic techniques to address a geographic problem. Prerequisite: 310 or computer literacy, or consent.

418A-2 Introduction to Geographic Information Systems. An introduction to geographic information systems (GIS) as it is applied to environmental problem solving. Examines the theoretical and practical concerns associated with the representation and analysis of geographic phenomena using computer technology. Geography majors must take 418a and 418b concurrently. Others may take an approved alternative course in another department as a substitute for 418b. Prerequisite: 310 or consent.

418B-1 Introduction to Geographic Information Systems Lab. A laboratory-based class that introduces students to the use and application of geographic information system (GIS) technology in geography. Students explore the utility of geographic information systems through team-based projects that provide hands-on experience with commonly used GIS hardware and software. Geography majors must take 418a and 418b concurrently. Others may take an approved alternative course in another department as a substitute for 418b. Prerequisite: 310 or consent.

420-3 Advanced Geographic Information Systems. Advanced concepts and techniques for computer-based analyses of geographic information. Students will be expected to develop individual problem-driven projects that use the knowledge, tools and techniques that are developed in this course. Two hours of lecture, two hours of laboratory each week. Prerequisite: 418a and 418b or consent.

421-2 Urban Geography. Examination of extracity relationships — theory and structure; intra-city relationships — theory and structure and selected urban problems. Offered once annually. Prerequisite: 300 or consent.

422-4 Economics in Geography and Planning. Concepts, symbols, language, theory and elementary mathematics of economics and geography. Individual's preferences, production functions, the firm, markets, optimality, externalities and welfare economics. Elementary mathematics of time and intertemporal criteria. Prerequisite: 304 or consent of instructor.

424-4 Natural Resources Planning. Literature in resource management problems. Emphasis on theory, methods of measurement and evaluation concerning implications of public policy. The role of resources in economic development and regional planning, water and related land resource problems, and environmental quality from a multi-disciplinary perspective. Prerequisite: 422 or Agribusiness Economics 440 or consent.

425-4 Water Resource Planning Simulation. A review of water resource planning theory and practice from a physical, technological, economic, social and geographical viewpoint. Students design a comprehensive water resource plan including flood control, water supply, water quality, and recreation for a city of 175,000 population. This plan is "played" against a 50-year trace of hydrologic parameters in a computer simulation. Prerequisite: 424 or consent.

426-4 Administration of Environmental Quality and Natural Resources. (Same as Political Science 445.) An examination of institutional arrangements and administrative practices in the protection and use of land, water, air, and mineral resources. The course includes analysis of responsibility and decision-making at all levels of government (federal, state, and local) as well as corporate, interest group, and individual responses to public programs. Particular attention will be given to administration of federal environmental quality legislation including the National Environmental Policy Act, the Clean Air Act, the Water Pollution Control Act, and the Surface Mining Reclamation Act. Prerequisite: 300 or 326 or consent of instructor.

427-3 Environmental Perception and Planning. Deals with a description and assessment of the relevance of normative and descriptive theories of decision-making and theories of choice for public policy and environmental management. Studies of the perception of urban environments and other landscapes such as wilderness areas, and perception of and human response toward natural hazards will be considered. Prerequisite: 300 or consent.

430-3 Environmental Systems Analysis. Exploration of the major environmental systems relevant to environmental planning. Topics include concepts of systems and system behavior; basics of systems analysis and modeling environmental systems; environmental fluxes of energy and materials (e.g., hydrologic cycle, carbon cycle, energy budgets, erosion and sediment transport, role of biosphere in organizing fluxes); environmental variability. Prerequisite: 302 or consent.

432-4 Physical Environments of Cities. Energy and moisture budget concepts are developed from basic principles. Microclimatic data, instrumentation and applications stress urban exam-

ples. Models of climatic effects and modeling of people's effects concern city climates mainly. Charge not to exceed $5 for field trips. Prerequisite: 302 or 430 or consent.

433-3 Advanced Physical Geography. Topics may include landforms, climate, soil or water. Varies with the interest of the instructor. Prerequisite: 302 or consent.

434-4 Water Resources Hydrology. Microclimatic factors which affect the hydrologic events of various climatic regions are treated extensively. Methods of estimating geographic variations in hydrologic relations to climatic and microclimatic especially evapotranspiration, are compared and evaluated. Consequences of alternative land uses on climate and hydrology are considered regionally. Charges are not to exceed $10 for field trips. Prerequisite: 302 or 430 or consent.

435-3 Energy Planning. Regional and national differences in energy supply and demand are reviewed followed by a study of current energy resources, the range of demands and environmental impacts. National and international planning strategies for dealing with changes in energy demand and supply are explored and assessed for present and future implementation probability.

436-3 Environmental Disaster Planning. Develops the skills and perspectives needed to plan effectively for natural and man-made disasters. The concepts of risk analysis, hazard mitigation and preparedness, response and recovery of the economic and social infrastructure in areas impacted by earthquakes, floods, droughts, radioactive and toxic material releases, and other catastrophic events.

438-3 Applied Meteorology. Analysis of meteorological patterns approached through study of several case histories. Evaluation of meteorological data, air mass and frontal analysis, development of weather forecasts, study of meteorological instruments, clouds, and precipitation patterns. Charges not to exceed $5 for field trips. Prerequisite: GEA 330 or consent of instructor.

439-3 Climatic Change — Inevitable and Inadvertent. The geologic time-scale perspective of major natural events that have affected the theoretical steady-state climate, and factors in contemporary societal practices that have brought about inadvertent climatic modification. An assessment of the means and extremes of parameter values in the geologic time-scale perspective studied will be compared with the documented and present-day climatic parameter means and extremes. Approaches to prognoses for the Earth's future climatic state will be made. Charges not to exceed $10 for field trips. Prerequisite: GEA 330, Geography 331 or consent of instructor.

440-2 Tutorial in Geography. Prerequisite: geography major, senior standing.

443-3 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. Charges not to exceed $3 for field trips. Prerequisite: 300.

452-3 Environment and Population. Introduction to population geography. Emphasis is on the relationships between population trends, resource use patterns and environmental impacts. Topics include methods and data used to describe and predict populations, theories of population, and policy issues that relate to the interaction between population, quality of life and environmental quality. Prerequisite: 320 or consent.

454-3 Conservation and Environmental Movements. Emphasizes the ways in which humans view and interact with the environment. Conservation literature and the works of influential environmentalists are studied. Specific theories and environmental movements which help to explain society's current perception and use of the environment are studied. Prerequisite: 320 or consent.

456-3 Community Development Perspectives on Environmental Problems. An introduction to community development, a participatory strategy to social problems grassroots, community based and non-governmental organizations as catalysts of development in the Third World, the environments in which they function, their ideologies, their methods and their effectiveness. Issues of popular participation in development provide the continuity in the course.

458-3 International Environmental Movements and Organizations. International environmental movements and organizations, e.g., the Greens, the United Nations: their approach to environmental issues; their organizational and communication patterns; their relationship with national governments and their impact on environmental policy at national and international levels. Prerequisite: 424 and 454 or consent.

459-3 Culture, Political Economy and Sustainable Development. An examination of (1) the interaction of the elements that have shaped human actions towards environment in the modern period which also account for most of the conflicts over the uses, use values and values of environment; (2) the effects of conventional development practices on particular populations, such as women and indigenous peoples; and (3) alternative development policies and the idea of sustainable development. Prerequisite: 424 and 456 or consent.

471-3 Environmental Impact Analysis. Techniques of assessing the impact of human activities on the environment, including weighting schemes, cost-benefit analysis, linear programming, ecological impact assessment. Emphasis is on placing NEPA and EIS writing in legal, economic and environmental perspective. Prerequisite: 302 or 304 or consent.

475-3 Natural Resources Analysis Techniques. A study of procedures, analytical techniques, data sources and other aids for management and planning of environmental and other natural resources. Topics include techniques to promote public involvement in decision making, survey research methods, socio-economic forecasting methods, decision support techniques and project impact evaluation. Prerequisite: 410 and 422 or consent.

480-3 to 6 Internship in Geography. Supervised field work in private or public organization dealing with planning, environmental management, or cartography and geographic information management. A written proposal about the

planned internship must be submitted to a faculty supervisor prior to beginning of internship. A faculty supervised report on the work is required after the internship. Courses may be repeated, but no more than 3 credit hours may be applied to an undergraduate major. A graduate student may enroll for three credit hours. Prerequisite: geography major and consent of department.

481-6 to 12 Cooperative Work Experience in Geography. Placement of advanced undergraduate or graduate student in private or public organization for one or more semesters in paid career-related position. Student gains professional experience, under faculty and on-site supervision. A written proposal about the planned cooperative work experience must be submitted to a faculty supervisor before it begins. A report summarizing the work experience is required after the work experience ends. Course may be repeated. Three credit hours may apply toward requirements for a Geography major; three additional credit hours may apply toward degree requirements as elective. Prerequisite: geography major and consent of department.

495-1 to 6 Advanced Field Services Practicum in Southern Illinois. (Same as Social Work 495.) This course is directed at upperclassmen and graduate students volunteering service to community, social service, or health agencies in southern Illinois. Credit based on time spent in direct service. Approval of agency required for registration. Mandatory Pass/Fail for undergraduates.

500-2 Principles of Research. Problem identification in research, review of examples of geographic research, analysis of results of research and project statements are explored with appropriate faculty. Presentation of student research problems justification and identification of student program to complete degree are required.

501-2 Seminar in Geographic Research. Seminar approach to problems of completing background research design of project statements, identification of research methodology and completion of thesis/dissertation project statements. Prerequisite: 500.

510-4 Multivariate Techniques in Geography. Introduction to matrices, vectors and linear equations; multiple regression and correlation, cononical correlation, multivariate analysis of variance and covariance, analysis of variance in two- and three-way designs, multiple discriminant analysis, classification procedures, introduction to elementary factors analysis. Examples and demonstrations of each method; basic introduction to computer applications of multivariate analyses. Prerequisite: 410 or consent of instructor.

511-2 Philosophy of Geography. The nature of geography. Current trends in the field, present day geographers and schools of thought. Geography's place among the disciplines. Prerequisite: graduate standing.

514-2 College Teaching of Geography. Prerequisite: graduate standing.

520-2 to 4 Seminar in Physical Systems Evaluation. Prerequisite: graduate standing.

521-2 to 4 Seminar in Resource Planning. Prerequisite: graduate standing.

522-4 Seminar in Economics in Geography and Planning II. (Same as Economics 525.) Public expenditure criteria based on free-market allocation, public, private, and merit goods and services, and related planning; expenditure criteria based on comprehensive plans; expenditure criteria and planning in the absence of general optimality; multiple objectives, measurement of benefits and costs, shadow prices, choice of techniques in planning; consideration of uncertainty. Critical evaluations of applied work and models of development projects, and programs, by students. Prerequisite: 422 or consent of the instructor.

524-2 to 4 Seminar in Water Resources Analysis. The major goal of this course is to provide the student with the necessary quantitative skills and perspectives needed to assess water resources management problems. Prerequisite: graduate standing.

527-2 Seminar in Community and Change. This seminar explores conflicts between forces that help to maintain communities and those that tend to fragment them; e.g., conflicts between individuality and universality, law and individual actions, virtue and history. It explores some of the forces that have transformed the human condition: the Enlightenment; the Industrial Revolution; the rise of the State; the ascent of the economic society; and hegemonies. Prerequisite: graduate standing and 456 or consent.

528-2 to 4 Seminar in Geo-processing Technology. Examines current topics and trends in the rapidly evolving field of geo-processing techniques, including geographic information systems, remote sensing and spatial decision support systems. The topics and assignments will depend on the expertise of the instructor. Prerequisite: consent.

570-2 to 4 Planning Internship. Planning internship with city or regional planning agency or private planning firm. Prerequisite: 470a or consent of department.

591-2 to 4 Independent Studies in Geography. Prerequisite: graduate standing.

593A-2 to 24 (2 to 6 per semester) Research in Physical Geography. Prerequisite: 520.

593B-2 to 24 (2 to 6 per semester) Research in Economic Geography. Prerequisite: 521.

593C-2 to 24 (2 to 6 per semester) Research in Urban and Regional Planning. Prerequisite: graduate standing.

593D-2 to 24 (2 to 6 per semester) Research in Social Geography. Prerequisite: 524.

596-2 to 4 Field Course. Prerequisite: graduate standing.

599-2 to 6 Thesis. Prerequisite: graduate standing.

600-1 to 32 (1 to 16 per semester) Dissertation. Prerequisite: graduate standing.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S*/*U* or *DEF* only.

Geology

E-mail: geology@geo.siu.edu

COLLEGE OF SCIENCE

Berry, Margaret E., Assistant Professor, Ph.D., University of Colorado, 1990; 1990. Soils, geomorphology, quaternary geology.

Crelling, John C., Professor, Ph.D., Pennsylvania State University, 1973; 1977. Coal petrology, coal geology, coal utilization.

Dutcher, Russell R., Professor, *Emeritus*, Ph.D., Pennsylvania State University, 1960; 1970. Coal geology, field geology, coal petrology.

Esling, Steven P., Associate Professor, Ph.D., University of Iowa, 1984; 1982. Quaternary stratigraphy, hydrogeology, geomathematics.

Fifarek, Richard H., Associate Professor, Ph.D., Oregon State University, 1985; 1985. Economic geology, stable isotope geochemistry; fluid inclusion studies.

Frank, Charles, O., Assistant Professor, Ph.D., Syracuse University, 1973; 1970. Metamorphic petrology, igneous petrology.

Harris, Stanley, E., Jr., Professor, *Emeritus*, Ph.D., University of Iowa, 1947; 1949.

Kruge, Michael A., Associate Professor, Ph.D., University of California, Berkley, 1985; 1987. Molecular organic geochemistry, petroleum geology.

Marzolf, John E., Associate Professor, Ph.D., The University of California, Los Angeles, 1970; 1982. Clastic sedimentology, clastic petrology, sequence stratigraphy.

Ravat, Dhananjay N., Assistant Professor, Ph.D., Purdue University, 1989; 1991. Geophysics, gravity, magnetics, tectonics.

Ritter, Dale F., Professor, *Emeritus*, Ph.D., Princeton University, 1964; 1972.

Robinson, Paul D., Senior Scientist *Emeritus*, M.S., Southern Illinois University at Carbondale, 1963; 1967.

Sexton, John L., Professor, Ph.D., Indiana University, 1974; 1985. Geophysics, seismic reflection and refraction.

Staub, James R., Assistant Professor, Ph.D., University of South Carolina, 1985; 1988. Coal geology, basin analysis, geological engineering.

Utgaard, John E., Professor, Ph.D., Indiana University, 1963; 1965. Invertebrate paleontology, paleoecology; environments of deposition, carbonate petrology.

Zimmerman, Jay, Jr., Professor and *Chair*, Ph.D., Princeton University, 1968; 1973. Structural geology, rock deformation.

The Department of Geology offers programs leading to the Master of Science degree and the Doctor of Philosophy degree in geology.

Graduate Programs

The objectives of the graduate degree programs are to develop the student's competence in the basic fields of geology and to provide for specialization dependent on student and faculty interest. Facilities and staff are available for studies involving surface and subsurface mapping, structural geology, petrology, paleontology, micropaleontology, paleoecology, coal petrology, coal geology, energy resources, stratigraphy, sedimentation, Pleistocene geology, sedimentary petrology, sedimentary environments, crystallography, mineralogy, low temperature geochemistry, ore deposits, petroleum geology, environmental geology, geomorphology, hydrogeology, and applied and solid earth geophysics. Many of the faculty are actively conducting research in which statistical and computer techniques are applied to problem solving in the earth sciences. Interdisciplinary research with other departments is encouraged.

Southern Illinois and adjacent areas offer a wide variety of geological conditions ideal for individual study and research. Experienced staff members work closely with students and provide individual assistance when necessary. The Illinois State Geological Survey and several major companies in the petroleum and coal industries actively support geological work in this area.

The major thrusts of the Ph.D. degree program focus on the geology of energy and mineral resources and geologic aspects related to exploration, development, utilization, reclamation, and environmental impact.

Students must be admitted unconditionally to the Graduate School before they can be officially admitted to either graduate program in geology. Admission to the graduate programs in geology is based on an evaluation of the preparation, ability, and promise of the applicant. Prerequisites for admission include: 1) receipt of GRE test scores sent directly to the Department of Geology;

the Geology Advanced Test is required; 2) completion of department application forms which are available on request from the department; and 3) receipt of at least 3 letters of recommendation from professors, academic advisers, former employers, or others familiar with the applicant's academic performance, research, or other relevant work. The Department of Geology normally admits graduate students for entrance in the fall semester; however, applicants will be considered for spring admission. The students will be expected to have satisfactorily completed at the undergraduate level the equivalent course work in the basic sciences required for a Bachelor of Science degree in geology at SIUC.

A student admitted with course deficiencies may be required to complete or audit some undergraduate courses. First year teaching assistants are required to enroll in and complete GEOL 500. Other specific requirements will be determined by the student's advisory committee and the department chair. Students are evaluated on an individual basis, their programs are determined by their career goals and the results of informal interviews with individual faculty members.

Requirements for the Master of Science Degree

A total of 30 hours of graduate work completed with a grade point average of 3.0 or better constitutes the minimum credit requirement for the master's degree.

Courses taken are determined by the student and an advisory committee. The student will not be allowed to apply more than 8 hours of independent study or research courses toward the master's degree (exclusive of thesis credits).

A student majoring in geology may select a minor field. The minimum course work should then include 20 hours of geology and 10 hours in the minor field.

A thesis subject must be approved by the chair of the advisory committee at least 20 weeks before the date of graduation.

A final oral examination, primarily concerned with defense of the thesis is administered as the last step before graduation. The student may be asked any questions the committee feels are relevant.

In order to pass the final oral examination, students must receive a favorable majority vote from their thesis committee meeting in formal session. Should the student fail the final oral examination, the student, upon concurrence of a majority of the committee, may arrange a time for a re-examination not less than 30 nor more than 120 days after the first examination. Students who fail the final orals on their second attempt will be ineligible for the master's degree from the Department of Geology.

Two copies of the approved thesis must be presented to the Graduate School at least three weeks prior to graduation, and a third copy must be presented to the Department of Geology.

Requirements for the Doctor of Philosophy Degree

Students entering the doctoral program in geology should meet, as a minimum, the requirements for the master's degree program listed above. However, exceptional students may be considered for direct baccalaureate degree entry or accelerated entry into the doctoral program. This requires approval by a majority vote of the faculty.

The Ph.D. degree program in geology is based primarily on the student's successful conduct of original research and presentation of an acceptable dissertation describing the results of that research. To achieve this goal, the student must meet the criteria established by the University, the Graduate School, and the Department of Geology as described below.

Students having completed a master's degree program or its equivalent must, upon entering the Ph.D. program, submit themselves to a preliminary counsel-

ing conference at the beginning of their first semester in the program. The format of the preliminary counseling conference is established by the faculty, and a copy of the procedures may be obtained in the departmental office. The purpose of this conference is to allow the students and their advisers to establish a suitable curriculum and research program commensurate with their backgrounds, interests, and professional goals. Nevertheless, each student is expected to take graduate level courses (excluding readings, independent studies, and internship) of at least 3 credits each from at least 4 different faculty members at SIUC, 3 of whom must be in the Department of Geology. The normal post-master's credit requirement is 60 semester hours, 30 of which may be 600 level dissertation credits.

Before the end of their second year in the program, students shall have (1) established a dissertation committee including their adviser and 4 additional members, one of whom must be from a department other than geology; (2) demonstrated competence in at least one research tool (the student's advisory committee will determine the requirements and research tool competence); and (3) presented themselves to the advisory committee for a preliminary written and oral examination. The format of the preliminary examinations shall be established by the faculty and a copy of the procedures may be obtained in the departmental office. Students who fail the preliminary examinations and wish to remain in the program may, with faculty consent, retake the examinations during one of the next two examination periods. Students who fail the second written-oral examination will be dropped from the program. A student having passed the preliminary examinations and having demonstrated competence in at least one research tool as required by the advisory committee, shall be admitted to candidacy for the Ph.D. degree. A second research tool, if required by the advisory committee, must be mastered before the candidate may defend the dissertation.

As a candidate for the degree of Doctor of Philosophy in geology, the student is expected to make normal progress toward the successful completion and presentation of original research. The students must complete all requirements for the degree within a 5 year period after admission to candidacy. Ordinarily, the doctoral student should expect to spend a minimum of 2 years beyond the master's degree, or its equivalent, in residence. Students will be required to present an acceptable dissertation describing original research performed with minimal supervision and deemed by the advisory committee to be of such quality as to merit publication in an appropriate professional journal.* A final oral examination will be held after completion of the doctoral dissertation. This examination will concentrate on the defense of the dissertation but is not restricted to the dissertation topic or area.

Assistantships

Teaching assistantships are awarded and supervised by the Department of Geology. Research assistantships are usually available only from research grants of individual faculty members and are supervised by the faculty member in receipt of the sponsoring grant. Research assistantship awards require prior approval of the assistantship committees of the department.

As a matter of policy, the Department of Geology does not ordinarily provide any student working for a master's degree financial support for more than two years. A Ph.D. candidate will not ordinarily be supported for more than 3 years post master's or master's equivalent. Requests for relaxation of this policy must be made in writing to the department chair.

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* Two research tools are required. The research tool is a practical knowledge of a foreign language or a computer language.

Courses (GEOL)

Courses with a laboratory may require purchase of a laboratory manual and a supply fee. All courses requiring field trips may have a field trip fee of $2 to $7.

412-3 Topics in Igneous Petrology and Geology. In-depth studies of selected topics in igneous petrology and igneous geology. The selected topics will emphasize theoretical considerations, experimental considerations and field associations of a variety of igneous rock types. Lecture, discussion sessions and laboratory. Prerequisite: 315, 415.

413-3 Quantitative Methods of Geology. An introduction to quantitative methods in a geological and earth sciences context. Topics introduced include sampling plans for geologic studies, nonparametric test of geological data, comparisons of geological samples, analysis of sequential geological data. Laboratories will deal with numerical examples from all areas of geology. Prerequisite: advanced standing and consent of instructor.

414-3 Paleobotany. (See Plant Biology 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. Lecture, lab. Prerequisite: 310, Physics 203b or 205b.

417-3 Isotope Geochemistry. Stable and radioactive isotopes and the applications of isotopic studies to igneous and metamorphic petrology, ore deposits, sedimentology, surface processes, geothermometry and geochronology. Introduction to isotopic techniques and mass spectroscopy. Laboratory or research project required. Prerequisite: 310, 315 and 325 or consent. Recommended: Physics 203, Mathematics 150 and Geology 419.

418-3 Low Temperature Geochemistry. The application of chemical principles to geologic processes that occur on and near the earth's surface. Lecture, laboratory. Prerequisite: 310, Chemistry 200, 201, 210, 211 or equivalent.

419-4 Ore Deposits. The geological and other factors that govern the exploration for and occurrence of metalliferous mineral deposits. Study of the geological settings of the major types of ore deposits. Lecture, laboratories and field trips. Prerequisite: 302, 315.

420-3 Petroleum Geology. The geological occurrences 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 and natural gas. Prerequisite: 221, 302.

421-3 Organic Geochemistry. The nature, origin and fate of natural and artificial organic materials in rocks and sediments. Topics include characterization of fossil fuels using biological marker compounds, petroleum source rock evaluation, and organic pollutants in the environment. Prerequisite: 325 or consent of instructor.

425-4 Invertebrate Paleontology. Principles of paleontology and a survey of the important invertebrate phyla and their fossil representatives. Laboratory. Field trips required. Prerequisite: 221, a biology course.

428-3 Paleoecology and Environments of Deposition. Characteristics, distribution, and classification of recent and ancient environments. Criteria for recognizing ancient environments. Sedimentological and paleoecological approaches. Recognition of ancient environments and environmental associations. Lab. Field trips required. Prerequisite: 425, 325 or concurrent enrollment.

434-3 Engineering and Environmental Geophysics. Geophysical methods used in engineering and environmental site characterization and assessment and the geophysical detection of environmental hazards. Field trips required. Prerequisite: Physics 203a or 205a, 203b or 205b, Mathematics 150.

435-3 Solid-Earth Geophysics. Earth's size, shape, mass, age, composition, and internal structure are reviewed in detail as understood from its volcanism, gravity and magnetic fields, seismicity and motion of continents and ocean basins; plate tectonics. Prerequisite: 302, Mathematics 150 or consent of instructor.

436-4 Elementary Exploration Geophysics. Theory and practice of geophysics as applied to the exploration and development of natural resources. Laboratory involves use of geophysical instruments and interpretation of data. Field trips required. Prerequisite: 220, Mathematics 150.

437-3 Field Course in Geophysics. Use of geophysical equipment for collection, analysis and interpretation of seismic, gravity, magnetic, electrical and other types of geophysical data. Prerequisite: 436 or consent.

440-1 to 4 Advanced Topics in the Geological Sciences. Individual study or research or advanced studies in various topics. Prerequisite: advanced standing and consent of instructor.

445-3 Museum Studies in Geology. History, nature and purpose of geology in museums, relationships of geology to other museum disciplines, application of geologic methods to museum functions, preparation and preservation of specimens; nature, acquisition and utilization of geologic collections in museums, role of research in museums.

450-2 Introduction to Field Geology. Introduction to field techniques, principles of geologic mapping and map interpretation. Field trip fee $5.00. Prerequisite: 302, 315 or concurrent enrollment.

454-6 Field Geology. Advanced field mapping in the Rocky Mountains, including problems in stratigraphy, structure, petrology, paleontology, geomorphology, and economic geology. Transportation cost approximately $150, supplies $6. Prerequisite: 302, 315; 450 recommended.

460-3 Geological Data Processing. Computer applications to geological problems including the processing and programming of data and the interpretation and evaluation of results. Lecture, laboratory. Prerequisite: Engineering 222 or Computer Science 202.

462-3 Fundamentals of Structural Geology II. Intermediate topics in structural geology including strain theory, field strain analysis, geometry of complex mesoscopic structures and intro-

duction to dislocations, deformation history and microfabric analysis. Hypotheses and orogenesis are discussed and evaluated. Lecture and assigned problems only. Prerequisite: 302 or equivalent.

466-3 Tectonics. Fundamentals of geodynamics applied to plate tectonics: mantle composition and rheology, deformation of the lithosphere, structural characteristics of plate margins, stability of triple junctions, diachronous tectonics, and orogenesis will be examined in detail. Prerequisite: 302, Mathematics 150 or consent of instructor.

470-3 Hydrogeology. A problem-solving oriented course which covers the analysis and interpretation of the distribution, origin, movement and chemistry of ground water. Laboratory. Prerequisite: 220, Mathematics 250.

474-3 Geomorphology. Study of erosional and depositional processes operating at the earth's surface and landforms resulting from these processes. Relationship of processes and landforms to the geologic framework is examined. Laboratory. Prerequisite: 220.

476-3 Quaternary Geology. Methods used to identify, map, date and correlate Quaternary deposits and interpret Quaternary history. Covers glacial, fluvial, coastal, lacustrine and eolian chronologies, oxygen-isotope records from ocean sediments and continental ice cores, volcanic activity and Quaternary climate change. Field trips required. Prerequisite: 220, 221 or consent of instructor; 474 recommended.

478-4 Environmental Geology. Application of principles of geomorphology and Quaternary geology to environmental problems and geologic hazards. Lectures and case studies emphasize neotectonics, volcanic hazards, landslides and other mass movements, floods, river channel changes and coastal erosion. Laboratory exercises focus on techniques for identification, mapping and analysis of geologic hazards. Prerequisite: 474. Geology 476 recommended.

480-3 Geology of Coal. Geology as related to exploration, development and mining of coal; stratigraphy, sedimentation and structure of coal deposits; type of coal basins and their tectonic setting; concepts of cyclical deposition in coal basins; origin of splits and partings in coal seams; relationship of modern environments and ancient coal-forming environments; structural problems relevant to exploration and mining of coal; methods of resource evaluation. Three 1-hour lectures/week; five half-day field trips.

481-3 Sedimentary Basin Analysis. The use of stratigraphy, structure, sedimentology and geophysics to determine the paleogeographic evolution of sedimentary basins. Topics include the study of the relationships between host strata and both primary and post-depositional nonrenewable resources, plate tectonics and basin evolution and subsurface geologic methods. Prerequisite: consent of instructor.

482-3 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.

500-1 to 2 Teaching for Geology Graduate Students. To help teaching assistants develop skills in conducting laboratory work and leading discussions. One hour required for all teaching assistants in geology. Graded *S/U* only.

510-2 Advanced Sedimentology. Basic principles of field observation, field and laboratory sampling, and data analysis of clastic sedimentary rocks; introduction to laboratory techniques; introduction to statistical, physical and empirical models in sedimentary geology. Field trips required. Prerequisite: 325 or 474.

515-3 Instrumental Analysis in Geology. An introduction to modern methods of instrumental inorganic geochemical analysis that are particularly important in the geology sciences. This includes both operational theory and practical application of methods for the analysis of minerals, rocks and aqueous solutions. Lecture, laboratory. Prerequisite: 310, Chemistry 222 or equivalent, and consent of instructor; 418 recommended.

517-2 to 9 (2 to 6 per semester) Advanced Topics in Geochemistry. Specialized topics in geochemistry. Topics covered might include thermodynamic modeling of mineral-solution equilibria, the role of kinetics in mineral-solution reactions, experimental hydrothermal geochemistry or other topics to be announced by the department. Maximum credit nine semester hours. Prerequisite: 418 or consent of instructor.

518-3 Clay Mineralogy. Study of the structure, chemistry, origin, and geologic importance of clay minerals. Industrial and other applications of clays. Lecture, laboratory. Prerequisite: 310 or consent.

520-2 to 9 (2 to 6 per semester) Advanced Topics in Igenous and Metamorphic Petrology. Petrologic principles and their relationships and other selected topics to be announced by the department. Prerequisite: consent of instructor.

522-3 Sedimentary Petrology—Siliciclastics. The petrography and petrology of siliciclastic rocks, emphasizing sandstone. Microscopic studies of composition and components of detrital clastic rocks, their origin, provenance, characteristics, diagenesis, cementation and lithification. Prerequisite: 325 or 415 or consent; 520 or 521 recommended.

523-3 Sedimentary Petrology—Carbonates. The origin, classification, diagenesis, and geochemistry of carbonate rocks, with emphasis on petrographic analysis. Study of recent carbonate depositional environments. Laboratory required. Prerequisite: 325, 418 recommended.

524-2 to 9 (2 to 6 per semester) Advanced Topics in Sedimentary Geology. Advanced topics in sedimentary geology. Topics may include clastic depositional environments, carbonate depositional environments; diagenesis of sedimentary rocks, and other topics to be announced by the department. Prerequisite: 428 or 522 or 523 or consent of instructor.

525-2 to 6 (2 to 3 per semester) Advanced Topics in Invertebrate Paleontology. Lectures, readings, field and laboratory studies, including techniques and quantitative methods of study. Preparation for research in paleontology. Topics may include corals, bryozoans, brachiopods, mollusks, echinoderms, biostratigraphy, tempo and mode of invertebrate evolution and other topics to be announced by the department.

Maximum credit six semester hours. Prerequisite: 425 or consent of instructor.

526-3 Advanced Topics in Applied Paleoecology. Lectures, field, and laboratory studies, including techniques and quantitative methods. Preparation for research in paleoecology. Emphasis on using fossil marine invertebrates and trace fossils to interpret ancient sedimentary environments. Prerequisite: 428 or consent.

535-1 to 9 (1 to 6 per semester) Advanced Topics in Geophysics. Specialized topics in geophysics. Examples include but are not limited to seismic stratigraphy, mid-continent seismicity, isostacy, data processing techniques. The topic to be covered is announced by the department. Maximum credit nine semester hours. Prerequisite: 435 or 436 or consent of instructor.

536-3 Earthquake Seismology. Observational seismology. Topics include earthquake source mechanisms; propagation, reflection and refraction of elastic waves; ray theory; dispersion of surface waves; the effect of earth structure on the seismogram; and the seismograph. Research projects will be conducted using data from the SIU Geophysical Observatory. Prerequisite: 435 or 436, Mathematics 150 or consent of instructor.

537-3 Applied Seismology. Study of the seismic reflection techniques, including theory and methods of collection and analysis of seismic reflection data, the seismic method, waveform analysis, and digital filtering with computer applications and seismic instrument characteristics. Prerequisite: Mathematics 150 or consent.

538-6 (3,3) Gravity and Magnetism. (a) Gravity. Study of gravitational methods used in the solution of geological problems; topics include theory, field operations, data reduction, anomaly separation, two and three-dimensional analysis, and interpretation. **(b)** Magnetism. Study of magnetic methods used in the solution of geological problems; topics include theory, origin, time variations and induction, paleomagnetism, magnetic properties of earth materials. Field operations, anomaly separation, and interpretation. Prerequisite: 435 or 436, Mathematics 150 or consent of instructor.

550-4 Advanced Economic Geology. In-depth examination of the geologic characteristics, classification and origin of metallic mineral deposits. Aspects of mineral exploration and mining techniques are also discussed. Laboratory exercises emphasize hand specimen and petrographic study of ore and host rock suites. Field trips required.

555-1 to 6 (1 to 3 per semester) Advanced Topics in Economic Geology. Advanced study in a specific area of economic geology to be determined by course participants. Course content may focus on a specific type of mineral deposit or such topical areas as field characteristics, mineral exploration techniques, stable isotope geochemistry, fluid inclusion studies and hydrothermal processes. Maximum six credit hours. Prerequisite: 550.

565-3 Rock Deformation and Structural Systems. Advanced topics in structural geology with emphasis on theoretical and experimental study of rock deformation and analysis of complex structural systems. Lecture and assigned problems only. Prerequisite: 462.

566-3 Advanced Topics in Structural Geology. Lectures, readings, and discussion of advanced aspects of rock deformation: dislocation theory and its applications to flow processes of rocks; experimental rock deformation; incremental and finite strain theory and analysis; and recent developments in structural geology. Prerequisite: 565.

570-3 Advanced Hydrogeology. A combination of lectures, seminars, and independent studies of advanced topics in hydrogeology, particularly geochemistry and the response of aquifers to stresses such as tides, recharge and saline intrusion. Prerequisite: 470.

576-3 Coastal Geomorphology and Sedimentology. Detailed examination of coastal processes and clastic coastal depositional systems. Coastal storms, wave processes, tidal systems, sea level changes, coastal sediment transport, deltaic, barrier island-strandplain, estuarine depositional systems and coastal stratigraphic sequences. Field trip to Louisiana and Texas Gulf Coast. Field trip fee of $25 may be incurred. Prerequisite: 474 or consent of instructor.

577-2 to 9 (2 to 6 per semester) Advanced Topics in Surfical Geology. Studies of processes, landforms, and deposits in the surface or near surface geologic setting. Selected topics to be announced by the department. Maximum credit nine semester hours. Prerequisite: consent of instructor.

578-3 Fluvial Geomorphology. Detailed study of fluvial processes and landforms within the context of major concepts in geology and geomorphology. Topics include drainage basins, hydro-climatology and surface water hydrology, channel processes, fluvial depositional systems, paleohydrology and changes in fluvial systems through time. Prerequisite: 474 and consent instructor.

579-3 Soil Geomorphology. Study of geomorphologic applications of soils. Covers the effects of time, climate, parent material, topography, eolian additions on soil development, classification and chemistry; soil indices; pedogenic thresholds; paleosols; use of soils to evaluate landform age, landform stability, Quaternary stratigraphy, faulting and climate fluctuations. Field trips required. Prerequisite: 474 or consent of instructor.

582-1 to 6 (1 to 3 per semester) Advanced Coal Petrology. Microscopy, source materials, coalification, constitution, and classification of peats, lignites, bituminous coal, anthracite; applications to industrial problems. Prerequisite: 482.

591-1 to 6 Individual Research in Geology. Investigations in geology other than those for theses or dissertations.

599-1 to 6 Thesis. Minimum of three hours to be counted toward a Master's degree.

600-1 to 30 (1 to 16 per semester) Dissertation. Research for and writing of the doctoral dissertation. Prerequisite: consent of instructor.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concur-

rent enrollment in any other course is not permitted. Graded *S / U* or *DEF* only.

Health Education

E-mail: ge1840@siucvmb.siu.edu

COLLEGE OF EDUCATION

Aaron, James E., Professor, *Emeritus,* Ed.D., New York University, 1960; 1957.

Blasini-Caceres, Lydia, Assistant Professor, Ph.D., Pennsylvania State University, 1993; 1994. HIV/AIDS prevention, community-based organizations/public health, curriculum design, cross-cultural diversity, needs assessment, school supervision and administration, bilingual education.

Boydston, Donald N., Professor, *Emeritus,* Ed.D., Columbia University, 1949; 1955.

Bridges, A. Frank, Professor, *Emeritus,* D.H.S., Indiana University, 1952; 1947.

Drolet, Judy C., Professor, Ph.D., University of Oregon, 1982; 1982. Human sexuality, sexuality education, mental health, drug education, professional preparation, foundations of health education.

Grissom, Deward K., Professor, *Emeritus,* Ed.D., Columbia University, 1952; 1956.

Kittleson, Mark J., Associate Professor, Ph.D., University of Akron, 1986; 1989. AIDS, health care program planning, stress management, research design, vital statistics, and teaching strategies.

Lacey, Ella P., Associate Professor, *Emerita*, Ph.D., Southern Illinois University at Carbondale, 1979; 1979.

LeFevre, John R., Professor, *Emeritus,* Ed.D., Teachers College, Columbia University, 1950; 1955.

Ogletree, Roberta J., Assistant Professor, H.S.D., Indiana University, 1991; 1991. Women's health, human sexuality, AIDS and other STDs, curriculum development, professional preparation, health issues in aging.

Phillips, Frances K., Associate Professor, *Emerita,* M.A., Columbia University, 1940; 1944.

Richardson, Charles E., Professor, *Emeritus,* Ed.D., University of California, Los Angeles, 1959; 1954.

Ritzel, Dale O., Professor, Ph.D., Southern Illinois University at Carbondale, 1970; 1966. Injury control, occupational health and safety, computer applications, research design, child safety.

Russell, Robert D., Professor, Ed.D., Stanford University, 1954; 1965. Positive holistic health, multicultural and ecological perspectives, human/spiritual interacting, death education, philosopies of health and health education, qualitative research, non-traditional thinking in health.

Sarvela, Paul D., Professor, Ph.D., University of Michigan, 1984; 1986. Program evaluation, community health and epidemiology, needs assessment and strategic planning.

Sliepcevich, Elena M., Professor, *Emerita,* D.P.E., Springfield College, 1955; 1973.

Vitello, Elaine M., Professor, Ph.D., Southern Illinois University at Carbondale, 1977; 1977. Community health, content analysis, health care services, health care advertising and marketing, professional preparation.

Welshimer, Kathleen J., Assistant Professor, Ph.D., University of North Carolina at Chapel Hill, 1990; 1990. Community organizing, pregnancy and women's health, stress and social support, social-psychological and anthropological perspectives, decision making, and perceived health risk.

Zunich, Eileen M., Assistant Professor, *Emerita,* Ph.D., Southern Illinois University at Carbondale, 1970; 1967.

The Department of Health Education and Recreation offers a graduate program leading to the Master of Science in Education degree. Persons interested in pursuing course work in school health education, community health education, or occupational and environmental health should initially consult the department chair regarding appropriate courses and assignment to an adviser.

Application / Admission. Requirements for admission to the master's degree program in health education are:

1. Completion and submission of Graduate School admission application; A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.
2. Completion and submission of Department of Health Education and Recreation admission application that includes a 300–500 word statement regarding experience, career goals, and research interests.
3. Submission of three letters of recommendation.
4. Submission of Miller Analogies Test (MAT) score. The MAT is available through the Testing Center on the SIUC campus and is available also

throughout the U.S. through testing centers on university or college campuses. Testing schedules and fees vary among testing centers.

5. Submission of **all** official transcripts for previous undergraduate and graduate work.

All specified application materials must be submitted directly to the Department of Health Education and Recreation, Southern Illinois University at Carbondale, Carbondale, Illinois 62901-4632. Further information may be obtained by calling 618-453-2777.

Application deadline for summer and fall admission is February 15; application deadline for spring admission is September 15.

Master of Science in Education Degree

Applicants for the master's degree must have a 2.70 undergraduate grade point average (*A* = 4.0) to be admitted in good standing.

Only graduate level courses taken after a student's admission will be included automatically in the student's degree program. "Unclassified" hours or hours from other degree programs must be petitioned into the program. Courses eligible for inclusion in a degree program must be graduate level and cannot have been applied toward another degree.

An applicant with an undergraduate grade point average below 2.70 but above 2.40 may petition the department for conditional admission. For these students, the following will apply:

1. A student must take 12 hours of graduate level work in health education with a grade point average of at least a 3.5. If then admitted to health education, the student will be allowed to apply no more than 6 of those semester hours toward degree requirements.
2. Health Education 533a and 533b cannot be taken until a student is formally admitted to the graduate program in health education.

For potential health education graduate students with an undergraduate grade point average of 2.70 or better who are taking courses as unclassified students, the following will apply:

1. No more than 6 hours of graduate credit can be applied toward the master's degree in health education.
2. Health Education 533a and 533b cannot be taken until a student is formally admitted to the graduate program in health education.

M.S. Degree Requirements

A student must complete a minimum of 40 semester hours with the following core courses (26–29 hours) being required:
HED 401-3 Epidemiological Approaches to Disease Prevention and Control
EPSY 402-3 Basic Statistics (or equivalent)
HED 491-3 Health Teaching/Learning: School and Community
HED 500-3 Community Organization for Health Education
HED 526-3 Evaluative Approaches to Health Education
HED 533a-4 Foundations of Health Education I
HED 533b-4 Foundations of Health Education II
HED 599-3 to 6 Thesis

Each student will work with an adviser to select an additional 11–14 hours from courses within the Department of Health Education and Recreation or related courses from other departments.

With adviser approval, HED 491-3 may be waived if the student has completed a health education methods course as an undergraduate student or in another graduate program or provides evidence of formal teaching experience.

Doctor of Philosophy Degree in Education

The Department of Health Education and Recreation participates in the doctoral program with a concentration in health education. Other than general requirements of the Graduate School for all Ph.D. degrees and of the College of Education for all Ph.D. degrees in education, the Department of Health Education and Recreation requires satisfactory completion of HED 533a and 533b and HED 597a and 597b. Other courses are required in community health and school health according to the concentration. Programs are individually developed with each student. A demonstration of competency in educational statistics or successful completion of Educational Psychology 506 and 507 is required for doctoral students in the Department of Health Education and Recreation.

See the description of the Ph.D. degree in education in this chapter for further details.

Inquiries regarding application should be directed to the chair of the Department of Health Education and Recreation.

Courses (HED)

400E-2 to 3 Health Appraisal of School Children-Special Topics. Includes the screening, testing and evaluation for numerous health conditions related to hearing, vision, the cardiovascular system, skin, spine and such diseases as diabetes, tuberculosis, herpes and other such ailments. Included will be classroom lectures and presentations, a supervised practicum and all students will develop a viable program in a particular problem area in a public school program.

401-3 Epidemiological Approaches to Disease Prevention and Control. Principles and practices in the cause, prevention and control of diseases in various community settings.

402-3 Death Education. Designed to prepare educators to conduct learning experiences about death and dying in a variety of school, college, medical care, and community settings. Stress will be placed on developing brief, functional curricula and usable, imaginative teaching-learning materials and on evaluating resource materials for use in educating at various levels of maturity.

403-3 Health Advocate Training. Provides students with knowledge and skills in the areas of peer health education, health advocacy and referral. Instruction includes health care information from a wellness point of view. Prepares students for practicum in health advocate program. Credit will not count toward a Master's degree in health education. Prerequisite: consent of instructor.

405-3 Sex Education. Examines various programs of sex and family life education in schools, recognizing a range of community attitudes.

407-3 Drug Education. Meets requirements of Illinois state law for education concerning drugs including alcohol for grades K-12. Explores motivations behind use and abuse of drugs. Offers experiences in development of curriculum and teaching approaches and material.

410-3 Human Sexuality. Provides detailed in-depth information on such topics as philosophical views of sexual behavior, sex techniques, sex therapy, sexual variations, sexual anatomy and physiology, including the sexual response and changes with age and sexual development in childhood.

411-6 Emergency Medical Technician in the Wilderness. Placement of trained emergency medical technicians into a wilderness situation and having them adopt previously learned skills and newly developed skills. Prerequisite: 310 or 434.

430-3 Health and Injury Control in A Work Setting. (Same as Industrial Technology 430.) Assesses the health and injury control programs present in a work setting. Emphasis given to employee programs in health, wellness and injury control that are effective. Field trips to work sites are included.

434-4 Advanced First Aid and Emergency Care. Meets the needs of those in positions where a complexity of first aid emergency care procedures are needed. American Red Cross and American Heart Association certification may be obtained. Materials purchased from the American Red Cross and/or the American Heart Association are required in this course. Consent of instructor required.

440-3 Health Issues in Aging. Students enrolled in the course will be involved in a wide variety of learning activities focusing on health needs of the elderly. The course is designed for students who have a special interest in health implications of aging.

441-3 Women's Health. The course deals with a wide variety of health concerns of American women as consumer in the current health marketplace. Major categories of topics include health products, health services and sources of health information of particular interest to women. Emphasis is also placed on current health related issues of women. The major purpose of the course is to provide a basis for informed decision-making by the female consumer.

442S-5 Driver and Traffic Safety Education — Practicum. Provides prospective teachers with simulation, range, and on-road teaching experience with beginning drivers. Students may be required to purchase materials not to exceed $15. Prerequisite: 302S.

443S-3 Driver and Traffic Safety Education — Program Administration. Emphasizes administration, reimbursement, scheduling, public

relations, planning and evaluation of driver education. Prerequisite: 442s or consent of instructor.

444-3 Modern Gerontology. This multidisciplinary course in gerontology is a survey of various disciplines which contribute to a body of knowledge vital to working, performing research and teaching in an aging society.

445-3 Advanced Driver Education Instructor Training. Prepares prospective instructors of advanced driving techniques. Emphasis is placed upon safe driving practices, vehicle dynamics, emergency vehicle operation, in-car response to simulated driving emergencies and instructional techniques. Prerequisite: consent of instructor.

446-4 Motorcycle Rider Education Instructor Training. Provides prospective teachers with on-cycle teaching experience with beginner riders. Addresses program administration, scheduling, public information techniques, equipment procurement, evaluation and instructional technology. Certification as Motorcycle Rider Course Instructor can be obtained. Materials purchased from the Motorcycle Safety Foundation are required in this course. Prerequisite: consent of instructor.

450-3 Health Programs in Elementary Schools. Orientation of teachers to health programs and learning strategies. Designed for elementary education majors.

455-3 Computer Applications in Health Education. Designed for students with little or no previous experience with computers. The course will be applications oriented, with an introduction to the potential uses of computers in the field of health education.

461-1 to 12 Health Education Workshop. A different focal theme each year; e.g., mood modifying substances, ecology, human sexuality, emotional and social health dimensions. Information, ideas, and concepts are translated into teaching-learning materials and approaches; continuing opportunity for interaction between prospective and experienced teachers.

470S-3 Highway Safety as Related to Alcohol and Other Drugs. Relationship between alcohol and other drugs and traffic accident causes. A review of education programs designed to minimize drug related accidents. Prerequisite: advanced standing or consent of instructor.

471-2 Health Education Instructional Strategies. This course is designed for graduate students who are teaching assistants in the Department of Health Education. The purpose of the course is to enhance professional skills of those who are responsible for teaching health education, general education and first aid.

480S-3 Traffic and Driver Education Program Development. Acquaints students with curriculum innovation, current philosophy, learning and teaching theories, and instructional designs. Students will develop learning packages and modules. Prerequisite: 443s or consent of instructor.

483-3 Community Health Administration in the United States. Background and development of community health administration structures in the United States; the dynamics and trends evolving from current health and medical care programs and practices. Prerequisite: 355.

485-3 International Health. Health beliefs, values and practices of peoples in various cultures as related to a total way of life of potential value to both prospective teachers and students in other fields.

488-3 Environmental Dimensions of Health Education. Application of the principles of learning to understanding people interacting with their environment. Emphasis placed upon individual and community responsibilities for promoting environmental health. Rural and municipal sanitation programs and practices are included.

489-3 Introduction to Vital Statistics. An introduction to bio-statistics; examination of theories of population projections; collection, organization, interpretation, summarization and evaluation of data relative to biological happenings with emphasis on graphic presentation.

490-2 to 6 Field Experiences in School, Community Health or Safety Education. Field observation, participation and evaluation of current school or community health education or safety programs in agencies relevant to student interests. Prerequisite: consent of instructor.

491-3 Health Teaching/Learning: School and Community. Teaching and learning strategies at secondary school levels and in other community group settings. Opportunities to examine and observe a variety of educational strategies applicable to health education.

496-4 Industrial Hygiene. Provides a background in the recognition, evaluation and control of toxic materials and hazardous physical agents in the work environment. Prerequisite: consent of instructor.

499-3 Rx: Education in Health Care Settings. Designed for members and potential members of the health care team to explore educational concepts and strategies applicable to a variety of health care settings. Includes rights and responsibilities of consumer and professional, determinants of health behavior, contrasting models of health care, communication skills, media and materials and planning, implementing and evaluating educational programs. Open to medical and dental personnel, nurses, health educators, dieticians, therapists, pharmacists, social workers and related professionals.

500-3 Community Organization for Health Education. Theory and practices in community organization for health education; group work methods and leadership theories are explored. Field observations required.

510-3 Curriculum in Health Education. Analyzes the significance of current trends in curriculum theory and design; develops objectives, content, learning approaches, resource teaching-learning materials; and evaluation as components of a curriculum guide.

511-3 Health Education Conference Practicum. A summer practicum course taken in conjunction with 461, 462 or 463. Participants help plan the conference, analyze activities, suggest alternatives, assume leadership responsibilities, prepare conference proceedings and design a comparable experience with another focal theme. Prerequisite: consent of instructor.

safety education, examining a variety of professional materials for their relevance to such a framework. Reading, reporting, discussing, and interacting in relation to issues of contemporary and future concerns by conceptualizing health as a process in the realization of individual and societal goals.

520-3 Special Projects in Health Education. Study of problems in health education and safety education culminating in a research paper.

526-3 Evaluative Approaches to Health Education. Survey and analysis of health testing and evaluation procedures, uses and limitations of knowledge and attitude tests, behavioral inventories, check lists, questionnaires, interviews and other techniques.

530S-3 Research in Traffic Safety. A study of unique problems related to traffic safety and a review and evaluation of contemporary studies. Prerequisite: graduate standing or consent of instructor.

533A-4 Foundations of Health Education I. Historical and philosophical foundations of health education dealing with principles of the discipline and preparation for services as a professional. Consideration of theoretical models of health and health education, professional ethical issues and future directions.

533B-4 Foundations of Health Education II. Health education programs and program development and the interrelation of these with research and evaluation. Consideration is given to ethical, legal and political issues affecting health education. Prerequisite: 533a or consent of instructor.

536-3 Professional Preparation in Health Education. Considers national, state and local factors influencing professional preparation, accreditation and certification processes. Emphasis upon influences of official and non-official agencies. Historical perspective, the present status, and future directions of the profession.

540-2 Health Facilities Management. An examination of planning approaches for health facilities and licensure, accreditation and certification, and various operational considerations for health facilities.

541-3 Issues in Health Care. Examination of current and continuing issues in the provision, administration, financing and regulation of health care services. Prerequisite: 483 or consent of instructor.

550S-3 Current Developments in Traffic and Safety Education. Current problems, trends and research studies in traffic and safety education are reviewed, critiqued and evaluated.

555S-3 Traffic Safety Management. Course deals with highway safety legislation and other acts related to traffic safety. Application of safety management techniques, procedures and structure of federal and state agencies are emphasized. Prerequisite: consent of instructor.

590-8 Practicum in Community Health. Students are assigned full-time to a community health agency for experiences in health education. Restricted to those specializing in community health.

592-8 Practicum in Safety and Industrial Health. Students are assigned full-time to a safety agency or industry for experience in either safety or industrial health. Restricted to those specializing in safety industrial health. Prerequisite: consent of instructor.

597-2 (1,1) Seminar in Health Education. Advanced graduate students discuss individual health projects and present research problems. Each will present a dissertation prospectus.

598-3 Institute: Writing Research Proposals. Consideration is given to funding sources, proposal guidelines, procedures for support, budgetary requirements and evaluation procedures. Students examine different types of funded projects, develop a research prospectus and analyze the art of grantsmanship and political action.

599-1 to 6 Thesis.

600-1 to 32 (1 to 16 per semester) Dissertation.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Higher Education

COLLEGE OF EDUCATION

Casebeer, Arthur L., Professor, *Emeritus*, Ed.D., Oregon State University, 1963; 1969.

Graham, Jack W., Professor, *Emeritus*, Ph.D., Purdue University, 1951; 1951.

Keim, Marybelle C., Associate Professor, Ph.D., Michigan State University, 1972; 1986.

Spees, Emil R., Associate Professor, Ph.D., Claremont Graduate School, 1969; 1969.

Wallace, James A., Jr., Assistant Professor, Ph.D., Texas A&M University, 1993; 1994.

Graduate Study in Higher Education

The Department of Educational Administration and Higher Education provides graduate study leading to the Master of Science in Education degree in higher education.

The graduate program in higher education offers students an opportunity to study and explore the concept of higher education as a field of study. The faculty

of this program encourages and assists students in developing a lifetime commitment to the study of higher education. They also provide pre-service and in-service preparation for persons who are teaching or serving as administrators or who expect to teach or serve as administrators in two-year and four-year colleges and universities, and related post-secondary educational institutions and agencies.

Financial Aid

The Department of Educational Administration and Higher Education assists students in their efforts to find financial support. Graduate assistantships are available throughout the University in different administrative offices and residence halls. Students wishing to expand their administrative and teaching skills through a variety of paid experiences should consult their academic advisers about possible financial assistance, including graduate fellowships and special awards. Since a personal interview is required for most graduate assistantships, applicants should work with departmental faculty to arrange a campus visit as early as possible. A very limited number of paid internships are available through neighboring institutions.

The Master of Science in Education Degree

The Department of Educational Administration and Higher Education offers a program in higher education leading to the Master of Science in Education degree. The emphasis of this degree is to provide individuals with the background and skills important to accepting a wide range of teaching and administrative positions in higher education.

Application. Inquiries requesting application materials should be directed to the chair of the Department of Educational Administration and Higher Education.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Admission and Retention. Students applying for admission are encouraged to have some leadership experience prior to starting graduate study. Students who expect to complete a program to prepare them for teaching in a community college are expected to have an undergraduate major in a subject area commonly taught in a community college.

Each applicant is considered for acceptance to graduate study on an individual basis with much consideration being given to evidence showing the applicant's commitment to the field of higher education as a career.

Each student works closely with an adviser in program preparation. Each student also has a committee that assists in reviewing the student's progress, in supervising the thesis or research paper, and in administering the final examination. The records of each master's degree student are reviewed periodically by the adviser to determine whether the student should continue in the program.

Program Requirements. Students will develop, with their individual adviser, a suitable sequence of courses that will be designed to assist them in attaining academic and professional objectives.

Community Junior College Teaching (32 semester hours, minimum). Students who wish to teach in a community college must complete at least 20 semester hours in their teaching specialty and at least 12 hours in specified courses in educational administration and higher education, for a minimum of at least 32 semester hours. Students in this program must secure prior to admission a sub-

ject matter adviser from the faculty of the subject area who will agree to help plan the student's academic program.

The common core of courses required of students in this program includes the following:
EAHE 516-3 College Students and College Cultures
EAHE 518-3 College Teaching
EAHE 524-3 Curriculum Design and Policy
EAHE 526-3 The Community College

Students must also complete a minimum of 20 semester hours in their teaching specialty. The adviser will often recommend additional courses to assist the student in meeting special requirements. Recommended courses beyond the minimum requirements are:
EAHE 500-3 Educational Research Methods
EAHE 595-2 to 6 Internship or
EAHE 599-3 Thesis

College Student Personnel (48 semester hours). This program is designed to prepare entry-level and middle management professionals to work in institutions of higher education in the general area of student affairs or student development services. Students must complete a minimum of 48 semester hours in courses designed to prepare them as a generalist in such fields as admissions, alumni relations, career development, financial aid, orientation, placement, residence life, and student activities/programming. Through elective coursework, students may personalize their programs to acquire a specialized emphasis in either student development or administration. Individuals interested in a specialized emphasis in counseling may complete a double major in higher education and in educational psychology.

The common core of courses for this program includes (33 semester hours):
EPSY 402-3 Basic Statistics (a higher level course may be substituted)
EAHE 500-3 Educational Research Methods
EAHE 508-2 Student Development Theories
EAHE 510-3 Higher Education in the United States
EAHE 513-3 Organization and Administration in Higher Education
EAHE 515-3 College Student Development: Operations and Policies
EAHE 516-3 College Students and College Cultures
EAHE 535b-2 Higher Education Seminar I: Law and Higher Education
EAHE 535s-4 Higher Education Seminar I: Professional Seminar in Student Affairs
EAHE 593/599-3 Individual Research/Thesis
EAHE 595-3 Internship

The elective coursework, a minimum of 15 hours, may be completed within the department, however, students are encouraged to select courses from multidisciplinary sources in consultation with their adviser. Students must complete the required credit internship in addition to the paid assistantship they secure as part of their admission to the program. It is essential that the credit internship experience be in a setting different than their paid assistantship.

Research Requirements (for all master's degree specializations within higher education). Each student shall demonstrate research competencies through writing an acceptable research paper or master's thesis (involves original research). Students who select the thesis option must have an approved prospectus on file at least 6 months in advance of the anticipated graduation date; they must enroll for 3 hours of EAHE 599, Thesis; and they must have a committee of at least 3 faculty members. Students who elect to write a research paper must have a committee of two faculty members, and are encouraged to enroll for three semester hours of EAHE 593, Individual Research.

Final Examination and Grade Requirements. All master's degree students are required to complete successfully a final examination which usually consists of a defense of the research paper or thesis. The exam may be written or oral or both. Students must complete at least 21 semester hours of graduate credit with grades of *A, B,* or *C* in courses graded *A* through *F.* Upon successful completion of all requirements, including at least a *B* average for all course work, the student is recommended to the Graduate School for graduation.

For a list of courses, see Educational Administration.

History

E-mail: griffjan@siu.edu

COLLEGE OF LIBERAL ARTS

Allen, Howard W., Professor, Ph.D., University of Washington, 1959; 1962. United States: 20th century; social science history.

Allen, James Smith, Professor, Ph.D., Tufts University, 1979; 1991. European; Modern: France; social and cultural.

Ammon, Harry, Professor, *Emeritus,* Ph.D., University of Virginia, 1948; 1950.

Barton, H. Arnold, Professor, Ph. D., Princeton University, 1962; 1970. European: 18th century; France; Scandinavia; American immigration.

Batinski, Michael C., Associate Professor, Ph.D., Northwestern University, 1969; 1968. Early America.

Bean, Jonathan J., Assistant Professor, Ph.D., Ohio State University, 1994; 1995. U.S.: Economic and Business.

Bengtson, Dale R., Assistant Professor, Ph.D., Hartford Seminary Foundation, 1971; 1973. History of Religions.

Carr, Kay J., Associate Professor, Ph.D., University of Chicago, 1987; 1989. U.S. Social; 19th century; Illinois, frontier, historical geography.

Carrott, M. Browning, Associate Professor, Ph.D., Northwestern University, 1966; 1967. United States: constitutional and legal.

Chen, Jian, Associate Professor, Ph.D., Southern Illinois University, 1990; 1995. Modern Chinese history: diplomatic.

Conrad, David E., Professor, *Emeritus*, Ph.D., University of Oklahoma, 1962; 1967.

Detwiler, Donald S., Professor, Dr. phil., Goettingen University, Germany, 1961; 1967. European: German and diplomatic; contemporary; the WWII era; historiography.

Dotson, John E., Associate Professor, Ph.D., Johns Hopkins University, 1969; 1970. European: Medieval and Renaissance, Italy; Maritime.

Fladeland, Betty L., Professor, *Emerita,* Ph.D., University of Michigan, 1952; 1962.

Gardiner, C. Harvey, Professor, *Emeritus,* Ph.D., University of Michigan, 1945; 1957.

Gold, Robert L., Professor, *Emeritus,* Ph.D., University of Iowa, 1964; 1965.

Haller, John S., Jr., Professor, Ph.D., University of Maryland, 1968; 1990. U.S. History, Intellectual; history of medicine and pharmacology.

Kuo, Ping-Chia, Professor, *Emeritus,* Ph.D., Harvard University, 1933; 1959.

Lieberman, Robbie, Associate Professor, Ph.D., University of Michigan, 1984; 1991. Contemporary U.S., War and Peace, social movements.

Morgan, Marjorie L., Associate Professor, Ph.D., Tulane University, 1988; 1988. Britain: 18th and 19th centuries; social and cultural.

Murphy, James B., Associate Professor, *Emeritus,* Ph.D., Louisiana State University, 1968; 1968.

O'Day, Edward J., Associate Professor, A.M., Indiana University, 1956; 1962. European: diplomatic; 20th century; Ireland; American immigration.

Shelby, Lon R., Professor, *Emeritus,* Ph.D., University of North Carolina, 1962; 1961.

Simon, John Y., Professor, Ph.D., Harvard University, 1961; 1964. United States: Civil War and Reconstruction; Illinois; women.

Stocking, Rachel, Assistant Professor, Ph.D., Stanford University, 1994; 1994. European: Ancient and early medieval; cultural and political; Spain.

Thompson, Julius E., Associate Professor, Ph.D., Princeton University, 1973; 1989. American and African-American History; modern Africa.

Vyverberg, Henry S., Professor, *Emeritus,* Ph.D., Harvard University, 1950; 1968.

Weeks, Theodore R., Assistant Professor, Ph.D., University of California, Berkeley, 1992; 1993. Russia/USSR, East Central Europe: cultural and political; Nationalism.

Werlich, David P., Professor and *Chair,* Ph.D., University of Minnesota, 1968; 1968. Latin American: Andean region.

Wilson, David L., Associate Professor and *Director* of Graduate Studies, Ph.D., University of Tennessee, 1974; 1974.; United States: foreign relations.

Wu, Tien-Wei, Professor, *Emeritus,* Ph.D., University of Maryland, 1965; 1972.

The Department of History offers graduate programs leading to the Master of Arts and Doctor of Philosophy degrees.

Research Facilities

Morris Library on the campus is the fourth largest library in Illinois. Housed in a modern seven-story building, it contains more than 2 million volumes and is growing at a rate of over 60,000 items per year. Morris Library acquires current scholarly publications not only from United States but also from Latin America and European publishers. The long-term use of highly specialized materials is afforded by the affiliation of Morris Library with the Center for Research Libraries in Chicago.

The holdings in history and related areas amount to more than 500,000 volumes. To these must be added 20,000 reels of microfilm containing printed secondary works and 6,000 volumes of printed source material and 30,000 volumes of early American imprints prior to 1800 on microtext. Among the materials in the process of acquisition is a microtext edition of all newspapers published in the United States prior to 1820.

The library also possesses substantial holdings in the form of microfilm editions of presidential papers, dispatches and instructions of the state department since 1789, massive holdings in consular records, and the Adams family papers. The library has been a complete repository of United States government documents since 1954 and holds a large collection of earlier documents, including a virtually complete Congressional set. With the publication of the Ulysses S. Grant papers by the Southern Illinois University Press and the location of the Grant Association on the campus, the library is acquiring what will become the country's leading collection of Grant books and correspondence.

Following the acquisition of the 7,000-volume library of Jose Morgrovejo Carrion of Ecuador in 1960, the library has systematically expanded its holdings in Latin American history, government, literature, and anthropology. The papers of Vasquez Gomez, Mexican vice-president (1907–1919), and Samuel Putnam, American expert on Latin American affairs, provide rich research opportunities. Extensive files of serial publications from Argentina, Bolivia, Paraguay, Uruguay, Cuba, and Mexico also contain diverse sources for investigation. Many of the above materials are unavailable elsewhere in the United States.

Holdings in European history include the standard documentary publications, as well as scholarly serials and journals. The materials to support research are strongest in modern German and English history.

Admission

Graduate work in history is offered at both the master's and the doctoral levels. Admission to programs administered by the Department of History must be approved by the department, with approval dependent upon the preparation, ability, and promise of the individual student.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

M.A.: for the Master of Arts degree major in history, the department's admission requirements are those of the Graduate School plus applicants must provide a report of the result of the general test of the Graduate Record Examination. Students admitted with a GPA of less than 2.7 must establish a 3.00 GPA in history courses in the first semester. The department reserves the right to terminate from the history program a student who does not establish and maintain a 3.00 GPA in history courses.

Ph.D.: for admission to the doctoral program, each applicant should submit to the department, in addition to the material required by the Graduate School, the following: three letters from former teachers, preferably at the graduate level; a

letter in which the applicant expresses professional and personal objectives; and a report of the result of the general test of the Graduate Record Examination.

Requirements for the Master of Arts Degree

Two programs of study lead to the M.A. degree in history: the thesis and two-field options. The thesis option requires a thesis which demonstrates the candidate's capacity to carry out independent and original research. A candidate in the thesis program should, with the approval of the director of graduate studies, select a thesis adviser and a thesis topic by the end of the first full-time semester in the program. As many as six semester hours may be taken in thesis research.

A candidate must submit an acceptable thesis and pass a comprehensive oral examination covering the selected field of concentration and the candidate in the thesis program must take at least one research seminar in which a paper will be written.

A candidate in the two-field program must complete two research papers with a grade of *A* or *B*. These papers are normally to be prepared in the department's regularly scheduled research seminars. A copy of one paper must be filed with the Graduate School; copies of both papers must be filed with the department. Each candidate is required to pass a comprehensive written examination conducted by a committee consisting of three persons. The examination will cover two fields chosen in consultation with the candidate's committee from the following list.

United States to 1877
United States, 1865 to present
Latin America, Colonial
Latin America, National
Europe, Mediaeval
Europe, early modern
Europe, modern
England, modern
East Asia

History may be chosen as a minor when a student's program of study allows for a graduate minor or as a teaching specialty for the Master of Science in Education degree major with a major in secondary education or higher education.

Students enrolled in the Master of Arts degree program must consult with the director of graduate studies in the Department of History before registering for courses. Students enrolled in either of the Master of Science in Education degree programs must consult the history director of graduate studies and the appropriate department in the College of Education before registration.

For the Master of Arts degree major in history, 30 semester hours of satisfactory graduate work are required; at least 18 of these 30 hours must be on the 500 level. Within this general requirement, at least 20 semester hours must be in appropriate history courses, with at least 10 of the 20 hours on the 500 level. The remainder of the hours may be taken in courses on the 400 level.

All candidates for the Master of Arts degree must satisfy the requirement for a research tool by demonstrating proficiency in a foreign language or in quantitative methods (statistics, computer programming, or data management).

The language research tool option may be fulfilled either by passing Foreign Language 488 with a grade of *A* or *B,* or by achieving a satisfactory score on the Graduate School foreign language test, or by special testing arrangements made between the student, the director of graduate studies, and the student's adviser.

Graduate students may demonstrate proficiency in quantitative methods by passing two courses with a grade of *A* or *B,* from among the following: EPSY 506 and 507; POLS 503a and 503b and; MATH 516a and 516b. The courses selected will be determined in consultation among the student, the student's adviser, and the director of graduate studies. With the consent of the director of graduate studies, other courses in statistics and computer science may be accepted in fulfillment of the research tool requirement. None of the courses used to satisfy the

research tool requirement may be counted as part of the thirty semester hours of graduate work required for a master's degree.

The Doctor of Philosophy Degree

A student seeking the Ph.D. degree in historical studies must pass preliminary examinations and submit a satisfactory dissertation which involves independent and original research. In preparing for preliminary examinations, a doctoral student must complete at least 24 hours of credit on campus within a period not to exceed four calendar years before being admitted to candidacy. The courses and hours of credit necessary for a doctoral student to prepare for preliminary examinations will be determined by the student's advisory committee and must include successful completion of four colloquia or research seminars with grades of *A* or *B* in which at least two major papers are prepared. The goal is to develop high competence in the selected fields in which the student will be examined. Students are responsible for preparing five fields, one of which may be outside the field of history. Three of the five fields will be in the broad areas of United States, European, Latin American, or Asian history encompassing major historical periods; two of the fields will emphasize depth of preparation rather than breadth and will normally involve shorter time periods or topical specialties. A list of Ph.D. degree fields reflecting the current expertise of the faculty and approved by the department's graduate studies committee will be kept on file in the office of the director of graduate studies and the department chair. Examinations will cover four fields and the student can be certified as proficient in the fifth field, providing that all courses taken in preparation for that field are passed with grades of *A* or *B*. Full-time Ph.D. students who have not passed their preliminary examinations must take, in each semester, at least six semester hours of graded courses, at least three of which must be on the 500 level. Dissertation hours may be taken prior to admission to candidacy only with the approval of the graduate studies committee.

The department requires all candidates to pass a reading examination in two foreign languages. With the approval of the department, quantitative methods, (statistics, computer programming, or data management) may be substituted for one language. Procedures for demonstrating proficiency in foreign language or quantitative methods are the same as those required for the Master of Arts degree. These requirements must be satisfied prior to the preliminary examinations.

After completing the course work, fulfilling the research tool requirements, passing the preliminary examinations, and presenting an acceptable dissertation prospectus, the student will be recommended for Ph.D. candidacy and will devote full time to the dissertation. Dissertation subjects must be chosen from either United States history, Latin American history, or European history. The final oral examination will cover the field of the dissertation and related matters.

Assistantships and Fellowships

Fellowships and teaching assistantships are available to qualified graduate students. All carry stipends and remission of tuition. Application for these awards should be submitted by January 15.

Additional information concerning rules governing the graduate program in history may be obtained by writing to the director of graduate studies, Department of History.

Courses (HIST)

411-3 World of Ancient Greece. An investigation into the societies, cultures and government of Greece and the Eastern Mediterranean from the time of the Trojan War to the conquests of Alexander the Great. The course will focus on primary sources and modern analyses pertaining

to such issues as slavery, democracy, religion, Athenian imperialism and cultural difference.

412-3 World of Ancient Rome. An investigation into the society, culture and government of the Romans and the peoples they conquered from the time of Romulus and Remus to the "barbarian" invasions. The course will focus on primary sources and modern analyses pertaining to such issues as imperial expansion and decline, Roman law and politics, social conflict and cultural difference.

413-6 (3,3) Medieval Society. (a) The Early Middle Ages. A.D. 400-1000; **(b)** The Late Middle Ages, A.D. 1000-1400. An examination of the distinctive elements of medieval European civilization. The first semester will consider the transition from ancient to medieval society and the gradual development of a new social and economic regime. The second semester will be devoted to a study of the full development of that new regime, its flowering in the 13th century and the crisis of the 14th century.

418-3 Renaissance. The focus on the Renaissance in Italy and in particular on its relation to the social and economic context in which it developed. The spread of humanism and humanistic values to other areas of Europe will also be considered.

420-3 Reformation. Concentrates on the movement of religious reforms in the 16th Century. Emphasis on its roots in the past, particularly in earlier expressions of popular piety and to the wider social and political effects in the 16th and 17th centuries.

421-6 (3,3) Absolutism and Revolution: Europe 1600-1815. (a) 1600-1715; **(b)** 1715-1815. The development of enlightened despotism, the rise of the revolutionary movement and the Napoleonic period.

422-6 (3,3) Intellectual History of Modern Europe. (a) 1600-1815; **(b)** Since 1815. The first semester will cover the Age of Reason, the Enlightenment, and Early 19th Century Romanticism. The second semester will cover the period from Marx and Darwin to the Contemporary World.

423-3 Diplomatic History of Modern Europe. A study of the European state system and the diplomacy of the major powers, with emphasis on events since 1870.

424-6 (3,3) Social and Revolutionary Movements in Nineteenth Century Europe. (a) 1815-1871; **(b)** 1871-1914. Changing social and political structure of Europe caused by the impact of industrialization and the French Revolution. The consequences of these developments in terms of the emergence of new social forces and the development of movements for social and political revolution.

425-6 (3,3) Twentieth Century Europe. (a) Era of the World Wars; **(b)** Since 1945. Political, social, cultural and economic development of the major European states during the present century.

432-3 History of France. Social, economic, political and intellectual evolution from medieval origins to the present day. French contributions to western culture.

433-6 (3,3) History of Germany. German state and society from antiquity to the present. **(a)** to 1866; **(b)** since 1866.

434-3 History of Scandinavia. Denmark, Norway, Sweden, Finland and Iceland. Related history of the Baltic and North Sea regions, from prehistoric times to the present.

437-6 (3,3) History of Russia. (a) Russia from the beginnings to the 1860s: Kieven Rus, Muscovy and Imperial Russia to the emancipation of the serfs; **(b)** Imperial Russia and the Soviet Union from 1865 to the present day. Emphasis on political history.

440-3 Tudor-Stuart England. England from 1485 to 1714. The social, economic and political development of Britain during the crucial two centuries from late feudal anarchy to world power.

442-6 (3,3) English History and Culture. (a) From 1660 to 1780; **(b)** 1780-1914. An examination of English society and values in novels, essays, memoirs and paintings. The first semester analyzes social and political stability, secularization, economic transformations and foundations of empire. The second semester investigates industrialization, urbanization, the democratization of politics, the growth of empire and changing roles for women and the family. Prerequisite: 330b or consent of instructor.

443-3 Twentieth Century England. The social, economic and political development of England in the twentieth century.

450-6 (3,3) Early America. The evolution of American society from European settlement through the Age of Jefferson, with special emphasis on social and political institutions and thoughts.

451-3 United States History, 1815-1850. The struggle for democratic institutions and the emergence of sectional conflict in the Jacksonian Era.

452-6 (3,3) United States History 1850-1896. (a) Civil War era; **(b)** the origins of modern America; reconstruction and nationalization; 1865-1896. The study of the background to the Civil War, the Civil War, Reconstruction and the Gilded Age.

453-6 (3,3) United States History, 1896-1945. (a) 1896-1921; **(b)** 1921-1945. The history of the United States since the 1890's with emphasis upon politics, political ideas and diplomacy.

454-6 (3,3) Cold War United States, 1945-1990. (a) 1945-1963; **(b)** 1963-1990 Topical course emphasizing the impact of the Cold War on United States society. Section **(a)** focuses on foreign policy debates, domestic anti-communism and cultural effects of the Cold War. Section **(b)** focuses on the Vietnam War, the arms race and the effects of the Cold War on economic and social issues (poverty, civil rights, the environment).

460-6 (3,3) Social History of the United States. (a) to 1860; **(b)** since 1860. The historical development of relationships among America's various ethnic, religious, racial, economic and sexual groups.

461-6 (3,3) Constitutional History of the United States. (a) To 1877; **(b)** from 1877. Origin and development of the American Constitution from the English background to the present time. Stress is placed on the political, social and

economic forces which influenced the American constitutional system.

462-3 History of American Health and Medicine. Readings and discussion about the development of modern medicine as it affected patients and doctors in the United States. Health care will be traced historically, with discussions of the development of medical science as well as medical organizations and institutions.

463-6 (3,3) History of American Diplomacy. **(a)** To 1900; **(b)** Since 1900. General consideration of American foreign policy and the emergence of the United States as world power.

464-3 American Economic and Business History. A survey of economic trends ad business developments in American history, from colonial times to the present.

465-6 (3,3) History of the South. **(a)** The Old South; **(b)** The New South. Social, economic, political and cultural developments of the South.

466-6 (3,3) History of the American West. **(a)** Trans-Appalachian Frontier; **(b)** Trans-Mississippi Frontier. The American frontier and its impact on American society from the colonial period to the 20th century.

467-3 History of American Thought to 1860. The principal intellectual currents in American thought and culture from the 17th century through mid-19th century. Major themes include the intellectual origins and manifestations of Puritanism, the Enlightenment and Romanticism.

469-3 Darwin and the Darwinian World. Readings and discussion on the impact of Charles Darwin on American thought and culture. Focus areas include religion, social ethics, political criticism, social critics, economics, the genteel tradition, utopian writers, race and imperialism.

470-6 (3,3) Continuity and Change in Latin America. **(a)** To 1825; **(b)** Since 1825. The interaction of economic forces and intellectual currents with Latin America social structures and political institutions, from pre-Columbian times to the present.

474-3 Andean South America. The political, economic, social and cultural development of the Andean nations from pre-Columbian times to the present.

480-6 (3,3) History of Chinese Civilization. **(a)** Traditional China; **(b)** Modern China. The first semester provides a full coverage of traditional China and emphasis on classical philosophies, religions, historical writings, literature, arts and science. The second semester deals with the transformation of China into the modern ages.

484-3 History of Central Asia. Tribes, migrations, wars and power politics in Central Asia and outlying areas of China from Han times through 19th century rivalries to latest developments along the Sino-Soviet frontier.

485-3 Islamic World to 712. A study of the formative years of Islam, and of events which led to the establishment of the first Muslim empire, extending from Spain in the West to India in the East.

487-3 Modern Islamic World. Survey the cultural, social and political impact of Islam on world civilization since the 18th century, with an emphasis on the internal changes within Islam as a result of cross-cultural contact. The impact of colonization on the Muslim world and subsequent reform movements are examined.

490-1 to 4 Special Readings in History. Supervised readings for students with sufficient background. Prerequisite: registration by special permission only.

491-3 Historiography. Writings of historians from Herodotus to the present.

493-1 to 6 Problems in History. Topics vary with instructor. May be repeated for a maximum of six semester hours provided registrations cover different topics. Topics announced in advance.

494-3 Quantitative Research in History. An introduction to the application of quantitative data and social science methods to historical research.

496-1 to 9 Internship in History. Supervised field work in public or private agencies or operation where history majors are frequently employed, such as archives and libraries, government offices, communications media, historic sites and museums. Only three hours may be applied to the major and six hours toward the M.A. degree. Prerequisite: consent of department.

497-3 Historical Museums, Sites, Restorations and Archives. The development of museums from antiquity to the present, with emphasis on the United States. Additional topics include historical sites such as battlefields, historic buildings, restorations, monuments and archives. Also examines the purposes and functions of the museum and the tasks of professionals employed in museums of interpretative centers. Given in cooperation with the University Museum.

500-2 The Historian's Craft. Examination of historical methodology and recent trends in historiography. How historians conduct research and convey the results of it. Special treatment of selected topics of historiography. Required of M.A. degree students. Ph.D. degree students should consult graduate advisers.

501-3 Recent Historiography. Trends in historical writing and historical interpretation in the 20th Century.

522-3 to 15 (3 per semester) Colloquium in European History. Group reading and discussion about major periods, subregions and themes in European history. May be repeated as instructors and topics vary.

523-4 to 20 (4 per semester) Research Seminar in European History. Research and writing on selected topics in European history. Students will prepare a major paper. May be repeated as topics and instructors vary.

554-3 to 15 (3 per semester) Colloquium in United States History. Group reading and discussion about major periods, subregions and themes in United States history. May be repeated as topics and instructors vary.

555-4 to 20 (4 per semester) Research Seminar in United States History. Research and writing on selected topics in United States history. Students will prepare a major paper. May be repeated as topics and instructors vary.

570-4 to 12 (4 per semester) Research Seminar in Latin American History. Research and writing on selected topics in Latin American history. Students will prepare a major paper. May be repeated as topics vary.

571-3 to 9 (3 per semester) Colloquium in Latin American History. Group reading and discussion about major periods, subregions and themes in Latin American history. May be repeated as topics vary.

580-4 to 12 (4 per semester) Research Seminar in Asian History. Research and writing on selected topics in Asian history. Students will prepare a major paper. May be repeated as topics vary.

581-3 to 9 (3 per semester) Colloquium in Asian History. Group reading and discussion about major periods, subregions and themes in Asian history. May be repeated as topics vary.

590-1 to 8 (1 to 3 per semester) Readings in History. Individual readings. Registration by special permission only. Student must obtain the consent of the faculty member involved. M.A. degree students are limited to a maximum of 4 hours toward the 30-hour requirement. Graded *S/U* only. Prerequisite: registration by special permission only.

591-2 to 5 Independent Investigation. Graded *S/U* only. Prerequisite: doctoral standing and consent of graduate adviser.

593-4 to 12 (4 per semester) Research Seminar in Contemporary History. Research and writing on selected topics in contemporary history. Students will prepare a major paper. May be repeated as topics and instructors vary.

594-3 to 9 (3 per semester) Colloquium in Social Science History. Group reading and discussion relating to the use of theories and methods from the social science disciplines in historical interpretation.

595-4 to 8 (4,4) Research Seminar in Comparative History. Research on selected topics employing cross-cultural or other comparative approaches. Students will prepare a major paper. May be repeated as topics vary.

596-3 Tutorial in History. Research and writing in history in close consultation with an instructor to produce a major paper on a selected topic. This course may count toward graduation as a seminar and the paper will be placed on file in the Department of History. Students may take this course only once at the M.A. level and once at the Ph.D. level. Prerequisite: consent of the director of graduate studies.

597-1 to 2 (1 per semester) Practicum in Teaching College-Level History. Students will learn how to lead discussion sections and/or to teach independent courses at the college level. M.A. or Ph.D. students assigned for the first time as a discussion leader must take this course; advanced Ph.D. students assigned for the first time to teach a general education course must take this practicum. Graded *S/U* only. Prerequisite: Open only to graduate students in history with the consent of the director of graduate studies.

599-1 to 6 Thesis. Minimum of three hours to be counted toward a Master's degree.

600-1 to 30 (1 to 16 per semester) Dissertation.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Interactive Multimedia

http://www.siu.edu/gradschl

A Master of Arts degree in interactive multimedia is under development. Refer to the Graduate School website for additional information as it becomes available, or contact the College of Mass Communication and Media Arts.

Journalism

E-mail: peace99@siu.edu

COLLEGE OF MASS COMMUNICATION AND MEDIA ARTS

Akhavan-Majid, Roya, Associate Professor, Ph.D., University of Minnesota, 1988; 1988. Telecommunications policy, international communication.

Atwood, L. Erwin, Professor, *Emeritus*, Ph.D., University of Iowa, 1965; 1967. Political communication, international communication.

Brown, George C., Professor, *Emeritus,* Ph.D., Southern Illinois University at Carbondale, 1963; 1956.

Ford, James L. C., Professor, *Emeritus,* Ph.D., University of Minnesota, 1948; 1955.

Jaehnig, Walter B., Associate Professor, Ph.D., University of Essex, England, 1974; 1987. Media ethics, media theory and philosophy, political violence reporting.

Johnson, Thomas J., Associate Professor, Ph.D., University of Washington, 1989; 1988. Media history, political communication.

Jugenheimer, Donald W., Professor and *Director*, Ph.D., University of Illinois, 1972; 1996. Advertising, media management.

Kelly, James D., Assistant Professor, Ph.D., Indiana University, 1990; 1990. Visual communication, graphic design.

Lowry, Dennis T., Professor, Ph.D., University of Iowa, 1972; 1990. Mass communication theory, political communication.

McCoy, Ralph E., Professor, *Emeritus,* Ph.D., University of Illinois, 1956; 1955.

Paddon, Anna R., Assistant Professor, Ph.D., University of Tennessee, 1985; 1988. Mass communication education, mass communication history.

Ramaprasad, Jyotika, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1984; 1986. International communication, mass media and social reality, international advertising.

Spellman, Robert, Associate Professor, J.D., Cleveland State University, 1977; 1985. Mass communication law, opinion privilege, media ethics.

Stone, Gerald C., Professor, Ph.D., Syracuse University, 1975; 1991. Reporting and news writing, newspaper research studies.

Stonecipher, Harry W., Professor, *Emeritus,* Ph.D., Southern Illinois University at Carbondale, 1971; 1969.

The considerable growth of the mass communication industries has caused an increased need for professionally educated men and women with graduate degrees who want to pursue careers as journalists in the mass media, communication specialists in industry and government, researchers, teachers, and university faculty members.

Graduate programs in the School of Journalism are designed to help students achieve significant intellectual growth as they prepare for these careers. It is intended that the student's entire graduate program be a challenging, stimulating, and valuable educational experience. For this reason, the School of Journalism has 3 degrees, each offering a different approach to graduate education. In each degree program, students take some of their work in departments other than journalism so that they may explore areas of interest to them and inquire into other disciplines.

The School of Journalism offers graduate programs leading to the Master of Arts, the Master of Science, and the Doctor of Philosophy degrees with a major in journalism. Available areas of emphasis are: social and behavioral approaches to communication processes and effects; media history; and legal studies in mass communication. The Master of Arts and Ph.D. degrees are research degrees culminating in the preparation of a thesis or dissertation. Students are expected to conduct research to provide answers to important questions, to discover new information, to show new associations between previously known facts, or to supply historical or legal information about particular subjects.

The Master of Science degree is a media-oriented degree designed to be of benefit to individuals who wish to prepare themselves to be more proficient in their professions and does not necessarily involve the kind of research required in preparing a thesis.

Admission to the Degree Program

Persons seeking admission should consult the appropriate section of this catalog. GRE or GMAT Aptitude Test scores must be submitted before a student enters the program. Students without a previous journalism or mass communication degree or professional media background are usually required to take some undergraduate courses without credit as a way of gaining background. The amount of this course work will be determined by an adviser in consultation with other faculty members. A TOEFL score of 600 or higher is required of all foreign students, except those from English-speaking countries. A minimum undergraduate GPA of 3.0 is required for acceptance into the graduate program.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Academic Retention

In addition to the retention policies of the Graduate School, the School of Journalism requires that each master's degree student must maintain an overall grade point average of 3.00 ($A = 4$) and each Ph.D. student must maintain an overall grade point average of 3.25 ($A = 4$). Upon falling below this average, stu-

dents will be allowed one academic term to bring their averages up to the minimum; failing this they will be dropped from the program and will not be allowed to re-apply. No course in which the grade is below *C* shall count toward the degree nor fulfillment of any requirement, but the grade will be included in the grade point average. No more than 3 hours of *C* work in graduate courses will count toward either degree.

All students are subject to regular review by the School of Journalism graduate faculty. Those not attaining the minimum acceptable standards or who in any way fail to meet any other requirements or standards set by the faculty will be dropped as majors. Doctoral students may be required to take extra work if any grades of *C* or lower are earned at SIUC. Students on academic probation are not eligible to hold graduate assistantships.

Master of Arts Degree

The Master of Arts degree student usually builds on a base of social science and a study of journalism or mass communication leading to a career in teaching, scholarship, or applied research in advertising, public relations, media management, opinion research, or similar areas. The degree also may lead to Ph.D. studies.

Candidates for the M.A. degree must complete a minimum of 30 semester hours of graduate work, including 3 hours for the thesis. Additional courses may be required if students change their areas of interest or if performance in course work indicates the need for more course work. No fewer than 18 nor more than 21 semester hours of course work must be earned in journalism. Remaining course credits should be taken in departments whose disciplines have strong theoretical bases. Courses in some departments may not, therefore, be used to meet requirements. Students often elect courses in history, psychology, political science, sociology, anthropology, economics, and guidance.

Each student is required to prepare, write, and defend a thesis which demonstrates a capacity for investigation and independent thought. Students must be enrolled for thesis credit during the semester they defend their theses.

Failure to present and defend an acceptable thesis proposal, or failure to maintain continuous progress toward completion of degree requirements serve as reasons for dismissing a student from the program. Additional work may be required of those students whose progress is interrupted.

Master of Science Degree

The Master of Science degree program with a major in journalism provides advanced professional training for careers in the mass media and related areas. Persons with graduate degrees from accredited schools of journalism are in demand by newspapers, magazines, broadcasting, advertising and public relations firms, government, and industry. The growing complexity of communication increases the need for persons sensitive to the intricacies of communicating via the mass media.

The Master of Science degree work consists of 2 separate programs. They are broadly based and draw upon the resources of a diverse and knowledgeable journalism faculty and upon many other academic areas in the University. From such resources, the School of Journalism provides individually developed programs for graduate students aiming at such careers as newspaper reporting, radio and television news, advertising, public relations, magazine editing, media management, and teaching.

PROGRAM A

Thirty semester hours are required for the Master of Science degree in program A, including 3 hours for thesis or professional project, whichever the student chooses. From 15 to 21 semester hours of course work must be earned in journal-

ism. This includes 9 hours to be earned in three required core courses, JRNL 500, 504, and 512. Remaining semester hours should be taken in a discipline or disciplines appropriate to the student's area of study. Students must successfully complete 6 hours of written master's comprehensive examinations and a two-hour oral. Formal, oral defense both of the thesis or project proposal and of the completed thesis or project is required.

PROGRAM B

Program B requires 36 semester hours of course work, but the student writes a research paper instead of a thesis or master's project. The research paper is normally an extension of the requirements for a specific course of the student's choosing. From 15 to 21 hours of course work must be earned in journalism. This includes 9 hours to be earned in three required core courses, JRNL 500, 504, and 512. Remaining semester hours should be taken in a discipline or disciplines appropriate to the student's area of study. Students must successfully complete 6 hours of written master's comprehensive examinations and a two-hour oral.

Doctor of Philosophy Degree

The Ph.D. degree program is designed to produce scholars and teachers who can make significant contributions to the understanding and development of the mass media and their utilization. Doctoral studies include the entire process of mass communication, including communication theory, media history, mass media law, and mass media institutions and their interrelationships with other societal institutions. The program asks students to achieve breadth in their studies, but allows each student to develop a special area of interest and research.

Normally, 3 years of concentrated study, including preparation of a dissertation, will be required to earn the degree, which is built on the base of a suitable master's degree program.

Minimum course requirements for the Ph.D. degree include 38–40 semester hours beyond the master's degree, including basic foundations in mass communication theory and research methods (JRNL 500 and 504). In addition, programs of study will include 2 appropriate research tools, as described below. All doctoral students must complete a graduate course in media law and a graduate inferential statistics course (GUID 506). An evaluation of previous work is made and transfer credit is allowed only for work which fits the degree plan. Approximately two-thirds of course semester hours will be earned in journalism and mass communication; the remaining hours will be earned in a nonjournalism area of study, which might include work in more than one department. Additional course work may be required if the student's area of interest changes or if performance in courses or comprehensive examination results indicate the need.

During the second semester of enrollment, each Ph.D. student will prepare a total program plan for the degree and secure sponsorship by a dissertation committee chair. The plan should include a list of courses and tools, with some explanation and justification for their selection in relation to academic goals. The plan will be discussed and modified, when appropriate, before approval. Once approved, the plan may be changed only with permission of the adviser. The student may deviate from the 2/3–1/3 pattern if the resulting program contains work leading to appropriate research or professional career goals.

Tool Requirements. Minimum course requirements listed above do not include courses taken to satisfy tool requirements. The Ph.D. student, in consultation with the adviser, will select 2 useful tools from among:
Research Design — JRNL 501
Historiography — JRNL 530
Legal Research — JRNL 540

Statistics — GUID 506 and 507
Computer Science — Courses to be selected
Modern Foreign Language — Standard Proficiency Examination

Courses listed as tools are subject to change without notice at times when departments change course content, titles, or numbers. Only grades *A* or *B* are accepted for tool courses.

A student may propose other research tools for consideration by the School of Journalism, but such tools must be useful in the conduct of research, especially for the doctoral dissertation.

Examinations. Each student must pass rigorous comprehensive written and oral examinations after completing tool requirements and all course work (with all incomplete and deferred grades removed). The examination must be completed within one year after the student has satisfied all course and tool requirements. Failure to successfully complete the exams during the one-year period will result in dismissal from the program. While the form and scope of the examinations are at the discretion of the graduate faculty members of the School of Journalism, within basic parameters, the examinations comprehensively test the student's understanding of communication and communication research. Each student takes a minimum of 20 hours of exams including an outside area.

Students prepare dissertation proposals, defend and explain the proposals before their committees and complete the research and write their dissertations. Within one year after admission to candidacy, students must have written dissertation proposals approved by their committees. Dissertations must be based on scholarly research and independent thought.

Students must enroll for a minimum of 24 hours in JRNL 600. Each student must enroll in JRNL 600 each term between admission to candidacy and completion of all requirements for the Ph.D. degree.

Graduate students who have completed their course work and the minimum number of credits required for thesis or dissertation must enroll in JRNL 601, Continuing Research, each semester until the completion of their degree programs.

The dissertation defense will be before members of the dissertation committee (all of whom must be present) and interested observers. Although others than committee members may ask questions of the student, the pass or fail decision on the oral will be made by committee members only.

Courses (JRNL)

400-3 History of Journalism. Development of American newspapers, magazines, and radio-television with emphasis on cultural, technological and economic backgrounds of press development. Current press structures and policies will be placed in historical perspective.

401-3 International Communication. An analysis of the development, structure, functions, and current status of media systems in other countries. Emphasis given to studying factors that facilitate or restrict the flow of intranational and international communication.

406-3 Advertising/IMC Campaigns. (Formerly Journalism 476) Conceptual synthesis and practical application of business, research, media and creative principles used in the formulation of persuasive messages. includes the development of a complete integrated marketing communications (IMC) campaign for the specific advertiser. Includes all relevant target audience contact points (e.g., advertising, sales promotion, marketing public relations, event marketing, packaging) and both written and oral presentation of the campaign.

407-3 Social Issues and Advertising/IMC. (Formerly Journalism 479) Analysis of social issues involving advertising and integrated marketing communications (IMC); economic relationships, government and self-regulation, cultural effects, influence on media content and structure, role in democratic processes, international comparisons, and the stereotyping of women minorities and other audience segments. Prerequisite: senior standing.

411-3 Public Affairs Reporting. Covering government and other public agencies, including the city hall, courts, county offices, business, finance, agriculture, labor and other specialized beats. Prerequisite: 311.

442-3 The Law of Journalism. Legal limitations and privileges affecting the mass media to include the law of libel, development of obscenity law, free press and fair trial, contempt of court, right of privacy, advertising and antitrust regula-

tions, copyright and access to the press. Prerequisite: senior standing.

452-3 Ethics and News Media. An exploration of ethical problems confronting journalists and an evaluation of how these problems are handled by the media through a focus on current examples. The implications to the media and to society of successes and failures in meeting ethical concerns are discussed. Prerequisite: senior standing.

461-3 Specialized Publications. Functions, operations, and problems of industrial, trade, business, professional, literary and other specialized publications. Management, personnel, and production practices. Use of research in solving problems and setting policies.

462-3 Magazine Article Writing. Principles, problems and techniques involved in producing free-lance and staff-written magazine articles with an emphasis on determining the relationship between article content and audience market. Prerequisite: 311.

490-1 to 6 (1 to 3, 1 to 3, 1 to 3) Readings. Supervised readings on subject matter not covered in regularly scheduled courses. Undergraduates limited to maximum 2 credits per semester. Graduates limited to maximum 3 credits per semester. Prerequisite: written consent of instructor and area head.

494-1 to 3 Practicum. Study, observation and participation in publication or broadcast activities. Prerequisite: consent of instructor and area head. Mandatory Pass/Fail for undergraduates.

495-1 to 12 (1 to 6, 1 to 6) Proseminar. Selected seminars investigating media problems or other subjects of topical importance to advanced journalism majors. Seminars will be offered as the need and the interest of students demand. Prerequisite: senior standing.

500-3 Research Methodology in Mass Communication I. Identification of research problems, formulation of concepts and research hypotheses in journalism and mass communication, sampling procedures, design of experimental and survey research.

501-3 Research Methodology in Mass Communication II. Problems of measurement, design and analysis in journalism and mass communication research. Techniques of attitude scaling, questionnaire construction. Bivariate and multivariate data analysis. Procedures for the creation, management and analysis of large data sets using computer programs. Prerequisite: 500 and Educational Psychology 506, concurrent registration in 507.

504-3 Foundations of Mass Communication Theory. Conceptual orientation toward analysis of relationships in the mass communication channels. Emphasis on problem identification and relationships between philosophical basis for behavioral analysis of communication and empirical work in the field; reviews of selected literature.

505-3 Theoretical Issues in Mass Communication. Analysis and critique of recent theory and research. Examination of current trends in research and reviews of selected literature relating to mass communication in the areas of systems, interpersonal, mass media, intercultural, political, organizational, instructional and health communication. Prerequisite: 504.

506-3 Significant Studies in Mass Communication Research. A review of a broad selection of early literature in communication research that has provided much of the conceptual basis for empirical studies during the past two decades.

510-3 Literature of Journalism. Critical reading, discussion and evaluation of 20th century journalistic literature in such areas as media history, muckraking, press criticism, biography, memoirs and reminiscences, depiction of the journalist in fiction, new journalism.

511-3 Studies in Journalism History. Critical analysis of literature showing trends and developments in journalism before 1900. Approximately 100 books are examined in the context of social, political and intellectual history of the times. Lectures, reports and discussions.

512-3 Press Freedom and Censorship. Examination of the philosophical and theoretical bases of press freedom in the United States with attention to the press's English heritages and to numerous attempts at media censorship from the colonial period through the 20th century.

520-3 Communication and National Development. Functions of mass media of communication in the process of national development in the third world. Review of models of national development; problems in the diffusion and adoption of innovation; diffusion of information and influence in modernization of developing countries.

530-3 Historical Research in the Mass Media. Methods of data collection, analysis, organization and presentation for historical research in mass media. Use of such sources as newspapers, archives, personal papers, manuscripts and oral history. Use of statistical methods in mass media historical research. Prerequisite: 511.

540-3 Legal and Governmental Research in the Mass Media. Study of research procedures related to executive, congressional, judicial and quasi-official reports and documents as they affect the mass media. Focus of the study will be an examination of the legal interrelationship of the government and the media. Prerequisite: 442.

550-1 to 12 (1 to 4, 1 to 4, 1 to 4) Topical Seminar. Seminars on subjects of current interest, with the topics determined through student and faculty request and interest. Topics include audience analysis, communication and social systems, media economics, persuasive communications.

560-3 Seminar: Critical and Persuasive Writing. An analysis of the opinion function of the news media—the editorialist, the opinion columnist, and the critical reviewer—with emphasis upon the theoretical bases of persuasion. Students will study and evaluate various types of persuasive writing and will also write a number of editorials, columns, and reviews.

592-1 to 6 (1 to 3, 1 to 3, 1 to 3) Individual Research. Conduct of research reports for projects of an individual nature.

599-1 to 6 Thesis.

600-1 to 24 (1 to 16 per semester) Dissertation.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis or research paper. The student must have completed a minimum of 24 hours of dissertation research,

or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Linguistics

E-mail: ling@siu.edu

COLLEGE OF LIBERAL ARTS

Angelis, Paul, Associate Professor and *Chair,* Ph.D., Georgetown University, 1968; 1981. Language testing, language teaching methodology, English for specific purposes.

Brutten, Sheila, Associate Professor, M.A., Southern Illinois University at Carbondale, 1965; 1968. TESOL, language testing, reading comprehension.

Friedenberg, Joan, Professor, Ph.D., University of Illinois at Urbana-Champaign, 1979; 1994. Second language acquisition theory and methods, bilingual education, multicultural education, vocational ESL.

Gilbert, Glenn G., Professor, Ph.D., Harvard University, 1963; 1970. Pidgin and creole languages, German, sociolinguistics, historical linguistics, dialectology, history of linguistics.

He, Agnus Weiyun, Assistant Professor, Ph.D., UCLA, 1993; 1992. Discourse analysis, pragmatics, genre theory, language learning and teaching in context.

Johnson, Ruth, Assistant Professor, Ph.D., Florida State University, 1993; 1993. Speech perception, intercultural communication, TESOL methodology, computer-assisted instruction.

Kim, Alan, Associate Professor, Ph.D., University of Southern California, 1985; 1988. Syntactic theory, functional syntax, semantics, comparative linguistics, Japanese and Korean syntax.

Lakshmanan, Usha, Assistant Professor, Ph.D., University of Michigan, 1989; 1990. First and second language acquisition, psycholinguistics, syntactic theory, tamil syntax.

Nathan, Geoffrey S., Associate Professor, Ph.D., University of Hawaii, 1978; 1980. Phonology, phonetics, cognitive grammar, syntax.

Nguyen, Dinh-Hoa, Professor, *Emeritus,* Ph.D., New York University, 1956; 1969.

Parish, Charles, Professor, *Emeritus,* Ph.D., University of New Mexico, 1959; 1965.

Perkins, Kyle, Professor, Ph.D., University of Michigan, 1976; 1976. Language testing, language teaching methodology, discourse theory and processing, the composing process, reading comprehension.

Redden, James E., Professor, *Emeritus,* Ph.D., Indiana University, 1965; 1967.

Wilhelm, Kim Hughes, Assistant Professor, Ph.D., Indiana University, 1992; 1993. Second language acquisition, language education (ESL/EFL/ bilingual/foreign language), curriculum and materials design, teacher education, English for academic purposes, computer-assisted language learning.

Winer, Lise, Associate Professor, Ph.D., University of the West Indies, 1982; 1986. EFL/ESL methodology, composition, reading, creole studies, sociolinguistics.

Winters, Margaret E., Professor, Ph.D., University of Pennsylvania, 1975; 1977. Historical linguistics, Romance comparative linguistics, syntax/semantics, cognitive grammar.

The Department of Linguistics offers programs leading to the Master of Arts degree in applied linguistics and the Master of Arts degree in Teaching English to Speakers of Other Languages (TESOL).

Overview of Graduate Programs

The M.A. program in applied linguistics is designed to give students a broad training in most aspects of contemporary linguistics, including historical linguistics, phonology, pidgins and creoles, psycholinguistics, second language acquisition, sociolinguistics, and syntax. In addition, students will pursue the study of one area in depth through further coursework and thesis research. Graduates of the applied linguistics program frequently go on to more advanced study and research in linguistics leading to the Ph.D. degree.

The M.A. program in TESOL is designed primarily for students who wish to pursue careers in the teaching of English to speakers of other languages either in the United States or abroad. The program combines both theory and practice. In addition to core courses in linguistics, students in the TESOL program are required to take courses in the theory and methods of language teaching and to teach in two supervised practicums in the teaching of oral and written English. Graduates of the TESOL program can go on to advanced study of language learning and teaching or related fields.

For students who are interested in language study but are not committed to either graduate major, the department offers a number of interesting, non-spe-

cialist courses which may serve as electives in degree programs such as those offered by the Departments of Anthropology, Communication Disorders and Sciences, English, Foreign Languages and Literatures, Psychology, Speech Communication, and the College of Education. A sequence of courses is also available for students wishing to pursue a double major combining applied linguistics, or TESOL with other programs at the master's level.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted. Applicants for admission should address inquiries to the Chair, Department of Linguistics, Southern Illinois University at Carbondale, Carbondale, IL 62901-4517, USA.

Admission to the Degree Programs

Undergraduate GPA. Applicants for admission to either degree program, in addition to meeting the requirements for admission to the Graduate School, are expected to have undergraduate grade point averages of at least 3.0 ($A = 4.0$). Applicants with GPA's below 3.0 may be granted conditional admission. However, students admitted on a conditional basis must earn a graduate GPA of 3.0 after the first 10 hours of letter-graded course work; failure to do so will result in the student being dropped from the program.

Foreign Language Requirement. All students who are native speakers of English must have completed at least two semesters of study of a foreign language within the preceding five years (excluding high school) and have achieved a grade of *B* or better. Those students who have achieved proficiency in a foreign language by means other than graded academic study must demonstrate that they have achieved a minimum level of novice-mid as defined in the proficiency guidelines published by the American Council on the Teaching of Foreign Languages. In recognition of their experience in learning English, international students who have learned English as a second or foreign language are exempt from this requirement.

TOEFL and GRE. International student applicants who are not native speakers of English must achieve a score of at least 570 on the Test of English as a Foreign Language (TOEFL). Although submission of scores on the Graduate Record Examination (GRE) is not required for admission to the Graduate School nor to the department, applicants are advised that high GRE scores put them at a competitive advantage when applying for university fellowships or departmental assistantships.

Grammar Test. All students entering either the M.A. program in applied linguistics or the M.A. program in TESOL must demonstrate a minimum level of knowledge of the grammar of English. This is assessed by a departmental grammar test administered to all students at the beginning of their first term. Students who do not pass the test are required to take an undergraduate course in English grammar (LING 104) and pass the course with a grade of *B* or better. This course does not count for credit toward a graduate degree in applied linguistics or TESOL.

English Proficiency Tests. Applicants for admission must also demonstrate proficiency in spoken and written English, which is measured by departmental examinations given upon the student's arrival. Students who fail these tests are required to take an undergraduate course in English composition (either ENGL 290 or LING 290) and pass the course with a grade of *B* or better. This course

does not count for credit toward a graduate degree in applied linguistics or TESOL.

Academic Retention

Academic Probation. As required by the Graduate School, any student whose GPA falls below 3.0 will be placed on academic probation. Any student who fails to return to good standing after one term on academic probation will not be eligible to hold a graduate assistantship. Any student who fails to return to good standing after two terms on academic probation will be dropped from the program. Any student who accumulates three or more incompletes will be put on academic probation and may return to good standing by reducing the number of incompletes to two or fewer.

Minimum Grades in Core Courses. As described below, both M.A. programs include a number of core courses which are required of all students. These courses must be passed with a grade of *B* or better. Students who receive a grade lower than *B* on a core course must take the course again. They will register officially for the course and will be granted a letter of permission to do so from the department. Both grades will be counted in calculating GPA. Students who need to repeat core courses may take other courses concurrently or sequentially for which the core courses are prerequisites.

Grade Point Average to Graduate. All graduate work must be completed with an overall GPA of 3.0.

Master of Arts Degree in Applied Linguistics

The Master of Arts degree in applied linguistics encompasses a broad range of required core courses plus the opportunity to pursue the study of one area in depth through elective courses and a thesis. A minimum of 43 semester hours is required for the M.A. in applied linguistics, of which a minimum of three and a minimum of six may be allowed for the thesis (LING 599). A minimum of 15 semester hours must be at the 500 level.

Required Courses for the M.A. in Applied Linguistics (25 semester hours)
LING 401-4 General Linguistics
LING 402-3 Phonetics
LING 405-4 Phonological Theories
LING 406-3 Introduction to Historical Linguistics
LING 408-4 Syntactic Theory
LING 415-3 Sociolinguistics
LING 445-4 Psycholinguistics

Elective courses may be selected from courses offered within the department, or from courses taught by faculty in the Departments of Anthropology, Communication Disorders and Sciences, Computer Science, English, Foreign Languages and Literatures, Philosophy, Psychology, Speech Communication, and the College of Education. Where appropriate, students are encouraged to take courses in quantitative and ethnographic research methods taught in the Departments of Educational Psychology and Anthropology. Students are also encouraged to attend the annual summer institutes sponsored by the Linguistic Society of America and TESOL. Credit will be allowed for course work successfully completed in this way.

A thesis is required of all students in the M.A. in applied linguistics program. The thesis is a written summary of a student's independent research conducted while enrolled in one of the department's M.A. programs. A thesis is expected to include a clear statement of the topic, identification of the particular issues to be investigated, a literature review, an explanation of the procedures followed, and

an analysis and discussion of research findings. Each student writing a thesis must have a thesis committee composed of at least three faculty members, one of whom serves as chair of the committee and must be from the Department of Linguistics. The thesis must be submitted to a public oral examination by the student's committee. Detailed information regarding the thesis may be found in *Thesis Policies and Guidelines*, copies of which are available from the department.

Master of Arts Degree in Teaching English to Speakers of Other Languages

The M.A. degree in TESOL blends linguistic science with the art of classroom practice. It prepares students both intellectually and experientially, so that as teachers they are capable of making wise and informed choices among different language teaching approaches, methods, and techniques. In addition, students will understand how differences among individual students, teaching and learning situations, and social structures influence decisions they will be called upon to make as teachers. The TESOL master's program provides a firm and broad foundation in current theories of language and language learning and graduates will be prepared to take on professional careers such as teacher educator and curriculum specialist as well as classroom teacher.

There are three alternative ways to combine course work and research which are available for students enrolled in the M.A. degree program in TESOL:

Study Plan A. This study plan requires 32 semester hours of course work, written comprehensive examinations, and a research report. A minimum of 15 semester hours must be at the 500 level. Students who follow this plan may be able to complete all requirements for the M.A. in TESOL degree by full-time enrollment for three semesters.

Study Plan B. This plan requires 38 semester hours of course work and a research report. A minimum of 15 semester hours must be at the 500 level. The research report in this case must be subject to a public oral examination by the student's committee members. Students who follow this plan may be able to complete all requirements for the degree by full-time enrollment for four semesters.

Study Plan C. This plan requires 38 semester hours of course work including a minimum of three and a maximum of six semester hours which may be allowed for a thesis (LING 599). A minimum of 15 semester hours must be at the 500 level. The thesis is subject to a public oral examination by the student's committee members. Students who follow this plan have the opportunity to study an area of interest in considerable depth and to carry out an empirical research project or to develop instructional materials or curricula. This plan requires at least four semesters of full-time enrollment.

Whichever study plan a student chooses, six core courses are required. These core requirements are as follows.

Required Courses for the M.A. in TESOL (20 semester hours)
LING 401-4 General Linguistics
LING 402-3 Phonetics
LING 531-3 Pedagogical Grammar for TESOL
LING 570-4 Theory and Methods of TESOL
LING 581-3 Practicum in Teaching Oral English
LING 585-3 Practicum in Teaching Written English

The remaining 12 to 18 semester hours of course work may be selected from electives offered by the Department of Linguistics. Occasionally, courses taught

by faculty in related departments are used to complete elective requirements where such courses are appropriate to the student's area of specialization. Students are also encouraged to attend the annual summer institutes sponsored by TESOL and the Linguistic Society of America. Credit will be allowed for course work successfully completed in this way.

Written Comprehensive Examination. A written comprehensive examination is required by students in the M.A. in TESOL degree program who are following study plan *A*. Students must take and pass this examination, which covers several different areas of the program. The examination may not be taken more than twice. In order to be eligible to take the examination, students must have a graduate GPA of at least 3.0 at the time the examination is given and must have passed the departmental test of English grammar.

Research Report. A research report is required of students in the M.A. in TESOL degree program who are following study plans *A* or *B*. The research report is a written summary of a student's independent research conducted while enrolled in the M.A. in TESOL program. It is expected that the research report will be both quantitatively and qualitatively more extensive than a research paper done for any one course in the department. However, many students do use work done in a particular course and a paper from that course as a basis for the research report. Two faculty members serve as readers of the report. Students following study plan *B* are required to submit their research report to a public oral examination by their readers. A public oral examination of the research report is not required of students following study plan *A*; however, both faculty readers must approve the final draft of the report. Detailed information regarding the research report may be found in *Research Report Policies and Guidelines,* copies of which are available from the department.

Thesis. A thesis is required of students following study plan *C* in the M.A. in TESOL program. The thesis is a written summary of a student's independent research conducted while enrolled in one of the department's M.A. programs. A thesis is expected to include a clear statement of the topic, identification of the particular issues to be investigated, a literature review, an explanation of the procedures followed, and an analysis and discussion of research findings. Each student writing a thesis must have a thesis committee composed of at least three faculty members, one of whom serves as chair of the committee and must be from the Department of Linguistics. The thesis must be submitted to a public oral examination by the student's committee. Detailed information regarding the thesis may be found in *Thesis Policies and Guidelines,* copies of which are available from the department.

Courses (LING)

The Department of Linguistics offers courses toward the Master of Arts degree in applied linguistics and the Master of Arts degree in teaching of English to speakers of other languages (TESOL).

401-4 General Linguistics. Basic concepts and methods of general linguistics. Fundamentals of the nature, structure and functioning of language. Data manipulation and problem solving.

402-3 Phonetics. Theory and practice of articulatory phonetics.

403-3 English Phonology. Study of English phonology, including phonetics, phonemics and prosodics. Prerequisite: 300 or 401, 402 or consent of department.

404-3 American Dialects. Regional variation and social stratification of American English. Phonological and syntactic differences among the major dialects of American English. Prerequisite: one previous course in linguistics.

405-4 Phonological Theories. A survey of various phonological theories from the 19th century up to the present, including theoretical issues arising therefrom and relationships among the theories. Limited data analysis within the perspectives of the different theories. Prerequisite: 300 or 401, 402.

406-3 Introduction to Historical Linguistics. An introductory survey of historical and compara-

tive linguistics, including terminology, assumptions and methods of investigation. Satisfies the COLA Writing-Across-the-Curriculum requirement. Prerequisite: 405 or consent of instructor, 408 recommended.

408-4 Syntactic Theory. This course is an introduction to the major concepts and issues in generative grammar. Data from English and other languages will be examined and students will be provided with numerous opportunities to solve problems in syntax. Students will also be given an opportunity to carry out an individual project in syntax. Prerequisite: 300 or 401 or consent of instructor.

409-3 Linguistic Structure of Modern German. (Same as German 411.) The descriptive study of phonology, grammatical structure, and vocabulary of modern German with consideration of its structural differences from English and application to teaching. Appropriate for students with at least two years of German. Conducted in English.

411-3 The Linguistic Structure of Chinese. (Same as Chinese 410.) Phonology and syntax of Mandarin Chinese. Principal phonological features of major Chinese dialects. Special emphasis on the contrastive analysis between Mandarin Chinese and English. Theoretical implications of Chinese syntax for current linguistic theories. Prerequisite: one year of Chinese or Linguistics 401.

412-3 The Linguistic Structure of Japanese. (Same as Japanese 410.) Inductive approach to the analysis of various aspects (such as phonology, morphology, syntax) of Japanese grammar with emphasis on syntactic structures within any of the current theoretical frameworks such as pragmatics, functionalism and formal linguistics. May include contrastive analysis between Japanese and English, and close examination of theories of comparative-historical linguistics of Japanese and Korean. Prerequisite: one year of Japanese or one previous course in linguistics or consent of instructor.

413-3 Linguistic Structure of French. (Same as French 411.) Study of the phonology, morphology and syntax of modern spoken and written French, stressing interference areas for English speakers in learning French. Prerequisite: French 320a and 321 or equivalent.

414-3 Linguistic Structure of Spanish. (Same as Spanish 411.) Theory and practice in Spanish pronunciation and study of Spanish grammatical structure, in contrast to English, with application to teaching.

415-3 Sociolinguistics. History, methodology and future prospects in the study of social dialectology, linguistic geography, multilingualism, languages in contact, pidgin and creole languages, and language planning. Prerequisite: one previous course in linguistics or consent of instructor.

425-3 Philosophy of Language. (Same as Philosophy 425.) An investigation into the way language is based on the nature of human cognitive structures, including metaphor, prototypes, frames and various kinds of imaginative structures. Central topics include the grounding of meaning and conceptual structure in bodily experience, the role of imagination in reasoning and the metaphorical nature of thought.

430-3 to 6 (3,3) Grammatical Structures. Detailed analysis of the structure of particular languages. May be repeated to a total of six hours credit with consent of instructor. Prerequisite: one previous course in linguistics or consent of instructor.

440-1 to 6 (1 to 3 per topic) Topics in Linguistics. Selected topics in theoretical and applied linguistics. May be repeated to a total of six hours credit with consent of instructor. Prerequisite: one previous course in linguistics or consent of instructor.

442-3 Language Planning. Survey of the field of language planning: definitions and typologies, language problems, language treatment, attitudes and beliefs about language, relations between language planning processes and other kinds of social and economic planning, linguistic innovations and other processes of language change, implementation of language policies. Prerequisite: 300 or 401.

445-4 Psycholinguistics. (Same as Psychology 445.) A broad spectrum introduction to psycholinguistics. Topics to be covered include general methodology for the study of psycholinguistics, the nature of language, theories of human communication, language comprehension and production, first and second language acquisition, meaning and thought, natural animal communication systems, and language and the brain.

450-3 to 6 (3,3) Language Families. A synchronic survey of particular language families or sub-families. May be repeated to a total of six hours credit with consent of instructor. Prerequisite: one previous course in linguistics or consent of instructor.

501-3 Approaches to Error Analysis. Theory and methodology of contrastive analysis and error analysis. Application of both methodologies to comparison of English syntactic and phonological structures with those of other languages. Prerequisite: 405 and either 408 or 531, or consent of instructor.

506-4 Historical Linguistics. Theories and methods in the study of the history and prehistory of languages and language families. Prerequisite: 405 and 406, or consent of department.

507-3 Pidgin and Creole Languages. (Same as Anthropology 540.) Survey of the world's pidgins and creoles, with emphasis on the English-based Atlantic creoles. Comparison of creolization with first and second language acquisition and with the origin and evolutionary development of human language. Prerequisite: one previous course in linguistics or consent of instructor.

510-3 History of Linguistics. The history of linguistic inquiry from classical times to the present. Prerequisite: one previous course in linguistics or consent of instructor.

531-3 Pedagogical Grammar. This course explores the relationships among language structure, language learning and language teaching in order to understand the role of grammar in TESOL. The primary aims of the course are to enable students to: **(1)** become more aware of the way the English language works, **(2)** become aware of the kinds of language that ESL learners produce and the reasons why they proceed through certain stages, and **(3)** understand the role and effects of grammatical consciousness

raising in the development of English as a second language. Prerequisite: 401 and 570 or consent of instructor.

540-3 to 12 (3 per topic) Studies in Applied Linguistics. Selected topics in applied linguistics. **(a)** Research methods, **(b)** pragmatics, **(c)** other. May be repeated as topics vary to a total of 12 hours of credit with consent of department. Maximum of 6 hours applicable toward a Master's degree. Prerequisite: one previous course in linguistics or consent of department.

541-3 Introduction to Second Language Acquisition. This course is an introduction to the key concepts and the major theoretical and methodological issues in second language acquisition research. The major developments in SLA in the areas of phonology, morphology, lexis, syntax, semantics and discourse will be examined and students will be provided with hands-on experience in describing and accounting for second language data. Students will also be given an opportunity to design and implement a data-based study in an area of interest to them. Prerequisite: 401 or consent of instructor.

542-3 Advanced Seminar in Second Language Acquisition. Research seminar in second language acquisition on selected topics such as universal grammar in SLA, language transfer, variation in SLA, second language learnability, etc. Prerequisite: 541 or consent of instructor.

546-3 Conversation Analysis: Pragmatics. (Same as Speech Communication 546.) Study of the pragmatics of everyday conversation: sequential organization, topical coherence, speech act rules and functions, contextual frames and background understandings. Emphasis on observational research methods and analysis of original data. Prerequisite: consent of instructor.

547-3 Conversation Analysis: Ethnomethodology. (Same as Speech Communication 547) Descriptive study of sequential organization of interaction. Students read research literature and learn methods for transcription and analysis in the conversation analytic tradition. Topics include openings and closings, adjacency pair organization, turn taking, overlap, assessments, pre-sequences, repair, topic, nonvocal activities, response, laughter, storytelling, argument, play and institutional contexts. Prerequisite: consent of instructor.

548-3 Lexicography. An introduction to the art and craft of dictionary-making: differences between dictionaries and other reference works; history of dictionaries around the world; how dictionaries are produced, evaluated, selected, and used; bilingual vs. monolingual dictionaries in the teaching and learning of English and other languages.

550-4 to 8 (4 per topic) Seminar in Theoretical Linguistics. Guided advanced research in **(a)** syntax and semantics, **(b)** phonology, **(c)** sociolinguistics, **(d)** selected topics. Sections **(a)** through **(c)** may be taken only once each. Section **(d)** may be repeated as topics vary. Prerequisite: consent of department.

570-4 Theory and Methods of TESOL. Theory and methods of teaching English to speakers of other languages, techniques and procedures in teaching most language skills, comparative and current methodology.

572-3 Materials Preparation in TESOL. Theory and practice in development of texts for the teaching of English to speakers of other languages. Prerequisite: 570 or consent of instructor.

573-3 Computer-Assisted Language Learning. An introduction to the use of microcomputers in the teaching of foreign languages, in particular the teaching of English to speakers of other languages. Course topics include: a survey of existing application programs used in language learning, review of research into the effectiveness of computer-assisted language learning and testing and development of basic skills in designing and programming language learning applications. Prerequisite: 570 or consent of instructor.

575-3 Language Testing. Discussion of different second language (L2) testing purposes, characteristics of good L2 tests, process of L2 test development, evaluation and revision of L2 tests, interpretation and reporting of L2 test results, current trends in L2 testing. Prerequisite: 570 or consent of instructor.

580-3 to 6 Seminar in Special Topics in TESOL. Selected topics in special areas of teaching English to speakers of other languages. **(a)** Administration of intensive English programs, **(b)** Teaching English abroad, **(c)** Selected topics. Sections **(a)** and **(b)** may be taken only once each. Section **(c)** may be repeated as topics vary. Prerequisite: 570 or consent of instructor.

581-3 Practicum in Teaching Oral English. Class observation and supervised practice teaching of speaking and listening skills in English to speakers of other languages; meets concurrently with Linguistics 100. Prerequisite: 402 and 570.

582-3 Course Design for TESOL. A review of issues and procedures in the design and implementation of courses for teaching English to speakers of other languages. Particular attention is given to recent developments such as content-based instruction. All major course components such as setting of objectives, syllabus design, content specification and evaluation are considered. In addition, resources available for addressing these issues will be discussed. Prerequisite: 570 or consent of instructor.

584-3 Teaching Composition in a Second Language. Analysis of current theories of composition in a second language, research on the nature, process, and applications of research for the teaching of writing in a second language. Prerequisite: 570 or consent of instructor.

585-3 Practicum in Teaching Written English. Objectives, methods and materials for a variety of ESOL composition courses. Observation and practice under supervision. Prerequisite: consent of instructor.

586-3 English for Specific Purposes. A course designed to familiarize students with key components of English language courses designed for speakers of other languages with specific needs or in well-defined settings. Case studies and sample courses are reviewed and students develop individual projects related to a content area or course component of their choice, e.g., needs assessment, syllabus design, materials development or teacher training. Prerequisite: 570 or consent of instructor.

587-3 Teaching Reading in a Second Language. Analysis of theories of reading in a second

language (L2) and research into the nature of L2 reading. Observation and practice in developing L2 reading materials and teaching techniques under supervision. Prerequisite: 570 or consent of instructor.

593-1 to 4 Research in Linguistics. Individual research under graduate faculty guidance. Prerequisite: consent of instructor.

597-1 to 8 Readings in Linguistics. Individual readings in linguistics under graduate faculty guidance. Prerequisite: consent of department.

599-1 to 6 Thesis. Minimum of three hours to be counted toward a Master's degree. Prerequisite: consent of department.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Management

(See Business Administration.)

Manufacturing Systems

E-mail: ylewis@siu.edu
butson@siu.edu

COLLEGE OF ENGINEERING

Abrate, Serge, Associate Professor, Ph.D., Purdue University, 1983; 1995.

Andrews, Paul, Associate Professor, *Emeritus*, Ph.D., Southern Illinois University at Carbondale, 1979; 1971.

Barbay, Joseph E., Jr., Associate Professor, Ph.D., University of Missouri-Columbia, 1971; 1970.

Besterfield, Dale H., Professor, *Emeritus*, Ph.D., Southern Illinois University at Carbondale, 1971; 1962.

Butson, Gary J., Associate Professor and *Chair*, Ph.D., University of Illinois, 1981; 1992.

Chang, Feng-Chang, Assistant Professor, Ph.D., Ohio State University, 1985; 1991.

Ferketich, Robert R., Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1980; 1971.

Lindsey, Jefferson F., III, Professor, D. Engr., Lamar University, 1976; 1980.

Orr, James P., Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1983; 1979.

Rong, Yiming, Assistant Professor, Ph.D., University of Kentucky, 1989; 1990.

Spoerre, Julie K., Assistant Professor, Ph.D., Florida State University, 1995; 1995.

Szary, Marek, Assistant Professor, Ph.D., Wroclau (Poland), 1977; 1984.

Velasco, Tomas, Assistant Professor, Ph.D., University of Arkansas, 1991; 1993.

Weston, Alan J., Assistant Professor, Ph.D., Southern Illinois University at Carbondale, 1991; 1991.

Master of Science in Manufacturing Systems

Graduate work leading to a Master of Science degree in manufacturing systems is offered by the College of Engineering. The objective of the program is to develop manufacturing professionals who can design and implement modern manufacturing systems to increase productivity and improve product quality. Course offerings and research are available in manufacturing processes and control, quality control, and computer applications. The program provides advanced education for students with baccalaureate degrees in technology and also an excellent continuing education opportunity for individuals with technical degrees who wish to expand their education in the area of manufacturing systems.

Admission

Candidates for this program must be accepted by the Graduate School and the Department of Technology. Candidates should possess a bachelor's degree with a major in a technical area and have a GPA of no less than 3.0/4.0. A student whose undergraduate training is deficient may be required to take additional courses to compensate for deficiencies identified by the technology graduate program committee.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Program Requirements

The program in the thesis option requires a minimum of 30 semester hours of acceptable graduate credit, 18 semester hours of which is in manufacturing systems.

Students will complete a master's thesis, having 6 semester hours of credit, and be required to pass a comprehensive examination covering all of the student's graduate work and thesis.

Within the 30 semester hour requirement, students must complete the following core courses or their equivalents:
MATH 458-3 Statistical Methods in Business
MFGS 510-3 Recent Advances in Quality Assurance
MFGS 520-3 Computer-Aided Manufacturing II
MFGS 540-3 Product Reliability Theory
MFGS 560-3 Automated Factory Technology

A program of study including the above required courses (15 semester hours), the master's thesis (6 semester hours), and the remaining 9 semester hours will be selected by the graduate adviser and the student.

If a student prefers the non-thesis option, a minimum of 36 semester hours of acceptable graduate credit including the 15 semester hours of core courses is required. The student is expected to take at least 21 semester hours within the major department including no more than 3 semester hours of MFGS 592 to be devoted to the preparation of a research paper. In addition, each candidate is required to pass a written comprehensive examination.

Each student will select a minimum of 3 technology graduate faculty members to serve as a graduate committee, subject to approval of the director of the graduate program. The committee will:

1. approve the student's program of study,
2. approve the student's research paper topic,
3. approve the completed research paper, and
4. administer and approve the written comprehensive examination.

Additional Information

Teaching or research assistantships and fellowships are available for qualified applicants. Additional information about programs, courses, assistantships, and fellowships may be obtained from the College of Engineering or from the chair of the department.

Courses (MFGS)

510-3 Recent Advances in Quality Assurance. Study of recent advances in quality planning, quality measurement, design assurance, process control, participatory management, supplier quality, customer relations and improvement concepts. Prerequisite: Industrial Technology 475.

520-3 Computer-Aided Manufacturing II. Advanced study of the use of computers in the manufacture of products. Emphasis is placed on CAD/CAM integration, CAM generated data and current CAM languages. Prerequisite: Industrial Technology 445.

525-3 Computer Integrated Manufacturing. Theory and practice of using the computer to integrate the functional manufacturing areas into an effective system. Use of applications software is emphasized. Prerequisite: Industrial Technology 445 and 475.

530-3 Mechanical Aspects of Robots. Advanced application of mechanics, mechanisms, hydraulics, pneumatics, strength of materials and machine design to robotics. Prerequisite: Industrial Technology 455.

535-3 Computer Control of Manufacturing Systems. Application of computer technology to the control of manufacturing equipment, processes and systems. Emphasis is placed on the hardware aspects from an overall systems viewpoint. Prerequisite: Industrial Technology 455.

545-3 Electrical and Electronic Aspects of Robots. Analysis of servo motors, actuators, sensors and noise and feedback technique that drive

robot manipulators. Prerequisite: Industrial Technology 455.

560-3 Automated Factory. Advanced study of the integration of robots, automated assemble, automated storage and retrieval systems, automated inspection and computer-controlled transfer systems. Economic justification and implementation are emphasized. Prerequisite: 520, Industrial Technology 455.

580-1 to 4 Seminar. Collective and individual study of issues and problems related to manufacturing systems. Graded *S / U*. Prerequisite: enrollment in the M.S. degree in manufacturing systems.

585-3 Research Methods. Study of research methods in manufacturing including the development of proposals, the use of statistics in the analysis and communication of results. Prerequisite: 510 and Mathematics 458.

592-1 to 4 Special Investigations in Manufacturing Systems. Advanced topics in manufacturing systems. Topics are selected by mutual agreement of the student and the instructor. Prerequisite: consent of adviser.

599-1 to 6 Thesis.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S / U* or *DEF* only.

Marketing

(See Business Administration)

Mathematics

E-mail: gradinfo@math.siu.edu

COLLEGE OF SCIENCE

Beintema, Mark, Assistant Professor, Ph.D., University of South Carolina, 1990; 1990. Commutative algebra and combinatorics.

Bhattacharyya, Bhaskar, Assistant Professor, Ph.D., University of Iowa, 1993; 1993. Order restricted statistical inference, I-projections, linear models, multivariate analysis.

Budzban, Gregory, Assistant Professor, Ph.D., University of South Florida, 1991; 1991. Probability on algebraic structures, markov randon fields, neural networks.

Burton, Theodore A., Professor, Ph.D., Washington State University, 1964; 1966. Differential equations: ordinary, delay, functional, volterra, partial; mathematical biology; applied mathematics.

Chen, Pei-Li, Associate Professor, Ph.D., State University of New York at Buffalo, 1988; 1990. Nonlinear partial and ordinary differential equations, applied mathematics, mathematical biology, geometrical PDE.

Clark, Lane, Associate Professor, Ph.D., University of New Mexico, 1980; 1991. Combinatorics and graph theory.

Crenshaw, James A., Associate Professor, *Emeritus*, Ph.D., University of Illinois, 1967; 1967.

Danhof, Kenneth, Professor, Ph.D., Purdue University, 1969; 1969. Logic, combinatorics.

Dharmadhikari, Sudhakar, Professor, Ph.D., University of California, Berkeley, 1962; 1978. Statistics, sampling theory, probability, multivariate analysis.

Earnest, Andrew G., Professor, Ph.D., Ohio State University, 1975; 1981. Algebra and algebraic number theory, arithmetic theory of quadratic forms.

Feinsilver, Philip, Professor, Ph.D., New York University (Courant), 1975; 1978. Probability theory, representation theory.

Fitzgerald, Robert W., Professor, Ph.D., University of California-Los Angeles, 1980; 1982. Quadratic forms, algebra.

Foland, Neal E., Professor, *Emeritus,* Ph.D., University of Missouri, 1961; 1965.

Gates, Leslie D., Associate Professor, *Emeritus,* Ph.D., Iowa State University, 1952; 1961.

Gregory, John, Professor, Ph.D., University of California, Los Angeles, 1969; 1972. Optimization theory, numerical analysis, applied functional analysis.

Grimmer, Ronald C., Professor, Ph.D., University of Iowa, 1967; 1967. Differential equations, integral equations, applied mathematics.

Hooker, John W., Professor, Ph.D., University of Oklahoma, 1967; 1967. Ordinary differential equations, difference equations.

Hughes, Harry R., Associate Professor, Ph.D., Northwestern University, 1988; 1989. Stochastic processes, stochastic geometry.

Hunsaker, Worthen N., Professor, Ph.D., Washington State University, 1966; 1969. General topology, quasi-uniform spaces, ordered topological spaces, frames.

Jeyaratnam, Sakthivel, Professor, Ph.D., Colorado State University, 1978; 1981. Statistics, linear models, variance components, robust inference.

Kammler, David W., Professor, Ph.D., University of Michigan, 1971; 1971. Approximation theory, fourier analysis, numerical analysis, applications of mathematics.

Kim, Henry H., Assistant Professor, Ph.D., University of Chicago, 1992; 1995. Modular forms, algebra.

Kirk, Ronald B., Professor and *Chair*, Ph.D., California Institute of Technology, 1968; 1968. Probability (markov processes, diffusions, martingales), functional analysis.

Koch, Charles, Assistant Professor, *Emeritus,* Ph.D., University of Illinois, 1961; 1966.

Langenhop, Carl E., Professor, *Emeritus,* Ph.D., Iowa State University, 1948; 1961.

Lei, Junjiang, Assistant Professor, Ph.D., University of Oregon, 1991; 1994. Numerical analysis, approximation theory.

Mark, Abraham M., Professor, *Emeritus,* Ph.D., Cornell University, 1947; 1950.

Maxwell, Charles, Professor, *Emeritus,* Ph.D., University of Illinois, 1955; 1963.

Mohammed, Salah-Eldin A., Professor, Ph.D., University of Warwick, England, 1976; 1984. Functional differential equations, stochastic differential equations, global analysis.

Moore, Robert A., Associate Professor, *Emeritus,* Ph.D., Indiana University, 1961; 1965.

Neuman, Edward, Professor, Ph.D., University of Wroclaw, Poland, 1972; 1984. Numerical analysis, spline functions, approximation theory, special functions.

Olmsted, John M. H., Professor, *Emeritus,* Ph.D., Princeton University, 1940; 1960.

Paine, Thomas B., Assistant Professor, *Emeritus,* Ph.D., University of Oregon (Eugene), 1966; 1966.

Panchapakesan, S., Professor, Ph.D., Purdue University, 1969; 1970. Multiple decision procedures, reliability, order statistics.

Parker, George D., Associate Professor, Ph.D., University of California at San Diego, 1971; 1972. Differential geometry, classical geometry, linear programming, computer modeling of coal industry and environmental legislation.

Patula, William T., Professor, Ph.D., Carnegie-Mellon University, 1971; 1972. Ordinary differential equations, difference equations.

Pedersen, Franklin D., Associate Professor, *Emeritus,* Ph.D., Tulane University, 1967; 1965.

Pericak-Spector, Kathleen A., Associate Professor, Ph.D., Carnegie-Mellon University, 1980; 1981. Hyperbolic partial differential equations, continuum mechanics, science education.

Porter, Thomas, Assistant Professor, Ph.D., University of New Mexico, 1990; 1990. Combinatorial analysis, graph theory.

Redmond, Donald, Associate Professor, Ph.D., University of Illinois, 1976; 1979. Analytic number theory, elementary number theory, classical analysis, history of mathematics.

Skalsky, Michael, Professor, *Emeritus,* D.Nat.Sc., University of Gottingen, 1949; 1957.

Snyder, Herbert H., Professor, *Emeritus,* Ph.D., Lehigh University, 1965; Ph.D., University of South Africa, 1971; 1966.

Spector, Scott J., Professor, Ph.D., Carnegie-Mellon University, 1978; 1981. Continuum mechanics, elasticity, nonlinear partial differential equations.

Wallis, Walter D., Professor, Ph.D., University of Sydney, 1968; 1985. Combinatorics, neural networks.

Wilson, Joseph C., Professor, *Emeritus,* Ph.D., Louisiana State University, 1954; 1957.

Wright, Mary H., Professor, Ph.D., McGill University, Montreal, Quebec, 1977; 1980. Rings and modules: structure of modules, prime ideals and localization over serial rings with Krull dimension.

Yucas, Joseph, Professor, Ph.D., Pennsylvania State University, 1978; 1980. Algebra, combinatorics.

Zeman, Marvin, Professor, Ph.D., New York University, 1974; 1979. Partial differential equations, integro-differential equations, numerical analysis.

The Department of Mathematics offers graduate degree programs leading to the Master of Arts or Master of Science degree in mathematics and the Doctor of Philosophy degree in mathematics. Students in the master's program can choose from a rich assortment of courses in both pure and applied mathematics and statistics. Each master's degree candidate works closely with a professor in writing a research paper in an area of interest to the student. At the doctoral level, a student may specialize in any one of a large number of fields such as algebra, applied mathematics, combinatorics, computational mathematics, control theory, differential equations, numerical analysis, probability, or statistics. Interdisciplinary programs are also available.

Students interested in the teaching of mathematics may select a minor concentration in education within the Master of Science program in mathematics. Minor work for graduate degrees in other fields, which allow for a minor, is also offered.

Acceptance for graduate study in mathematics and subsequent continuation in the graduate program are at the discretion of the Department of Mathematics, provided that the student has been admitted to the Graduate School and meets the retention standards of the Graduate School. All applicants for the graduate program are considered for teaching assistantships. In order to

be considered for a fellowship the applicant must take the GRE exam and all applicants are strongly encouraged to take the GRE General Test.

In addition to general rules, regulations, and requirements of the Graduate School, the following specific requirements pertain to the degrees available in mathematics.

Master of Science Degree in Mathematics

Students will be considered for acceptance into the M.S. degree in mathematics program if they have completed an undergraduate major in mathematics or a strong undergraduate minor in mathematics together with a major in a closely related discipline.

Once accepted, the requirements are as follows:

1. The candidate must complete a total of at least 30 semester hours of graduate credit approved by the graduate adviser of which 15 hours must be at the 500 level and at least 21 hours must be in courses (exclusive of 400, 417, 458, 511, 592) offered by the Department of Mathematics. A minor concentration may be taken outside of the department if approved by the graduate adviser during the student's first semester in the master's program.
2. The candidate's program must include at least one 400- or 500-level course from each of 4 of the following areas: (1) pure and applied algebra; (2) pure analysis; (3) applied analysis; (4) geometry and topology; (5) probability and statistics. This requirement may be met in whole or in part by means of equivalent courses taken elsewhere prior to acceptance for graduate study in the department.
3. The candidate must prepare a research paper or thesis (3 hours credit in MATH 595 or 599) under the supervision of a research adviser and two other faculty members from the department. This committee will be appointed by the graduate adviser after consultation with all those involved.
4. The candidate must demonstrate satisfactory performance on a final oral examination covering the graduate course work and the research paper or thesis. This examination will be conducted by the 3 members of the candidate's committee and moderated by the research adviser. The student will pass the examination if the research adviser and at least 1 of the other 2 committee members so agree.

Master of Arts Degree in Mathematics

Students will be considered for acceptance into the M.A. degree in mathematics program if they have completed with distinction the equivalent of a strong undergraduate major in mathematics. Once accepted, the requirements are as follows:

1. The candidate must complete a total of 30 semester hours of graduate level mathematics courses of which at least 15 must be at the 500 level.
2. The candidate must complete with a grade of *B* or better each of the courses MATH 419, 421, 430, 452, and at least 3 of the courses MATH 501, 519, 530, 555. This requirement may be met in whole or in part by means of equivalent courses taken elsewhere.
3. The candidate must demonstrate the ability to read mathematical literature in French, German, or Russian. This may be certified by passing with a grade of *B* or better the research tool course 488 offered by the Department of Foreign Languages and Literatures, by passing with a score of 465 or better an examination given by the Educational Testing Service of Princeton, NJ, or by passing a suitable examination given by a faculty member from the Department of Mathematics who has been approved by the graduate adviser.

4. The candidate must prepare a thesis (3 hours credit in MATH 599) under the supervision of a thesis adviser and 2 other faculty members from the department. This committee will be appointed by the graduate adviser after consultation with all those involved.
5. The candidate must demonstrate satisfactory performance on a final oral examination covering the graduate course work and the thesis. This examination will be given by the 3 members of the candidate's committee and chaired by the thesis adviser. The student will pass the examination if the thesis adviser and at least 1 of the other 2 committee members so agree.

Doctor of Philosophy Degree

Students will be considered for acceptance into the doctoral program if they have completed with distinction a graduate program comparable to that required for a master's degree in mathematics, statistics, or computer science at SIUC. Additional evidence of outstanding scholarly ability or achievement (e.g., a high score on the advanced section of the Graduate Record Examination or published research papers of high quality) will lend strength to the application. Students must have completed 419, 421, 430, and 452 or their equivalent before entering the doctoral program.

Once admitted, the requirements are as follows:

1. The candidate must pass the departmental qualifying examination by the end of the February following the second fall semester in the doctoral program. This qualifying examination, which is given twice annually in February and September, covers 3 areas each of which is commensurate with a regularly scheduled 500 level graduate course at SIUC. After consultation with the graduate adviser candidates will choose the 3 areas over which they are to be examined, with 2 of 3 chosen from MATH 501, 519, 530, 580 including at least one of 501 and 519. The coursework in two courses chosen from the list of four above will not be counted toward completing the major area discussed in 3. below. The third area normally corresponds to another regularly scheduled 500 level mathematics course but with the approval of the graduate adviser the third area may be chosen from a related field outside the department. A candidate who fails the qualifying examination within the allotted time will be dropped from the doctoral program.
2. The candidate must demonstrate competence with two research tools. The ability to read mathematics in any one of the languages French, German, or Russian serves as a tool. This may be certified by passing with a grade of *B* or better the research tool course 488 offered by the Department of Foreign Languages and Literatures, by passing with a score of 465 or better an examination given by the Educational Testing Service of Princeton, NJ, or by passing a suitable examination given by a faculty member from the Department of Mathematics who has been appointed by the graduate adviser. A proficiency in computer programming will also serve as a research tool. This may be certified by passing with a grade of *B* or better CS 202 and CS 220 or by passing a suitable examination given by a faculty member from the Department of Mathematics who has been appointed by the graduate adviser.
3. Mathematics 501, 519, and 530, or their equivalent are required courses for all doctoral students. The candidate must complete a major (12 hours) and two minors (6 hours each) chosen from the following list: algebra, analysis, applied mathematics, combinatorics, differential equations, number theory, numerical analysis, probability and statistics, topology, and geometry. The course work in the major and minor areas must be at the 500 level and exclusive of the courses used to satisfy the qualifying exam.

4. The candidate must file a request with the graduate adviser to appoint a dissertation committee to supervise the remaining doctoral work. This committee shall consist of 5 members with the candidate's dissertation adviser as chair. At least one member of the committee must represent each of the minor areas, and the dissertation adviser and one other member will represent the major area. One member of the committee will be chosen from outside of the department. This committee will be appointed by the graduate adviser after consultation with the candidate, the proposed dissertation adviser, the department chair, and the other faculty members involved.
5. The candidate must pass a preliminary examination over the major and minor areas. This examination will normally be given after satisfying the research tools requirement and within 18 months after passing the qualifying examination. The preliminary examination will consist of a written examination over the major area and an oral examination over the major and the two minor areas. This examination will be prepared, administered, and evaluated by the dissertation committee. Any member of the graduate faculty may attend the oral portion of the preliminary examination and (at the discretion of the committee chair) question the candidate. The candidate will pass the preliminary examination provided that 4 members of the committee including the chair so agree. A report on the examination will be included with the candidate's official academic records. In the event that the candidate's performance is unsatisfactory, the committee as a whole shall decide on the time and content of an appropriate re-examination. A candidate who fails the re-examination will be dropped from the doctoral program.

   In unusual circumstances a candidate who has passed the preliminary examination may wish to change the major area or dissertation adviser. This will be allowed if the graduate adviser and department chair so agree in which case the dissertation committee will be reconstituted in an appropriate manner. The revised committee may then prescribe additional course work and require the candidate to retake the preliminary examination.
6. The candidate must be officially admitted to candidacy for the Ph.D. degree. This will be done after all of the above requirements have been met.
7. The candidate must complete a dissertation (representing at least 24 hours in MATH 600) under the supervision of the candidate's dissertation adviser. The dissertation adviser and the other 4 members of the dissertation committee will evaluate the quality of the completed work which must conform to high literary and scholastic standards and constitute an original and publishable contribution to mathematics. A final oral examination will be conducted by the dissertation committee. During this examination the candidate will first present the major results of the dissertation and then respond to questions. Any member of the University graduate faculty may attend and (at the discretion of the dissertation adviser) ask related questions. The dissertation will be accepted provided the dissertation adviser and at least 3 of the other 4 members of the committee so agree.

For students interested in the doctoral degree program with an emphasis in computational mathematics, the entrance requirements are 419, 421, 452, and CS 451. Once students are admitted, the preceding paragraphs 1 through 7 apply except for the following. Courses for the qualifying exam are CS 555, one from 501 or 519, and one other 500 level mathematics course (preferably 549 or 575). For the preliminary examination, computer science can be a minor area. The program must also include mathematics 501, 519, and 549 (in lieu of 530) or their equivalents.

As a matter of policy, the Department of Mathematics does not provide any student working for a master's degree financial support for more than two years nor a Ph.D. student more than four years past the master's or master's equivalent.

Courses (MATH)

400-3 History of Mathematics. An introduction to the development of major mathematics 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 mathematics from 600 B.C. Does not count toward a mathematics major in the College of Liberal Arts or in the College of Science. Prerequisite: 319 and 352 or consent of instructor.

405-3 Intermediate Ordinary Differential Equations. Topics selected from linear systems, existence and uniqueness for initial value and boundary value problems, oscillation and stability. Prerequisite: 305.

406-3 Eigenfunction Analysis. Discrete and continuous models for the vibrating string; separation of variables and eigenfunction analysis; inner product spaces; operators on inner product spaces; the spectral theorem for Hermitian operators on finite dimensional spaces with applications; the Courant-Fisher max-min characterization of eigenvalues; the spectral theorem for compact Hermitian operators with applications to Sturm-Liouville boundary value problems and Fredholm integral equations. Prerequisite: 221 and 305.

407-3 Introduction to Partial Differential Equations. First order linear and quasilinear partial differential equations, characteristics, second order linear partial differential equations, classification of types, boundary value and initial value problems, well posed problems, the wave equation, domain of dependence, range of influence, Laplace's equation and Dirichlet problems, the maximum principle. Poisson's integral, fundamental solution of the heat equation. Prerequisite: 251, 305.

409-3 Introduction to Fourier Analysis. The Fourier synthesis and analysis equations for periodic and aperiodic functions on the reals and the integers; convolution; the calculus for finding Fourier transforms; operators associated with Fourier analysis; the FFT and FHT algorithms and fast convolution; generalized functions; the sampling theorem; wavelets; selected applications of Fourier analysis to partial differential equations, probability, music synthesis, time series, image processing, diffraction. Prerequisite: 221 and 305.

411-1 to 6 (1 to 3, 1 to 3) Mathematical Topics for Teachers. Variety of short courses in mathematical ideas useful in curriculum enrichment in elementary and secondary mathematics. May be repeated as topics vary. Does not count toward a mathematics major.

412-3 Problem Solving Approaches to Basic Mathematical Skills. Content of basic skills at all levels of education and the development of these skills from elementary school through college; emphasis on problem solving and problem solving techniques; determination of student skills and proficiency level. Credit may not be applied toward degree requirements in mathematics. Prerequisite: 314 or equivalent.

419-3 Introduction to Abstract Algebra II. Solvable groups, maximal ideals, basis and dimension, elementary field extension theory, splitting fields, geometric constructions, elementary Galois theory, Galois group of a polynomial, solution of equations in radicals. Prerequisite: 319 or consent of instructor.

421-3 Linear Algebra. Fields, vector spaces over fields, triangular and Jordan forms of matrices, dual spaces and tensor products, bilinear forms, inner product spaces. Prerequisite: 221.

425-3 Theory of Numbers. Properties of integers, primes, divisibility, congruences, quadratic forms, diophantine equations, and other topics in number theory. Prerequisite: 319 or consent of department.

430-3 Introduction to Topology. Study of continuity, convergence, separation and compactness in the context of metric spaces and topological spaces. Prerequisite: 302 or 352 or consent of department.

435-3 Elementary Differential Geometry. An introduction to modern differential geometry through the study of curves and surfaces in R^3. Local curve theory with emphasis on the Serret-Frenet formulas; global curve theory including Fenchel's theorem; local surface theory motivated by curve theory; global surface theory including the Gauss-Bonnet theorem. Prerequisite: 251 and 221.

447-3 Introduction to Graph Theory. (Same as Computer Science 447.) Introduction to theory of graphs, digraphs, and networks and applications to electrical systems and computer science. Topics include blocks and cut-points, Eulerian graphs, trees, cycle and cocycle spaces, planarity and Kuratowski's Theorem, connectivity and Menger's Theorem, Hamiltonian graphs, colorability and Heawood's Theorem, flows in networks and Ford-Fulkerson Theorem, critical path analysis. Prerequisite: 349 or consent of instructor.

449-3 Introduction to Combinatorics. (Same as Computer Science 449.) An introduction to combinatorial mathematics with computing applications. Topics include selections and arrangements, generating functions, recursion, inclusion and exclusion, coding theory, block designs. Prerequisite: 349 or consent of instructor.

450-3 Methods of Advanced Calculus. Sequences and series of functions; partial differentiation; Jacobians; the implicit function theorem; the classical differential operators in general curvilinear coordinates; line, surface, volume integrals, the divergence and Stokes' theorems; transformation of variables in multiple integrals; integrals containing a parameter. Prerequisite: 251.

452-3 Introduction to Analysis. A rigorous development of one-variable calculus concepts including the real numbers, sets, limits of sequences, continuity of functions, differentiation, Riemann-Stieltjes integration, series of functions at a more advanced level than 352. Prerequisite: 251.

455-3 Introduction to Complex Analysis and Applications. Complex numbers, analytic functions, line integrals, the Cauchy-Goursat theorem and its implications, power series. Laurent series, polar and essential singularities, analytic continuation, contour integration, residue theorem, conformal mapping. Prerequisite: 251.

457-3 Methods of Quantitative Analysis. (Same as Business Administration 451.) Introductory survey of basic quantitative methods necessary for graduate study in business; designed for students with deficiencies in methods of quantitative analysis. Course consists of introduction to calculus, matrix algebra, and probability. Extensive use is made of business examples. Prerequisite: enrollment in Master of Business Administration program or consent of department; Mathematics 108 or equivalent.

458-3 Statistical Methods in Business and Industry. Basic probability concepts; random variables; univariate and joint distributions; Bernoulli, binomial, Poisson, normal, exponential, gamma, chi-square, t and F distributions; sampling distributions; estimation by the method of moments and the method of maximum likelihood; confidence intervals; hypothesis tests for normal, Bernoulli and Poisson distributions; simple regressions and analysis of variance problems. Prerequisite: 140 or equivalent and graduate standing in College of Business and Administration or the College of Engineering and Technology.

460-3 Transformation Geometry. Geometry as the study of properties invariant under congruences, similarities, affine transformations and projectivities. Prerequisite: 221 and 319.

471-3 Introduction to Optimization Techniques. (Same as Computer Science 471.) Nature of optimization problems. General and special purpose methods of optimization, such as linear programming, classical optimization, separable programming, integer programming and dynamic programming. Prerequisite: 221, 250. Computer Science 202.

472-3 Linear Programming. (Same as Computer Science 472.) Nature and purpose of the linear programming model. Development of the simplex method. Application of the model to various problems. Duality theory. Transportation. Assignment problems. Postoptimality analysis. Prerequisite: 221 and Computer Science 202.

473-3 Reliability Theory. Formulation of the concept of reliability in terms of probability theory. Failure distributions and failure rates. Elements of renewal theory. Age and block replacement policies, optimal replacement policies, optimal replacement policies for classes of failure distributions. Prerequisite: 480 or 483 or consent of department.

475-6 (3,3) Numerical Analysis. (Same as Computer Science 464.) An introduction to the theory and practice of computation with digital computers. Topics include the solution of nonlinear equations, interpolation and approximation, solution of systems of linear equations, numerical integration, solution of ordinary differential equations, computation of eigenvalues and eigenvectors and solution of partial differential equations. Prerequisite: (a) 221 and 250 and Computer Science 202 or equivalent programming proficiency; (b) 305 and 475a.

480-4 Introduction to Probability. A comprehensive introduction to probability theory at a level suited to upper-division undergraduates and first-year graduate students. Topics include: event spaces, probability functions, combinatorics, generating functions, conditional probability, independence, random variables, probability distributions, expectations, moments, characteristic functions, inversion formulas, sums of independent random variables, the multivariate normal distributions, the central limit theorem, the weak and strong laws of large numbers. Prerequisite: 251.

481-3 Elements of Stochastic Processes. An introduction, including normal, Poisson, and Markov processes. Prerequisite: 380 or 480.

483-4 Mathematical Statistics in Engineering and Physical Sciences I. Introduction to statistical theory with applications in engineering and the physical sciences. Probability: axioms, distributions including noncentral distributions, moments and moment generating functions, order statistics. Statistical inference: point and interval estimation, testing hypotheses, likelihood ratio tests. Prerequisite: 250.

484-4 Mathematical Statistics in Engineering and Physical Sciences II. An introduction to linear models and the design of experiments with applications in engineering and the physical sciences. Analysis of the general linear model, basic designs and criteria, response surface analysis and factor analysis. Statistical computation. Prerequisite: 483 and 221 or consent of instructor.

485-3 Applied Statistical Analysis. Elements of survey sampling including simple random and stratified sampling, ratio and regression estimates; elements of nonparametric methods including the sign, Wilcoxon and Kruskal-Wallis tests; analysis of categorical data including loglinear models. Prerequisite: 480 or 483 or consent of instructor.

495-1 to 6 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 chair and instructor.

501-3 Real Analysis. Structure of sets of real numbers; Lebesque measure; measurable functions; integration; convergence theorems; functions of bounded variation; absolutely continuous functions; LP spaces; general measure spaces; radon-Nikodym theorem; product measures and Fubini's theorem. Prerequisite: 452.

502-3 Modern Analysis. Banach spaces; bounded operators; Baire category theorem and its consequences; dual spaces; Hahn-Banach theorem; Hilbert spaces, Riesz representation theorem; Frechet derivatives; function spaces. Prerequisite: 501.

505-3 Ordinary Differential Equations. Existence and uniqueness theorems; general properties of solutions; linear systems; geometric theory of nonlinear equations; stability; self-adjoin

boundary value problems; oscillation theorems. Prerequisite: 452 and 421 or consent of instructor.

506-1 to 12 Advanced Topics in Ordinary Differential Equations. Selected advanced topics in ordinary differential equations chosen from such areas as: stability, oscillations, functional differential equations, perturbations, limit point and limit circle, boundary value problems. Prerequisite: consent of instructor.

507-3 Partial Differential Equations. Origins of PDE's. The wave equation, potential equation, and heat equation. Initial and boundary value problems and questions of well posedness. Fundamental solutions and the related Riemann, Green, and Neumann functions. Classification of linear and quasilinear PDE's. Theory of characteristics. The Cauchy-Kowalawski theorem. The max-min principle, the energy-integral method and questions of uniqueness. Questions of existence. Prerequisite: 407 and 501.

508-3 Integral Equations. Origins of integral equations. Volterra equations of the first and second kind. Fredholm equations of the first and second kind. Fredholm's alternative theorem. The resolvent equation. Orthonormal eigensystems of a symmetric Fredholm operator. The Hilbert-Schmidt expansion theorem and its applications to Sturm-Liouville problems. Exact and approximation methods of solution. Prerequisite: 452 and 406 or 421.

511-3 Advanced Topics in the Teaching of Mathematics. (Same as Curriculum and Instruction 529.) Selected advanced topics in the teaching of mathematics chosen from such areas as: pedagogical theories; instructional strategies; applications of mathematics; problem solving. This course is counted by the Mathematics department only as part of an approved minor. Prerequisite: consent of instructor.

512-1 to 21 Topics in Mathematics for Teachers of Elementary, Middle School and Junior High Mathematics. **(a)** Abstract Algebra. **(b)** Geometry. **(c)** Probability and Statistics. **(d)** Sets, Logic and Number Systems. **(e)** Applications of Mathematics. **(f)** Algebra. **(g)** History of Mathematics. This course is counted by the Mathematics department only as part of an approved minor.

513-1 to 27 Topics in Mathematics for Teachers of Secondary Mathematics. **(a)** Abstract Algebra. **(b)** Geometry. **(c)** Probability and Statistics. **(d)** Sets, Logic and Number Systems. **(e)** Applications of Mathematics. **(f)** Analysis. **(g)** Discrete Mathematics. **(h)** Topology. **(i)** Computer Simulation. This course is counted by the Mathematics department only as part of an approved minor.

516-8 (4,4) Statistical Analysis in the Social Sciences. **(a)** Descriptive statistics; graphic display of data; concepts of probability; statistical estimation, and hypothesis testing. Applications to social science data. **(b)** Matrix algebra; general linear model; multivariate statistics, ordinal and nominal measures of associations and causal modeling. Applications to social science data. This course does not give credit toward a mathematics major. Prerequisite: one year of high school algebra or equivalent.

519-3 Algebraic Structures I. Groups, subgroups, normal subgroups and homomorphism theorems, permutation groups, finite direct products, finite abelian groups, p-groups and Sylow's theorems, normal and subnormal series, Jordan-Holder theorem. Rings and subrings, divisibility theory in integral domains, polynomial rings. Prerequisite: 419 or consent of department.

520-3 Algebraic Structures II. Algebraic field extensions; splitting fields, algebraic closure, separable and inseparable extensions; finite fields; norms and traces, the fundamental theorem of Galois theory. Free modules, torsion modules, tensor products of modules, finitely generated modules over principal ideal domains, application of abelian groups. Prerequisite: 519.

522-1 to 12 Advanced Topics in Algebra and Number Theory. Selected topics in modern algebra and number theory chosen from such areas as: group theory, commutative algebra, non-commutative algebra, field theory, representation theory, analytical number theory, algebraic number theory, additive number theory. Diophantine approximations, Dirichlet series and automorphic form. Prerequisite: consent of instructor.

525-3 Number Theory. Introduction to modern analytic and algebraic techniques used in the study of quadratic forms, the distribution of prime numbers, diophantine approximations and other topics of classical number theory. Prerequisite: 425.

530-3 General Topology. Topological spaces, continuous functions, product topology, convergence, separation and countability, compactness, connectedness, local properties, metrizability, compact-open topology. Prerequisite: 430, 452.

531-3 Algebraic Topology. Simplicial complexes. Simplicial approximation. Chain complexes. Simplicial homology. Singular homology. Applications to spheres and Euclidean spaces. Universal coefficient theorem. Cohomology. Prerequisite: 419, 430 or 530.

532-1 to 12 Advanced Topics in Topology and Geometry. Selected advanced topics in topology and geometry chosen from such areas as: metrization, topological groups, uniform spaces, homotopy theory, covering spaces, fixed point theory, Poincare duality, differential topology, categorical topology, ordered topological spaces, complex manifolds, fibre bundles, vector bundles, sheaf theory, differential geometry, Morse theory, relativity. Prerequisite: consent of instructor.

536-3 Differential Geometry. Basic manifold theory, linear connections, Riemannian geometry, DeRham cohomology, applications. Prerequisite: 421, 430 or 435.

549-3 Combinatorial Theory. Graph theory: review of basic concepts, algebraic graph theory, trees, planarity, Ramsey's theorem, factorizations. Block designs: balanced incomplete block designs, finite geometrics, triple systems, arrays. Introduction to algebraic coding theory. Introduction to modern cryptography. Prerequisite: 449 or consent of department.

551-3 Functional Analysis. Topological vector spaces; weak topologies; bounded and unbounded operators in Hilbert space; spectral theory; distributions; Sobolev spaces; normed rings; normed algebras. Prerequisite: 502.

553-1 to 12 Advanced Topics in Analysis and Functional Analysis. Advanced topics in analysis and functional analysis from such areas as: harmonic analysis, approximation theory, inte-

gration theory, advanced complex variables, topological vector spaces, operator theory, Banach algebras, distribution theory. Prerequisite: consent of instructor.

555-3 Complex Variables. Extended complex plane; Cauchy-Riemann equations: conformality; analytic continuation; power series; elementary functions; Cauchy integral theorem and consequences; Cauchy integral formula; maximum modulus principle; Liouville's theorems; Laurent expansion; residue theorem and evaluation of real integrals; principle of argument; Rouche's theorem. Prerequisite: 452.

559-1 to 12 Advanced Topics in Combinatorics. Selected advanced topics in combinatorics chosen from such areas as: graph theory; combinatorial designs; enumeration; random graphs; finite geometry; coding theory; cryptography; combinational algorithms. Prerequisite: consent of instructor.

560-3 Calculus of Variations. The basic problems of calculus of variations. The classical necessary conditions and their application. Canonical form of the Euler-Lagrange equations and Hamilton's principle. Fields and sufficient condition. Pontryagin's necessary condition and its application to control theory and to the classical problems of the calculus of variations. Prerequisite: 452.

566-3 Introduction to Continuum Mechanics. A rigorous development of continuum mechanics including: elements of tensor analysis; kinematics; balance of mass, linear momentum, and angular momentum; the concept of stress; constitutive equations for fluid and solid bodies; the principle of frame indifference. Prerequisite: 450 or 452 and one of 406, 421, 435.

569-1 to 12 Advanced Topics in Applied Mathematics. Selected advanced topics in applied mathematics chosen from such areas as: continuum mechanics; electromagnetic theory; control theory; mathematical physics. Prerequisite: consent of instructor.

570-1 to 12 Advanced Topics in Optimization. Selected advanced topics in optimization and operations research chosen from such areas as: calculus of variations, optimal control theory, nonlinear programming, convex analysis, nonsmooth analysis, new flows, advanced computer simulation, large scale linear programming. Prerequisite: consent of instructor.

572-1 to 12 Advanced Topics in Numerical Analysis. (Same as Computer Science 564.) Selected advanced topics in numerical analysis chosen from such areas as: approximation theory, numerical solution of initial value problems; numerical solution of boundary value problems, numerical linear algebra, numerical methods of optimization, functional analytic methods. Prerequisite: consent of instructor.

574-3 Approximation Theory. Existence, uniqueness, and characterization of best approximations in normed linear spaces; projection methods for good approximation: the Weierstrass, Muntz-Szasz, and Stone-Weierstrass theorems; degree of approximation and the Jackson theorems; construction of optimal min-max and least squares approximation using rational functions, splines, exponential sums. Prerequisite: 452, 475a and 406 or 421.

575-3 Matrix Computations. An introduction to modern numerical linear algebra including: vector and matrix norms; Householder, Givens, and Gauss transforms; factorization methods for solving systems of linear equations with roundoff error analysis; QR and SVD methods for solving linear least squares problems; the QR algorithm for computing the eigenvalues of a matrix. Prerequisite: 475a and one of 406, 421.

580-3 Statistical Theory. An introduction to mathematical statistics. Estimation theory including such topics as the Cramer-Rao and Chapman-Robbins inequalities, and the Rao-Blackwell theorem. Testing hypotheses with emphasis on the monotone likelihood ratio and the exponential family. A short introduction to Bayes and other decision procedures. Prerequisite: 480 or 483.

581-3 Probability. General probability spaces, review of measure and integration; product spaces, product measures, Fubini's theorem. Probability and random variables: induced measures, distribution functions, expectations, types of convergence, independence, characteristic functions. Sums of independent random variables: tail events and tail functions; Borel Cantelli lemma, zero-one law; Kolmogorov's inequality, convergence of series, the Strong Law of Large Numbers. Prerequisite: a concurrent course in real variables (501).

582-1 to 6 Advanced Topics in Probability. Selected advanced topics in probability chosen from such areas as: martingales, Markov processes, Brownian motion, infinitely divisible laws. Prerequisite: consent of instructor.

583-1 to 12 Advanced Topics in Statistics. Selected advanced topics in statistics chosen from such areas as: advanced linear models, advanced experimental design, multivariate statistical analysis, decision theory, advanced nonparametric theory. Prerequisite: consent of instructor.

585-1 to 2 Statistical Consulting. Consulting with university researchers under the supervision of a member of the statistics faculty. A write up of each consultation will be required. Prerequisite: 484 or 485 and consent of instructor.

590-1 to 6 Contemporary Mathematics Research. Lectures on various mathematical topics of current research interest by members of the department and by distinguished visitors. Prerequisite: consent of the graduate adviser.

592-1 to 6 Advanced Topics in Mathematics for Teachers. **(a)** Algebra. **(b)** Geometry. **(c)** Analysis. **(d)** Probability and Statistics. **(e)** Discrete Mathematics. Credit not applicable to graduate program in mathematics.

595-1 to 12 per topic Special Project. An individual project, including a written report. **(a)** Algebra. **(b)** Geometry. **(c)** Analysis. **(d)** Probability and Statistics. **(e)** Mathematics Education. **(f)** Logic and Foundations. **(g)** Topology. **(h)** Applied mathematics. **(i)** Differential Equations. **(j)** Number Theory. Graded *S*/*U* only. Prerequisite: consent of instructor.

599-1 to 6 Thesis. Minimum of three hours to be counted toward the Master of Arts degree.

600-1 to 30 (1 to 16 per semester) Dissertation. Minimum of 24 hours to be earned for the Doctor of Philosophy degree.

601-1 per semester Continuing Enrollment. For those graduate students who have not fin-

ished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Mechanical Engineering and Energy Processes

E-mail: judi@engr.siu.edu

COLLEGE OF ENGINEERING

Agrawal, Om, Associate Professor, Ph.D., University of Illinois-Chicago, 1984; 1985. CAD/Simulation of mechanical systems.

Blackburn, James W., Associate Professor, Ph.D., University of Tennessee, Knoxville, 1988; 1995. Chemical and bioprocesses reduction and control of organic wastes/by-products.

Chen, Juh W., Professor and *Dean,* Ph.D., University of Illinois, 1959; 1965. Coal conversion processes, supercritical extraction.

Chu, Tsuchin P., Assistant Professor, Ph.D., University of South Carolina, 1982; 1990. CAD/CAM, computer graphics, optical methods in experimental mechanics and manufacturing, image processing.

Don, Jarlen, Associate Professor, Ph.D., Ohio State University, 1982; 1985. Composite materials, surface effects, carbon materials.

Farhang, Kambiz, Assistant Professor, Ph.D., Purdue University, 1989; 1990. CAD/CAM, kinematics, dynamics, control and stability of flexible and rigid-body mechanical, electromechanical, mechanical-drive systems; manufacturing processes and process control.

Helmer, Wayne A., Professor, Ph.D., Purdue University, 1974; 1974. Acoustics, fluid bed combustion, energy conservation, solar energy, direct contact heat transfer.

Hesketh, Howard E., Professor, *Emeritus*, Ph.D., Pennsylvania State University, 1968; 1968. Air pollution control, hazardous materials management, fluid bed combustion, material handling, engineering economics.

Hippo, Edwin J., Professor, Ph.D., Pennsylvania State University, 1977; 1984. Coal liquefaction, coal conversion, chemical and physical cleaning of coal, coal structure, carbon materials, STM.

Jefferson, Thomas B., Professor, *Emeritus*, Ph.D., Purdue University, 1955; 1969.

Kent, Albert C., Professor, Ph.D., Kansas State University, 1968; 1966. Energy conservation, solar, heat transfer.

Koc, Rasit, Associate Professor, Ph.D., University of Missouri-Rolla, 1989; 1994. Nonstoichiometry of oxides; sintering of oxide and non-oxide ceramics, methods of preparing high purity oxides from organometallics, perovskites for use as high temperature electodes, microwave absorbing composites, synthesizing submicron carbide, nitride and carbonitride powders; application of solar energy for processing of advanced ceramics and composites.

Kulkarni, Manohar, Assistant Professor, Ph.D., University of Missouri-Columbia, 1986; 1993. Thermal sciences and engineering, controls.

Lalvani, Shashi B., Professor and *Acting Chair,* Ph.D., University of Connecticut, 1982; 1982. Electrochemical engineering, and coal cleaning and conversion.

Muchmore, Charles B., Professor, Ph.D., Southern Illinois University at Carbondale, 1969; 1966. Coal conversion and cleaning, alcohol production, water pollution control.

O'Brien, William S., Associate Professor, Ph.D., West Virginia University, 1972; 1973. Coal gasification and combustion, coal cleaning, carbon materials, mass transfer design, air and water pollution control.

Orthwein, William C., Professor, *Emeritus,* Ph.D., University of Michigan, 1958; 1965.

Rajan, Suryanarayaniah, Professor, Ph.D., University of Illinois, 1970; 1977. Fluidized bed combustion, pulse combustion, engine fuels, combustion and pollution control.

Swisher, James H., *Emeritus,* Professor, Ph.D., Carnegie-Mellon, 1963; 1983.

Tempelmeyer, Kenneth E., Professor, *Emeritus,* Ph.D., University of Tennessee, 1969; 1979.

Wittmer, Dale E., Associate Professor, Ph.D., University of Illinois, 1980; 1986. High temperature materials & testing, ceramics whisker synthesis, ceramic composites.

Wright, Maurice, Professor, Ph.D., University of Wales, United Kingdom, 1962; 1984. Fiber reinforced composites and fracture mechanics.

Master of Science in Mechanical Engineering

Graduate work leading to the Master of Science degree in mechanical engineering is offered by the College of Engineering. The program is designed to provide advanced study in air pollution control, mass and heat transfer, coal conversion, electrochemical processes, thermal science, thermal systems design, solar systems design, chemical and biochemical processes, mechanical systems, computer-aided design, composite materials and ceramics.

Admission

Students seeking admission to the graduate program in mechanical engineering must meet the admission standards set by the Graduate School and have a bachelor's degree in engineering or its equivalent. A student whose undergraduate training is deficient may be required to take coursework without graduate credit.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted. The application form can be obtained from the Department.

Requirements

Each student majoring in mechanical engineering will develop a program of study with a graduate adviser and establish a graduate committee of at least three members at the earliest possible date. A student may with the approval of a graduate faculty committee and the department chair also take courses in other branches of engineering, or in areas of science and business, such as physics, geology, chemistry, mathematics, life science, administrative sciences, or computer science. A thesis committee of at least three members will approve the thesis and the comprehensive oral exam.

For a student who wishes to complete the requirements of the master's degree with a thesis, a minimum of thirty semester hours of acceptable graduate credit is required. Of this total, eighteen semester hours must be earned in the Department of Mechanical Engineering and Energy Processes. Each candidate is also required to pass a comprehensive oral examination covering all of the student's graduate work including thesis.

If a student prefers the non-thesis option, a minimum of thirty-six semester hours of acceptable graduate credit is required. The student is expected to take at least twenty-one semester hours within the Department of Mechanical Engineering and Energy Processes including no more than three semester hours of the appropriate 592 course to be devoted to the preparation of a research paper. In addition, each candidate is required to pass a written comprehensive examination. An oral presentation of the paper may be required.

Each non-thesis student will select a minimum of three engineering graduate faculty members to serve as a graduate committee, subject to the approval of the chair of the department. The committee must include at least one member from one of the other engineering departments and will:

1. approve the student's program of study,
2. approve the student's research paper topic,
3. approve the completed research paper, and
4. administer and approve the written comprehensive examination.

Teaching or research assistantships and fellowships are available for qualified applicants. Additional information about the program, courses, assistantships, and fellowships may be obtained from the College of Engineering or the Department of Mechanical Engineering and Energy Processes.

Courses (ME)

Graduate work in the Department of Mechanical Engineering and Energy Processes is offered toward a concentration for the Master of Science degree in engineering. Safety glasses are required for some of the courses in this department. Four-hundred level courses in this department may be taken for graduate credit unless otherwise indicated in the course description.

400-3 Power and Refrigeration Cycles. Use of engineering thermodynamics in analysis of power and refrigeration cycles. Detailed treatment of various gas and vapor power cycles including

combined gas and steam cycles. Thermodynamics of combustion. Gas and vapor refrigeration cycles. First and Second Law analysis and turbo-machinery. Prerequisite: Engineering 300.

401-1 Thermal Measurements Laboratory. Study of basic measurements used in the thermal sciences. Calibration techniques for temperature and pressure sensors. Thermal measurements under transient and steady-state conditions. Applications include conduction, convection and radiation experiments. Uncertainty analysis. The handling and reduction of data. Prerequisite: 302, 303.

402-3 Heat Exchange Equipment Design. Engineering design of heat exchange equipment such as boilers, evaporators, cooling towers, furnaces and systems involving combinations of conduction, convection and radiation mechanisms. Emphasis is placed on application of basic principles of heat transfer and fluid mechanics to the design of heat exchange equipment. Student are encouraged to work "open-ended" problems with multiple possible solutions. Prerequisite: 302, Engineering 222, 313.

403-1 Mechanical Engineering Measurements Laboratory. Laboratory to familiarize students with the use of instruments to measure time, distance, velocity, acceleration, strain, fluid flow and turbulence. Instruments include micrometers, laser distance meters, stroboscopes, oscilloscopes, incremental rotary encoder, LVDT, load cells, accelerometers, analog/digital convertors, pressure transducers and related equipment. Prerequisite: 303, Engineering 311.

404-4 Optimization of Process Systems. Simulation and optimization of process systems based upon engineering science and economic fundamentals. Analysis and correlation of experimental engineering data and use of correlated data in simulation, design and decision making. Design of systems using economics and continuous and discrete optimization methods encountered in engineering practice. Use of the computer is required. Prerequisite: Engineering 361, Mathematics 305 and senior standing in engineering.

405-3 Internal Combustion Engines and Gas Turbines. Operation and performance characteristics of Otto, Diesel, Wankel engines and gas turbines. Methods of engine testing, types of fuels and their characteristics, fuel metering systems, engine combustion analysis as related to engine performance, fuel characteristics and air pollution, exhaust gas analysis and air pollution control. Prerequisite: Engineering 300.

406-3 Thermal Systems Design. Applications of the principles of engineering analysis to the design of thermal systems. Consideration of such systems as refrigeration, air conditioning, spacecraft thermal control and cogeneration. Numerical analysis and solution of an open-ended design problem. Prerequisite: 402 and Engineering 351.

408-3 Energy Conversion Systems. Principles of advanced energy conversion systems; nuclear power plants, combined cycles, magnetohydrodynamics, cogeneration (electricity and process steam) and heat pumps. Constraints on design and use of energy conversion systems; energy resources, environmental effects and economics. Prerequisite: 301 or 400.

410-3 Applied Chemical Thermodynamics and Kinetics. Designed for students interested in chemical and environmental processes and materials science. Topics covered include applications of the Second and Third Laws of Thermodynamics, solution theory, phase equilibria, sources and uses of thermodynamic data, classical reaction rate theory, kinetic mechanisms and the determination of rate-determining steps in chemical reactions. Prerequisite: Chemistry 200, 201, Engineering 300 or consent of instructor.

414-3 Noise and Vibration Control. Principles of engineering acoustics and vibration and their application to noise and vibration control techniques. Laboratory experience demonstrates techniques for control and reduction of vibration and noise. Prerequisite: 436 and consent of instructor.

416-3 Air Pollution Control. Engineering control theory, procedure, equipment, and economics related to control of particulate, gaseous, and toxic air emissions. The environmental impacts due both to controlling and not controlling emissions are considered. Understanding of the basics is evaluated as students design control equipment, specify and troubleshoot control systems and predict the impacts for each major type of control system. Prerequisite: senior standing.

418-1 Air Quality Laboratory. This laboratory consists of design, construction, and use of systems to measure and analyze ambient atmospheric pollution. Safety glasses required. Prerequisite: concurrent enrollment in 416.

419-3 Hazardous Waste Incineration. Incineration techniques, procedures and systems are presented for solid waste disposal and for remedial site clean-up activities. This includes regulations, waste handling, emission controls and residue disposal. Thermodynamics, chemistry and equipment are discussed, including heat recovery. Prerequisite: 416 or consent of instructor.

422-3 Applied Fluid Mechanics for Mechanical Engineers. Applications of fluid mechanics in internal and external flows. The mathematical basis for inviscid and vicious flows calculations is developed with application to pipe and duct flows; external flow about bodies; drag determination; turbomachinery; and reaction propulsion systems. Semester design project of a fluid mechanical system. Prerequisite: Engineering 300, 313 and Mathematics 305.

423-3 Compressible Flows. Foundation of high speed fluid mechanics and thermodynamics. One-dimensional flow, isentropic flow, shock waves and nozzle and diffuser flows. Flow in ducts with friction and heat transfer. Prandtl-Meyer flow. Compressibility effects in reaction propulsion systems. Semester design project. Prerequisite: Engineering 300, 313.

430-3 Kinematic Synthesis. Kinematic synthesis of linkages, single loop and multiple loop mechanisms, and geared linkages. Vector synthesis of spatial mechanism and its computer simulation. Prerequisite: 310.

435-3 Design of Mass Transfer Processes. Design principles of mass transfer processes. The rate mechanism of molecular, convective and interphase mass diffusion. The design of selected industrial mass transport process operations such as absorption, humidification, water cooling, dry-

ing and distillation. Prerequisite: 302 and Engineering 313.

436-3 Mechanical Engineering Controls. Analysis and design of controls for mechanical engineering systems: mechanical, electrical thermal, fluid and combinations of these. Prerequisite: Engineering 260b, 300, 335, 351, Mathematics 305.

440-3 Heating, Ventilating and Air Conditioning Systems Design. Principles of human thermal comfort. Heating and cooling load analysis. HVAC system design. Air conditioning processes. Prerequisite: 302 and Engineering 300.

442-3 Passive Solar Design. Design of solar heating systems for residence with emphasis on passive systems. Heat flow and heat loss. Estimating heat loss and heating requirements of buildings. Energy conserving building design. Predicting performance and economics of a system. Prerequisite: 302 and Engineering 300.

446-3 Energy Management. Fundamentals and various levels of analysis for energy management of commercial buildings and industrial processes and buildings. Use of energy management systems and economic evaluations are required in course projects. Prerequisite: 302, Engineering 300, 313.

462-3 Physical Metallurgy. Structure of metals. Dislocation theory and plasticity. Solid state diffusion. Thermodynamics of solutions and phase diagrams. Phase transformations. Fracture mechanics. Creep and fatigue. Prerequisite: Engineering 312.

463-3 Introduction to Ceramics. Structure and physical properties, mechanical properties, processing and design of ceramics. Prerequisite: Engineering 312 or equivalent.

470-3 Mechanical System Vibrations. Linear Vibration analysis of mechanical systems. Design of mechanical systems to include effects of vibration. Prerequisite: Engineering 260b and 351, Mathematics 305.

472-3 Materials Selection for Design. Interaction of material design process with material selection criteria. Comparison of materials properties, processes and fabrication. Project work includes design models, material selection rationale, oral presentation of projects, construction of mock-up models and theoretical design problems in the area of the student's specialization. Prerequisite: Engineering 222, 312.

475-3 Machine Design I. Design of machines using bearings, belts, clutches, chains and brakes. Develops application of the theory of fatigue, power transmission and lubrication to the analysis and design of machine elements. Prerequisite: Engineering 222, 311, 351.

476-3 Machine Design II. Design of machines using gears, springs, screws and fasteners, and adhesives. Matching power sources to driven machines. Prerequisite: 475.

477-3 Fundamentals of Computer-Aided Design and Manufacturing. Introduction to the concepts of computer-aided design and manufacturing (CAD/CAM). Subjects include computer graphics, geometric modeling, engineering analysis with FEM, design optimization, computer numerical controls, project planning and computer integrated manufacturing. (CIM). Students are required to use computer packages for projects. Prerequisite: 475 or consent of instructor.

500-3 Advanced Engineering Thermodynamics. Principles of kinetic theory and classical statistical mechanics applied to thermodynamic systems. Statistical interpretation of the equilibrium state and thermodynamic properties of engineering systems. Introduction to irreversible thermodynamics with engineering examples. Prerequisite: Engineering 300.

501-3 Transport Phenomena. Mechanism of heat, mass and momentum transport on both molecular and continuum basis. Estimation of transport properties. Generalized transport equations in one- or three-dimensional systems. Analogy of mass, heat and momentum transfer. Macroscopic balances, simultaneous mass and heat transfer. Prerequisite: 302.

502-3 Conduction Heat Transfer. Engineering considerations involving the construction of mathematical and numerical models of conduction heat transfer and the interpretation of results of analyses. Prerequisite: 302.

503-3 Convective Heat Transfer. Laminar and turbulent forced convection heat transfer over surfaces and inside tubes, including non-circular cross sections. Developing flows. Laminar free convection. Emphasis throughout is on the analytical approach. Prerequisite: 302.

504-3 X-Ray Diffraction and Electron Microscopy. (Same as Physics 571.) X-ray physics. Geometry of crystals. Scattering of X-ray by atoms, crystals and noncrystalline matter. Kinematical theory of diffraction. Powder method, Laue method. Electron optics. Formation and analysis of diffraction patterns. Imaging techniques. Image contrast theories. Analysis of crystal defects. Advanced analytical electron microscopes.

507-3 Combustion Phenomena. Basic combustion phenomena-chemical rate processes-flame temperature, burning velocity, ignition energy, quenching distance and inflamability limits-laminar and turbulent flame propagation-aerodynamics of flame-gaseous detonations-two phase combustion phenomena-fluidized bed combustion. Prerequisite: Engineering 300.

509-3 Thermal Radiation Heat Transfer. Review of radiation fundamentals. Prediction of radiative properties using classical electromagnetic theory. Properties of real materials. Governing equations between blackbody and graybody surfaces. Exchange of radiation between nondiffuse, nongray surfaces. Radiation in the presence of other energy transfer modes. Approximate and computer solution techniques. Prerequisite: 302.

510-3 Electrochemical Engineering. Principles underlying electrochemical processes. Transformation of chemical and electrical energy. Application of fundamental electrochemical laws to industrial processes, energy conversion, corrosion and reactor design. Prerequisite: consent of instructor.

513-3 Theory of Plasticity. (Same as Civil Engineering 553). Yield criteria kinematic and isotropic strain hardening; flow rules for plastic strain, elastic-plastic bending and torsion; slipline field theory; plane strain problems; residual stresses and limit analysis. Prerequisite: Engi-

neering 311 and Mathematics 305, or consent of instructor.

520-3 Coal Conversion and Combustion Processes. The major present day and proposed processes converting coal to other energy forms (gaseous and liquid fuels, coke, steam, electricity, etc.). Coal properties and chemical reaction relationships affecting conversion process paths. Design of coal gasification, liquefaction, combustion and carbonization reactor systems. Environmental assessment and cost considerations related to coal conversion. Prerequisite: graduate standing or consent of instructor.

525-3 Small Particle Phenomena. Small particle formation, behavior, properties, emission, collection, analysis and sampling. Includes atomization, combustion, transport of suspension and sols, filtration, light scattering and movement patterns of mono and polydisperse particles and use of a device to measure size, size distribution and one other physical property of an aerosol. Prerequisite: graduate standing.

531-4 Reaction Engineering and Rate Processes. Chemical kinetics of homogeneous and heterogeneous reactions, kinetic theories, mechanism and mathematical modeling. Reactor design. Design of multiple reactions; temperature and pressure effects. Nonisothermal and nonadiabatic processes. Non-ideal reactors. Prerequisite: 435.

532-3 Separation Processes and Equilibrium Operations. Phase equilibrium, multistage calculations, graphical methods, unsteady-state stagewise operations. Multicomponent systems. Rate separation processes. Applications in processing industry. Prerequisite: 435.

535-3 Computer Aided Analysis of Mechanical Systems I. Computer aided kinematic and dynamic analysis of planar mechanism: topics will include formulation of kinematic and dynamic equations of motion for planar systems. Automatic generations of kinematic constraint such as resolute joint, translation joint, etc. Numerical techniques for solution of nonlinear, differential, and algebraic equations, application of these techniques to planar mechanism and robotic systems. Prerequisite: 310.

536-3 Computer Aided Analysis of Mechanical Systems II. Computer aided kinetic and dynamic analysis of spatial mechanical systems. Topics will include: formulation of kinematic and dynamic equations of motion of spatial systems using Euler angles and quaternions, automatic generation of kinematic constraints such as spherical joints, universal joints, etc., numerical methods for spatial mechanisms, modeling of spatial mechanisms, general purpose software development and its application. Prerequisite: 535.

537-3 Nonlinear Vibrations. Dynamic response and stability of nonlinear systems. Examples and sources of nonlinearity. Various techniques for studying dynamic behavior or nonlinear systems. Prerequisite: 470 or consent of instructor.

538-3 Applied Optimal Design and Control of Dynamic Systems. Unconstrained and Constrained Mechanical-System Optimization Problems; Variational Calculus; Continuous Optimal Control; The Maximum Principle and Hamilton-Jacobi Theory; Dynamic-Systems Optimum-Control Examples; Design Sensitivity Analysis; Numerical Methods for Dynamic-System Design and Control Problems; Application of the above techniques to Large Scale Dynamic Systems. Prerequisite: 470 or equivalent.

540-3 Introduction to Continuum Mechanics. Tensor analysis applied to continuum mechanics: stress and strain and their invariance, equations of compatibility, constitutive equations - including linear stress-strain relations. Prerequisite: Mathematics 305, Engineering 311, graduate standing in engineering.

555-3 Materials Processing. Course to cover a multitude of topics in the processing of metals, ceramics and, to a lesser extent, polymers. Example are: materials benificiation, extraction, solidification, sintering and thin film deposition; topics for which the scientific basis for the processes is well established. Prerequisite: 410 and Engineering 312 or consent of instructor.

562-3 Environmental Degradation of Materials. Course designed for majors in engineering and the physical sciences. Topics covered include general corrosion, oxidation, hydrogen embrittlement, stress corrosion cracking and fine particle erosion. Approach will draw on principles of chemistry and materials science. Prerequisite: Chemistry 222 and one of the following: 460, 462 and Engineering 312, or consent of instructor.

565-3 Finite Element Analysis. (Same as Civil Engineering 551). Finite element analysis as a stress analysis or structural analysis tool. Derivation of element stiffness matrices by various means. Application to trusses, plane stress/strain and 3-D problems. Dynamic and material nonlinearity problems. Prerequisite: Engineering 311 and Mathematics 305.

566-3 Advanced Mechanics of Materials. (Same as Civil Engineering 557) Advanced topics in mechanics of materials including: elasticity equations; torsion of non-circular sections; generalized bending including curved beams and elastic foundations; shear centers; failure criteria including yielding, fracture and fatigue; axisymmetric problems including both thick and thin walled bodies; contact stresses; and stress concentrations. Prerequisite: Engineering 222 and 311.

580-1 to 2 Seminar. Presentations of topics in the broad areas of mechanical engineering such as thermal, mechanics, materials and acoustics. Prerequisite: enrollment in program leading to Master of Science of Mechanical Engineering.

582-1 Experimental Research Tools. Topics important to engineering graduate students engaging in research. These topics include: laboratory safety, statistical data analysis, experimental design, library research and chemical hygiene. Prerequisite: graduate enrollment in Engineering.

583-1 Technical Research Reporting. Analysis of technical and scientific writing: journal article, thesis, research paper. Guidelines and principles for writing engineering research literature and proposals. Term project involving thesis or research paper proposal to meet department requirements. Prerequisite: 582, consent of instructor.

592-1 to 4 Special Investigations in Engineering. Advanced topics in thermal and environmental engineering. Topics are selected by mutual agreement of the student and instructor. Four hours maximum course credit. Prerequisite: consent of instructor and department chair.

593-3 Special Topics in Mechanical Engineering. Studies of special topics in various areas in mechanical engineering. Such topics as coal refining, energy conversion, thermal systems, mechanics, robotics, CAD/CAM, TOM and engineering materials. Prerequisite: consent of instructor.

595-3 Research Paper. Research paper on a topic approved by a faculty advisor and committee in Mechanical Engineering. This course is restricted to graduate students in the non-thesis option. Prerequisite: consent of instructor or department and graduate standing in Mechanical Engineering.

599-1 to 6 Thesis. Six hours maximum course credit.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Microbiology

E-mail: microbiology@micro.siu.edu

COLLEGE OF SCIENCE

Achenbach, Laurie, Assistant Professor, Ph.D., University of Illinois, 1988; 1990. Molecular genetics and evolution of archaebacteria.

Borgia, Peter, Associate Professor, Ph.D., (Springfield), University of Illinois, 1973; 1976. Genetics of fungal cell wall synthesis.

Brewer, Gregory J., Professor, Ph.D., (Springfield), University of California, San Diego, 1972; 1980. Alzheimers disease, neuron cell culture, synaptogenesis, ganglioside function.

Caster, John, Assistant Professor, Ph.D., St. Louis University, 1968; 1972.

Clark, David P., Professor, Ph.D., University of Bristol, 1977; 1980. Molecular biology and physiology of fermentation.

Cooper, Morris D., Professor, Ph.D., (Springfield), University of Georgia, 1971; 1973. Host parasite relationships, immune responses to infection.

Fix, Douglas F., Associate Professor, Ph.D., Indiana University, 1983; 1987. Molecular mechanisms of mutagenesis.

Gupta, Ramesh, Associate Professor, Ph.D., University of Illinois, 1981; 1984.

Haddock, John D., Assistant Professor, Ph.D., Virginia Tech, 1990; 1995. Bioremediation of organic chemicals using bacteria.

Jackson, Robert W., Professor, Ph.D., (Springfield), Purdue University, 1963; 1974.

Madigan, Michael T., Professor, Ph.D., University of Wisconsin, 1976; 1979. Bacterial diversity, nitrogen fixation.

Marcuzzi, Adriana B., Assistant Professor, Ph.D., (Springfield), University of Iowa, 1988; 1994. Molecular biology of the human immunodeficiency virus (HIV), which causes AIDS.

Maroun, Leonard, Professor, Ph.D., (Springfield), Catholic University of America, 1970; 1972. Alzheimers disease, Downs syndrome, molecular genetics and blood group genes.

Martinko, John M., Associate Professor and *Chair*, Ph.D., SUNY (Buffalo), 1978; 1981. Evolutions of histocompatibility.

Moticka, Edward, Professor, Ph.D., (Springfield), University of Illinois, 1970; 1978. Occular immunology.

Myers, Walter L., Professor, Ph.D., (Springfield), University of Wisconsin, 1962; 1973. Inhibition of oncogenes.

Parker, Jack, Professor and *Dean*, College of Science, Ph.D., Purdue University, 1973; 1977. Molecular genetics, protein synthesis.

Rouhandeh, Hassan, Professor, *Emeritus*, Ph.D., Kansas State University, 1959; 1967.

Rowan, Dighton F., Professor, *Emeritus,* Ph.D., Stanford University, 1954; 1973.

Shechmeister, Isaac L., Professor, *Emeritus,* Ph.D., University of California, Berkeley, 1949; 1957.

Tewari, Ram P., Professor, Ph.D., (Springfield), Ohio State University, 1954; 1973. Immune responses in respiratory infection.

Watabe, Kounosuke, Associate Professor, Ph.D., (Springfield) Kyoto University, Japan, 1981; 1985. Molecular oncology.

The Department of Microbiology offers graduate work leading to the Master of Arts and Doctor of Philosophy degrees in microbiology. The programs are designed to provide advanced training in bacteriology, genetics, immunology, microbial physiology, molecular biology, and virology. Both programs involve in-depth research.

Admission, Advisement, and General Requirements

Prospective graduate students must submit 2 separate application forms, 1 for the Graduate School and the other for the Department of Microbiology. Graduate Record Examination (GRE) scores and 3 letters of recommendation are required as part of the departmental application.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Prerequisites for graduate training in microbiology include the equivalent of an undergraduate major in one of the biological sciences plus one year each of organic chemistry, physics, and suitable university level mathematics. Deficiencies in these requirements must be made up early in graduate training. In addition, students without a microbiology background will be required to take Microbiology 301 and obtain a grade of at least *B,* or pass an equivalent proficiency examination with a grade of 80% or better during the first week of the entering semester.

Admission to the master's degree program requires a minimum grade point average (GPA) of 2.70 (*A* = 4.00) on all undergraduate work. Selected students can be admitted directly to the doctoral program through the Ph.D. accelerated entry option. For all other students admission to the doctoral program requires a master's degree or its equivalent and a minimum GPA of 3.25 in all graduate course work. All admissions are subject to final approval by the department.

The departmental graduate adviser will assist each student with the initial planning of a program of study, including required courses, anticipated dates for fulfillment of specified requirements, etc. The adviser will also organize and supervise MICR 501, Preprofessional Training, a one hour course required of all incoming microbiology graduate students. Similarly the adviser will also assist the student in arranging for a graduate faculty advisory committee and its chair to assume the continuing responsibility of planning the program of study and directing the research project for the degree.

Direct Entry into Ph.D. Degree Program

Students with a baccalaureate degree may be admitted directly into the doctoral degree program. Students admitted under this direct entry option will be expected to meet all the normal requirements of the doctoral degree, take any additional course work that may be required by their research committee, and are required to take a general examination during their first two years in the program, equivalent to the comprehensive examination for the master's degree in microbiology.

Ph.D. Accelerated Entry Option

The Department of Microbiology offers the Ph.D. accelerated entry option to graduate students who have made an early commitment to a doctoral degree and meet certain criteria. At the end of two semesters of studies at the master's level, the graduate student's advisory and research (thesis) committee will review the student's credentials in order to establish eligibility to enter this program. The student's committee then has the option to recommend continuation in the master's program, or to approve application to enter the doctoral program.

The student's advisory and research (thesis) committee must establish that the student is prepared and able to conduct research at the doctoral level. This can be established by criteria such as seminars or other presentation of a research proposal. Further the student must have a GPA of 3.50 in all graduate course work, exclusive of research, special topics, etc., and letters of reference attesting to the student's outstanding ability and potential to perform doctoral research.

Upon approval of the student's eligibility by the department, the chair will prepare a written review of the student's qualifications for entry into this option. This must be submitted to the Graduate School for waiver of a master's degree or master's equivalency before entry into the doctoral program.

A student admitted to the doctoral program under this option is subject to all retention and exit requirements for the Ph.D. program including residency, examinations, GPA, dissertations, and all applicable time limits.

Master's Degree

Each candidate for the master's degree is required to complete 30 semester hours of acceptable graduate credit, in addition to MICR 501 including a minimum of 8 hours of thesis and research credit. The student is required to pass a comprehensive examination in microbiology and the thesis topic, and must present an approved thesis based on a laboratory research problem. Most students require two years to complete the work for a master's degree.

At least 15 of the 30 semester hours must be in microbiology courses numbered 500 or above. Within the 15 semester hours of 500 level credit, each student must successfully complete 8 semester hours of credit selected from departmental courses numbered 504, 520, 530, 542, 543, 551, 552, 553, and 562, taken once. The remaining semester hour requirements may be elected from the 400- and 500-level courses in the department or other departments with the approval of the graduate adviser. All students are required to enroll in MICR 500 (seminar) for credit in each semester they are registered up to a maximum of four semesters.

Copies of the draft thesis must be submitted to the advisory committee and the department chair at least 6 weeks before commencement. The approved thesis, in final form, must be submitted to the dean of the Graduate School at least 3 weeks before commencement.

The department does grant the master's equivalency on the basis of a comprehensive final examination administered by the advisory committee and a research paper. The granting of the master's equivalency does not confer admission to the Ph.D. program. Students wishing to take the master's equivalency should consult with their research adviser, the graduate adviser, and the department chair.

Doctoral Degree

Each prospective candidate for the doctorate is required to complete a minimum of 24 semester hours of dissertation credit, satisfy the course requirements, pass the qualifying examination, write and defend an acceptable dissertation based on a laboratory research problem, and meet the Graduate School residency requirements after admission to the doctoral program and before admission to candidacy.

All students will be expected to take a one year sequence in biochemistry (CHEM 451a and b, or its equivalent). In addition, all students will be expected to demonstrate a mastery of the fundamentals of the several fields included in the discipline of microbiology. This requirement will be achieved by completing 3 of the following: 520, 542, 543, 551, 553, and 562 or 2 of these and a non-prerequisite 400-level lecture course. Course equivalency will be decided by the department graduate adviser, the faculty member in charge of the relevant course, and the department chair. The GPA attained in these courses must be at least 3.25.

During their first two years in the graduate program all students must enroll in MICR 500 (seminar) for credit every semester. Advanced students are expected to attend all seminars but need not enroll.

The student is eligible to take the preliminary examination after completing the course requirements. After passing the preliminary exam and meeting the Graduate School residency requirements, the student is advanced to candidacy for the doctorate. The preliminary exam shall be administered as follows.

An approved student advisory committee (5 members of the graduate faculty) will prepare and administer a written preliminary exam covering several phases

of microbiology, with particular emphasis in the area of concentration declared. This declaration will be done by means of a prospectus of a dissertation containing a proposal for the dissertation research, biographical information on the candidate, and a list of courses taken during the candidate's graduate program. The prospectus shall be in the hands of the committee members at least 14 days prior to the date of the examination. Upon satisfactory completion of the written exam the candidate will meet with the committee as a whole and discuss the prospectus in detail. At this time the committee may ask in depth questions about the research project or other phases of microbiology particularly relevant to the candidate's research. A written exam score of at least 80% is required before a student can proceed to the oral portion of the preliminary exam, and at least 4 of the 5 committee members must judge the oral performance acceptable for a student to pass the preliminary exam overall. In the event that either the written or oral preliminary exam is failed, a student may request only one re-examination.

The Ph.D. preliminary exam (both written and oral portions) must be completed within 30 months of the date of entrance into the Ph.D. degree program.

Students working towards the doctoral degree should consider the following steps applicable to the dissertation.

1. The student and the major professor of the advisory committee determine the general nature of the research problem.
2. After formulation, the problem should be discussed with the advisory committee before extensive work is done. A discussion of the problem may be presented in a departmental seminar.
3. Periodic meetings of the student with the advisory committee are encouraged.
4. Copies of the draft dissertation should be available to the advisory committee at least 2 months prior to the deadline established by the Graduate School. The dissertation must be defended by the student in a public oral examination. The approved completed dissertation is transmitted to the dean of the Graduate School.

Courses (MICR)

403-3 Medical Microbiology Lecture. A survey of the more common bacterial, mycotic and viral infections of humans with particular emphasis on the distinctive properties, pathogenic mechanisms, epidemiology, immunology, diagnosis and control of disease-causing microorganisms. Three hours lecture. Spring semester. Prerequisite: 301.

405-3 Clinical Microbiology. (This course will be offered in Springfield only). A comprehensive course for health science professionals covering the biology, virulence mechanisms and identification of infectious agents important in human disease and host-defense mechanisms. Clinical applications are emphasized. Three hours lecture. Prerequisite: 301 or equivalent.

421-3 Biotechnology. Topics covered will include the genetic basis of the revolution in biotechnology, medical applications including genetic screening and therapeutic agents, industrial biotechnology and fermentation, and agricultural applications. Three hours lecture. Prerequisite: 302.

425-3 Biochemistry and Physiology of Microorganisms Lecture. Chemical composition, cellular structure and metabolism of microorganisms. Prerequisite: Organic Chemistry.

441-3 Virology Lecture. General properties; classification and multiplication of bacterial and animal viruses; lysogeny; immunological and serological reactions; relation of viruses to cancer; consideration of selected viral diseases of animals. Prerequisite: 301 and 302.

444-2 Risk Assessment for Genetics and Medicine. A lecture-discussion course on the use of Bayesian probability to assess risks in human genetics and medicine. Includes basic laws of probability, pedigree analysis, the interpretation of laboratory tests and basic clinical decision theory, including decision trees. Active problem solving will be emphasized. Prerequisite: Biology 305.

451-6 (3,3) Biochemistry. (Same as Chemistry 451) **(a)** Chemistry and function of amino acids, proteins and enzymes; enzyme kinetics; chemistry, function and metabolism of carbohydrates; citric acid cycle; electron transport and oxidative phosphorylation. **(b)** Chemistry, function and metabolism of lipids; nitrogen metabolism; nucleic acid and protein biosynthesis; metabolic regulation. Three lectures per week. Must be taken in a,b sequence. Prerequisite: one year of organic chemistry.

453-3 Immunology Lecture. Principles of molecular and cellular immunology. Particular emphasis is given to molecular mechanisms involved in activation and maintenance of the immune response at the basic science level. The role

of the immune system in medical diagnostic procedures and in human health is also discussed. Spring semester. Prerequisite: 403 or permission of instructor.

454-4 Soil Microbiology. (Same as Plant & Soil Science 454). A study of microbial numbers, characteristics and biochemical activities of soil microorganisms with emphasis on transformation of organic matter, minerals and nitrogen in soil. Lab fee $15. Prerequisite: 301 or Plant & Soil Science 240.

455-2 Medical Immunology. (This course will be offered in Springfield only). A survey of the components of the immune system and how they interact with each other to produce responses that are important in the control or mediation of human disease. Two hours lecture. Prerequisite: 301 or equivalent.

460-3 Genetics of Bacteria and Viruses. Genetic mechanisms, mutation, transformation, recombination, transduction, lysogeny, phenotypic mixing and reactivation phenomena. Three hours lecture. Prerequisite: 301 and 302.

470-3 Prokaryotic Diversity Lecture. A consideration of the major groups of prokaryotes with special emphasis on their comparative physiology and biochemistry. Three hours lecture. Spring semester. Prerequisite: 301 or equivalent.

480-4 Molecular Biology of Microorganisms Laboratory. Genetic and biochemical analyses of microorganisms using a variety of techniques in molecular biology, molecular genetics and biotechnology. Six hours laboratory per week plus two hours of supervised unstructured laboratory work in most weeks. Prerequisite: 302 and one (or concurrent enrollment) in one of the following: 421, 425 or 460.

481-4 Diagnostic and Applied Microbiology Laboratory. Enrichment and isolation of medically relevant prokaryotes from natural samples, diagnostic methods for the identification of pathogenic bacteria, and infection and the nature of the immune response. Six hours laboratory per week plus two hours unstructured, supervised laboratory work in most weeks. Prerequisite: 301 and 302 and two (or concurrent enrollment) in two of the following: 403, 453, 470.

500-1 Seminar. Microbiology departmental seminar. Graded *S / U* only. Prerequisite: graduate standing.

501-1 Pre-Professional Training. A one hour course designed to formally introduce students coming into the microbiology program to the research, teaching and support facilities available in Carbondale and at Springfield. Prerequisite is acceptance into the microbiology graduate program. This course will be required in addition to all Graduate School course and hour requirement. Graded *S / U* only.

504-3 Methods of Microbiological Research. Problem definition, experimental design and research methods in specific areas of microbiology. Lecture and laboratory hours to be arranged.

505-1 Special Topics in Microbiology. Discussion of current research in specific areas of microbiology. One hour of group discussion per week. Prerequisite: consent of instructor.

511-1 to 66 (1 to 12 per semester) Research. Graded *S / U* only. Prerequisite: consent of instructor.

515-1 to 6 (1 to 6 per semester) Master's Degree Research. Individualized laboratory research and training for graduate students beginning their research career at the Master's level. Graded credit. Prerequisite: admission to the master's degree program in Microbiology and consent of instructor.

520-2 Advanced Microbial Physiology and Control Mechanisms. The physiology, biochemistry, and genetics of microbial regulatory mechanisms. Topics include transport phenomena, catabolite and nitrogen repression, the stringent response, and autoregulatory phenomena. Two lectures per week. Prerequisite: 425a and b, or CHEM 451a and b, or permission.

528-1 to 3 Readings in Microbiology. Supervised readings for qualified graduate students. Prerequisite: consent of instructor.

530-3 Advanced Cellular Biology. An advanced course based on current literature concerning the cellular biology of eukaryotes. Both students and faculty will make presentations followed by discussion. Topics will include: the cellular and subcellular structure and function of the lower eukaryotes, the biochemistry and biophysics of eukaryotic membrane systems and the higher subcellular functions of mammalian cells. Prerequisite: 400 level course in genetics and in biochemistry or consent of instructor.

542-3 Molecular Virology. Interactions at the molecular level between tumorigenic and nontumorigenic DNA and RNA viruses and host cells, biochemical analysis of the growth cycle, uncoating, synthesis of virus-specified messenger RNA, enzymes and structural proteins, replication of viral nucleic acid and maturation. Three hours lecture. Prerequisite: 441.

543-3 Host-Microbial Interactions. A lecture course that deals in depth with mechanisms of symbiosis and other interactions with respect to the biochemistry of microbe and host. Immunological aspects are discussed. Emphasis is placed on molecular mechanisms. Offered alternated years. Prerequisite: 403 or consent of instructor.

551-3 Advanced Immunology. A lecture course that intensively considers the most recent developments in antibody structure, antigenic analysis, and antigen-antibody reactions. A special focus will be on the use of immunology as a research tool. Prerequisite: 451 and 452, or equivalent, or consent of instructor.

552-3 Cellular Immunology. A lecture-discussion course covering contemporary aspects of cellular immunology. The cellular nature of immune responses as well as current information on the regulation of such responses will be considered. Topics will include cellular components of an immune response; receptors, recognition and signals; cellular cooperation; immuno regulation; and tolerance and autoreactivity. Prerequisite: 451 and 452, or equivalent or consent of instructor.

553-3 Advanced Medical Microbiology and Immunology. A lecture course providing an in-depth analysis of the mechanisms of pathogenesis of bacterial, viral and mycotic infections. Immune mechanisms involved in recovery, development of immunity and infection mediated immunopathology will be covered. Prerequisite: 403 and 451, their equivalent or consent of the instructor.

562-3 Molecular Genetics. A lecture and discussion course emphasizing current research and new techniques in replication, transcription, translation, genome organization, gene flow from a general systems viewpoint and regulation. Prerequisite: 400-level course in genetics and in biochemistry or consent of instructor.

599-1 to 3 Thesis. Prerequisite: consent of instructor.

600-1 to 36 (1 to 12 per semester) Dissertation. Prerequisite: consent of instructor.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Mining Engineering

E-mail: ga3733@siucvmb.siu.edu

COLLEGE OF ENGINEERING

Chugh, Yoginder P., Professor and *Chair*, Ph.D., Pennsylvania State University, 1971; 1977. Rock mechanics and strata control, production engineering in coal mines, mine subsidence.

Honaker, Ricky Q., Assistant Professor, Ph.D., Virginia Polytechnic Institute and State University, 1992; 1991. Coal and mineral processing, applied surface chemistry in mining applications, automation and control.

Paul, Bradley, Associate Professor, Ph.D., University of Utah, 1989; 1990. Underground mining systems and solution mining, minerals processing, hard rock and industrial minerals, geostatistics.

Sevim, Hasan, Professor, D.E.S., Columbia University, 1984; 1984. Mineral economics and operations research, materials handling, experimental design.

Sinha, Atmesh K., Professor, Ph.D., University of Sheffield, England, 1963; 1975. Coal processing, mine electrical engineering, mine health and safety.

Master of Science in Mining Engineering

Graduate work leading to the Master of Science degree in mining engineering is offered by the College of Engineering. The program is designed to provide advanced study in areas such as rock mechanics and ground control, finite element analysis of mining structures, experimental rock mechanics, mine subsidence, coal processing, computer simulation of coal processing plants, surface and underground mining systems performance optimization, evaluation of innovative mining systems, mineral economies and operations research, surface mine reclamation, in-situ mining, and waste disposal.

Admission

Students seeking admission to the graduate program in mining engineering must meet the admission standards set by the Graduate School and have a bachelor's degree in engineering or its equivalent. A student whose undergraduate training is deficient may be required to take coursework without graduate credit.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Requirements

A graduate student in mining engineering is required to develop a program of study with a graduate adviser and a graduate committee. Each student majoring in mining engineering may, with the approval of the graduate committee, also take courses in other branches of engineering or in areas of science and business, such as physics, geology, chemistry, mathematics, life science, administrative sciences, or computer science.

For a student who wishes to complete the requirements of the master's degree with a thesis, a minimum of thirty semester hours of acceptable graduate credit is required. Of this total, eighteen semester hours must be earned in the mining engineering department. Each candidate is also required to pass a comprehen-

sive oral examination covering all of the student's graduate work including thesis.

If a student prefers the non-thesis option, a minimum of 36 semester hours of acceptable graduate credit is required. The student is expected to take at least 21 semester hours within mining engineering including no more than 3 semester hours of the appropriate 592 course to be devoted to the preparation of a research paper. In addition, each candidate is required to pass a written comprehensive examination and an oral examination on the research paper.

Each student will select a minimum of three engineering graduate faculty members to serve as a graduate committee, subject to the approval of the chair of the mining engineering department. The committee must consist of at least one member from one of the other engineering departments and will:

1. approve the student's program of study,
2. approve the student's research topic,
3. approve the completed research paper or thesis, and
4. administer and approve the written comprehensive or oral examination.

Teaching or research assistantships and fellowships are available for qualified applicants. Additional information about the program, courses, assistantships, and fellowships may be obtained from the College of Engineering or the Department of Mining Engineering.

Courses (MNGE)

400-3 Principles of Mining Engineering. Basic principles of mineral exploration, development and processing. Environmental problems related to mineral development. Prerequisite: junior standing in engineering.

401-1 Mining Environmental Impacts and Permits. Socio-economic impacts of mining industry. Analyzing the markets for coal and its products. Mining operations and related environmental impacts. Mining permits. Prerequisite: 400 or consent of instructor.

410-3 Underground Mining Systems Design. Study of coal property evaluation. Underground mining methods. Design of mine production and its ancillary systems and subsystems. Prerequisite: 400, Civil Engineering 263 or 320, Mathematics 251, Engineering 361, Geology 390 or concurrent enrollment. Consent of instructor for graduate students and non-majors.

411-2 Mine Machinery. Analysis and design of underground and surface mining machinery. Equipment and parts selection. System development. Preventive maintenance. Prerequisite: 410.

413-3 Mine and Industrial Power Systems. Electric circuits, transformers, motors and their industrial applications. Electrical power distribution; systems design and components selections. Pneumatic and hydraulic power principles. Prerequisite: Physics 205 and Mathematics 250.

415-4 Surface Mining, Quarrying and the Environment. Surface mining and quarrying methods for coal, aggregate and hardrock minerals. Surface mining and quarrying economics. Product specifications and transportation. Equipment sizing and selection. Drainage control. Blasting design for control of fragmentation, air blast and vibration. Prerequisite: 400, Civil Engineering 263 or Mining Engineering 320, Mathematics 251, Engineering 361. Consent of instructor for graduate students and non-majors.

417-3 Applied Probability and Statistics for Engineers. Probability and statistics concepts, analysis of engineering experimental data. Fitting experimental data to distribution functions. Regression analysis. Quality control in production systems. Reliability in engineering processes. Stochastic simulation of engineering systems. Prerequisite: Mathematics 251 or consent of instructor.

418-3 Mining of Ore Deposits. Analysis, planning and design of surface hardrock mines and underground mining system. Analysis of mining and equipment costs. Prerequisite: 400, Civil Engineering 263 or Mining Engineering 320, Geology 390.

420-3 Mineral and Coal Processing. Principles of processing minerals, aggregates and coal, including unit operations of comminution, classification, solid-solid separation, dewatering and tailings disposal. Laboratory investigations of the fundamental principles governing unit operations including size reduction, mineral liberation, classification mineral recovery and dewatering. Laboratory. Prerequisite: 400, Chemistry 210, Physics 205b, Mathematics 305, Engineering 313 or concurrent enrollment. Consent of instructor for graduate students and non-majors.

421-3 Mineral Processing Plant Design. Engineering design of unit operations used for mineral, aggregate, coal processing, flowsheet design, simulation of processing plants, evaluation of plant performance and process control. Laboratory investigations on the design of unit operations including size reduction, classification, gravity separation, flotation and dewatering. Laboratory. Prerequisite: 417 or concurrent enrollment and 420. Consent of instructor for graduate students and non-majors.

425-3 Mine Ventilation Systems Analysis and Design. Study of the theories and practice of natural and forced mine ventilation. Fan and mine characteristics. Ventilation network analysis. Mine ventilation design and problem analysis. Laboratory. Prerequisite: 410, Engineering 300

and 313. Consent of instructor for graduate students and non-majors.

430-3 Economics of Mineral Resources. Economics of mineral resources. Investment decision making criteria; economic viability of mining projects, financing mining projects; sensitivity and risk analyses. Prerequisite: 400, Engineering 361, or consent of instructor.

431-3 Rock Mechanics: Principles and Design. Analysis of stress and strain, elementary elasticity, stress distribution around openings, engineering properties of rocks, artificial support and reinforcement, slope stability. Laboratory. Prerequisite: Engineering 311, Mathematics 305.

435-3 Operations Research and Computers in Mine Design. Mine systems analysis, operations research and statistics in decision making, production engineering, mine planning, optimization, linear programming, computer simulation. Prerequisite: either 410 and 415, or 418 alone, also Engineering 222 and 361.

440-3 Material Handling Systems. Analysis and design of material handling systems and subsystems. Material handling systems economics. Prerequisite: 410, 413, 415 and 417 or concurrent enrollment. Consent of instructor for graduate students and non-majors.

445-3 Mine Equipment Maintenance Engineering. Mechanical, hydraulic and electrical systems in mining equipment. Equipment maintenance problems in mines and minerals processing facilities. Cost of lost production. Cost centers and identification of high cost problem areas in mining operations. Principles, design and development of maintenance systems. Maintenance organization, responsibility, and scheduling. Prerequisite: 410, 415, 417, Engineering 385 or concurrent enrollment. Consent of instructor for graduate students and non-majors.

455-3 Mine Environment, Health and Safety. Analysis of mine environmental impacts and their mitigation, safety problems and rules and regulations, hazards and accidents sealing and recovery of mines, design of mine emergency plans, safety methods, and health hazard control plans. Acid mine drainage, minerals waste disposal, environmental remediation. Laboratory. Prerequisite: 410, 415, 417 or concurrent enrollment. Consent of instructor for graduate students and non-majors.

460-4 Computer Aided Mine Systems Analysis and Design. Projects in planning and design of surface and underground mining systems. Evaluate and design mining subsystems; integrate subsystems and procedures into a preliminary mine design; and optimize operations from exploration to closure. Ethics and professionalism in engineering. Two lectures and two two-hour laboratories per week. Prerequisite: 420, 425, 431 or consent of instructor.

470-3 Experimental Methods in Rock Mechanics. Supplement theoretical knowledge gained in 431 with laboratory experiments. Physical property tests for specific gravity, moisture, density porosity of rocks. Unconfined and confined compressive strength, tensile strength, shear strength, photoelasticity, static and dynamic strain measurement systems, field instrumentation techniques. Laboratory. Prerequisite: 431.

475-3 Analysis and Design of Mine Excavations. Rock classification; design of shafts, slopes, tunnels and underground chambers; support requirements; design of slopes; design of underground mining systems from ground control point of view; design of impoundments. Prerequisite: 410, 415 and 431. Consent of instructor for graduate students and non-majors.

480-3 Rock Fragmentation Systems. Principles of rock fragmentation. Drilling and mechanics of rock penetration, drillability indices. Chemistry of explosives. Design of blast patterns in surface and underground mines and quarries, prevention of air blast, vibration and noise. Prerequisite: 415. Consent of instructor for graduate students and non-majors.

511-3 Advanced Ground Control. Ground control in viscoelastic, plastic, and jointed rocks, artificial rock stabilization, in-situ stresses, minimizing structural damage due to subsidence, bumps and rock bursts. Prerequisite: 431 or consent of instructor.

519-2 Advanced Mine Environment and Pollution Control. Study of the design of coal dust control plan; methane control. Design of mine illumination system, noise control and water pollution control. Prerequisite: 410, 415.

530-3 Mine Management. Study of basic management principles, labor relations, and coal wage agreement. Costing methods and cost control. Operations organization and performance analysis. Prerequisite: consent of instructor.

535-3 Rock Fragmentation. Principles of rock fragmentation, cutting and drilling, mechanics of rock penetration, drillability indices, use of explosives in rock fragmentation, design of blasting patterns in surface and underground mines, prevention of airblast and noise due to blasting, chemical fragmentation. Prerequisite: 415, 431 or consent of instructor.

540-3 Production Engineering in Coal Mines. Operations analyses of production cycles in surface and underground coal mining systems, mine planning and design using computer models, computer simulation, economic analysis of mining systems. Prerequisite: 435 or consent of instructor.

545-3 Tunnelling. Tunnelling through consolidated and unconsolidated geologic materials—cut and cover, drilling and blasting, and rapid excavation tunnelling techniques. Classification systems for geologic materials, hydrological investigations, tunnel linings—types, requirements and their design. Instrumentation. Prerequisite: 431 or equivalent, or consent of instructor.

580-1 to 2 Seminar. Collective and/or individual studies in coal extraction or utilization.

592-1 to 5 Special Investigations. Special studies of coal extraction or utilization problems.

599-1 to 6 Thesis.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S*/*U* or *DEF* only.

Music

E-mail: fstemp@siu.edu

COLLEGE OF LIBERAL ARTS

Allison, Robert, Associate Professor, D.M.A., University of Illinois, 1988; 1982. Trumpet, jazz.

Barta, Michael, Associate Professor, M.Mus., Liszt Academy Conservatory, 1975; 1985. Violin, music literature.

Barwick, Steven, Professor, *Emeritus,* Ph.D., Harvard University, 1949; 1955.

Bateman, Marianne Webb, Professor, M.Mus., University of Michigan, 1959; 1965. Organ, music theory.

Beattie, Donald, Associate Professor, M.Mus., University of Colorado, 1977; 1979. Class piano, piano pedagogy.

Best, Richard, Professor, Metropolitan Opera School, 1968; 1984. Voice.

Bottje, Will Gay, Professor, *Emeritus,* A.Mus.D., Eastman School of Music, 1955; 1957.

Breznikar, Joseph, Professor, M.Mus., University of Akron, 1977; 1980. Classical guitar.

Brown, Philip, Assistant Professor, M.M.E., University of North Texas, 1983; 1991. Jazz, string bass, music business.

Delphin, Wilfred, Professor, D.M.A., University of Southern Mississippi, 1978; 1988. Piano.

Fligel, Charles, Associate Professor, M.Mus., University of Kentucky, 1966; 1976. Bassoon, music theory.

Grizzell, Mary Jane, Assistant Professor, *Emerita,* M.Mus., Eastman School of Music, 1943; 1959.

Hanes, Michael D., Associate Professor, M.M.Ed., Southern Illinois University at Carbondale, 1965; 1970. Bands, musical theater, percussion.

House, Mary Elaine Wallace, Professor, *Emerita,* M. Mus., University of Illinois, 1954; 1969.

Hunt, C. B., Jr., Professor, *Emeritus,* Ph.D., University of California, Los Angeles, 1949; 1974.

Hussey, George, Professor, *Emeritus,* M.A.Ed., Washington University, 1963; 1963. Oboe, music appreciation, orchestra.

Mandat, Eric, Professor, D.M.A., Eastman School of Music, 1986; 1981. Clarinet, composition.

McHugh, Catherine, Professor, *Emerita,* Ed.D., Columbia University, 1959; 1969.

Mellado, Daniel, Associate Professor, Ph.D., Michigan State University, 1979; 1979. Cello.

Mochnick, John, Associate Professor, D.M.A., University of Cincinnati, 1978, 1984. Choral.

Mueller, Robert, Professor, *Emeritus,* Ph.D., Indiana University, 1964; 1948.

Olsson, Phillip, Professor, *Emeritus,* M.Mus., Chicago Conservatory, 1949; 1949.

Phillips, Dan, Associate Professor, M.M., University of Notre Dame, 1979; 1988. Bands, horn.

Poulos, Helen, Associate Professor and *Graduate Coordinator*, D.M., Indiana University, 1971; 1969. Musicology.

Resnick, Robert, Professor, *Emeritus,* M.Mus., Wichita State University, 1949; 1949.

Ritcher, Gary, Assistant Professor, Ed.D., University of Illinois, 1989; 1989. Music education.

Roubos, Robert, Professor, D.M.A., University of Michigan, 1965; 1981.

Simmons, Margaret, Associate Professor, M.Mus., University of Illinois, 1976; 1977. Piano accompanying.

Stemper, Frank, Professor, Ph.D., University of California, 1981; 1983. Composition.

Taylor, Charles, Associate Professor, *Emeritus,* Ed.D., Columbia University, 1950; 1957.

Underwood, Jervis, Professor, Ph.D., North Texas State University, 1970; 1971. Flute, musicology, theory.

Wagner, Jeanine, Associate Professor, D.M.A., University of Illinois, 1987; 1984. Voice, opera.

Weiss, Robert, Professor *and Director*, Ph.D., Southern Illinois University at Carbondale, 1984; 1978. Music education, low bass.

Werner, Kent, Associate Professor, *Emeritus,* Ph.D., University of Iowa, 1966; 1963.

The School of Music faculty numbers twenty-seven full-time positions. Within its ranks are to be found many outstanding performers and educators, representing a broad diversification of background and talent. Faculty members present many solo and small ensemble performances, as well as clinics and workshops, during the school year. Sixteen members of the faculty hold doctorates or its equivalent.

Library Facilities

In addition to Morris Library, the School of Music has its own recording and score library, including modern stereo listening facilities, cassettes, and cassette decks for self-instruction in ear training and music literature, some 1600 LP recordings and tapes, over 1100 scores, many in multiple copies, and 94 books and reference works. The self-instruction center in Morris Library provides tape recordings of theory and literature for student use.

Musical Organizations

A wide variety of performing opportunities is available, including the University Symphony, symphonic band, wind ensemble, jazz ensemble, Marching Salukis, brass ensemble, guitar ensemble, percussion ensemble, choral union, concert choir, chamber choir, and vocal jazz ensemble. The Marjorie Lawrence Opera Workshop presents one full opera production each year in addition to several programs of small operas and operatic excerpts. The Summer Music Theater presents two full-scale musicals during the summer session.

Musical Performances

Some 130 School of Music programs are presented each year, plus Southern Illinois Concert Series and Celebrity Series appearances by well-known concert artists. A program booklet for further details concerning concert activity is available through the School of Music.

Other Resources

A fifty-eight rank Reuter pipe organ, the principal instrument for recitals and teaching, is installed in Shryock Auditorium. Available for practicing are a four-rank Ott tracker organ, a six-rank Moeller, and a four-rank Wicks. Eighty-five pianos, including twenty-two in practice rooms, an eighteen-unit electronic piano lab, and a full complement of band and orchestral instruments are available.

Graduate Assistantship and Fellowship Applications

Any student seeking a master's degree may apply to the coordinator of graduate studies in music for a graduate assistantship. An undergraduate overall grade-point average of 2.8 (*A* = 4 points) is required for consideration. The assignment of assistantships, for those who are eligible, is based upon School of Music needs and student qualifications. Graduate Assistants must enroll in courses for the required 6 hour minimum each semester of residency which count toward degree requirements. A student with an overall grade-point average of 3.5 or better is eligible to apply for a graduate fellowship involving no School of Music assignment. The School of Music offers six programs leading to the Master of Music degree. Each master's degree requires a minimum total of 30 credits, with a minimum total of 15 credits at the 500 level. Students enrolled in a program leading to a Ph.D. degree major in education, with a concentration in curriculum and instruction education, may choose the elective portion of their programs from graduate courses offered in the School of Music.

Master of Music Degree Standard Curricula

MUSIC HISTORY AND LITERATURE CONCENTRATION

Majors complete MUS 501-3; 502-4 (2,2); 2 credits (1,1) from 566; 6 credits selected from 475, 476, 477, 573, 574, or 578; 599-6; 6 credits in music history-literature electives; 3 elective credits in non-music history-literature courses. In addition to the general requirements for graduation, music history/literature majors must have successfully completed two years of a foreign language (preferably French or German), at the undergraduate level, or pass 388–488 (German or French) as a research tool with a grade of *B* or higher.

MUSIC THEORY AND COMPOSITION CONCENTRATION

Majors complete MUS 501-3; 502-4 (2,2); 545-3; 3 credits from the 470 or 570 series; 480-4 (580-4 must be completed by composition majors); 2 credits (1,1) selected from 566; 599-6; 5 credits of approved music electives in theory-composition, history-literature, conducting, or performance.

PERFORMANCE CONCENTRATION

Majors complete MUS 501-3; 502a or b (2); 5 credits from 461, 482, or 470 or 570 series; 8 credits in 540 (440 if specializing in pedagogy); 2 credits from 566, 567, or 568 (or other electives if keyboard major); 6 credits in 595 and 598 (recital and document); 4 credits in non-performing music elective. If specializing in conducting, majors must complete MUS 501-3; 502-4 (2,2); 556-4 (2,2); 3–6 credits from the 470 or 570 series; 2–4 credits in 440; 2 credits from 566 (1,1) or other electives if keyboard major; 6 credits in 595 and 598 (recital and document); 3 credits in music electives.

OPERA/MUSIC THEATER CONCENTRATION

Opera/music theater majors must have an undergraduate degree major in music with appropriate experience in opera or music theater, or in theater with additional music study sufficient to qualify in performance, theory, and history of music. Core courses (required) include MUS 468 (2–4); 501 (3); 570 (3); 595 (2); 598 (4) or 599 (6) in lieu of 598 and 595. Also required are MUS 567 or 568 (1,1,1,1); 6 credits from 440–540, 461, 472, 479c or 556; and 6 hours of *approved* graduate level theater credits.

PIANO PEDAGOGY CONCENTRATION

Majors complete hours of credit in the following music courses: 3 in 501; 4 in 440 or 540; 4 in 498 and 2 in 595 or 4 (2,2) in 498 and 2 in 595 or 2 in 498 and 4 in 599; 410; 510 (2,2,2); 2 (1,1) from 566; 3 credits from approved music electives; and 4 credits from approved non-music courses (in fields of guidance and educational psychology, higher education, philosophy, and speech communication).

MUSIC EDUCATION CONCENTRATION

Majors complete MUS 501-3; 502a or b (2); 503 and 509; 5 hours of approved music education courses and 2 credits of approved music electives; 2 credits (1,1) from 566; 5 credits from the 470 and 570 series; 599-6 or 6 credits from 499 and 595; or 595 and 598.

General Information

Fees. Fees are not charged for individual instruction, practice rooms, or instrument lockers. Instruments are loaned without charge when needed. Student expenses for music, textbooks, and other incidental supplies are usually nominal.

Advisement. The graduate coordinator in music supervises the overall planning of the student's program and designates the document or thesis director.

Diagnostic tests in music theory and history are given during orientation at the beginning of the fall semester and must be taken by all students at the first opportunity after admission. The student with weaknesses in certain areas may be asked to take additional work in those areas. A student will be accepted as a performance major in the Master of Music degree program after satisfactory audition in person, either before admission or during orientation. A performance major may be conditionally accepted on the basis of a tape recording; but a student accepted conditionally may be asked to audition in person during orientation or during the first term of residence, and may be required to register at the 400 level in performance until approved by personal audition. Current brochures from various performance areas and the *Graduate Handbook in Music* describe the level of repertory expected, audition procedures, and diagnostic tests.

NOTE: The B.A. degree does not provide the necessary prerequisities for graduate study in a Master of Music degree program.

Ensemble Requirement. All graduate students are required to register for MUS 566 (MUS 567 or 568 may substitute for MUS 566 only for those students whose concentration is opera music theater) each semester of degree study (summers excepted). Participation is required each semester in one or more of the following: Marching Salukis, symphonic band, wind ensemble, symphony, choral union, concert choir, chamber singers, or guitar ensemble. In addition, students may elect participation in other regularly scheduled emphasis. Graduate assistants assigned ensemble accompanying must register for alternate ensemble for credit. Petitions for exceptions to the ensemble requirement must be made in writing and presented to the School of Music graduate committee for consideration.

Exceptions to Degree Requirements. Appropriate substitutions in the curriculum for the Master of Music degree may be made if recommended by the student's adviser and approved by the graduate committee in music. Students who expect to earn more than half of their credits during summer terms only, or by a combination of summer attendance and night classes, may similarly propose a sequence of course offerings, following the above curricular patterns as far as possible. All curricula must meet Graduate School requirements and be approved by the graduate committee in music. Special summer students changing plans and registering for more than one regular fall or spring semester will ordinarily follow the appropriate standard curriculum.

The Thesis, Document, and Research Paper. All master's degree candidates will complete either (1) a thesis, or (2) a large, original composition and document, or (3) a full recital performance and document.

No later that the beginning of the semester preceding the semester in which the student expects to graduate, the graduate coordinator, in consultation with the student, will designate a document or thesis director from the current list of graduate faculty from whom a student has taken graduate level courses. The document or thesis director guides the student's choice of topic and is responsible for the progress and quality of the resulting work. The document director normally heads the student's orals committee. Before any work is begun on the thesis or document, the student submits a proposal, together with a selective bibliography where applicable and the reactions of the document or thesis director, to the coordinator of graduate studies in music for approval by the graduate committee. Changes of topic or of document director after initial approval must be approved by the music graduate committee.

Graduate Recital (598-4) is supervised by a jury of at least 3 members, headed by the student's instructor in performance. This jury approves the level of literature to be performed and acceptability of the performance by means of an audition in advance of the final performance.

Comprehensive Examinations. During the final semester of study, and after completion of the document or thesis, the student will take comprehensive examinations dealing with general areas of music and concentrations of music study, and, when appropriate, with the student's thesis or document. Application to take comprehensive examinations must be made at the beginning of the students last semester of study. The examinations must be passed in time to meet Graduate School deadlines. Application for comprehensive examinations may not be made until all other requirements, with the exception of terminal-semester courses, for the degree have been satisfied. A failed section of the comprehensive examinations may be taken again in a following term.

The oral examination committee, appointed by the coordinator of graduate studies in music, is headed by the student's document or thesis director with two or more faculty members with whom the student has had graduate level classes,

as requested by the student. If the student has scheduled 6 or more hours in a department other than music, a member of this department will be invited to serve on the examining committee. The examination committee will conduct the student's oral examination and will supply questions for the student's written examination.

Three copies of all theses, thesis-composition manuscripts, and tapes and documents must be submitted in final form to the music graduate office at least 5 weeks before the intended date of graduation, carrying the approval of all members of the student's graduation committee. The graduate coordinator will forward 1 copy of a student's document (2, if a thesis) to the Graduate School and retain 1 copy.

Courses (MUS)

Courses in this department may require the purchase of music literature and other incidental supplies.

400-1 to 2 (1,1) Performance Techniques. Individual instruction in any secondary applied field. Designed to provide added depth of preparation for teaching instrumental and vocal music. Prerequisite: completion of 340 level or the equivalent in some field of applied music.

407-2 Modal Counterpoint. Study of Renaissance contrapuntal techniques. Extensive writing practice, and analysis of stylistic models. Prerequisite: 207.

410-2 Piano Pedagogy Practicum. Provides undergraduate and graduate piano pedagogy majors with the opportunity for supervised practice piano teaching. Course activities include lesson-planning, conducting and evaluating studio piano and class piano lessons, and a survey of important educational issues that impact on effective piano teaching. Prerequisite: consent of instructor.

414-1 to 8 (1 to 2 per semester) Collegium Musicum. For experienced singers and instrumentalists. Emphasis upon practical study of historical music literature of the Medieval, Renaissance and Baroque eras.

421-2 Advanced Analysis. Structure, form, and design in music as the coherent organization of all of its factors. Analysis of works chosen from a variety of styles and genres. Prerequisite: 321.

430-1 Jazz Arranging. Methods of scoring for popular groups. Practice in scoring arrangements and/or original compositions for jazz ensembles. Prerequisite: 335a and b or consent of instructor.

440-1, 2, or 4 Applied Music. (See Music 040.)

447-4 (2,2) Electronic Music. (a) Introduction to classical studio equipment and techniques; use of voltage controlled equipment. Individual laboratory experience available. **(b)** Emphasis upon creative projects, more sophisticated sound experimentation, and analysis. Enrollment limited. Must be taken in a,b sequence. Prerequisite: 280 or consent of instructor.

453-2 to 4 (2 per semester) Advanced Topics in Choral Music. Practicum in the selection, rehearsal, and performance of appropriate literature. Study of techniques for achieving proficient performance and musical growth. For experienced teachers and advanced students.

454-2 to 4 (2 per semester) Advanced Topics in Instrumental Music. Practicum in the selection, rehearsal, and performance of appropriate literature. Study of techniques for achieving proficient performance and musical growth. Designed for experienced teachers and advanced students.

455-2 to 4 (2 per semester) Advanced Topics in Elementary School Music. Practicum in the selection and use of materials for the elementary school program. Study of techniques for achieving balanced musical growth. For experienced teachers and advanced students.

456-4 (2,2) Music for Exceptional Children. (a) Theories and techniques for therapeutic and recreational use of music with physically and mentally handicapped children. Includes keyboard, autoharp, guitar and tuned and untuned classroom instruments. **(b)** Applications for the gifted, emotionally disturbed, and culturally disadvantaged child. Take in sequence. Prerequisite: 302 or prior consent of instructor.

461-3 Applied Music Pedagogy. Specialized problems and techniques employed in studio teaching of any particular field of music performance. Study of music literature appropriate for the various levels of performance. Opportunity, as feasible, for supervised instruction of pupils. Meets with appropriate instructor, individually or in groups.

468-2 to 4 (2,2) Music Productions. Practicum in the techniques for staging operas and musicals.

472-2 Chamber Music Literature. A study of literature for the principal types of chamber music groups.

475-3 Baroque Music. The development of vocal and instrumental music in the period 1600-1750, from Monteverdi to Bach and Handel. Oratorio and Cantata, the influence of opera, sonata, suite and concerto. Prerequisite: 357a with a grade of *C* or better, or graduate standing.

476-3 Classical Music. Development of the sonata, symphony, concerto, and chamber music in the 18th and early 19th centuries, with emphasis on the music of Haydn, Mozart and Beethoven. Prerequisite: 357b with a grade of *C* or better, or graduate standing.

477-3 Romantic Music. Development of the symphony and sonata forms, chamber music, and vocal music in the 19th and early 20th centuries. Rise of nationalism and impressionism. Prerequisite: 357b with a grade of *C* or better, or graduate standing.

479-2 to 4 (2 per topic) Solo Performance Literature. Topics presented will depend upon the needs of students and upon instructors scheduled. **(a)** Piano literature, including an introductory study of harpsichord music; **(b)** Organ literature, in relation to the history of the instrument; **(c)** Song literature; **(d)** Guitar and lute literature; **(e)** Solo string literature; **(f)** Solo wind literature.

480-2 to 4 (2,2) Advanced Composition. Original composition involving the larger media. Individual instruction. Prerequisite: two semesters of 380 with a grade of *C* or better and approval of composition jury.

481-1 to 4 Readings in Music Theory. Assigned readings and reporting of materials pertaining to a particular phase of music theory in historical perspective. Approximately three hours' preparation per week per credit (adjusted for shorter sessions). Prerequisite: 321 and 322 or prior consent of instructor.

482-1 to 4 Readings in Music History and Literature. Assigned readings and reporting of materials pertaining to a particular phase of history or literature. Approximately three hours preparation per week per credit. Prerequisite: 357a and b, or prior consent of instructor.

483-1 to 4 Readings in Music Education. Assigned readings and reporting of materials pertaining to a particular phase of music education. Approximately three hours preparation per week per credit (adjusted for shorter sessions). Prerequisite: consent of instructor.

498-2 to 4 (2,2) Recital. Preparation and presentation of a full solo recital in any applied field. Prerequisite: prior or concurrent registration in 440 and approval of applied jury.

499-1 to 8 Independent Study. Original investigation of selected problems in music and music education with faculty guidance. Project planned to occupy approximately three hours preparation per week per credit (adjusted for shorter sessions). Not more than three hours toward 30 required for graduate degree. Prerequisite: prior consent of selected instructor.

500-1 to 6 Independent Investigation. An opportunity for the graduate student to investigate at an advanced level special interests outside the scope of normal course offerings. The student will select a member of the graduate faculty to guide and evaluate the work. Not more than three hours toward 30 required for graduate degree. Prerequisite: prior consent of the selected instructor and student's graduate adviser.

501-3 Music Bibliography and Research. Bibliographic materials for graduate study in music theory, history, education, and music performance. Practical experience in research techniques and scholarly writing style. Recommended to be taken during the first semester of graduate study. Required of all degree programs.

502-4 (2,2) Analytic Techniques. Analysis of representative works chosen from the Baroque, Classical, Romantic, and Modern eras. Prerequisite: graduate standing in music or prior consent of instructor.

503-3 Scientific Evaluation and Research in Music. Quantified research concepts and vocabulary; measurement theory and techniques for evaluating and testing musical aptitude and achievement; investigation of acoustical perception; survey of current scientific research in music. A research project is required.

509-2 History and Philosophy of Music Education. The evolution of school music and its changing relationship to the individual, to society and to the school curriculum.

510-6 (2,2,2) Piano Pedagogy Seminars. (a) Piano Technique. Provides an in-depth study of the three classic texts on the subject of piano technique and prepares students to deal with important aspects of piano technique in piano teaching. **(b)** Piano Literature. An extensive survey of baroque, classical, romantic and contemporary piano literature designed specifically to meet the needs of those pursuing professional careers as piano teachers. **(c)** Piano Music Analysis. Details the analytic and problem-solving techniques of piano performance study that are fundamental for teaching piano students of all ages and abilities.

535-2 Contemporary Idioms. An analysis of major compositional techniques since 1945. Prerequisite: 502b or consent of instructor.

540-1, 2, or 4 Applied Music. (See Music 440.)

545-3 Pedagogy of Music Theory. An orientation to the philosophy of theory with application to teaching techniques. Prerequisite: consent of instructor.

550-2 School Music Administration and Supervision. Study of the objectives and processes of music instruction. Administration roles in developing the means and ends of music instruction, and techniques employed for the improvement of instruction.

556-2 to 4 (2,2) Advanced Conducting. Individual or group study with appropriate instructor of choral, orchestral, or band literature. Practice in score reading, baton technique and interpretation. Opportunity to rehearse and conduct ensembles when feasible. Prerequisite: completion of an undergraduate conducting course with graduate standing in music, or consent of instructor.

566-1 to 12 (1 or 2 per semester) Ensemble. Participation required each semester enrolled (summer excepted) in one or more of the ensembles listed below. In addition, students may elect participation in other regularly scheduled ensembles. One credit per group: maximum of two credits for concurrent participation in two groups. **(a)** Marching Salukis. **(b)** Symphonic band. **(c)** Concert wind ensemble. **(d)** Symphony. **(e)** Choral union. **(f)** Concert choir. **(g)** Chamber singers. **(h)** Guitar ensemble. **(i)** Opera workshop.

567-1 to 8 Music Theater Workshop. For experienced singers, actors, dancers and instrumentalists. Normally offered during summer as a full time course for eight credits, or partial credit for the orchestral players. Prerequisite: audition.

568-1 to 16 (1 to 8 per semester) Opera Workshop. Open to all experienced singers and stage technicians. Performs one major work and two or more excerpt programs per year. Normal registration is for two credits; four credits with permission for those with major roles; eight credits for full time summer workshop.

570-3 History of Opera. The development of the music, libretti, and staging of opera from the late Renaissance to the present, with a detailed study of selected works. Prerequisite: for non-music majors: prior consent of instructor.

573-3 Medieval Music. Music of the medieval world; Gregorian chant; the Tropes; secular songs of the troubadours and trouveres; the rise of polyphony; Ars Antiqua; organum and conductus; Ars Nova; Dunstable and English descant up to about 1450; types of notation. Prerequisite: for non-music majors: prior consent of instructor.

574-3 Renaissance Music. Burgundian and Netherlands music from 1450 and its spread; Isaac and Josquin; 16th Century polyphony in France, Germany, Spain, and England; the rise of music for instruments and for solo voices. Prerequisite: for non-music majors; prior consent of instructor.

578-3 Twentieth Century Music. The heritage of 20th century music. Study and analysis of musical philosophies and techniques of post-impressionist and contemporary composers. Prerequisite: for non-music majors: prior consent of instructor.

580-2 to 4 (2,2) Graduate Composition. Composition in the larger forms for solo and ensemble performance. Prerequisite: 480 or prior consent of instructor.

595-2 Music Document. A written report presenting the history and style of works performed in graduate recital, Music 598, or other topic relating to the student's principal performing area or independent study project. Prerequisite: 501 and approval of topic by the music graduate committee. On recommendation of the composition faculty and with graduate committee approval, a piece of music composed by the student for performance in Music 598 may be substituted, accompanied by a written analysis.

598-4 Graduate Recital. Preparation and presentation of a full solo recital in any area of performance; or the preparation, rehearsal, and conducting of a full ensemble program or of the equivalent sections of several ensemble programs. Prerequisite: completion of at least four credits in 540 (or 556 for conductors) and the approval of the performance jury. The performance jury certifies the acceptability of the completed recital and the grade to the graduate committee.

599-2 to 6 Thesis. An intensive written study in the history, theory, teaching or philosophy of music; or the manuscript and parts (with tape recording when feasible) of a substantial musical composition or series of compositions accompanied by an analytical or explanatory document. Graded *S / U* or *DEF*. Prerequisite: 501 and prior approval of topic or proposal by thesis director and graduate committee in music.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S / U* or *DEF* only.

Pharmacology

E-mail: dsmith@wpsmtp.siumed.edu

SCHOOL OF MEDICINE

Becker, Robert E., Professor, M.D., (Springfield), McGill University, Canada, 1960; 1983. Neurochemistry/neuropharmacology and biochemical pharmacology.

Caspary, Donald M., Professor, Ph.D., (Springfield), New York University, 1971; 1973. Sensory physiology, neurophysiology, neuroanatomy, comparative physiology.

Dunaway, George A., Professor, Ph.D., (Springfield), University of Oklahoma, 1970; 1975. Regulation of energy/metabolism during diabetes; development and aging; induction of experimental ulcers in rats.

Faingold, Carl L., Professor and *Chair*, Ph.D., (Springfield), Northwestern University, 1970; 1972. Convulsive seizure mechanisms and effects of anticonvulsants; pharmacological alterations of cerebral evoked potentials.

Helfert, Robert, Professor, Ph.D., (Springfield), University of California, 1987; 1990. Cytoarchitecture, connections and transmitter specificity of the central auditory system; age-related changes in the cytoarchitecture and synaptic organization of the auditory and vestibular systems.

Lai, Chen-Ching, Assistant Professor, Ph.D., (Springfield), University of Wisconsin School of Medicine, 1988; 1991. Molecular pharmacology of anticancer drug resistance; molecular aspect of carcinogenesis, mutagenesis, and teratogenesis.

Lee, Tony, J-F., Professor, Ph.D., (Springfield), West Virginia University, 1973; 1975. Neuromuscular transmission in cerebral blood vessels.

Naritoku, Dean, Associate Professor, M.D., (Springfield), Chicago Medical School, 1981; 1987. Mechanisms of epilepsy and seizure susceptibility, functional neuroanatomy of seizures, GABA receptor function, clinical pharmacology.

Ramkumar, Vickram, Assistant Professor, Ph.D., (Springfield), University of Maryland, 1986; 1992. Molecular pharmacology of adenosine receptors in cardiovascular system.

Rybak, Leonard P., Professor, M.D., Ph.D., (Springfield), University of Minnesota, 1973; 1981. Investigation of mechanisms controlling ionic composition and resting potentials in the peripheral auditory apparatus using chinchilla model.

Somani, Satu, Professor, Ph.D., (Springfield), Liverpool University, England, 1969; 1976. Drug disposition.

Woods, W. Thomas, Professor, Ph.D., (Springfield), Wake Forest University, Bowman Gray School of Medicine; 1975; 1989. Cardiovascular cell biology, developmental biology, and cardiovascular pathophysiology.

Graduate courses of study leading to the Master of Science and Doctor of Philosophy degrees in pharmacology are offered by Southern Illinois University School of Medicine, Department of Pharmacology. To receive an advanced degree in Pharmacology, students must be admitted and fulfill the requirements of both the Graduate School and the pharmacology graduate program. Course offerings in the graduate program have been designed so that graduate students may acquire a broad basic knowledge as well as research experience in different areas of pharmacology. Graduate students may choose from a diversity of specializations when selecting a research adviser and a research topic. Excellent, well equipped research facilities allow the acquisition of a variety of techniques and methods.

The minimum requirements for admission to an advanced degree program in pharmacology are that all students must have an undergraduate degree in one of the biological sciences with at least one year of biology including physiology and a biochemistry course. Students may be admitted with deficiencies in these prerequisites, but they must remedy them at an accredited University which is approved by the Graduate School prior to completion of PHRM 550 a and b. Students with undergraduate training in related areas, such as chemistry, physics, mathematics, computer science, psychology, or engineering are strongly encouraged to consider graduate work in pharmacology.

Unrestricted admission into the master's program requires an undergraduate grade point average (GPA) of 3.0 ($A = 4.0$). For unrestricted admission into the doctoral program, a GPA of 3.25 ($A = 4.0$) on all course work is required. Specific requirements are described in the sections, "Specific Requirements for a Master of Science Degree in Pharmacology" and "Specific Requirements for a Doctoral Degree in Pharmacology."

In addition to the above general requirements, each applicant must submit *directly to the Department of Pharmacology:*

1. A completed application.
2. Original transcripts for all undergraduate and graduate coursework must be transmitted and received from each university or college attended by the applicant.
3. A brief (300–600 words) typed statement of goals and ambitions indicating why the applicant wishes to do graduate work in pharmacology.
4. Scores of the Graduate Record Examination (GRE) including scores on (a) the general and (b) one advanced section (biology or chemistry) taken within the past 12 months.
5. Three letters of recommendation from faculty who know the applicant's potential, written on forms supplied by the Department of Pharmacology.
6. International students must submit or request a copy of the TOEFL scores. The Department of Pharmacology and the Graduate School require a score of 550 or better on the TOEFL.

Equivalent course work completed at other institutions or in other collegiate units may be substituted for certain course requirements for graduate course work in pharmacology if approved by the pharmacology graduate program committee and the Graduate School. After receipt of all of the above requirements and approval by the Department of Pharmacology, the student's application and transcript are then transmitted to the Graduate School.

Retention

All retention rules will be met. Additional departmental requirements are described below.

Master's Degree. An overall GPA of 3.0 ($A = 4.0$) in all graduate work in the program is required for retention. Any grade below *B* in a pharmacology core course must be compensated for by retaking the course and earning an *A* or *B* grade.

Doctor of Philosophy Degree. An overall GPA of 3.0 ($A = 4.0$) in all graduate work in the program is required for retention. Any student who makes a grade below a *B* in a pharmacology core course with the exception of PHRM 501 will not be retained in the Ph.D. degree program of the Department of Pharmacology.

Financial Assistance

The pharmacology graduate program can offer financial assistance to applicants which are accepted into the program. Application for departmental fellowships is made directly to the Department of Pharmacology. Information and application forms for scholarships and loans may be obtained through the program director. Time limits for receiving support are governed by the Graduate School. Renewal of support is contingent upon satisfactory progress of the student in course work and research and upon time limitations for support.

Curriculum Requirements Common to the M.S. and Ph.D. Degrees in Pharmacology

Formal Courses. All graduate students are required to complete formal course work in 2 areas: (1) the M.S. or Ph.D. program core courses and (2) electives which are shown below:

Master's Program Core. PHRM 551, 550a, 550b, 501 (4 semester hours), 500 every semester on campus after completion of 4 semester hours of 501. Also, an additional 6 hours of advanced course work which are graded A–F are required and must include PHRM 555 and/or 574.

Doctoral Program Core. PHRM 551, 550a, 550b, 501 (4 semester hours), 500 every semester on campus after completion of 4 semester hours of 501, 555, 574 and one of the elective courses.

Elective Courses. Readings or Research in Pharmacology (PHRM 590), Geriatric Pharmacology (PHRM 560), Principles of Toxicology (PHRM 565), Advanced Cell Biology (MICR 530), Advanced Immunology (MICR 551), Cellular Immunology (MICR 552), Advanced Medical Microbiology/Immunology (MICR 553).

Maximum course work for full-time graduate students is 16 hours per semester; 12 hours is considered average. For a student with a half-time assistantship, 12 hours is the maximum, 6 hours is the minimum.

Research Tools. The research tool is an integral part of a research-oriented degree and is intended to enhance the student's ability to conduct a successful research career. All graduate students must acquire appropriate research tools as required by the Graduate School and the graduate student's dissertation/thesis and research committee. Master's students are encouraged, but not required, to attain competence in at least one research tool, and doctoral students are required to attain competence in at least two research tools. Requirements for a research tool may be satisfied by establishing proficiency in statistics, computer sciences, electronics, advanced mathematics, electron microscopy, foreign language (Russian, German, or French), or a technique which is acceptable to the student's dissertation/thesis and research committee. The student should not expect to use courses which are required by the graduate program to meet a tool requirement. To satisfy the requirement for proficiency in a research tool, the student should be able to demonstrate directly that they have gained expertise in the area of the tool. Examples of satisfactory exhibition of expertise could be a course grade of at least a *B*, an *S* in a course graded by *S*/*U*, or a letter from a teacher who is acceptable to the graduate dissertation/thesis committee certifying to the student's mastery of the tool. Other examples that could be acceptable

include publication of a paper or presentation of material which employs that expertise.

Student Advisement. An advisory system in pharmacology will help students in planning their program. Upon admission to the master's or doctoral program, students will be advised by the pharmacology graduate program director until a research adviser is chosen by the student. The programs outlined by students, their advisers, and thesis/dissertation committees are subject to approval of the pharmacology graduate program committee. Students should select their research adviser no later than the end of their second (master's) and third (doctoral) semester in residence. The choice of adviser, and subsequently the thesis/dissertation committee, is an important step and should be carefully considered.

Thesis or Dissertation Committee. As soon as possible, a graduate student must select a research adviser; and a thesis or dissertation committee should be selected. For a student in the master's program, the thesis committee will consist of a minimum of 4 members: the student's research adviser (chair), 2 graduate faculty members from pharmacology and 1 graduate faculty member from outside pharmacology. For a student in the doctoral program, the dissertation committee will consist of a minimum of 5 members: the student's research adviser (chair), 3 graduate faculty members from Pharmacology, and 1 graduate faculty member from outside pharmacology. Members of this committee should be able to contribute significantly to the area of the student's research program. The student's research adviser, through the chair of the Department of Pharmacology, will request approval of this committee by the dean of the Graduate School. The Chair of the Department of Pharmacology and the graduate program director are ex-officio members for all committees upon which they are not already members.

REQUIREMENTS FOR ADVANCED DEGREES IN PHARMACOLOGY

Specific Requirements for a Master of Science Degree in Pharmacology

GENERAL REQUIREMENTS

1. A minimum of 2 years of full-time study (1 year in residence) is required for a master's degree.
2. A total of 30 semester hours at the 400 and 500 level is required for a master's degree and at least 15 of these hours must be in 500-level courses. No less than 21 hours of graded (A–F) graduate coursework (400 and 500 level) with a cumulative GPA of 3.00 is required. No more than 6 hours of PHRM 599 may be taken for credit.
3. A written comprehensive examination must be passed with a grade of *B* or better. It will be prepared, conducted, and evaluated by the pharmacology graduate program committee and will be given each fall and spring semester, as needed. This examination will become a part of the student's permanent file.
4. Before significant research has begun, a thesis proposal is required. The thesis proposal will be presented in a pharmacology seminar. Immediately following the seminar, the proposal will be defended orally before the student's thesis committee. The cover sheet for the graduate student's thesis proposal must be signed by all members of the student's thesis committee and filed with the graduate program director.
5. A thesis must be completed in the student's research area of interest and receive approval of the student's thesis committee. The thesis is expected

to be a competent, original research project carried out in a selected area under the research adviser's supervision. It should include a statement of the problem, an adequate review of literature, a careful analysis of results by whatever methods are appropriate, and an interpretation of the work by a significant source. The student must submit a preliminary draft of the thesis to the adviser at least 10 weeks prior to graduation. A corrected copy must be submitted to other members of the thesis committee no later than 8 weeks before graduation.

6. Results of the thesis research must be defended in a pharmacology seminar which must be announced at least one week in advance by sending out proper notices to the university community. Immediately following the seminar, an oral examination will be conducted by the student's thesis committee, and it will cover the thesis. Any member of the university community may attend this examination and may participate in the questioning and discussion, subject to reasonable time limitations imposed by the committee chair. Only committee members may vote or make recommendations concerning acceptance of the thesis and the oral examination.
7. The student will be recommended for the degree if members of the student's thesis committee judge both the thesis and the performance at the oral examination to be satisfactory. Evaluation forms will be completed by the student's thesis committee. If approved, a thesis approval form will be completed, signed by the student's major adviser and the chair of the Department of Pharmacology, and transmitted to the Graduate School. The examination may be repeated once, at least 3 months after the first examination. A second failure will result in dismissal from the pharmacology graduate program.
8. Each student is required to have 6 semester hours of PHRM 599, Thesis Research. Each student although having completed all course work and registered for the minimum of thesis research hours is required to remain registered until completion of the degree.
9. It is the student's responsibility to give 2 appropriate unbound copies of the thesis to the Graduate School. One bound copy should be provided to the Graduate Program Director and 1 to the adviser at least 3 weeks prior to graduation.
10. Below is a representative schedule of the requirements for the master's degree:

First Year	Credits
Summer Session	
PHRM 551 — Methods in Pharmacology	4
Fall Semester	
Choose Adviser and Formulate Thesis Committee	
PHRM 500a — Principles of Pharmacology	4
PHRM 550b — Principles of Pharmacology	4
PHRM 501 — Introduction to Seminar	1
TOTAL	9
Spring Semester	
Advanced Courses (6 semester hours) which include:	
PHRM 555 — Cardiovascular Pharmacology	
PHRM 574 — Neuropharmacology, or an	
Elective Course (Choose 2 of 3 options)	6
PHRM 599 — Thesis Research	2
PHRM 501 — Introduction to Seminar	1
TOTAL	9

Second Year
Summer Session
PHRM 501 — Introduction to Seminar 1
PHRM 599 — Thesis research 3
Thesis Proposal Defense
Fall Semester
PHRM 501 — Introduction to Seminar 1
PHRM 599 — Thesis Research 4
Written Comprehensive Exam

Continuing Semesters. Enroll in Thesis Research (PHRM 599) and Pharmacology Seminar (PHRM 500) and if necessary Continuing Enrollment (PHRM 601).

SUMMARY OF REQUIREMENTS FOR MASTER OF SCIENCE DEGREE

1. At least 21 hours of graduate courses with grades of *A, B*, or *C*
2. Achievement of a grade point average of at least a 3.0 (*A* = 4.0)
3. Completion of the research tools required by the thesis committee
4. Completion of 4 semester hours of PHRM 501 with a grade of *B* or better
5. Oral defense of thesis proposal
6. Comprehensive written exam of course work
7. Submission of thesis to adviser (10 weeks prior to graduation)
8. Corrected thesis to thesis committee (8 weeks prior to graduation)
9. Announcement of thesis defense (1 week prior notice)
10. Oral defense of thesis
11. Submission of approved thesis to Graduate School (2 copies), graduate program director (1 copy), and adviser (1 copy) 3 weeks prior to graduation
12. Submission of department clearance form

Specific Requirements for a Doctoral Degree in Pharmacology

GENERAL REQUIREMENTS

1. Students entering the doctoral program in pharmacology should meet as a minimum the entrance requirements listed for the Master of Science degree program. In addition, it is strongly recommended that the doctoral student have completed calculus and physical chemistry. Students entering the doctoral program in pharmacology may choose to be admitted under 1 of 4 options: the post-master's option, a direct entry (post-baccalaureate) option, accelerated entry (from a master's program) option, or master's equivalency. International students must demonstrate verbal and written proficiency in English.
   a. The *Post-Master's Entry Option* is offered to the student who has a master's degree, excelled academically, and plans to continue research and scholarly work in a chosen field. The Graduate School requires that the student meets all general requirements for admission and has a GPA of 3.25 (*A* = 4.0).
   b. The *Direct-Entry (Post-Baccalaureate) Option* is offered to the outstanding post-baccalaureate student who has a high potential for independent doctoral level research, has clearly defined professional objectives, and fulfills all the general admission requirements of the doctoral program. To be admitted through the direct-entry option, the student must have the following: a cumulative undergraduate GPA of 3.25 (*A* = 4.0) for undergraduate course work in biology, chemistry, physics, and, mathematics beyond the freshman level and an outstanding score on the Graduate Record Examination (GRE) on (a) the general part, (b) the advanced part in biology, and (c) the advanced part in chemistry, physics, or mathematics.

c. The *Accelerated Entry Option* is designed for a student who has completed at least 2 semesters in the Master of Science degree program and makes a commitment to obtain a doctoral degree. This option is recommended by the master's student's thesis committee after a review of the student's credentials and eligibility has been established. To be eligible for this option, the committee must establish: that the student has attained a 3.25 (A = 4.0) GPA in graduate course work, that the student is prepared and able to conduct research at the doctoral level as evidenced through publications, presentations at meetings and seminars, or preparation and oral presentation of the research proposal, and that the student has letters of reference attesting to the student's ability and potential to perform doctoral research. Upon establishing the student's eligibility, the student's thesis committee will prepare a written review of the student's qualifications. Approval of the review must be given by the pharmacology graduate program committee and the chair of the Department of Pharmacology, who will then make recommendation to the Graduate School for waiver of the master's degree or master's equivalency before entry into the doctoral program.

d. The *Master's Equivalency Option* is also available to a student who has been in the master's degree program for 2 semesters and makes a commitment to a doctoral degree. master's equivalency may be obtained by preparing a research paper or successfully defending a research proposal supported by written documentation which is accepted by the student's thesis committee, the pharmacology graduate program committee, the chair of the Department of Pharmacology, and the Graduate School.

2. In addition to the courses required by the department, the elective course work requirements for the Ph.D. degree will be established by the student's dissertation committee in accordance with the requirements of the program.
3. The Ph.D. degree may not be conferred less than 6 months nor more than 5 years after admission to candidacy, except upon approval of the dean of the Graduate School. The student is admitted to the Ph.D. degree candidacy after having completed the residency requirement, the research tools requirement, and the comprehensive written preliminary examination.
4. A comprehensive written preliminary examination of course work must be passed with a grade of B or better. It will be prepared, conducted, and evaluated by the pharmacology graduate program committee and will be given each fall and spring semester as needed. This examination will become a part of the student's permanent file. The preliminary examination may be repeated only once at least 3 months after the examination. Required course work should be completed prior to this examination, but this examination should precede the greater part of the dissertation research.
5. Before significant research has begun and no later than 5 semesters (excluding summer sessions) after admission into the graduate program, defense of a dissertation proposal must be successfully completed. The dissertation proposal will be presented in written form to the student's thesis/dissertation committee and in a pharmacology seminar. Immediately following this seminar, the proposal will be defended orally before the student's dissertation committee. The cover sheet for the graduate student's dissertation proposal must be signed by all members of the student's dissertation committee and filed with the graduate program director. The dissertation is expected to be a competent, original research project which will make a significant contribution to the body of scientific knowledge. As such, it should be of sufficient quality to merit publication in a peer-re-

viewed journal. It should include a statement of the problem, an adequate review of literature, a careful analysis of results by whatever methods are appropriate, and an interpretation of the work.

6. The residency requirement for the doctorate must be fulfilled after admission to the doctoral program and before formal admission to doctoral candidacy. The residency requirement is satisfied by completion of 24 semester hours of graduate credit on campus as a doctoral student within a period of not to exceed 4 calendar years. A doctoral student will be permitted to count no more than 6 hours of Dissertation Research (PHRM 600) towards achieving the 24 semester hour residency requirement. To meet the residency requirement, students may enroll in any other course that they have not taken and meets with the approval of their adviser and dissertation committee, e.g. any formal departmental or non departmental courses, and Readings or Research in Current Pharmacological Topics (PHRM 590).
7. The Graduate School requires completion of the residency requirement before making application to candidacy. Admission to candidacy is granted by the dean of the Graduate School upon recommendation of the student's dissertation committee after the student has fulfilled the residency requirement for the doctoral degree, passed the comprehensive written preliminary examination and met the research tool requirement. The candidate must fulfill all degree requirements within a five-year period after admission to candidacy, or may be required to take another preliminary examination and be admitted to candidacy a second time.
8. After admission to candidacy, the student must complete 24 hours of dissertation credit, (PHRM 600), complete their dissertation research project, and prepare the dissertation document to meet the requirements of their dissertation committee and the Graduate School. A student who has completed all formal course work, dissertation and candidacy credit requirements but has not completed and defended the dissertation must continue to be registered until completion of the degree.
9. A preliminary draft of the dissertation should be given to the adviser at least 10 weeks prior to graduation, a corrected copy should be submitted to other committee members no later than 8 weeks before graduation.
10. Results of the dissertation research must be defended in a pharmacology seminar which must be announced at least 1 week in advance by sending out proper notice. Immediately following the pharmacology seminar, a final oral examination will be conducted covering the dissertation subject and other discipline related matters. Any member of the university community may attend the final oral examination and may participate in the questioning and discussion, subject to reasonable time limitations imposed by the committee chair. Only members of the committee may vote or make recommendations concerning acceptance of the dissertation and final examination. A student will be recommended for the degree if members of the dissertation committee judge both the dissertation and the performance at the final examination to be satisfactory. Evaluation forms will be completed by the committee. If approved, a dissertation approval form will be completed, signed by the student's major adviser and the chair of the Department of Pharmacology, and submitted to the Graduate School. The examination may be repeated once, at least 3 months after the first examination. Failure of the second examination will result in dismissal from the pharmacology graduate program.
11. It is the student's responsibility to give 2 unbound copies of the dissertation to the Graduate School, along with an abstract of 600 words or less. One bound copy should be given to the graduate program director and one

to the student's adviser at least 3 weeks prior to graduation. All dissertations will be microfilmed and there is a fee.

12. Below is a representative schedule of the requirements for the Ph.D. degree in pharmacology. Note that alternative scheduling will be necessary for those students who have accelerated entry from the master's program, or for those students who already have a Master of Science degree in pharmacology.

First Year	Credits
Summer Session	
PHRM 551 Methods in Pharmacology	4
Fall Semester	
Choose Adviser and Formulate Dissertation Committee	
PHRM 550a Principles of Pharmacology	4
PHRM 550b Principles of Pharmacology	4
PHRM 501 Introduction to Seminar	1
Total	9
Spring Semester	
PHRM 555 Cardiovascular Pharmacology	3
PHRM 574 Neuropharmacology	3
PHRM 501 Introduction to Seminar	1
Elective Course	3
Total	10
Summer Session	
PHRM 600 Dissertation Research or	
PHRM 590 Readings or Research in Pharmacology	3
Total	3
Second Year	
Fall Semester	
Preliminary Exam	
PHRM 590 Readings or Research in Pharmacology and/or	
PHRM 600 Dissertation Research	3
PHRM 501 Introduction to Seminar	1
Total	10
Spring Semester	
Defence of Dissertation Proposal	
Completion of Tool Requirements	
Admission to Candidacy when eligible	
PHRM 600 Dissertation Research	3
PHRM 501 Introduction to Seminar	1
PHRM 590 Readings or Research in Pharmacology and/or	
PHRM 600 Dissertation Research	6
Total	10
Summer Session	
PHRM 590 Readings or Research in Pharmacology and/or	
PHRM 600 Dissertation Research	3
Total	3

Continuing Semesters. Enroll in Dissertation Research (PHRM 600) and Pharmacology Seminar (PHRM 500) and if necessary Continuing Enrollment (PHRM 601).

SUMMARY OF REQUIREMENTS FOR DOCTOR OF PHILOSOPHY DEGREE

1. Achievement of a grade point average of at least 3.25 ($A = 4.0$)
2. 24 semester hours residency

3. Completion of research tools required by dissertation committee
4. Comprehensive written preliminary exam of course work
5. Completion of 4 semester hours of PHRM 501 with a grade of *B* or better
6. Admission to candidacy
7. Oral defense of dissertation proposal
8. Submission of dissertation to adviser (10 weeks prior to graduation)
9. Corrected dissertation to dissertation committee (8 weeks prior to graduation)
10. Completion of an approved dissertation with 24 hours of dissertation credit
11. Announcement of dissertation defense (1 week prior notice)
12. Oral defense of dissertation
13. Submission of approved dissertation to Graduate School (2 copies), graduate program office (1 copy), and adviser (1 copy) 3 weeks prior to graduation
14. Submission of departmental clearance form
15. All dissertations shall be microfilmed and a fee is required.

Courses (PHRM)

500-1 to 16 Pharmacology Seminar. Presentation of research and current literature in pharmacology. Required of all graduate students in pharmacology after completion of four credit hours of 501. Requires presentation at a Journal Club session each fall semester and a formal seminar each spring semester for duration of registration. Graded *S / U* only. Prerequisite: 501. (Springfield Only.)

501-1 to 4 (1 per semester). Training in interpretation of research and current literature in order to enhance quality of seminar presentation. Enrollment for the initial four semesters is required of all beginning pharmacology graduate students. All other pharmacology graduate students must enroll in 500. (Springfield Only.)

550-8 (4,4) Principles of Pharmacology. A study of chemistry, pharmcodynamic actions, mechanisms of action, absorption, distribution, metabolism, elimination, adverse effects, interactions and toxic effects of drugs currently used in therapeutics. Three to five hours lecture, one to four hours discussion per week. Must be taken in sequence. Prerequisite: organic chemistry, biochemistry, basic courses in physiology, and Physiology 420a,b or equivalent are highly recommended, or consent of coordinator. (Springfield Only.)

551-4 Methods in Pharmacology. The main objective is to acquaint the student with various sophisticated laboratory equipment, basic techniques/principles of pharmacological experiments. One hour lecture and three hours laboratory twice weekly. This course is prerequisite to all advanced pharmacology courses. (Springfield Only.)

552-3 Applied Statistics for the Basic Sciences. This course reviews introductory statistics and focuses on advanced statistics, linear and nonlinear modelling, applicable to basic bimedical sciences. The course will also provide students with experience in the use of statistical package computer programs for data analysis. Prerequisite: a college level introductory statistics course or permission from the instructor.

555-3 Cardiovascular Pharmacology. A study of structure, biochemistry, eletrophysiology, and neurogenic and humoral regulation of the cardiovascular system in normal and diseased states. Three hours of lecture per week. Prerequisite: 550a,b or equivalent, or consent of course coordinator. (Springfield Only.)

560-3 Geriatric Pharmacology. A study covering age-related changes in the physiology of particular organ systems which lead to the prevalence of many diseases and to altered drug action in the elderly. Research issues in aging will be discussed emphasizing the biological substrates of altered pharmacodynamics and pharmacokinetics in the aged. Prerequisite: 550a,b and consent of course coordinator. (Springfield Only.)

565-3 Principles of Toxicology. This course deals with principles and understanding of phenomena of chemical-biologic interactions; a study of adverse chemical effects on living organisms and risk that chemical exposure poses to man/environment; deleterious, acute, chronic chemical effects on specific organs, tests to predict risks, facilitate search for safer chemicals and drugs and means of rational treatment of manifestations of toxicity; prominent discussion on drugs, medical devices, food additives, pesticides; regulation of toxic chemicals, hazardous wastes, toxic pollutants in water and air; and emphasis on diseases caused by and uniquely associated with drugs, diagnosis and treatments of such intoxicants. (Springfield Only.)

574-3 Neuropharmacology. (Same as Physiology 574.)A detailed examination of the biochemical aspects of neuropharmacology with emphasis on neurotransmitters; their synthesis, storage, release and metabolism in the central and peripheral nervous system. Considerable emphasis is placed on major research developments (both past and present) that influence how one studies the action of drugs on the nervous system. Prerequisite: Physiology 410 and Chemistry 451.

590-1 to 24 Readings or Research in Current Pharmacological Topics. By special arrangement with the instructor with whom the student wishes to work. Graded *S / U* only.

599-1 to 6 Thesis Research. Research for thesis for a master's degree. Hours and credit to be arranged by chair and adviser.

600-1 to 32 (1 to 12 per semester) Dissertation Research. Research for dissertation for the

Ph.D. degree. Hours and credit to be arranged by chair and adviser.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S / U* or *DEF* only.

Philosophy

E-mail: phildept@siu.edu

COLLEGE OF LIBERAL ARTS

Alexander, Thomas, Associate Professor, Ph.D., Emory University, 1984; 1985. American philosophy, classical philosophy, aesthetics, Dewey.

Black, Andrew, Assistant Professor, Ph.D., University of Massachusetts, 1992; 1991. Early modern philosophy, logic, and Leibniz.

Clarke, David S., Jr., Professor, Ph.D., Emory University, 1964; 1966. Philosophy of language, logic.

Diefenbeck, James A., Professor, *Emeritus,* Ph.D., Harvard University, 1950; 1950.

Eames, Elizabeth R., Professor, *Emerita,* Ph.D., Bryn Mawr College, 1951; 1963.

Gaskill, Thomas E., Assistant Professor, Ph.D., Vanderbilt University, 1992; 1993. Asian philosophy, medieval.

Gatens-Robinson, Eugenie, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1983; 1974. History and philosophy of science, epistemology, feminism.

Gillan, Garth J., Professor, Ph.D., Duquesne University, 1966; 1969. Critical theory, continental philosophy.

Hahn, Lewis E., Professor, *Emeritus* and Editor of Library of Living Philosophers, Ph.D., University of California, 1939.

Hahn, Robert, Associate Professor, Yale University, 1976; 1982. Greek philosophy, philosophy and history of science, Kant.

Hickman, Larry A., Professor, Ph.D., University of Texas at Austin, 1971; 1993. American philosophy, philosophy of technology.

Howie, John, Professor and *Chair*, Ph.D., Boston University, 1965; 1966. Bioethics, ethics, American idealism.

Kelly, Matthew J., Associate Professor, *Emeritus,* Ph.D., University of Notre Dame, 1963; 1966.

Manfredi, Pat A., Assistant Professor, Ph.D., University of Notre Dame, 1983; 1994. Philosophy of mind, epistemology, metaphysics, recent analytic philosophy.

Plochmann, George Kimball, Professor, *Emeritus,* Ph.D., University of Chicago, 1950; 1949.

Schedler, George, Professor, Ph.D., University of California, San Diego, 1973; 1973. Philosophy of law, ethics, social philosophy.

Steinbock, Anthony J., Associate Professor, Ph.D., State University of New York, Stony Brook, 1993; 1995. Contemporary French and German philosophy, recent European philosophy, 19th century philosophy.

Summerfield, Donna M., Assistant Professor, Ph.D., University of Notre Dame, 1984; 1990. Wittgenstein, epistemology, analytic philosophy.

Tyman, Stephen, Associate Professor, Ph.D., University of Toronto, 1980; 1980. Eighteenth and 19th century European philosophy, phenomenology, existentialism.

The Department of Philosophy offers a wide range of advanced courses in the major areas within the field leading to the M.A. and Ph.D. degrees. Students are offered a diversified curriculum not dominated by one school of thought or method of approach. The broad range of specializations represented by the faculty exposes students to a variety of aspects of philosophy and at the same time permits them to concentrate on their own particular area of interest. Graduate-level courses in such allied fields as the natural and social sciences, the arts, linguistics, law, and women's studies offer supplements to the philosophy curriculum.

Graduate courses in philosophy may be used as a minor in programs leading to the Master of Arts or Master of Science in Education degrees. Students who do not plan to continue work in philosophy beyond the master's degree level are encouraged to elect a graduate minor or to combine philosophy with another subject in a 40–hour double major.

All graduate students in philosophy are expected to have some supervised experience in teaching basic work in the field, either through regular teaching assistantships or through special assignments. Opportunities for intern experience at area junior or community colleges are made available.

Admission

Admission to the philosophy graduate program requires the following:

1. An application form to be sent to the department. A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.
2. Official transcripts of each school attended to be sent to the department.
3. A sample of written work, e.g., a term paper written for an undergraduate philosophy class, to be sent to the department's director of graduate studies.
4. Three letters of recommendation from individuals familiar with the student's work should be requested by the applicant to be sent to the department's director of graduate studies.
5. Graduate Record Examination verbal and quantitative scores are requested but not required to be submitted to the department. They are required for those applying for fellowships. TOEFL scores of at least 550 are required for all foreign students. These scores should be sent directly to the department. Scores for the Test of Spoken English are strongly recommended for foreign students applying for teaching assistantships.

The department expects an applicant for admission to its graduate program to have had at least 15 semester hours in philosophy or closely related theoretical subjects, including at least one semester in ethics, one in logic, and a year in the history of philosophy. The department may waive a portion of this requirement in favor of maturity and of quality of breadth of academic experience. Applicants will be required to make up serious background deficiencies by taking appropriate undergraduate philosophy courses without credit.

Application for financial assistance is made by filling out a financial assistance form. Applicants for Graduate School and Morris Fellowships should send these applications to the department by February 1 of the academic year preceding that for which application is made. Applications for departmental graduate assistantships should be sent to the department by April 1 of that year.

Entry into the Ph.D. Program. There are three routes by which a student may enter the doctoral program. The standard one is by completion of an M.A. degree in philosophy at an accredited institution. There are also two alternatives available in special circumstances.

Direct Entry. Direct baccalaureate degree entry into the doctoral program is possible for students who in addition to meeting Graduate School requirements have earned a grade point average of 3.25 or better or have exhibited some other indication of ability to do doctoral-level work in philosophy, such as superior scores on the GRE exam.

Accelerated Entry. After at least one semester in residence, a student enrolled in the M.A. program may petition the department's faculty for accelerated entry into the Ph.D. program. Such entry is permitted only in special circumstances where a student has completed the equivalent of an M.A. degree at another institution or has exhibited some other special qualifications (e.g. papers and publications) for the research or creative activities of doctoral-level study.

Master of Arts Degree

The department's M.A. degree program is designed both for students wishing to continue on for a Ph.D. degree and those who plan to receive a terminal master's degree. For the latter students a minor concentration of up to 9 semester hours outside philosophy is permitted, subject to approval by the director of graduate studies. In order to receive the M.A. degree the student must fulfill the following requirements:

1. Complete 30 semester hours of course work in philosophy or allied fields, 6 of which may be credited toward preparation of a thesis.
2. Demonstrate competence in formal logic during the first year of residence either through appropriate course work or by passing with a grade of *B* or better an examination equivalent to the Philosophy 420 final suitably supplemented with additional materials on Aristotelian logic.
3. Pass an M.A. comprehensive examination on the history of philosophy to be taken no later than in the fall semester of the student's second year of graduate work.
4. Demonstrate reading knowledge of one foreign language by passing with a grade of *B* or better the appropriate 488 language courses or passing an examination offered through the Department of Philosophy, or by fulfilling the terms of some alternative agreement with the director of graduate studies. This course does not count towards the fulfillment of 1 above.
5. Fulfill a research writing requirement by either: a) writing an M.A. thesis of approximately 50 pages; or b) submitting 3 edited research papers written in conjunction with graduate seminars. This requirement should normally be met no later than one's second year of residence. The candidate for the M.A. degree will take an oral examination conducted by a 3 member faculty committee on the research subject.

Doctor of Philosophy Degree

The Ph.D. degree in philosophy is designed to prepare students for college teaching and for research in their field of study. In order to receive the Ph.D. degree the student must fulfill the following requirements:

1. Complete 30 semester hours of course work in philosophy or allied fields beyond the M.A. degree.
2. Demonstrate competence in formal logic during the first year of residence as required for the M.A. degree.
3. Demonstrate a background in the history of philosophy by passing the department's M.A. comprehensive examination on the history of philosophy. Incoming doctoral students will be expected to take this examination within the first year after entering the Ph.D. program.
4. Fulfill a research tool requirement in one of the following ways: a) demonstrating a reading knowledge of 2 foreign languages by passing the appropriate 488 language courses with grades of *B* or better; b) showing an appropriately higher proficiency in 1 language; or c) demonstrating a reading knowledge of 1 foreign language and completing satisfactorily at least 2 courses at the graduate level in an outside area approved by the director of graduate studies, or, through some alternative arrangement with the director of graduate studies. Neither these courses nor the 488 courses referred to in a) count toward the fulfillment of 1 above.
5. Pass a written preliminary examination on the following 4 areas: metaphysics and philosophy of religion; epistemology and philosophy of science; value studies (ethics, social philosophy, and aesthetics); and an area of historical specialization. This examination will normally be taken only after the student has accumulated at least 24 hours of credit beyond the M.A. degree.
6. Write a doctoral dissertation under the supervision of a faculty dissertation committee. This dissertation is started only after the student has completed 30 hours of course work beyond the M.A. degree and has been admitted to candidacy for the Ph.D. degree. The student's dissertation proposal must first be approved by his dissertation committee. The student must complete at least 24 hours of Philosophy 600 for dissertation hours credit. Upon completion of the dissertation, the student is given an oral ex-

amination on it and related topics. Should a student fail to complete the dissertation within 5 years after admittance to candidacy, the student may be required to take an oral examination (usually administered by the internal members of the dissertation committee) to be admitted to candidacy a second time.

Courses (PHIL)

400-3 Philosophy of Mind. An investigation of the philosophic issues raised by several competing theories of mind, focusing on the fundamental debate between reductionistic accounts (e.g., central state materialism, identity theories of the physical and mental) and views which reject such proposed reductions. Traditional and contemporary theories will be examined. Designed for students in the life and social sciences with little or no background in philosophy as well as philosophy students.

415-3 Logic of Social Sciences. (Same as Sociology 415.) An examination of the theoretical structure and nature of the social sciences and their epistemological foundations. The relationship of social theory to social criticism; theory and praxis. Historical experience and social objectivity. Social theory as practical knowledge.

420-3 Symbolic Logic. Survey of basic concepts, decision procedures and proof techniques of modern symbolic logic.

422-3 Semiotic. (Same as Speech 447.) Introduction to Semiotic as the general theory of signs, including natural signs, signals and linguistic expressions. Concentration on contrasts and comparisons between language and more primitive types of signs.

425-3 Philosophy of Language. (Same as Speech Communication 465 and Linguistics 425.) An investigation into the way in which language is based on the nature of human cognitive structures, including metaphor, prototypes, frames and various kinds of imaginative structure. Central topics include the grounding of meaning and conceptual structure in bodily experience, the role of imagination in reasoning, and the metaphorical nature of thought.

435-9 (3,3,3) Philosophy of Science. (a) Philosophy of science. Critical survey of influential description of scientific methods and theory construction. Topics include the relationship between observation and theory confirmation, explanation, prediction, theory of change and discovery, view of scientific rationality. Historical cases will serve to focus the discussion. **(b)** Philosophy of special sciences. This course will focus on philosophical issues within a specific science such as biology, physics or psychology. Theory, method and historical development of the specific science will be examined. **(c)** Special topics in the philosophy of science. This course will provide a detailed focus on specific orientation or topic relevant to philosophy of science. Topics would include naturalized epistemology, evolutionary epistemology, history and philosophy of science, feminist epistemology, modern science and philosophy of nature.

441-3 Philosophy of Politics. (Same as Political Science 403.) The theory of political and social foundations; the theory of the state, justice and revolution. Classical and contemporary readings such as: Plato, Aristotle, Hobbes, Locke, Rousseau, Marx, Dewey, Adorno and others. Prerequisite: 340 or Philosophy 102 or consent of instructor.

443-3 Philosophy of History. The rise of historical objectivity and the science of history. Classical and modern theories of history. History as the foundation of social knowledge. The critique of history as universal perspective. Prerequisite: consent of instructor.

446-3 Philosophical Perspectives on Women. (Same as Women's Studies 456.) Discussion of contemporary views of women and social issues from a feminist perspective.

460-3 Philosophy of Art. We will examine several important theories that define art by focusing in on only one aspect, for example, imitation, expression, form, institutional setting or even indefinability. What role does imagination play in each of these accounts, and does this tell us something important about how people experience their world?

468-9 (3,3,3) Kant. (a) First critique; **(b)** Theory of morality; **(c)** Aesthetic theory.

469-3 Hellenistic and Roman Philosophy to Augustine. The career of philosophy during the Hellenistic, Roman and Early Medieval Period, especially as a means of personal salvation exploring such figures and movements as: Epicurus, Stoicism, the Middle Academy, Skepticism, Gnosticism, Plotinus, Early Christianity, Augustine and Boethius. Prerequisite: 304 or consent of instructor.

470-6 (3,3) Greek Philosophy. (a) Plato. A general survey of the Platonic dialogues from the Socratic period through the middle, with some selections from the Late period. Such Dialogues will be emphasized as: Protagoras, Gorgias, Euthydemus, Charmides, Meno, Phaedo, Symposium, Republic, Phaedrus, Sophist and Timaeus. **(b)** Aristotle. A general survey of the Aristotelian philosophy including his theory of nature, metaphysics, ethics and political philosophy. Readings will consist of selections from the corpus. Prerequisite: 304 or consent of instructor.

471-3 Medieval Philosophy. An examination of the synthesis of Greek philosophy with the Judeo-Christian and Islamic religions, exploring such figures as Augustine, Boethius, Avicenna, Averroes, Abelard, Maimonides, Thomas Aquinas, Duns Scotus, Ockham and Cusanus. Prerequisite: 304 or consent of instructor.

472-6 (3,3) The Rationalists. (a) Descartes. A study of the Philosophy of Rene Descartes, concentrating on his major writings, *Meditations, Discourse on the Method,* and *Principles of Philosophy*, as well as his philosophical correspondence. May include study of Descarte's relation to the later Rationalists. **(b)** Study of the philosophy of one or more of Spinoza, Leibniz, Arnauld, Malebranche, Wolff. May include study of the relation

of these philosophers to Descartes. Prerequisite: 205 or consent of instructor.

473-6 (3,3) The Empiricists. **(a)** Locke; **(b)** Hume. Study of the principles of British empiricism as represented by either **(a)** Locke or **(b)** Hume. May also include study of Berkeley. Prerequisite: 305 or consent of instructor.

474-12 (3,3,3,3) 19th Century Philosophers. **(a)** Hegel; **(b)** Kierkegaard; **(c)** Marx; **(d)** Nietzsche. Prerequisite: 306 or consent of instructor.

475-3 Asian Philosophy. Topics in Confucianism, Taoism or Buddhism.

480-3 History of Analytic Philosophy. An introduction to the works of several major 20th century philosophers in the analytic tradition, including several of the following: Frege, Russell, Moore, Wittgenstein (early and later), members of the Vienna Circle, Ayer, Ryle, Quine, Putnam, Davidson. Includes discussion of challenges to the tradition that have developed within it.

482-3 Recent European Philosophy. Philosophical trends in Europe from the end of the 19th Century to the present. Phenomenology, existentialism, the new Marxism, structuralism and other developments. Language, history, culture and politics.

486-3 Early American Philosophy. From the Colonial Era to the Eve of World War I. This course will trace the transplantation of European philosophy to the New World and watch its unique process of development. Movements such as Puritanism, the theory of the American Revolution, the philosophical basis of the Constitution, transcendentalism, idealism, Darwinism and pragmatism and such figures as: Jonathan Edwards, Thomas Jefferson, James Madison, Ralph Waldo Emerson, Josiah Royce, Charles Sanders Peirce and William James.

487-3 Recent American Philosophy. From World War I to the present. The major American philosophers of the 20th Century, covering such issues as naturalism, emergentism, process philosophy, logical analysis and neopragmatism. Figures include: John Dewey, George Herbert Mead, George Santayana, Alfred N. Whitehead, C.I. Lewis, W.O. Quine and Richard Rorty.

490-2 to 8 Special Problems. Hours and credits to be arranged. Courses for qualified students 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. Prerequisite: consent of department.

500-3 Metaphysics. Recent writers and current problems in metaphysics.

501-3 Philosophy of Religion. Analysis of a problem in philosophical theology or the phenomenology of religion or of the work of a particular thinker.

505-3 Theology and Philosophy. Topics taken from the exchanges between theology and philosophy in the modern period: natural theology and atheism, the metaphysics of being and God, ethics of reason and faith, secular and salvation history, politics and liberation theology, reason and faith in cross-cultural contexts, hermeneutics and epistemology. Prerequisite: preparation in theology and philosophy; consent of the instructor.

510-3 Problems of the Person. Discussion of metaphysical questions surrounding persons and their bodies. The particular focus of the seminar will vary as follows: **(a)** Intentionality, **(b)** Consciousness, **(c)** Freedom, **(d)** The self. Prerequisite: 400 recommended.

520-3 Philosophy of Logic. Topics in logic, with emphasis on issues in the philosophy of logic such as the status of modal logics and three-valued logics.

524-3 Contemporary Analytic Philosophy. A detailed examination of one or more issues of concern to contemporary philosophers in the analytic tradition. Possible topics include: the nature of intentionality; the possibility of priori knowledge; response to skepticism/relativism; virtue-based approaches to ethics and epistemolgy.

530-3 Theory of Knowledge. An examination of 20th Century trends in epistemology, including one or more of the following: traditional foundationism and its demise; contemporary theories of knowledge and justification; skepticism and contemporary response to it; the possibility of a prior knowledge.

542-3 Political and Legal Philosophy. Relations of law, morality, and politics, and consideration of problems and issues in philosophy of law.

545-3 Ethics. An examination of the fundamental assumptions underlying twentieth century British and American moral theory. Special attention is given to recent attempts to develop a psychologically realistic moral philosophy that avoids both moral absolutism and extreme forms of relativism.

560-3 Aesthetics. Selected topics or writings.

562-3 Philosophy of Human Communication. (See Speech Communication 562.)

570-3 American Idealism. One or more American idealists. Recent seminars have been devoted to the thought of Brand Blanshard and Peter A. Bertocci.

575-30 (3,3,3,3,3,3,3,3,3,3) Contemporary Continental Philosophy. **(a)** Husserl. Constitutes an introduction to phenomenology as it was practice by the originator of the modern movement. Special attention to the role of the transcendental reduction and other methodological issues. Consideration given to the influence that Husserl has had upon subsequent developments in phenomenology. **(b)** Heidegger. Concentrates on the specific development of Heideggerian phenomenology as evidenced in his early writings and transformed in his later. Special attention to the problems of time, ontology, language and the project of the destruction of the history of metaphysics. **(c)** Sartre. Focuses on the contribution phenomenology and existentialism made by the leading synthesizer of these two movements. Special attention to problems of imagination, affectivity, dialectic and ontology, as well as social and political questions. **(d)** Merleau-Ponty. Concentrates on Merleau-Ponty's work in extending phenemenology into the region of lived and embodied experience. Special attention to the problem of embodiment, the question of lived time and lived space, as well as issues of the theory of signs and language. **(e)** Ricoeur. Concentrates on the analysis of selective texts of Paul Riceour from his early philosophy of the will to his later writings on metaphor and time: *Symbolism of Evil, On Metaphor, Time and Narrative.* **(f)** Foucault. An analysis of the relationship between power and

knowledge in *Discipline and Punish* and *The History of Truth*. **(g)** Derrida. Examines texts from *On Grammatology* to *Truth in Painting,* Course focuses upon epistemological and metaphysical consequences of deconstruction. **(h)** Lyotard. Main interest of the course is the epistemological and ethical consequences of the debate about post-modernism in *Knowledge and the Postmodern Condition* and *The Differend.* **(i)** Adorno. An examination of history, language, ethics and politics in the major writings of Theodor Adorno: *The Negative Dialectic* and *Aesthetic Theory.* **(j)** Habermas. An examination of the foundations of universal pragmatics in *The Theory of Communicative Action* and related earlier texts.

577-6 (3,3) Classical American Philosophy. **(a)** Peirce and James. This course will focus on various aspects of the philosophies of Charles Sanders Peirce and William James. Such topics as the critique of Cartesianism, pragmatism, semiotics, evolutionary metaphysics, radical empiricism and the will to believe will be covered. **(b)** Dewey and Mead. This course will focus on the thought of John Dewey and George Herbert Mead, focusing upon such themes as the influence of Darwin, the organism-environment circuit, nature and experience, aesthetic experience, the social self and descriptive metaphysics.

580-3 The Pre-Socratics. The emergence of Greek philosophy in the sixth century B.C., the Milesians, Heraclitus and the Pythagoreans; the Eleatic movement and Parmenides, and the critical systems of Empedocles, Anaxagoras, and atomism; concluding with a discussion of the Sophistic movement and Socrates. Epic, lyric and dramatic literature of the period may be examined as well as philosophical writings.

581-3 Plato. Through study of selected dialogues and reconstruction of Plato's system as a whole. Discussions and reports.

582-3 Aristotle. Intensive reading on several texts, analyzing selected portions of Aristotle's thought.

586-3 Wittgenstein. A critical examination of (a) the early work of the Austrain philosopher Ludwig Wittgenstein and his precursors and/or (b) the later work of Wittgenstein and his impact on contemporary analytic philosophy. Emphasis on (a) the *Tractatus Logico-Philosophicus* and/or (b) the *Philosophical Investigations*. Includes discussion of some of the following: the picture theory of representation; the doctrine of showing; the relationship of thought and language; ethics and the mystical; the early Wittgenstein's importance and influence; Wittgenstein's later criticisms of his early work; the possibility of rule-following; private language; meaning, use and language-games; the later Wittgenstein's importance and influence.

587-3 Kant.

588-3 Hegel.

590-2 to 12 (2 to 4 per topic) General Graduate Seminar. Selected topics or problems in philosophy. Graded *S/U* only.

591-1 to 16 Readings in Philosophy. Supervised readings for qualified students. Prerequisite: students must have written permission from the graduate director to register for more than six hours at each level.

599-2 to 6 Thesis. Minimum of four hours to be counted towards a master's degree.

600-3 to 32 (1 to 16 per semester) Dissertation.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Physical Education

COLLEGE OF EDUCATION

Ackerman, Kenneth, Assistant Professor, M.A., Michigan State University, 1959; 1969. Exercise physiology.

Becque, M. Daniel, Assistant Professor, Ph.D., University of Michigan, 1988; 1990. Exercise physiology.

Blinde, Elaine M., Associate Professor, Ph.D., University of Illinois, 1987; 1987. Social-psychology of sport.

Brechtelsbauer, Kay, Assistant Professor, Ph.D., Southern Illinois University at Carbondale, 1980; 1965. Motor behavior.

Carroll, Peter, Assistant Professor, Ph.D., Pennsylvania State University, 1970; 1969. Pedagogy.

Good, Larry, Associate Professor, Ed.D., Temple University, 1968; 1967. Kinesiology.

Knowlton, Ronald, Professor and *Chair,* Ph.D., University of Illinois, 1961; 1961. Exercise physiology.

McCallister, Sarah, Assistant Professor, Ed.D., University of Arkansas, 1989; 1995. Sport management and sport psychology.

Potter, Marjorie Bond, Professor, *Emerita,* Ph.D., University of Southern California, 1958; 1961.

Shea, Edward, Professor, *Emeritus,* Ph.D., New York University, 1955; 1954.

Stotlar, John, Associate Professor, *Emeritus,* D.P.Ed., Indiana University, 1954; 1948.

Thorpe, JoAnne Lee, Professor, *Emerita,* Ph.D., Texas Woman's University, 1964; 1958.

West, Charlotte, Professor, Ph.D., University of Wisconsin, 1969; 1957. Sports management.

Wilson, Donna, Assistant Professor, M.F.A., University of Oklahoma, 1975; 1987. Dance.

Zimmerman, Helen, Professor, *Emerita,* Ph.D., University of Wisconsin, 1951; 1952.

Graduate courses in physical education are offered toward the Master of Science in Education degree with a major in physical education.

The minimum number of hours required in physical education at the master's level is 24. The total number of hours required for the master's degree is a minimum of 30 semester hours.

Master's Degree

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

1. Fulfillment of the requirements for admission to the Graduate School.
2. Presentation of an undergraduate course in kinesiology, physiology of exercise, human anatomy, motor learning, measurement and evaluation, and at least one in educational psychology or psychology of the particular field of the student's specialty. Appeals may be made within the special program areas.
3. Graduate Record Examination (GRE) scores.
4. A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

A student may be conditionally admitted to the program and may be permitted to do graduate course work while removing undergraduate deficiencies.

Requests for transfer of credits from other institutions will be considered by the department only before the completion of the first term of enrollment.

Requirements

The following required courses common to all concentrations are PE 500, 503, and either 592 or 599. The courses are designed to provide common experiences to all students regardless of their specialization. For 599 two bound copies are deposited with the department. Two unbound copies are deposited with the Graduate School.

Courses (PE)

Courses in this department may require the purchase of supplemental materials.

407-2 Advanced Theory and Techniques in the Prevention and Rehabilitation of Athletic Injuries. The application of scientific principles to the theoretical and practical methods of preventing and treating athletic injuries. Prerequisite: Basic Athletic Training Course.

408-2 Physical Fitness: Its Role and Application in Education. An analysis of physical fitness as it relates to the total well-being of people. Specific units on the fitness parameters, hypokinetic disease and physical inactivity, stress, current level of fitness, training programs and the beneficial aspects of regular exercise. Major emphasis is placed upon incorporating current thinking on physical fitness into the development of teaching models.

409-3 Social Aspects of Sport and Physical Activity. This course presents the theoretical and empirical foundations of sport sociology. A research-based approach is used to explore the relationship of sport to various social institutions, as well as the role of social processes (e.g., socialization, discrimination, stratification, conflict) in sport and physical activity contexts.

410-3 Psychological Aspects of Sport and Physical Activity. This survey course presents the theoretical and empirical foundations of sport psychology. Operating from a conceptual rather than an applied framework, the class develops an understanding of social psychological phenomenon and processes related to participation in sport and physical activity (e.g., personality, anxiety, arousal, achievement motivation, social facilitation, aggression, pro-social behavior, group dynamics.)

412-3 Research and Practice in Applied Sport Psychology. This course examines current research and practice in applied sport psychology. Emphasis will be placed on moving from theory into practice on sport-specific individual differences, motivational approaches and interventions.

418-2 Administration of Aquatics. The study of comprehensive aquatic programs, their implementation and coordination.

420-3 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. Requires purchase of laboratory manual. Prerequisite: Physiology 209 or equivalent.

421-3 Principles of Skeletal Muscle Action. The neural, physiological and mechanical basis of skeletal muscle action and plasticity in relation to the expression of strength and power. Prerequisite: Physiology 209 or equivalent.

425-2 Current Topics in Athletic Training. This course is designed to study and discuss current issues in athletic training and the health care of the athlete.

426-2 Advanced Techniques and Research in Therapeutic Modalities. Specifically designed for the student who wishes to become an athletic trainer and gain knowledge in the application and current research in therapeutic modalities.

493-2 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. **(f)** History and philosophy. **(g)** Motor learning. **(h)** Psycho-social aspects. Written report required. Prerequisite: consent of adviser and department chair.

494-2 (1, 1) Practicum in Physical Education. Supervised practical experience at the appropriate level in selected physical education activities in conjunction with class work. Work may be in the complete administration of a tournament, field testing, individual or group work with special populations, administration of athletics or planning physical education facilities. Prerequisite: consent of adviser.

500-3 Techniques of Research. Study of research methods and critical analysis of research literature specifically applied to the areas of motor performance and exercise. Prerequisite: consent of adviser in the Department of Physical Education.

503-2 Seminar in Physical Education. Making a systematic analysis of problems and issues encountered in the conduct of physical education. Selection of a problem or issue that is a concern to physical education and suggestion of solutions.

505-2 to 6 (2 per topic) Topical Seminar in Physical Education. Students may concentrate on different topics each semester dependent upon both the interests of the students and the expertise of the graduate faculty. Prerequisite: consent of instructor.

508-2 Administration of Athletics. Designed to present a broad view of the role of athletics in its relationship to the total educational program, and to examine current practices in athletic management which operate within a framework of recommended policies and rules which govern athletics.

509-3 Administrative Theory and Practice in Physical Education. Selected administrative processes in physical education and the application of theory to the processes. The course attempts to systematize concepts, insights and propositions into a usable form, to increase the understanding of administrative problems, and to expand existing knowledge and thought about behavioral phenomena. Prerequisite: 503 for those with an administrative emphasis.

510-3 Motor Development. In-depth study of the development of gross motor skills from infancy through adolescence, the biological and environmental variables that affect motor development, and individual differences in attaining motor proficiency. In addition, selected current issues in motor development will be examined. No prerequisite.

511-3 Analysis of Human Physical Movement. Principles and procedures for qualitative analysis and the teaching of mechanical constructs for movement activities. The student completes a cinematographic analysis. Prerequisite: 303 or equivalent.

512-3 Biomechanics of Human Motion. Methods of data collecting and analyzing the biomechanics of human motion under normal and pathological conditions are covered. Students complete a biomechanical study for a one segment motion.

515-3 Body Composition and Human Physical Performance. Physical dimensions of the human body as they influence motor performance and are modified by protracted physical exercise. Prerequisite: 420 or equivalent.

517-2 Athletic and Physical Education Facilities Design, Construction, and Maintenance. Basic principles of design, construction, and maintenance of athletic and physical education facilities based upon program characteristics and potential student enrollment. Emphasis on the development of new materials and trends toward new concepts of design and construction. Prerequisite: 357 or equivalent.

520-3 Metabolic Analysis of Human Activity. Metabolic principles pertinent to human physical performance with emphasis on sport, exercise and occupational activity analysis. A detailed study of oxygen utilization, oxygen debt, mechanisms of oxygen transport as they relate to physiological homeostasis in localized and total body motor activity. Emphasis on the laboratory study of aerobic and anaerobic performance. Prerequisite: 420 or equivalent.

530-2 Research Seminar. This course provides a seminar format for discussing research in the field of physical education, with a major thrust in providing practical experiences for critiquing and disseminating research. Students will explore philosophy of science questions as they relate to the production of knowledge in physical education. A variety of knowledge generation systems will be examined. Prerequisite: 500.

555-1 to 4 Internship in Sport Management. The internship is a culminating experience directly related to the student's intended employment or area of interest. It will, therefore, normally be taken after the predominance of course work is completed. The internship may be completed in any appropriate setting as judged by the faculty associated with the area of sport management. All conditions of placement, conduct and evaluation of the internship will be under the jurisdiction of the appropriate faculty. Graded *S/U* only.

560-3 Gender and Sport: Sociological and Psychological Perspectives. (Same as Women's Studies 560). This course explores psychological and sociological dimensions underlying the concept of gender and critically examines how gender relates to sport and physical activity. Students will be introduced to non-traditional as well as traditional research that addresses the issue of gender in various physical activity contexts.

590-1 to 4 Readings in Physical Education. Supervised readings in selected subjects. Prerequisite: consent of adviser and department chair.
592-2 to 8 Research in Physical Education. Plan, conduct, and report assigned research studies. Masters students may take up to three credit hours. Doctoral students must enroll for a minimum of six credit hours. Graded *S / U* only. Prerequisite: 500 or equivalent, consent of instructor.
599-1 to 6 Thesis. Graded *S / U* Prerequisite: 500 or equivalent.
600-1 to 32 (1 to 16 per semester) Dissertation. Minimum of 24 hours to be earned for the Doctor of Philosophy degree.
601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S / U* or *DEF* only.

Physics

E-mail: physics@physics. siu.edu

COLLEGE OF SCIENCE

Ali, Naushad, Professor, Ph.D., University of Alberta, Canada, 1984; 1986.
Cutnell, John D., Professor, Ph.D., University of Wisconsin, 1967; 1968.
Gruber, Bruno J., Professor, Ph.D., University of Vienna, Austria, 1961; 1972.
Hart, Charles F., Associate Professor, Ph.D., University of Texas, 1981; 1986.
Henneberger, Walter C., Professor, *Emeritus*, Ph.D., Gottingen University, Germany, 1959; 1963.
Johnson, Kenneth W., Professor, Ph.D., Ohio State University, 1967; 1970.
Malhotra, Vivak, Professor, Ph.D., Kanpur University, India, 1978; 1984.
Malik, F. Bary, Professor, Ph.D., Gottingen University, 1958; 1980.
Masden, J. Thomas, Associate Professor, Ph.D., Purdue University, 1983; 1984.
Migone, Aldo D., Professor, Ph.D., Pennsylvania State University, 1984; 1986.
Nickell, William E., Professor, *Emeritus,* Ph.D., University of Iowa, 1954; 1963.
Sanders, Frank C., Jr., Associate Professor, Ph.D., University of Texas, 1968; 1969.
Saporoschenko, Mykola, Professor, Ph.D., Washington University, 1958; 1965.
Tao, Rongjia, Professor *and Chair,* Ph.D., Columbia University, 1982; 1989.
Watson, Richard E., Professor, *Emeritus,* Ph.D., University of Illinois, 1938; 1958.
Zitter, Robert N., Professor, Ph.D., University of Chicago, 1962; 1967.

The Department of Physics offers graduate work leading to the Master of Science degree with a major in physics. Graduate courses in physics may also be taken to satisfy teaching specialty requirements for the Master of Science in Education degree major in secondary education or in higher education.

In addition to the general requirements of the Graduate School, the student must complete PHYS 500a (or mathematics equivalent), 510, 520, and 530. Other specific requirements for the master's degrees are as follows.

Master of Science

A reading knowledge of a foreign language or demonstrated competence of computer skill is required. This requirement can be met by passing one of the Educational Testing Service's graduate foreign language examinations for the language option, or by passing FL 488 with a grade of *A* or *B,* for the language option, or by passing MATH 475a, CS 464a, or an equivalent course in numerical analysis for the computer skills option. English can be substituted for either of the above requirements at the discretion of the graduate adviser provided it is not the native language of the candidate.

A thesis is required, based upon not more than 6 nor less than 3 semester hours of 599-level credit. The 599 credit requirement is in addition to the minimum of 15-hour requirement at the 500 level as stated in this catalog and should be distributed preferably over several terms of enrollment. Each candidate for an M.S. degree is required to earn one credit in PHYS 581 by lecturing in the graduate seminar and is required to pass an examination, written or oral or both, covering graduate work including the thesis. This examination is given by the student's advisory committee.

Courses (PHYS)

410-3 Mechanics II. Gravitation, continuous media, transformation properties, Lagrangian and Hamiltonian formalisms. Prerequisite: 310 or consent of instructor.

420-3 Electricity and Magnetism II. Induced electromotive force, quasisteady currents and fields, Maxwell's equations, electromagnetic waves and radiation, with applications. Prerequisite: 320 or consent of instructor.

424-3 Digital Electronics for the Scientist. Coordinated two-hour lecture and two-hour laboratory study of digital electronics, microprocessors and minicomputers with emphasis on their application to the experimental research laboratory setting. Topics include Boolean algebra, basic digital techniques, large scale integration devices, analog to/from digital conversion, microprocessors and minicomputers and data acquisition. Prerequisite: 324 or consent of instructor.

425-3 Solid State Physics I. Structure of a crystalline solid; lattice vibrations and thermal properties; electrons in metals; band theory; electrons and holes in semiconductors; opto-electronic phenomena in solids; dielectric and magnetic properties; superconductivity. Prerequisite: 310, 320, 345 and 430 or consent of instructor.

428-3 Modern Optics and Lasers. Properties of electromagnetic waves in space and media, polarization and interference phenomena and devices, electro- and magneto-optic effects, optical gain and lasers. Prerequisite: 420 or consent of instructor.

430-3 Quantum Mechanics I. An introduction to quantum mechanics including its experimental basis and application in atomic physics. Prerequisite: 205c, 310 and 320. Prior or concurrent enrollment in 410 and 420 is desirable.

431-3 Atomic and Molecular Physics I. Atomic spectra and structure; molecular spectra and structure. Prerequisite: 430 or consent of instructor.

432-3 Nuclear Physics I. Basic nuclear properties and structure; radioactivity, nuclear excitation, and reactions, nuclear forces; fission and fusion. Prerequisite: 430 or consent of instructor.

445-3 Statistical Mechanics I. An introductory course in the principles and applications of classical and quantum statistical mechanics, and the elementary kinetic theory of matter. Prerequisite: 345.

450-1 Modern Physics Laboratory. Introduces students to experimental research and encourages them to develop and carry out experiments. Prerequisite: 205c or consent of instructor.

458-2 Laser and Optical Physics Laboratory. Properties of laser beams and resonators, fluorescence and two photon spectroscopy, diffraction, Fourier transformation and frequency filtering, electro- and magneto-optic modulation, fiber propagation and related experiments. Prerequisite: 428 or consent of instructor.

470-1 to 3 Special Projects. Each student chooses or is assigned a definite investigative project or topic. Prerequisite: 310, 320 or consent of instructor.

500-6 (3,3) Mathematical Methods in Physics. Vector spaces and operators in physics. Hilbert spaces and complete orthonormal sets of functions. Elements and applications of the theory of analytic functions. Methods for the solution of partial differential equations of physics. Prerequisite: Mathematics 407 or equivalent, consent of instructor.

510-4 Classical Mechanics. Generalized coordinates and forces. Lagrangian, Hamiltonian, and variational formulations of mechanics. Central forces, oscillations; normal modes of molecular systems. Prerequisite: 410.

520-6 (3,3) Electromagnetic Theory. Determination of static, electrostatic, and magnetostatic fields. Microscopic and macroscopic theory of insulators and conductors. Maxwell's equations; radiation, propagation and scattering of electromagnetic waves. Electrodynamics and special theory of relativity. Selected topics. Prerequisite: 420.

530-6 (3,3) Quantum Mechanics II. Basic principles; the harmonic oscillator and the hydrogen atom; scattering; approximation and perturbation methods; spin, statistics. Prerequisite: Mathematics 406 or consent of instructor; 500 desirable.

531-6 (3,3) Advanced Quantum Mechanics. Quantum theory of radiation; applications of field theory to elementary particles; covariant quantum electrodynamics; renormalization; special topics. Content varies somewhat with instructor. Prerequisite: 530 and consent.

535-6 (3,3) Atomic and Molecular Physics II. Recent experimental methods in atomic and molecular spectroscopy with applications. Detailed quantum mechanical and group theoretical treatment of atomic and molecular systems. Reactions between atomic systems. Prerequisite: consent of instructor.

545-6 (3,3) Statistical Mechanics II. Principles of classical and quantum equilibrium statistics; fluctuation phenomena; special topics in equilibrium and non-equilibrium phenomena. Prerequisite: 445.

550-3 Computational Physics. Using modern computers to solve physics problems. Integration of ordinary and partial differential equations, interpolation and extrapolation, finite element analysis, linear and nonlinear equations, eigensystems, optimization, root finding, Monte Carlo simulations, etc. Prerequisite: Mathematics 305, computer language FORTRAN or C, or consent of instructor.

560-6 (3,3) Nuclear Physics II. Fundamental properties and systematics of nuclei, scattering theory, nuclear two-body problem, nuclear models, nuclear many-body problem, electromagnetic properties of nuclei, radioactivity, nuclear reactions. Prerequisite: 530 and consent of instructor.

565-6 (3,3) Solid State Physics II. Fundamental concepts in solid state physics. Lattice vibrations, band theory of solids, the Fermi surface, dynamics of electrons. Transport, cohesive, optical, magnetic and other properties of solids. Prerequisite: consent of instructor.

570-1 to 36 Special Projects in Physics. Each student works on a definite investigative topic under the supervision of a faculty sponsor. The projects are taken from the current research in

the department. Resourcefulness and initiative are required. Graded *S/U* only. Prerequisite: consent of instructor.

571-6 (3,3) X-Ray Diffraction and Electron Microscopy. (See Mechanical Engineering 504.)

575-1 to 12 (1 to 4 per topic for a maximum of three topics) Special Topics in Physics. The courses reflect special research interests of the faculty and current developments in physics. They are offered as the need arises and interest and time permit. Students are required to give presentations. Prerequisite: consent of instructor.

581-1 to 3 (1,1,1) Graduate Seminar. Lectures on special topics by students, faculty, or invited scholars; participation is required of all graduate students. For credit each student may present a seminar in the form of a lecture on a theoretical or experimental topic, a demonstration experiment or apparatus critique. Prerequisite: lecturing experience or concurrent teaching. Graded *S/U* only.

598-1 to 50 (1 to 12 per semester) Research. Maximum credit 50 hours. Graded *S/U* only. Prerequisite: consent of instructor.

599-1 to 6 Thesis.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

699-1 Postdoctoral Research. One credit hour per semester. Concurrent enrollment in any other course is not permitted. Prerequisite: must be a Postdoctoral Fellow.

Physiology

E-mail: rfalvo@som.siu.edu

SCHOOL OF MEDICINE

Banerjee, Chandra, Professor, *Emeritus*, M.D., University of Calcutta, 1955, Ph.D., Medical College of Virginia, 1967; 1974.

Bartke, Andrzej, Professor and *Chair,* Ph.D., University of Kansas, 1965; 1984. Reproductive endocrinology; role of prolactin and growth hormone in the control of hypothalamic, pituitary and testicular function; transgenic animals, seasonal breeding.

Browning, Ronald A., Professor, Ph.D., University of Illinois Medical Center, Chicago, 1971; 1973. Pharmacology, neuropharmacology.

Collard, Michael W., Assistant Professor, Ph.D., Washington State University, 1987; 1993. Transcriptional regulation by cAMP and retinoic acid.

Coulson, L. Richard, Professor, Ph.D., University of Toronto, Canada, 1971; 1978. Cardiovascular physiology and pathophysiology, coronary circulation, myocardial metabolism.

Cox, Thomas C., Associate Professor, Ph.D., Arizona State University, 1979; 1982. Ion transport across epithelial tissue.

Dunagan, Tommy T., Professor, *Emeritus,* Ph.D., Purdue University, 1960; 1962.

Ellert, Martha, Associate Professor, Ph.D., University of Miami, 1967; 1975. Properties of sulfhydryl reagent pCMBS; effects of material hyperthermia and rubella vaccine on pregnant animals and their offspring.

Falvo, Richard E., Professor, Ph.D., University of Wyoming, 1970; 1973. Sterodial control of gonadotropin secretion and immunological approaches to the study of male reproduction.

Ferraro, James S., Assistant Professor, Ph.D., The Chicago Medical School, 1984; 1987. Physiological, behavioral, and reproductive aspects of circadian rhythmicity; photoperiodic response of seasonal breeders; endogenous nature of biological rhythms during spaceflight.

Huggenvik, Jodi I., Assistant Professor, Ph.D., Washington State University, 1985; 1993. Regulation of gene expression during spermatogenesis.

Hunter, William S., Associate Professor, Ph.D., Michigan State University, 1971; 1975. Mechanism of fever and normal thermoregulation in homeothermic animals.

Kaplan, Harold M., Professor, *Emeritus,* Ph.D., Harvard University, 1933; 1949.

Miller, Donald M., Professor, *Emeritus,* Ph.D., University of Illinois, 1965; 1966.

Murphy, Laura, Assistant Professor, Ph.D., Medical College of Georgia, 1983; 1989. Reproductive neuroendocrinology/drug abuse.

Myers, Hurley, Professor, Ph.D., University of Tennessee, 1969; 1971. Cardiovascular physiology, coronary occlusion; vascular smooth muscle hypertension.

Nequin, Lynn, Associate Professor, Ph.D., University of Illinois Medical Center, Chicago, 1970; 1976. Female reproductive physiology; environmental control of neuroendocrine systems and seasonal reproduction.

Russell, Lonnie D., Professor, Ph.D., University of Nebraska, 1974; 1977. Male reproduction system, hormonal control of spermatogenesis; Sertoli cell function; functional morphology of the testis; fertilization.

Shanahan, Michael F., Professor, Ph.D., University of Michigan, 1976; 1985. Insulin action and glucose transport across cell membranes.

Sollberger, Arne, Professor, *Emeritus,* M.D., Caroline Institute of Medicine and Dentistry, Sweden, 1957; 1972.

Steger, Richard W., Professor, Ph.D., University of Wyoming, 1974; 1985. Neuroendocrinology, gerontology, reproductive endocrinology.

Wade, David, Associate Professor, Ph.D., Cambridge University, 1967; 1974. Renal physiology, cell biology.

Yau, William M., Professor, Ph.D., Medical College of Virginia, 1971, 1973. Gastrointestinal physiology.

Graduate courses in physiology may be taken leading to the Master of Science or the Doctor of Philosophy degrees with a major in physiology. Graduate courses in physiology may also contribute to a program leading to a Master of Science degree major in biological sciences or to a teaching specialty for the Master of Science in Education degree major in secondary education or in higher education.

The Department of Physiology offers advanced training in mammalian physiology, cellular and comparative physiology, endocrinology and pharmacology, biophysics, and human anatomy. Students entering the graduate training program are advised to plan the course work so as to acquire a broad knowledge of the field before emphasizing one of these sub-disciplines. The advisory system in the department is set up to help students in planning their work. All graduate training programs in the department are subject to approval of the graduate program committee (GPC) of the department.

Each term the student must be engaged in a training assignment which supplements formal course work and will consist of research or teaching or both. The student is required to have participated in both types of activities, research and teaching, as a graduate student at SIUC as a condition for receiving a graduate degree.

Prerequisites for graduate training with a major in physiology usually include the equivalent of an undergraduate major in one of the biological sciences, plus inorganic and organic chemistry and a minimum of one year each of physics and mathematics. Students with undergraduate training in related areas, such as chemistry, physics, mathematics, computer science, psychology, or engineering are strongly encouraged to consider graduate work in physiology; deficiencies in the requirements listed above can be made up early in graduate training.

Financial Assistance

The Department of Physiology offers financial assistance to qualified applicants accepted by the department. The funds which provide this assistance come from a variety of sources which include: teaching assistantships from the department; university fellowships which are applied for directly by the student; and research assistantships from grants obtained by the graduate program faculty. Students interested in financial assistance should request the appropriate application forms from the Department of Physiology office. Priority for financial assistance will be given to individuals maintaining a good academic status.

The department will support master's students for up to 24 months and Ph.D. students for 48 months on department teaching assistantships. However, every effort will be made to encourage the student and his/her adviser to find alternative sources of funding. Continuation of support will be conditioned on satisfactory performance in areas of academics, research, and teaching. Academic performance will be based on good standing in the Graduate School (3.25 GPA) and passage of the preliminary exam by the end of the third year (Ph.D. students only). Satisfactory research performance will be based on the filing of an approved research proposal by the end of the first (master's) or second (Ph.D.) calendar year and after that time by an annual memo from the student's advisory committee indicating progress in the area of research. It will be the student's responsibility to provide this documentation to the GPC. Evaluation of teaching effectiveness will be carried out by the GPC from sources possibly but not limited to the course coordinator, student evaluations and by direct observation of classes by the GPC.

A department stipend for graduate student research will be available to physiology graduate students working in laboratories of regular physiology department faculty members provided that the student is making satisfactory progress

in their research program and remains in good academic standing (as defined above).

Research Tools

Doctoral students must acquire competence in one research tool and are encouraged to attain competence with two tools. The requirements for a research tool may be satisfied by establishing proficiency in advanced statistics, computer science, electronics, advanced mathematics, electron microscopy, foreign language (with suitability of a particular language being determined by the student's committee), or some technique which is acceptable to the student's advisory committee. Courses which are normally part of a track requirement or are highly recommended for students in a particular track cannot serve as tools for students in that track. For example, students in the anatomy track cannot use electron microscopy, and students in the physiology track cannot use biophysics.

Approval of a given tool by the student's committee will be granted only if the student has demonstrated proficiency by taking a formal course and receiving a grade (preferably *B* or better) or by passing a formal examination given by an expert in that field (preferably a faculty member in the university department where the subject is normally taught).

Master's Degree

The application and transcript(s) should be submitted to the Department of Physiology.

All applicants must submit a brief (300–600 words) typed statement of goals and ambitions indicating why they wish to do graduate work in one of the graduate program tracks and three letters of recommendation from instructors who know their potential. These letters should be written on forms supplied by the department.

The Graduate School requires an earned grade point average (GPA) of 2.70 or better (*A* = 4.0) on all undergraduate work. A minimum GPA of 3.00 (*A* = 4.0) in all undergraduate and graduate work is needed for serious consideration.

The Graduate Record Exam (GRE) is required, and the score on the general part and one advanced part (biology or chemistry) must be submitted with the application.

The graduate program committee of the department will normally examine the credentials, which include the application form, transcript(s), letters of recommendation, goal statement, and GRE scores, only after all materials have been received.

For foreign students, a minimum TOEFL score of 550 is required by the Graduate School. The Department of Physiology strongly encourages that the TSE and TWE (Test of Spoken English and Test of Written English respectively) be taken. Priority for teaching assistantships will be based upon English proficiency.

Advisory Committee

Within the first six months after arrival a student must select an adviser who will help plan course work and will direct research. One faculty member in the graduate program will act as an adviser to new graduate students until they select permanent advisers. The choice of an adviser is a very important step and should be carefully considered. The written consent of the prospective adviser must be obtained and filed in the department office in order to work under his/her direction.

The functions of the adviser are:

1. To serve as chair of the advisory committee.
2. To advise on the selection of other members of the advisory committee (at least three, including one from outside the department) in consultation

with the student and with the approval of the graduate program chairperson. members of the advisory committee should be able to contribute significantly to the area of the student's research program.

3. To direct the student's research and to provide the facilities required.

The advisory committee will be instrumental in planning the course schedule and research activities of the student throughout his/her enrollment in the department. Immediately following the selection of an adviser the names and signatures of committee members on the Graduate Faculty Committee Approval form of the Graduate School (available in the department office) must be filed with the department secretary. The completed form will then be forwarded to the Graduate School for final approval.

Total Hours Required

A total of 30 semester hours at the 400- and 500-level is required for the master's degree. Of the total hours completed, at least 21 of these must be graded (*A, B, C*) hours. At least 15 of the total 30 must be 500-level courses taken at SIUC. Of these 15, a *minimum* of 3 hours of PHSL 599 (thesis) is *required*. More than 3 hours of 599 may be taken, however only 6 may be counted toward the 500-level requirement.

Thesis

The thesis should represent a competent piece of original research carried out on a specific physiological problem under the adviser's supervision. It should include a statement of the problem, an adequate review of the literature, a careful analysis of results by whatever methods are appropriate, and an interpretation of the work and its significance. Following presentation of the thesis at a department seminar, there will be a final oral examination. The examination will cover the subject of the thesis and other matters related to the discipline.

Doctoral Program

The Graduate School requires a grade point average in previous graduate work of at least 3.25 and acceptance by the academic unit offering the Ph.D. program. See the following pages for accelerated and direct entry options.

The Graduate School requires a grade point average in previous graduate work of at least 3.25 and acceptance by the academic unit offering the Ph.D. program. See the following pages for accelerated and direct entry options.

The graduate program committee of the Department of Physiology discourages applications for graduate study leading to the doctoral degree in physiology from students who have completed both their bachelor's and master's degrees at Southern Illinois University at Carbondale.

The application and transcript(s) should be submitted to the Department of Physiology.

The Graduate Record Exam (GRE) is required, and the score on the general part and one advanced part (biology or chemistry) must be submitted with the application.

All applicants must submit a brief (300–600 words) typed statement of goals and ambitions indicating why they wish to do graduate work in one of the graduate program tracks and three letters of recommendation from instructors who know their potential. These letters should be written on forms supplied by the department.

The graduate program committee of the department will examine the credentials which include the application form, transcript(s), letters of recommendation, goal statement and GRE scores (if applicable) only after all materials have been received.

For foreign students, a minimum TOEFL score of 550 is required by the Graduate School. The Department of Physiology strongly encourages that the TSE

and TWE (Test of Spoken English and Test of Written English respectively) be taken. Priority for teaching assistantships will be based upon English proficiency.

Ph.D. Direct Entry Option

This option is presently available for admission to the Graduate School. Contact the Department of Physiology for further information regarding this option. The Department of Physiology may accept a post-baccalaureate student directly into a Ph.D. program provided that the student has:

1. A cumulative undergraduate grade point average of 3.5 ($A = 4.0$)
2. Undergraduate course work in biology, chemistry, physics, and mathematics beyond the freshman level or an outstanding score on the graduate record exam (GRE) on (a) the general part, (b) the advanced part in biology, or (c) the advanced part in chemistry, physics, or mathematics.

A student admitted to the doctoral program under this option is subject to all existing requirements for the doctoral degree including retention, residency, examinations, dissertation, and all applicable time limits. Students admitted under this option will be required to fulfill all core requirements for their track (area of emphasis). The advisory committee may add extra requirements based on the student's background and program (e.g., course work, etc.). Students who have taken one or more core courses at another accredited university may be given credit toward their core requirements if such courses are deemed equivalent to our core courses by the graduate program committee and department grade requirements are met.

Ph.D. Accelerated Entry Option

The Department of Physiology offers the Ph.D. accelerated entry option to graduate students who have made an early commitment to a doctoral degree and meet certain criteria.

At the end of at least one year of studies at the master's level, the graduate student's advisory committee will review the student's credentials in order to establish eligibility to enter the doctoral program under this option. The student's committee will then make a recommendation that the student continue in the master's program or advance to the doctoral program. In the instances of severe deficiencies in grades or evaluation, recommendation for termination may also be made.

The student's advisory committee must establish that the student is prepared and able to conduct research at the doctoral level. For example, this can be established by publications, presentations at meetings and/or seminars, and preparation and oral presentation of their research proposal.

Further, the student must have a GPA of at least 3.25 ($A = 4.0$) in graduate course work and letters of reference attesting to the student's ability and potential to perform doctoral research.

Upon approval of the student's eligibility, the adviser and/or the advisory committee will prepare a written review of the student's qualifications and submit it for approval to the graduate program committee. They will submit a recommendation to the chair of the Department of Physiology who will submit it to the Graduate School for waiver of a master's degree or master's equivalency before entry into the doctoral program.

The student will need to submit a letter from the graduate program chairperson, an application to the Graduate School (indicating Ph.D.), and the completed Notification of Accelerated Entry Option Students form of the Graduate School.

A student admitted to the doctoral program under this option is subject to all existing requirements for the Ph.D. program including retention, residency, examinations, dissertation, and all applicable time limits.

Please note that only courses taken after admission to the doctoral program will count toward residency.

Advisory Committee

After the first six months of acceptance into the doctoral program a student must select an adviser who will help plan course work and will direct research. One faculty member in the graduate program will act as an adviser to new graduate students until they select permanent advisers. The choice of an adviser is a very important step and should be carefully considered. The written consent of the prospective adviser must be obtained and filed in the department office in order to work under his/her direction.

The functions of the adviser are:

1. To serve as chair of the advisory committee.
2. To advise on the selection of other members of the advisory committee (at least four, including one from outside the department) in consultation with the student and with the approval of the graduate program chairperson. Members of the advisory committee should be able to contribute significantly to the area of the student's research program.
3. To direct the student's research and to provide the facilities required.

The advisory committee will be instrumental in planning the course schedule and research activities of the student throughout his/her enrollment in the department. Immediately following the selection of an adviser the names and signatures of committee members on the Graduate Faculty Committee Approval form of the Graduate School (available in the department office) must be filed with the department secretary. The completed form will then be forwarded to the Graduate School for final approval.

Total Hours Required

The requirements for the Ph.D. degree are these established by the Graduate School, the Guide to Graduate Studies and the student's advisory committee. The Graduate School requires 24 semester hours prior to candidacy and 24 semester hours of dissertation credit.

Preliminary Examination

After satisfactory completion of course work, students must pass a comprehensive examination (both written and oral). The examination will cover the areas of cell physiology, muscle physiology, endocrinology, cardiovascular physiology, respiratory physiology, gastrointestinal physiology, renal physiology, neurophysiology, reproductive physiology, biochemistry, and the student's research area.

The preliminary examination will be taken the first available August test date after completion of the second year of study. The August examination will be given the first full week following the completion of the summer session. Students who fail to pass the August test will be required to retake the examination in January.

The written examination will be taken prior to the oral examination. The oral examination must be taken within 30 calendar days of successful completion of the written examination. The student's committee is encouraged to meet with the student prior to the written preliminary examination to determine whether the student is prepared.

Dissertation

The dissertation is expected to be a competent piece of original research making an addition to the body to scientific knowledge. As such it should be of sufficient quality to merit publication in a peer-reviewed journal. The topic and substance of the dissertation must be approved by the student's committee. Following successful presentation and defense of the dissertation at a department seminar,

there will be a final oral examination. The examination will cover the subject of the dissertation and other matters related to the discipline.

Courses (PHSL)

400-6 (3,3) Concepts in Anatomy. A detailed survey of human anatomy for preprofessional students with an interest in the biomedical disciplines, including radiographic, cross-sectional and developmental anatomy. Three lectures per week. Should be taken in a,b sequence. Prerequisite: 301 and senior standing or consent of instructor.

401-6 (3,3) Advanced Human Anatomy Laboratory. Laboratory dissection of the human body (six hours per week). Primarily for students majoring in physiology or other biological sciences, anthropology, etc. Prerequisite: 400 taken concurrently or prior enrollment in 401.

410-10 (5,5) Mammalian Physiology. Physical and chemical organization and function in mammals, with emphasis on the human. Physiology of blood and circulation, respiration, digestion, metabolism, excretion, endocrines, sensory organs, nervous system, muscle and reproduction. Primary course for all students majoring in physiology or related sciences. Four lectures and one three-hour laboratory session per week. May be taken in any sequence. Prerequisite: college level chemistry and physics and at least junior standing.

420-6 (3,3) Principles of Pharmacology. (a) Covers absorption, distribution, and metabolism of drugs and the action of certain drug classes on the living organism. Classes of drugs to be discussed include drugs affecting the autonomic nervous system, drugs used to treat neurological and psychiatric disorders, local anesthetics, neuromuscular blocking agents, and analgesics. Two lectures per week and one two-hour laboratory. Prerequisite: 310 or 410; 410 may be taken concurrently; organic chemistry. Some knowledge of biochemistry is needed. **(b)** Involves a discussion of the physiological and biochemical action of various classes of drugs. Classes of drugs to be discussed include general anesthetics, antihistaminics, diuretics, antibiotics, drugs used to treat cardiovascular disorders and drugs affecting the endocrine system. Prerequisite: 420a; 310 or 410; organic chemistry.

430-4 (2,2) Cellular Physiology. The nature and mechanisms of function of the living cell. Chemical and physical analysis of function at the cellular level. Two lectures per week. Prerequisite: organic chemistry.

433-6 (3,3) Comparative Physiology. Variations of physiological processes in animal phyla, and comparison of these with human physiology. **(a)** Osmotic and ionic regulation; digestion, nutrition, and metabolism; excretion; respiration; defense and resistance. **(b)** Muscles and movement; circulation; nervous systems and sensory information; coverings and support; endocrine regulation; reproduction. Three lectures per week. Prerequisite: one year of biological science.

440-6 (3,3) Biophysics. (a) Biomathematics, biomechanics and biotransport. **(b)** Bioelectrics and bio-optics applied to physiological problems. Three lectures per week. Prerequisite: Mathematics 141 or equivalent; one year of college biological science including Physiology 310 or its equivalent; one year of college physics. May be taken in b,a sequence with consent of instructor.

460-2 Electron Microscopy. Lecture course designed to introduce the student to the theory and principles of electron microscopy. Two lecture hours per week. Prerequisite: senior standing or permission of instructor.

462-3 Biomedical Instrumentation. (Same as Electrical Engineering 462.) Diagnostic and therapeutic modalities related to engineering. Cardiovascular, neural, sensory and respiratory instrumentation. Prerequisite: consent of instructor.

470-3 Biological Clocks. Study of the temporal aspects of diverse physiological and behavioral functions which possess diurnal and sectional periodicity. Species covered will include many eukaryotic organisms including plants, but will mainly stress mammals. Oscillations in sleep-wake cycle, locomotion, reproduction, hormonal secretion and numerous other processes will be explored. In addition, the effects of biological clocks in humans and the effect of jet lag and depression will be examined. Prerequisite: 310.

500-1 to 6 (1 per semester) Advanced Seminar in Physiology. Presentation of research and current literature in physiology. Required of all graduate students in physiology. Graded *S / U* only.

501-1 Presentation of Physiological Data. Students learn to prepare and deliver oral presentations of experimental findings in physiology, to organize the talk, prepare slides, and communicate effectively. Graded *S / U* only.

510-2 Experimental Methods in Physiology. The main objectives of this course are to acquaint the student with modern laboratory equipment and principles of physiological experimentation. Prerequisite: consent of instructor.

530-3 Advanced Cellular Physiology. An advanced discussion of the following topics as they relate to the cell; release of energy, contractility, regulation and control of metabolism, electrical excitability, membrane transportation, water and organelles. Prerequisite: consent of instructor.

531-2 Advanced Cellular Physiology Laboratory. One one-hour lecture and one three-hour laboratory per week, designed to be taken concurrently with 530. Basic experimental procedures used in studies in cellular physiology.

533-4 Advanced Comparative Physiology. Advanced concepts and techniques used in current studies in comparative physiology. Three lectures and one discussion period per week.

540-3 Advanced Biophysics. Survey of recent biophysical research with emphasis on historical development of current advances. Three lectures per week. Prerequisite: 440 or its equivalent.

570-3 Advanced Physiological Topics. Studies of current research and literature in various topic areas of physiology. One or more of the following list of topic sections will be offered each semester, so that each section will be available once every two or three years. **(a)** Biological structure, **(b)** Cardiovascular physiology, **(c)** Respiratory physiology, **(d)** Nerve-muscle physiology, **(e)** Metabo-

lism, **(f)** Gastrointestinal physiology, **(g)** Neurophysiology, **(h)** Radiation physiology, **(i)** Environmental physiology, **(j)** Biomathematics, **(k)** Biomedical computing, **(l)** Endocrinology, **(m)** Animal care, **(n)** Biophysics, **(o)** Pharmacology, **(p)** Special topics, **(q)** Reproductive physiology, **(r)** Renal physiology.

571-3 Research and Problems in Biological Transmission Electron Microscopy (TEM). Laboratory course designed to provide experience in techniques for biological electron microscopy. Student, with the aid of the instructor, designs and carries out a project in transmission electron microscopy. Two three-hour laboratories per week. Prerequisite: 460 or special permission of instructor.

574-3 Neuropharmacology. (Same as Pharmacology 574.) A detailed examination of the biochemical aspects of neuropharmacology with emphasis on neurotransmitters—their synthesis, storage, release and metabolism in the central and peripheral nervous system. Considerable emphasis is placed on major research developments (both past and present) that influence how one studies the action of drugs on the nervous system. Prerequisite: 410, and Chemistry 450, or equivalent.

575-3 Neuroendocrinology. Designed to investigate and discuss the current research and historical aspects of the field of neuroendocrinology. In addition, designed to have students examine and evaluate current literature in the field and through discussion have them present their analysis of the research. One hour of lecture, one hour of discussion of textual material, one hour of multiple reports on library research. Prerequisite: 410a, b or equivalent, or an undergraduate/graduate endocrinology course, or consent of instructor.

590-1 to 4 Readings or Research in Current Physiological Topics. By special arrangement with the instructor with whom the student wishes to work. Graded *S/U* only.

598-1 to 48 (1 to 12 per semester) Research. The credit hours selected for this course registration will be determined by the major professor of the student. In a typical semester no more than six hours will be taken by a student except under special circumstances. Graded *S/U* only. Prerequisite: consent of instructor.

599-1 to 6 Thesis Research. Research for thesis for master's degree.

600-1 to 32 (1 to 16 per semester) Dissertation Research. Research for dissertation for Ph.D. degree.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Plant Biology

E-mail: plant-biology@plant.siu.edu

COLLEGE OF SCIENCE

Ashby, William C., Professor, *Emeritus,* Ph.D., University of Chicago, 1950, 1960.

Bozzola, John J., Professor and *Director*, SIU Center for Electron Microscopy, Ph.D., Southern Illinois University at Carbondale, 1975; 1983. Electron microscopy; cytology; microbiology.

Crandall-Stotler, Barbara, Professor, Ph.D., University of Cincinnati, 1968; 1970. Developmental and experimental morphology; ultrastructure; phylogenesis; bryology.

Fralish, James S., Associate Professor, Ph.D., University of Wisconsin, 1970; 1969. Plant and forest community ecology; forest soil; fire ecology, presettlement vegetation.

Gibson, David J., Associate Professor, Ph.D., University of Wales, 1984; 1992. Plant population and community ecology, grassland and dune ecology, multivariate methods.

Klubeck, Brian P., Professor, Ph.D., Utah State University, 1977; 1978. Soil microbiology and biochemistry; microbial ecology.

Lightfoot, David A., Assistant Professor, (Department of Plant and Soil Science), Ph.D., University of Leeds, 1985; 1991. Biotechnology (molecular); nitrogen assimilation; genetics and development.

Matten, Lawrence C., Professor and *Chair*, Ph.D., Cornell University, 1965; 1965. Paleobotany; Devonian-Mississippian plants; evolution of ferns, progymnosperms, and gymnosperms; early seeds; hypercard programs.

Middleton, Beth A., Associate Professor, Ph.D., Iowa State University, 1989; 1990. Wetland ecology; tropical ecology; herbivory; landscape ecology.

Mohlenbrock, Robert H., Distinguished Professor, *Emeritus,* Ph.D., Washington University, 1957; 1957.

Newsom, Lee A., Assistant Professor, Ph.D., University of Florida, 1993; 1993. Wood anatomy; palaeoethnobotany; plant domestication; tropical ecology; horticulture; natural forest management.

Nickrent, Daniel L., Associate Professor, Ph.D., Miami University (Ohio), 1984; 1990. Plant systematics and molecular evolution; biology of parasitic flowering plants.

Olah, Ladislao V., Professor, *Emeritus,* Ph.D., Stephen Tisza University, Hungary, 1934; 1959.

Pappelis, Aristotel J., Professor, Ph.D., Iowa State University, 1957; 1960. Plant physiology; quantitative interference microscopy; quantitative cytochemistry and cytofluorescence; physiology of parasitism; cellular senescene; mutagenesis (radon; agricultural chemicals).

Preece, John E., Professor, Ph.D., University of Minnesota, 1980; 1980. Woody plant biotechnology including tissue culture; genetic transformation; DNA polymorphism; biofuels.

Richardson, John A., Associate Professor, M.F.A., Ohio University, 1969; 1969. Botanical photography.

Robertson, Philip A., Professor, Ph.D., Colorado State University, 1968; 1970. Plant community ecology; dendrochronology, fire ecology.

Schmid, Walter E., Professor, Ph.D., University of Wisconsin, 1961; 1962. Plant physiology; absorption and translocation of micronutrient elements; physiology of tachyplants.

Stotler, Raymond E., Professor, Ph.D., University of Cincinnati, 1968; 1969. Bryology; systematics; botanical documentation.

Sundberg, Walter J., Professor, Ph.D., University of California at Davis, 1971; 1972. Mycology; cytology; systematics, ecology, and ultrastructure of fungi with emphasis on Basidiomycetes.

Tindall, Donald R., Professor, Ph.D., University of Louisville, 1966; 1966. Freshwater and marine phycology; algal development under natural and controlled conditions; aquatic ecology; algal toxins; natural products from algae.

Ugent, Donald, Professor, Ph.D., University of Wisconsin, 1966; 1968. Ethnobotany; taxonomy; biosystematics; phytogeography.

Verduin, Jacob, Professor, *Emeritus,* Ph.D., Iowa State University, 1947; 1964.

Yopp, John H., Professor, Ph.D., University of Louisville, 1969; 1970. Plant physiology; developmental plant physiology; environmental regulation of metabolic pathways.

Associate Faculty in Doctoral Program

Aubertin, R.	Forestry
Chong, S-K.	Plant and Soil Science
Gibson, P.	Plant and Soil Science
Kapusta, G.	Plant and Soil Science
Myers, O.	Plant and Soil Science
Olsen, F.	Plant and Soil Science
Roth, P.	Forestry
Stucky, D.J.	Plant and Soil Science
Taylor, B.H.	Plant and Soil Science
Tweedy, J.A.	Plant and Soil Science
Van Sambeek, J.	U.S. Forest Service
Varsa, E.C.	Plant and Soil Science

The Department of Plant Biology offers a well-balanced graduate program leading to the degrees of Master of Science, Master of Science in biological sciences, Master of Science in Education in biological sciences, and the Doctor of Philosophy.

The areas of emphasis are those of the broadly diversified faculty which characterizes the department and faculty members of other departments who participate in joint programs. All areas of plant biology are represented. The departmental master's programs and the doctoral program are based on a combination of course work and research. An advisory committee of faculty members from plant biology and other selected departments is responsible for the degree program of the individual student. At some stage in their overall programs, all students granted a degree will have completed training equivalent to one or more courses in each of six areas of plant biology (morphology, anatomy, taxonomy, genetics, plant physiology, and ecology).

The Department of Plant Biology is housed in modern facilities in the Life Science II building. Each faculty member provides laboratory facilities for the students as part of the research program, and the department provides centralized facilities, including a growth chamber suite, herbarium, greenhouse complex, and field stations. Several University-owned field station facilities are located in southern Illinois, and University-affiliated field programs are carried out in the British Virgin Islands. Excellent cooperative research arrangements are available with other departments for such activities as electron microscopy, chemical analyses, and research photography.

A distinguishing feature of the Department of Plant Biology is its congenial atmosphere. Individuals are encouraged to develop their own programs and research activities within the scope of available resources or those which can reasonably be attained. The first master's degree was granted in 1948, and the first Ph.D. degree in 1965. All areas of plant biology have been represented in the course of the department's history, with some shifts in emphasis according to both changing interests within the scientific disciplines and changes in the faculty and student population.

Graduate degrees in plant biology will be awarded to students in recognition of their ability to do independent research as evidenced by the acceptance of a thesis or dissertation and by the demonstration of competent scholastic ability. Teaching experience in undergraduate courses is expected as part of the Ph.D. degree program.

Admission

Students must be admitted to the Graduate School before they can be considered by the department. All applications to the department must include three letters of recommendation, application form, GRE scores including verbal, quantitative, and advanced biological, and may include a financial assistance form. Criteria for admission include grade point average, letters of recommendation, and availability of faculty, space, and facilities.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Applicants must have completed a course (or equivalent) in each of the following areas (these may be completed concurrently with work toward the degree): (a) general botany, (b) plant diversity (survey of the plant kingdom), (c) plant physiology, (d) plant taxonomy, (e) ecology, (f) genetics, (g) additional requirements for the B.A. degree as specified by the College of Science in the current Undergraduate Catalog of SIUC.

A student deficient in three or fewer of these areas (a through g) must be admitted with conditional standing. A student admitted with conditional standing must make up all deficiencies within the first academic year, and until such deficiencies are completed, no more than ten academic units can be accrued toward the degree. Students lacking four or more of these areas must register as unclassified.

All deficiencies must be made up through the taking of pertinent undergraduate or graduate courses for credit with a grade of *B* or better in each.

Students desiring financial assistance should note that the deadlines for fellowship and assistantship applications are February 1 and March 1, respectively. Application forms are available from the director of graduate studies in the Department of Plant Biology.

Accelerated Entry into the Doctoral Program

A student who enters a master's program in plant biology may, if deemed capable, be permitted to apply to be accelerated into a program leading directly to a Ph.D. degree subject to the following conditions and specifications. In order to qualify for consideration, each endorsed student must: (a) have been in the SIUC plant biology graduate program no less than one academic term when proposed, (b) have a graduate grade point average of 3.75 or better, (c) have no grade (in any course, conditional or otherwise) in the graduate record of less than *B* and (d) be deemed by the graduate faculty as having superior capabilities.

Once advanced into the doctoral program by the Graduate School, the student shall be eligible to qualify for graduate assistance totaling no more than 48 months. Once in the doctoral program, the student is subject to all of the academic, retention, and exit requirements for a regular doctoral program.

If for any reason, a student who has been admitted into the accelerated entry program fails to complete the doctoral program successfully that student shall not automatically be re-admitted into the master's program, Instead, the student may (if so desired) make formal application for admission into the master's program in plant biology subject to all considerations of qualification and evaluation.

Direct Entry into Ph.D. Degree Program

Exceptional students with a baccalaureate degree may be admitted directly to the doctoral degree program. Students admitted under this direct entry option will be expected to meet all the normal requirements of the doctoral degree, take any additional course work that may be required, and will take a comprehen-

sive/diagnostic examination during their first year in the program. The student shall be eligible to qualify for graduate assistance totaling no more than 60 months. In the event of failure of the comprehensive/diagnostic examination, the student can opt to enter the master's degree program.

Advisement

Following admission to the department and before registration for course work, the student must consult a staff member representing the field of major interest or, if this is unknown, the director of graduate studies of the department, for assistance in planning first registration. At every registration, deficiencies and specific departmental requirements must be considered first. Any changes in registration must be approved by the student's adviser.

Within the first six months of admission into the departmental program, the student must select a faculty member who is willing to serve as the major adviser. The major adviser in consultation with the student, the director of graduate studies, and the departmental executive officer will then select an advisory committee with the major adviser as chair. For the master's degree program, a minimum of three people shall make up the advisory committee. At least half of the committee must be comprised of voting members of the plant biology faculty. The advisory committee for the Ph.D. degree program will be composed of at least five people, three of which must be voting members of the plant biology faculty and one which must be from outside the department.

Following establishment of the advisory committee and before advance registration for the third term, the student will meet with the committee to discuss the program of courses for the degree and plans for research. In this regard, the committee is empowered to require work in fields with which the student's interests are allied. The advisory committee will advise the student on the selection of readings on general and historical topics of importance which may not be encountered in formal courses. Copies of the approved program of courses and the plans for research must be placed in the departmental files.

Research and Training Assignments. Research is required of each student in the program. In addition, each term the student must be engaged in a training assignment which supplements formal course work by professional activities such as research or teaching. The assignment varies according to the needs, professional goals, and competencies of the student, and increases in responsibility as the student progresses. The assignments require from ten to twenty hours of service per week.

Academic Retention

The general regulations of the Graduate School with respect to academic retention shall be followed. In addition, no course in which the grade is below *C* shall count toward the degree or fulfillment of any requirement, but the grade will be included in the grade point average. No more than five hours of *C* work in graduate courses will count toward the degree.

All students are subject to regular review by the department's graduate policies committee. Those not attaining the minimum acceptable academic standards or who in any way fail to meet any other scheduled requirements or standards will be dropped as majors.

Course Requirements

All master's degree students must earn a minimum of 2 hours credit in plant biology seminars (PLB 580 or PLB 589), at least 1 of which must be in general seminar (PLB 580). All Ph.D. students must earn 2 hours credit in plant biology seminar (PLB 580 or PLB 589) every year of residence until admitted to candidacy and at least 1 credit each year must be in general seminar (PLB 580). The

general seminar (PLB 580) will be offered once each year and all students are required to enroll in this course (the only exception will be doctoral students who are admitted to candidacy). It is strongly recommended that the student enroll in seminars dealing with subjects other than the general area of emphasis being pursued.

Those students who have not already taken a course in plant anatomy must include PLB 400-4 Plant Anatomy in their graduate degree program.

Appeals

Appeals for variations from the departmental graduate program must be presented in writing to the plant biology graduate faculty meeting as a committee of the whole. Appeals must receive approval from a majority of the total plant biology graduate faculty.

Appeals for changes in the student's graduate advisory committee or changes in the original program must be approved in the following order: (1) approval from adviser, (2) approval from remaining members of the student's advisory committee.

Student appeals for change of major adviser must be presented in writing to the plant biology graduate faculty meeting as a committee of the whole. Appeals must receive approval from a majority of the total plant biology graduate faculty.

The Master's Degree

A minimum of 30 hours of graduate credit is required beyond the bachelor's degree, including no less than 22 hours of plant biology courses, 9 of which may be individualized instruction courses, including up to 3 (minimum of 2) hours of seminar, and up to 6 (minimum of 3) hours of thesis. A graduate minor of at least 10 graduate hours may or may not be required; this is to be determined by the student and the advisory committee. At the time of completion of the thesis, the student must schedule a public presentation of the thesis material (this is in addition to the comprehensive examination).

The Ph.D. Degree

Courses. The major shall consist of a minimum of 20 semester hours at the 400 and 500 levels in formal plant biology or related courses beyond the master's degree but excludes seminar, readings, research, dissertation, and research tool requirements. The student's program must be approved by the student's advisory committee and the chair, and submitted to the director of graduate studies within the first semester of the student's program. Changes made after the first semester of the student's program must be approved by a majority of the plant biology graduate faculty.

The decision as to whether a minor shall or shall not be required shall be left to the student's advisory committee. If the committee requires a minor, it will determine the specifications of that minor.

The student shall demonstrate knowledge in two tools, one of which must be a language or statistics. A tool is defined as training in laboratory methods, instrumentation, technology, and communication skills that are integral to the pursuance of research. If a foreign language is used as a tool, the requirement may be met by passing an Educational Testing Service examination or by earning a grade of *B* or better in the appropriate 488 course or equivalent. The ETS passing level for French and German shall be 465 and the ETS passing level for Russian and Spanish shall be 440. Proficiency in statistics will be met by earning a grade of *B* or better in at least two courses totalling a minimum of six hours. Both a language and statistics will satisfy the tool requirements. However, if the student selects only a language or statistics, the remaining tool must be selected from the current list approved by the plant biology faculty. A re-

search tool to be substituted for one language or statistics must be completed utilizing formal courses consisting of at least two terms (at least 6 hours) with an average grade of *B* or better. Courses used to satisfy the requirement shall not be applied toward the total number of hours required for the degree.

Preliminary Examination. The student's advisory committee, plus two additional faculty members appointed by the chair, shall serve as the preliminary examination committee. The preliminary examination committee will be responsible for preparing, administering, and evaluating the examination which will be both written and oral.

The written examination will be taken first and will cover the candidate's knowledge of plant biology and related fields and their history, the student's accomplishments in the course of study outlined, and the student's progress in the special field. Prior to taking the examination, the student must have taken, sometime in her/his training, a second level course in each of the subdisciplines listed for the General Examination (ecology, physiology, anatomy/morphology, systematics, and genetics/cell biology). The candidates will be expected to show an understanding of the application of their formal work to their field of research. The written examination will consist of three parts: the Speciality examination which will include questions in the student's field of interest, the General Examination which will include questions testing basic knowledge in all subdisciplines in plant biology, and the Minor examination which will include questions in the student's outside minor field or secondary concentration within plant biology. The General Examination should encompass concepts and information at a level and depth consistent with the department's non-elective requirements for a bachelor's degree in plant biology. The entire written examination is to last no longer than five days and each part is to last no longer than eight hours.

The student must pass all parts of the written to proceed to the oral examination. Pass means sufficient information is evident to permit the student to proceed to the oral part of the examination. A vote to pass or fail must be taken immediately following the grading of the written examination. To pass the written examination, the vote of the preliminary examination committee will determine (by majority vote) whether the student will be allowed to continue in the program or whether the student will be required to retake part or all of the written examination. If a student fails any (subdiscipline) of the general examination, she/he must be reexamined on the failed portion. If the student fails more than one portion of the general examination, retesting on all failed portions must be taken concurrently. A student will be allowed only two attempts to pass the written examination or any part thereof. A part is defined as the 1) Specialty examination, 2) Minor Examination, and 3) the General Examination. In any event, the student must pass the written examination by the second attempt in order to continue in the doctoral program. Upon failing the written (or any part thereof), the student may not retake the exam during the same academic term.

The oral examination will be taken no sooner than ten days nor later than thirty days following the passing of the written examination. The preliminary examination should be announced at least 10 working days before the examination is to be given. The examination may only be scheduled when classes are in session, including finals week. The examination shall last at least two hours and no more than four hours and should be scheduled to allow attendance of a maximum number of the plant biology graduate faculty and all of the preliminary examination committee members. The student's answers to the written examination will be made available to the graduate faculty in plant biology (upon request) before the oral part of the preliminary examination. All attending graduate faculty members will be given the opportunity to express their opinion on the examination. A vote on performance in the oral examination must be taken im-

mediately following completion of the examination. A vote to pass must be by unanimous vote of the preliminary examination committee and may have conditions. If the vote is pass, then two levels of pass may be recognized: Pass and Pass with Distinction. A student will be allowed two attempts to pass the oral preliminary examination. Doctoral students entering the program with a master's degree must pass the preliminary examination and be admitted to candidacy by the end of 36 calendar months after first registering in the doctoral program.

Final Examination (Dissertation Defense). The final examination will be oral. The advisory committee must notify the departmental director of graduate studies of its recommendation for the date of the final examination at least two weeks before the examination. The final examination should be announced at least 10 working days before the examination is to be given and it must be held at least one month before graduation. The examination may only be scheduled when classes are in session, including finals week. The final examination shall last for no more than three hours. It is to cover the dissertation and related subject matter. Passage of the final oral examination should be construed to mean that there be no more than one dissenting vote of the advisory committee. Should a student fail this second attempt to pass the final examination, he/she will be dropped from the program.

Courses (PLB)

For all field courses in plant biology, students will be assessed a transportation fee. In addition, certain courses may require the purchase of additional materials and supplies, generally $1 to $5 in total cost.

400-4 Plant Anatomy. An introduction to cell division, development, and maturation of the structures of the vascular plants. Laboratory. Prerequisite: Biology 200b or consent of instructor.

404-4 The Algae. A phylogenetic approach to the study of algae with emphasis on comparative cytology, morphology and ecology. Laboratories include a detailed survey of freshwater algae and a general treatment of representative marine forms. Two lectures and two two-hour laboratories per week. Prerequisite: 204 or consent of instructor.

405-4 The Fungi. A survey of the fungi — their structure, development, relationships, ecological roles and economic importance. Two lectures and two laboratories. Prerequisite: 204 or equivalent.

406-3 Bryology. Structure, development, and relationships of the liverworts, hornworts and mosses. Two lectures and one laboratory per week. Prerequisite: 204 or equivalent.

409-3 Field Mycology. The taxonomy, ecology, and distribution of fungi in southern Illinois and environs with emphasis on techniques of specimen collection, preservation, identification and recognition. Prerequisite: Biology 200b; 204 recommended.

410-3 Taxonomy and Ecology of Bryophytes and Lichens. Floristic studies of the moss, liverwort, hornwort and lichen communities of southern Illinois. Prerequisite: Biology 200b or equivalent or consent of instructor.

414-3 Paleobotany. (Same as Geology 414) The study of external form, internal structure, and relationships of plant fossils. Two lectures and one laboratory per week. Prerequisite: 204; 400 recommended.

415-5 Morphology of Vascular Plants. The study of external form, internal structure and relationships of vascular plants. Three lectures and two laboratories per week. Prerequisite: 204. Recommended 400.

416-3 Limnology. (Same as Zoology 415) Lakes and inland waters; the organisms living in them, and the factors affecting these organisms. Two lectures per week and one four-hour laboratory alternate weeks. Offered Fall term. Prerequisite: 220a.

421-4 Botanical Microtechnique. Introduction to practical methods of preservation and preparation of plant materials for laboratory and microscopic study. Paraffin and plastic embedding and sectioning techniques, and use of general and histochemical stains stressed. Includes chromosome squashing, whole-mount preparation, photomicrography and other techniques. One lecture and three laboratories per week. Prerequisite: Biology 200b or equivalent.

425A-5 Advanced Plant Physiology. (Same as Plant and Soil Science 425a) Intermediary plant metabolism. Characterization of the photosynthetic and metabolic pathways of biosynthesis and degradation of organic constituents; role of environmental regulants of plant metabolism. Prerequisite: 320 and consent of instructor.

425B-5 Advanced Plant Physiology. Physics of plants; membrane phenomena; water relations; mineral nutrition. Prerequisite: 320 and consent of instructor.

430-3 Economic Botany. Classification, evolution, domestication, and botanical characteristics of plants useful to people. Every year. Prerequisite: Biology 200b or equivalent.

433-4 Introduction to Agricultural Biotechnology. (Same as Plant and Soil Science 433) This course will cover the basic principles of plant and animal biotechnology using current examples; gene mapping in breeding, transgenic approaches to improve crop plants and transgenic approaches to improve animals will be considered. Technology transfer from laboratory to marketplace will be considered. An understanding of gene mapping, cloning, transfer and expression will be derived. Prerequisite: senior standing or consent of instructor.

439-2 Natural Areas and Rare and Endangered Species. Evaluation of the natural area preservation concept with emphasis on how to detect natural areas and methods to preserve them. Emphasis on the rare and endangered species program, its significance and its methodology. Prerequisite: 304, Biology 307.

440-3 Grassland Ecology. A study of grassland structure and function in relation to various biotic and abiotic factors. Cost of field trips: $5, and textbooks must be incurred by the student. Prerequisite: 304 and Biology 307 or equivalent.

443-4 Forest Ecology and Reclamation. Soil, climatic, and genetic factors affecting tree distribution and growth in disturbed and natural habitats. Saturday field trips. Prerequisite: 307 or equivalent.

444-4 Quantitative Plant Ecology. Includes concepts and methods pertaining to the analysis of ecological data. Approaches will include quantitative methods for classifying, ordinating and describing structure of communities. Laboratory will include the computer application of these concepts and methods to field situations. Prerequisite: 360, Biology 307, or consent of instructor.

445-4 Wetland Plant Ecology. Provides students with experience in wetland plant ecology with an emphasis on wetland functioning, field sampling and identification of common wetland plants. Travel fee for field trips: $10. Prerequisite: 304, Biology 200b, 307, or consent of instructor.

447-2 to 6 Field Studies in Latin America. Two to six weeks of intensive field work to acquaint students with the flora and vegetation in various environments of Latin America and with ecological and taxonomic field techniques. Cost varies with type of study and location. Transportation cost: $80. Prerequisite: advanced standing in one of the biological sciences and consent of instructor.

448-3 to 8 Field Studies in the Western United States. Three to six weeks of intensive field work designed to acquaint students with the flora, vegetation and environments of the Rocky Mountains and adjacent areas. Both ecological and taxonomic field methods are emphasized. Transportation cost: $100, travel expenses and textbooks must be incurred by the student. Prerequisite: 304, Biology 307 or equivalents, and consent of instructor.

449-4 Plant Systematics and Evolution. The principles of modern plant systematics including classification methods at different taxonomic levels, data analysis, speciation and isolating mechanisms, basic population genetics and the use of morphological, anatomical and molecular characters in assessing plant evolutionary relationships. Prerequisite: 304 or equivalent or consent of instructor.

450-2 Plant Geography. World distribution of plants related to environmental, floristic and historical factors. Prerequisite: interest in biology.

451-4 Flora of Southern Illinois. Exposure to the major upland and lowland communities of southern Illinois with an emphasis on the identification, distribution and ecology of the natural and introduced floristic components. Prerequisite: 304 or consent of instructor.

456-2 Advanced Plant Pathology. A study of the changes occurring in host and pathogen at the host-parasite interface before, during, and after penetration. Control measures will be discussed and emphasis will be on midwest field crops. Two lectures per week. Prerequisite: 356 or consent of instructor.

475-3 Advanced Cell Biology. (Same as Zoology 475.) Cell structure at molecular and cytological levels. Includes discussions of research methods, plasma membrane, cell exterior and recognition, the endomembrane system and related organelles, self-replicating organelles, the cytoskeleton, nuclear structure and function in cell replication, cell differentiation and response, and eukaryotic cell evolution. Prerequisite: Biology 306 or equivalent.

476-2 Advanced Cell Biology Laboratory. (Same as Zoology 476.) Laboratory course to accompany Plant Biology 475. Light and electron microscopy, cell culturing, biochemical methods, and experimental protocols are used to study the structure of cell membranes, intracellular organelles, including the Golgi apparatus, ER, mitochondria, plastids, lysosomes, the cytoskeleton and nucleus. Prerequisite: 475 or concurrent enrollment.

485-2 Botanical Literature. A survey of the major classical and modern writings in the botanical sciences. This includes a consideration of the primary subdivisions; systematics, structure, physiology, genetics and ecology. In addition, periodicals will be treated. Prerequisite: consent of instructor.

490-3 Photographic Methods in Scientific and Biological Photography. Black and white and color. Specimen photography, macrophotography. Slides for presentation, materials and methods used in scientific publications. Prerequisite: consent of instructor.

491-3 Scientific Illustration. Materials and methods used in illustrating scientific publications including two-dimensional graphs, maps, lettering and line drawings. Three dimensional techniques will also be covered. Prerequisite: consent of instructor.

500-3 Advanced Plant Anatomy. The study of advanced topics in the anatomy of seed plants. Emphasis is on trends in and adaptive nature of evolutionary modifications of anatomical features and the application of anatomical data to plant systematics. Two lectures and one laboratory per week. Prerequisite: 400 and 421 or equivalent.

501-4 (2,2) Research Transmission Electron Microscopy. (See Science 501a,b.)

502-4 (2,2) Research Scanning Electron Microscopy. (See Science 502a,b.)

504-3 Molecular Evolution and Systematics. (Same as Zoology 500) Survey of the theory and

processes of organic evolution at the level of protein and DNA in animals. Quantitative analysis of empirical genetic information; methods of phylogenetic inference from molecular data. Three lectures per week. Prerequisite: Zoology 404 or equivalent.

510-3 Techniques in Molecular Evolution and Systematics. Experience with current molecular techniques being employed to obtain data in systematic and evolutionary biology, specifically those dealing with macromolecules (isozymes and nucleic acids), plus exposure to phenetic and cladistic analysis of molecular data. Prerequisite: 449 or equivalent or consent of instructor.

524-2 Advanced Plant Genetics. A consideration of incompatibility systems, paramutation, cytoplasmic inheritance, developmental genetics, and other genetic topics as they occur in higher plants. Prerequisite: Biology 305 or equivalent.

525-2 to 16 (2 to 4, 2 to 4, 2 to 4, 2 to 4) Cell Biology Research Techniques. A special techniques course designed for graduate students specializing in cell studies. Provides instrumentation training, with emphasis on application of the method to a research project. **(a)** Quantitative Cytology. **(b)** Immuno-Labelling and Qualitative Histochemistry. **(c)** Deep Etching Techniques in Electron Microscopy. **(d)** Cell Fractionation and Biochemical Techniques.

526-4 Cytogenetics. A study of structure, transmission, and mutation of nuclear and cytoplasmic genetic elements, with emphasis on the utilization of structural changes in chromosomes and of changes in chromosome number in theoretical and applied genetics. Two lectures and two laboratories per week. Prerequisite: Biology 305 and 306, or equivalent.

532-3 Embryogenesis and Organography of Plants. A study of the developmental anatomy and comparative morphology of embryophytes, with emphasis on analysis of homologous versus analogous structure. In particular, the following aspects of organ development will be considered: embryological origin, cellular pattern of formation, cytochemical and histological characterization, and diversification in form. Laboratory will allow students to observe the organographic features discussed. Prerequisite: 320, 400, or consent of instructor.

533-3 Plant Growth and Morphogensis. A study of the role of the environmental variables (light, temperature, etc.) and phytohormones in the growth and morphogensis of intact plants and tissue cultures. The theories of plant organogensis and the synthesis, translocation, regulation and mode of action of the major classes of phytohormones will be treated in light of the most recent literature. Three lectures per week. Prerequisite: 320 or consent of instructor.

534-2 Techniques in Studies of Plant Growth and Development. Instruction in laboratory techniques used in the study of the role of environment and natural plant growth substances in plant morphogensis. Two two-hour laboratories per week. Prerequisite: 320 or consent of instructor.

543-2 Tree Growth. Physiological aspects of tree growth and development. Phases of the life cycle from germination to seed production will be analyzed for effects of light, temperature, moisture, nutrients, mycorrhiza, wind, air pollution and other factors. Two lectures per week. Prerequisite: 320 or 443 or Forestry 331 or equivalent.

545A-3 Landscape and Restoration Ecology Lecture. The principles of landscape and restoration ecology including patch dynamics, landscape elements and interconnections, landscape ecology study design, human interactions with natural environments and techniques in restoration ecology. Prerequisite: Biology 307 or consent of instructor.

545B-2 Landscape and Restoration Ecology Laboratory. Laboratory to learn the techniques associated with restoration ecology. One four-hour laboratory required per week. Prerequisite: 545A or concurrent enrollment.

547-3 to 8 Tropical Studies in Costa Rica. Credit for field courses taken under the jurisdiction of the Organization for Tropical Studies in Costa Rica. Courses and credits will vary. Prerequisite: approval of OTS Advisory Committee at Southern Illinois University Carbondale.

570-2 to 3 Graduate Readings in Plant Biology. A course of individually assigned readings in botanical literature. Every semester. Prerequisite: consent of instructor. Graded *S/U* only.

571-4 Agricultural Plant Molecular Biotechnology. (Same as Plant and Soil Science 570) Molecular biology is rapidly making important contributions to agricultural science through biotechnology. An appreciation of molecular biology of crop plants is important to all in agriculture and biology. The relationship between plant molecular biology and the biotechnology industry will be explored. Short independent practical projects in plant molecular biology will be pursued. Prerequisite: Plant and Soil Science 433 or 454 or 520 or 524 or Animal Science 433 or Plant Biology 425 or 433 or Microbiology 421 or Chemistry 455 or consent of instructor.

578-3 Population Genetics. (Same as Zoology 578) Genetic structure of populations, factors causing changes and principles governing rate and direction of change. Three lectures per week. Prerequisite: Biology 305 or consent of instructor.

580-1 to 6 (1 per semester) Seminar. One hour discussion of current topics in biology. Every semester. Graded *S/U* only.

589-1 to 12 (1 per topic per semester) Seminars in Plant Biology. Studies of current and historical research and literature in various topic areas of plant biology: **(a)** Ecology; **(b)** Bryology; **(c)** Paleobotany; **(d)** Anatomy; **(e)** Systematics; **(f)** Phycology; **(g)** Mycology; **(h)** Pathology; **(i)** Physiology; **(j)** Morphology. Graded *S/U* only.

590-1 to 3 Introduction to Research. General introduction to research techniques. Techniques to be determined by instructor and students. Offered every semester. Graded *S/U* only. Prerequisite: consent of instructor; consent of department for summer session only.

591-2 to 9 Research. Assignments involving research and individual problems. **(a)** Anatomy; **(b)** Bryology; **(c)** Ecology; **(d)** Morphology; **(e)** Mycology; **(f)** Paleobotany; **(g)** Pathology; **(h)** Photography; **(i)** Phycology; **(j)** Physiology; **(k)** Systematics. Master's students may use this for their research for their thesis. Summer only. Graded

S/U. Prerequisite: consent of instructor, consent of department.

599-2 to 9 Thesis. Course to be taken in the preparation of the Master's thesis. Every semester. Prerequisite: consent of instructor. Graded *S/U* only.

600-1 to 36 (1 to 12 per semester) Dissertation. Course to be taken in the research for and in writing of the doctoral dissertation. Every semester. Graded *S/U* only. Prerequisite: consent of instructor.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Plant and Soil Science

E-mail: psmart@siu.edu

COLLEGE OF AGRICULTURE

Chong, She-Kong, Professor, Ph.D., University of Hawaii, 1979; 1979. Soil physics.

Diesburg, Kenneth L., Assistant Professor, Ph.D., Iowa State University, 1987; 1989. Turfgrass science.

Elkins, Donald M., Professor, *Emeritus*, Ph.D., Auburn University, 1967; 1967.

Gibson, Paul T., Associate Professor, Ph.D., Iowa State University, 1981; 1989. Plant genetics and breeding and statistics.

Henry, Paul H., Assistant Professor, Ph.D., North Carolina State University, 1991; 1992. Ornamental Horticulture.

Hillyer, Irvin G., Professor, *Emeritus*, Ph.D., Michigan State University, 1956; 1956.

Jones, Joe H., Professor, Ph.D., *Emeritus,* Ohio State University, 1960; 1964.

Kapusta, George, Professor, Ph.D., Southern Illinois University at Carbondale, 1975; 1964. Weed control and crop production.

Klubek, Brian P, Professor, Ph.D., Utah State University, 1977; 1978. Soil microbiology.

Leasure, J. K., Professor, *Emeritus,* Ph.D., University of Illinois, 1953; 1966.

Lightfoot, David A., Assistant Professor, Ph.D., University of Leeds, 1984; 1991. Molecular agronomist.

McGuire, James M., Professor and *Dean of the College of Agriculture*, Ph.D., North Carolina State University, 1961; 1993. Plant pathology.

Midden, Karen L., Associate Professor, M.L.A., University of Georgia, 1983; 1988. Landscape design.

Myers, Oval, Jr., Professor, Ph.D., Cornell University, 1963; 1968. Plant genetics and breeding.

Olsen, Farrel J., Professor, Ph.D., Rutgers University, 1961; 1971. Forages and pasture agronomy.

Portz, Herbert L., Professor, *Emeritus,* Ph.D., University of Illinois, 1954; 1954.

Preece, John E., Professor, Ph.D., University of Minnesota, 1980; 1980. Horticultural physiologist.

Schmidt, Michael, Assistant Professor, Ph.D., Southern Illinois University at Carbondale, 1994; 1979. Plant breeding.

Stucky, Donald J., Professor and *Chair*, Ph.D., Purdue University, 1963; 1970. Crop physiology, crop ecology, crop production and environmental aspects.

Taylor, Bradley H., Associate Professor, Ph.D., Ohio State University, 1982; 1982. Fruit production.

Tweedy, James A., Professor, Ph.D., Michigan State University, 1966; 1966. Herbicides and weed control.

Varsa, Edward C., Associate Professor, Ph.D., Michigan State University, 1970; 1970. Soil chemistry, fertility, and management.

The Department of Plant and Soil Science offers programs of study leading to the Master of Science degree with a major in plant and soil science with concentrations in the areas of crop, soil, and horticultural sciences; an emphasis in environmental studies in agriculture is also available in each of these concentrations. Supporting courses in plant biology, microbiology, chemistry, statistics, and other areas essential to research in the student's chosen field may be selected. Supporting courses are selected on an individual basis by the student and the advisory committee. Once the general field has been selected, the research and thesis may be completed in any one of the many divisions of that field. In field crops, the research may be directed toward crop production and management, weeds and pest control, or plant breeding and genetics; in horticulture, the research and thesis may be in landscape design, vegetables, tree-fruits, small-fruits, floricultural and ornamental plants, plant tissue culture, or turf management; in soils, the research may relate to soil fertility, soil physics, soil microbiology, soil chemistry, or soil and water conservation; in environmental studies, the research may be directed toward sound pollution, water pollution,

reclamation of strip-mined soil, or agricultural chemical pollution problems. Often two of these more restricted areas can be combined in one thesis problem.

Students interested in plant and soil science at the doctoral level can be admitted to a program of study leading to the Ph.D. degree in plant biology. The program, which is administered by the Graduate School through the Department of Plant Biology, is adequately flexible to allow students to explore such interests as plant physiology, plant nutrition, chemical control of plant growth, plant genetics, etc.

Admission

Application for admission to graduate study should be directed to the department. The applicant must have the registrar of each college previously attended send an official transcript directly to the department. In addition applicants should send a letter directly to the chair of the Department of Plant and Soil Science expressing their professional and personal career objectives. Applicants should also request that four persons who can evaluate the student's academic ability write letters directly to the chair in their behalf. Final admission to the program and a particular concentration administered by the Department of Plant and Soil Science is made by the department. Minimal admission requirements to the program are: a) completion of the plant and soil science undergraduate requirements and b) a minimal grade point average of 2.7 (A = 4.0). The students who do not meet the requirement of completing the required courses in the undergraduate program in plant and soil science may apply to enroll as unclassified students to make up these deficiencies. Undergraduate course work taken to correct these deficiencies will not apply to the minimum requirements for the master's degree. Students entering the plant and soil science graduate program with a GPA below 2.70 are accepted on a conditional basis and must enroll in 12 hours of structured courses at the 400–500 level and make a GPA of 3.0 or be suspended from the program.

Program Requirements

If the student submits a thesis, minimum coursework requirements for the master's degree may be fulfilled by satisfactory completion of 30 semester hours of graduate credit. At least 20 hours of that credit must be from structured courses. At the 500 level 15 hours of course credit are required, of which no more than 10 hours may be from unstructured courses. Graduate seminar is required but is not a structured course. Overall, at least 15 semester hours must be from departmental courses.

If the student submits a research paper (non-thesis option) minimum coursework requirements for the master's degree may be fulfilled by satisfactory completion of 40 semester hours of graduate credit. At least 30 hours of that credit must be from structured courses. At the 500 level 18 hours of course credit are required, of which no more than 10 hours may be from unstructured courses. Graduate seminar is required but is not a structured course. Overall, at least 25 semester hours must be from departmental courses.

Each student, whether in the thesis or non-thesis option will be assigned a mutually agreed upon major professor to direct the program. The major professor will serve as chair of the student's advisory committee which will consist of at least 3 members from within the department and 1 member from another department. Each master's degree candidate must pass a comprehensive oral examination covering graduate work including the thesis or research paper.

Courses (PLSS)

Field trips are required for certain courses.

400-2 Trends in Agronomy. A discussion session format will be employed as a means of acquainting students with recent literature and allowing them to remain current with latest devel-

opments in their area of specialty. Prerequisite: senior standing.

405-3 Plant Breeding. Principles of plant breeding emphasized together with their application to the practical breeding of agronomic, horticultural and forest plants. Field trip costs approximately $10. Prerequisite: 305 or equivalent.

408-3 World Crop Production Problems. Ecological and physiological factors influencing production in various areas of the world. Natural limitations on world crop production. Non-agricultural factors influence world crop output. Prerequisite: 200.

409-3 Crop Physiology and Ecology. The effects and significance of physiological and ecological parameters on crop yields. Prerequisite: Plant Biology 320 or consent of instructor.

419-3 Forage Crop Management. Forage crop production and utilization; forage crop characteristics, breeding, and ecology; grasslands as related to animal production, soil conservation, crop rotation and land use. Field trip costs approximately $5.00. Prerequisite: Plant Biology 200 or one course in biology or equivalent.

420-4 Crop Pest Control. Study of field pests of forest; orchard, field and garden crops; pest control principles and methods; control strategy; and consequences of pest control operations. Prerequisite: introductory biology or crop science course and/or consent of department.

422-3 Turfgrass Science. Basic concepts of physiology, growth, and nutrition of turfgrasses and their culture. Application of turfgrass science to management of special turf areas such as golf courses, athletic fields and sod farms; and to the turfgrass industry. Field trips cost approximately $15. Prerequisite: 240 and 322 or equivalent or consent of instructor.

423-3 Greenhouse Management. Principles of greenhouse management controlling environmental factors influencing plant growth; greenhouses and related structures; and greenhouse heating and cooling systems. Field trips costing approximately $5. Prerequisite: 220 or consent of instructor.

424-4 Floriculture. Production, timing and marketing of the major floricultural crops grown in the commercial greenhouse. Each student will have an assigned project. Field trip costing approximately $25. Prerequisite: 423 or consent of instructor.

425A-5 Advanced Plant Physiology. (Same as Plant Biology 425A) Intermediary plant metabolism. Characterization of the photosynthetic and metabolic pathways of biosynthesis and degradation of organic constituents; role of environmental regulants of plant metabolism. Prerequisite: Plant Biology 320 and consent of instructor.

428-3 Advanced Landscape Design 1. Development of the design process, graphics and verbal communication of landscape projects. Emphasis on large scale projects and residential design. Laboratory fee: $25. Prerequisite: 328 or consent of instructor.

429-3 Advanced Landscape Design II. Development of the design process, graphics and verbal communication of landscape projects. Emphasis on construction details, color rendering and portfolio development. Laboratory fee: $25. Prerequisite: 328 or consent of instructor.

430-4 Plant Propagation. Fundamental principles of asexual and sexual propagation of horticultural plants. Actual work with seeds, cuttings, grafts and other methods of propagation. Field trip costs approximately: $5. Lab fee: $40. Prerequisite: 220.

432-4 Nursery Management. Principles and practices involved in the propagation, production and marketing of ornamental landscape plant materials. Emphasis on plant production with field trips to various production areas costing approximately $40. Prerequisite: 220 and 327a, or consent of instructor.

433-4 Introduction to Agricultural Biotechnology. (Same as Animal Science 433) This course will cover the basic principles of plant and animal biotechnology using current examples; gene mapping in breeding, transgenic approaches to improve crop plants and transgenic approaches to improve animals will be considered. Technology transfer from laboratory to marketplace will be considered. An understanding of gene mapping, cloning, transfer and expression will be derived. Prerequisite: Senior standing or consent of instructor.

434-3 Woody Plant Maintenance. Care and management of ornamental shrubs and trees commonly used in the landscape. Topics to include trimming, pruning, fertilization, transplanting and diagnosis of woody plant problems. Prerequisite: 327 or Forestry 202 or consent of instructor.

435-1 to 4 Agricultural Molecular Biotechnology Seminar. Molecular Biology is rapidly making important contributions to agricultural science through biotechnology. An appreciation of the techniques of molecular biology and their application to plant improvement is important to all in agriculture and biology. The relationships between plant molecular biology and the biotechnology industry will be discussed. Presentations on particular research problems will be made. Graded *S/U* only.

436-4 Fruit Production. Deciduous tree and small fruit growing, physiology, management practices, marketing. Prerequisite: 220 or consent of instructor.

437-4 Vegetable Production. Culture, harvesting, and marketing of vegetables; with morphological and physiological factors as they influence the crops. Field trip costing approximately $5. Prerequisite: 220 or consent of department.

441-3 Soil Morphology and Classification. Development, characteristics, and identification of soils, study of profiles; and interpretation and utilization of soil survey information in land use planning. Field trip costing approximately $5. Prerequisite: 240 or consent of instructor.

442-3 Soil Physics. A study of the physical properties of soils with special emphasis on soil and water relationships, soil productivity and methods of physical analysis. Prerequisite: 240.

443-3 Soil Management. The soil as a substrate for plant growth. Properties of the soil important in supplying the necessary mineral nutrients, water and oxygen and for providing an environment conducive to plant root system elaboration. Soil management techniques that are important in optimizing plant growth. Prerequisite: 240.

445-3 Irrigation Principles and Practices. This course will cover basic principles of irrigation sciences; water requirements of crops; soil water relationship; water application methods including flooding, sprinkler and drip (or trickle) systems; water conveyance, distribution and measurement; evaluation of irrigation efficiency; and irrigation scheduling. Considerations will also include crop production effects and economic aspects of irrigation. Prerequisite: 240 or consent of instructor.

446-3 Soil and Water Conservation. Covers the principles of hydrologic processes and soil erosion. Consideration will be given to the occurrence of soil erosion as it affects humans, food production and the environment. The methods and technologies for protecting against and controlling of erosion will also be discussed. Prerequisite: 240 and Mathematics 110 or 113 or consent of instructor.

447-3 Fertilizers and Soil Fertility. Recent trends in fertilizer use and the implications of soil fertility build up to sufficiency and/or toxicity levels; the behavior of fertilizer material in soils and factors important in ultimate plant uptake of the nutrients; the plant-essential elements in soils and ways of assessing their needs and additions; tailoring fertilizer for different uses and management systems; implication of excessive fertilization in our environment. Prerequisite: 240; concurrent enrollment in 448 suggested.

448-2 Soil Fertility Evaluation. A laboratory course designed to acquaint one with practical soil testing and plant analysis methods useful in evaluating soil fertility and plant needs. One hour lecture, two hours laboratory. Prerequisite: 240; 447 or concurrent enrollment; or consent of instructor.

454-4 Soil Microbiology. (Same as Microbiology 454.) A study of microbial numbers, characteristics and biochemical activities of soil microorganisms with emphasis on the transformation of organic compounds, nitrogen phosphorus, sulfur, iron and other plant essential nutrients. Lab fee $15. Prerequisite: 240 or Microbiology 301.

468-3 Weeds — 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 costing approximately $5. Prerequisite: an introductory biology course.

470-2 Post Harvest Handling of Horticultural Commodities. Fundamental principles of post harvest physiology, handling, and evaluation of horticultural commodities will be covered. Specific details will be given on vegetable, fruit, ornamental and floricultural commodities. Field trip costing approximately $30. Prerequisite: 220 and Plant Biology 320.

518-3 Principles of Herbicide Action. Chemistry and mode of action of herbicides. Nature of herbicidal action. Illustrates the various types of chemical weed control procedures in current use. The physiology of herbicidal action examined using the different mechanisms established for various chemical groups of herbicides. Prerequisite: 468, Plant Biology 320.

520-3 Growth and Development of Plants. Physiological control of developmental processes. Emphasis on exogenous growth-regulating compounds and their behavior in plants. Prerequisite: Plant Biology 320 or consent of instructor.

524-2 Advanced Plant Genetics. (See Plant Biology 524.) Prerequisite: Biology 305 or equivalent.

526-4 Cytogenetics. (See Plant Biology 526.) Prerequisite: Biology 306 and 306 or equivalent.

547-2 Soil-Plant Nutrient Relationships. A study of advanced topics relating to fertilizer and nutrient use efficiency by plants, including research methods for fertilizer use evaluation and plant response. Mechanisms in the soil for nutrient storage, release, fixation and loss will be dealt with as they relate to efficient use by plants. Prerequisite: 447 or equivalent.

560-5 (3,2) Field Plot Technique. (a) Design of field plot and greenhouse experiments including appropriate statistical analyses for each of the designs. Data interpretation. Prerequisite: consent of instructor. **(b)** Each of the designs discussed in (a) will be illustrated with a type problem and solved by computer processes using primarily MINITAB and SAS software programs. Prerequisite: 560a or concurrent enrollment or consent of instructor.

570-4 Agricultural Plant Molecular Biotechnology. Molecular Biology is rapidly making important contributions to agricultural science through biotechnology. An appreciation of molecular biology of crop plants is important to all in agriculture and biology. The relationships between plant molecular biology and the biotechnology industry will be explored. Short independent practical projects in plant molecular biology will be pursued. Prerequisite: 433 or 454 or 524 or 520 or Animal Science 433 or Plant Biology 425 or Microbiology 421 or Chemistry 455 or consent of instructor.

581-1 to 4 (1,1,1,1) Seminar. Individual presentations on subjects and problems relating to soils, field and horticultural crops, and other phases of plant and soil science. Graded *S/U* only.

582-6 (2,2,2) Colloquium in Plant and Soil Science. Recent developments and trends in specialized areas of plant and soil science will be discussed in **(a)** Genetics and plant breeding, **(b)** Research methods, **(c)** Physiology and ecology.

588-1 to 8 International Graduate Studies. Residential graduate study programs abroad. Approval of department required both for the nature of program and number of hours of credit. Prerequisite: consent of department chair. Graded *S/U* only.

590-1 to 4 Readings. Contemporary books and periodicals on selected subjects within the fields of plant and soil science. Prerequisite: consent of department.

592-1 to 3 Special Problems. Directed study of specialized areas of crop production, horticulture, or soils depending on the program of the student. Discussion, seminars, readings and instruction in research techniques. Prerequisite: consent of department.

593-1 to 4 Individual Research. Directed research on approved projects investigating selected fields of plant and soil science. Prerequisite: consent of department.

599-1 to 6 Thesis. At least three hours of thesis credit is required for the master's degree under the thesis option. Prerequisite: consent of department.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Political Science

E-mail: musgrave@siu.edu

COLLEGE OF LIBERAL ARTS

Baker, John H., Associate Professor, Ph.D., Princeton University, 1961; 1966. American politics, urban politics, intergovernmental relations, local government.

Bhattacharyya, Jnanabrota, Associate Professor, Ph.D., University of Delhi, India, 1969; 1968. Political theory, international relations, public administration.

Chou, Ikua, Professor, *Emeritus,* Ph.D., Fletcher School of Law and Diplomacy, 1949; 1964.

Clinton, Robert L., Associate Professor, Ph.D., University of Texas, 1985; 1985. Public law, American politics, public choice theory.

Collins, Susan, Assistant Professor, Ph.D., Boston College, 1994; 1995. Political theory, jurisprudence.

Dale, Richard, Associate Professor, Ph.D., Princeton University, 1962; 1966. African politics, comparative politics, international politics, and civil-military politics.

Derge, David Richard, Professor, Ph.D., Northwestern University, 1955; 1972. American politics, political parties, public opinion, administrative decision-making.

Desai, Uday, Professor and *Chair*, Ph.D., University of Pittsburgh, 1973; 1978. Public administration, public policy, organizational theory.

Ervin, Osbin L., Associate Professor, Ph.D., University of Tennessee, 1974; 1974. Public administration, policy analysis, environmental and land-use policy, fiscal management.

Foster, John L., Associate Professor and *Chair,* Ph.D., University of Minnesota, 1971; 1975. Organizational behavior and theory, urban government, program evaluation, public policy.

Garner, William R., Associate Professor, Ph.D., Tulane University, 1963; 1966. Latin American politics, inter-American relations, political culture/socialization, political philosophy.

Hamman, John, Associate Professor, Ph.D., University of Illinois, 1988; 1989. Public administration, public policy, American government and politics.

Hanson, Earl Thomas, Professor, *Emeritus,* Ph.D., University of Illinois, 1948; 1960.

Hays, Scott, Assistant Professor, Ph.D., Florida State University, 1991; 1991. American government, state government, methodology.

Jackson, John S., III, Professor and *Dean*, College of Liberal Arts, Ph.D., Vanderbilt University, 1971; 1969. American government and politics, political parties, public opinion, state and local government.

Kamarasy, Egon K., Assistant Professor, *Emeritus,* Doctor Politics, Budapest University, Hungary, 1942; 1959.

Kenney, David T., Professor, *Emeritus* Ph.D., University of Illinois, 1952; 1951.

Klingberg, Frank L., Professor, *Emeritus,* Ph.D., University of Chicago, 1938; 1946.

Landecker, Manfred, Associate Professor, Ph.D., Johns Hopkins University, 1965; 1959. International relations, U.S. foreign policy, comparative politics and foreign policy, economic and political development.

Mason, Ronald M., Associate Professor, Ph.D., University of Iowa, 1976; 1976. Political theory and American politics, political participation.

McGrath, Robert A., Professor, *Emeritus,* Ph.D., University of Iowa, 1947; 1949.

McKinney, Lucinda, Assistant Professor, Ph.D., American University 1993; 1991. Public Administration, bureaucratic behavior, and methodology.

Melone, Albert, Professor, Ph.D., University of Iowa, 1972; 1979. Public law and American politics.

Miller, Roy E., Associate Professor, Ph.D., University of Illinois, 1971; 1967. Methodology, American political behavior.

Morton, Ward M., Professor, *Emeritus,* Ph.D., University of Texas, 1941; 1949.

Nelson, Randall H., Professor, *Emeritus,* Ph.D., University of Michigan, 1956; 1955.

Schubert, Glendon, Research Professor, *Emeritus,* Ph.D., Syracuse University, 1948; 1986.

Snavely, Keith, Associate Professor, Ph.D., University of California at Davis, 1984; 1984. Public administration; personnel management; state, local, and urban government.

Somit, Albert, Distinguished Service Professor, *Emeritus,* Ph.D., University of Chicago, 1947; 1980.

Tarry, Scott, Assistant Professor, Ph.D., University of Michigan, 1993; 1994. International relations, political economy, comparative foreign policy, methodology.

Truitt, Lawrence, Assistant Professor, D.P.A., Arizona State University, 1992; 1991. Public administration, inter-governmental relations, aviation management.

Turley, William S., Professor, Ph.D., University of Washington, 1972; 1971. International relations, comparative politics, Southeast Asian politics.

Whitlock, Jack, Adjunct Associate Professor, *Director* of the University Museum, Ph.D., Indiana University, 1971; 1978.

The Department of Political Science endeavors to accommodate the special and general interests of students through a broad curriculum, individualized programs, and varied teaching and research assistantships. The department takes a personal interest in its students throughout their period of enrollment and assists them in finding satisfying professional employment upon graduation. Graduates now hold academic appointments in 60 American universities and colleges and more than a dozen foreign institutions of higher education. Graduates are also employed in various governmental agencies at the national, state, and local level.

The professional interests of the faculty range across all fields of political science, and have resulted in significant scholarly publications and presentations at professional meetings.

Graduate programs in the Department of Political Science may be designed to lead to Master of Arts and Doctor of Philosophy degrees with a major in political science, and a Master of Public Administration degree. Graduate work in political science may be taken to satisfy requirements for a teaching specialty for the Master of Science in Education degree with a major in either secondary education or higher education. Graduate work in political science may also serve as a cognate field for a student majoring in another discipline.

Provisions of this publication are supplemented by policies made explicit in the regulations and procedures of the graduate studies program of the Department of Political Science and made available to all graduate students.

Application Procedures

Application for admission to graduate study in political science and all post-secondary education transcripts should be directed to the department. Other application materials should be sent to the director of graduate studies, Department of Political Science. These materials consist of (1) three letters of recommendation from persons who can evaluate the applicant's academic ability; (2) a careful explanation of reasons for seeking graduate study; and (3) scores on the Graduate Record Examination (GRE) verbal and quantitative tests. Foreign students applying from abroad are not required to submit GRE scores, but are advised to do so if they are applying for financial assistance. Foreign students must have taken the test of English as a foreign language (TOEFL) and passed the examination with a score of at least 550. In exceptional cases the GRE may be waived as an admission requirement, but it must be taken at the first offering of the examination after the student enters the program. Application material, including instructions for applying for financial assistance, may be obtained from the director of graduate studies, Department of Political Science. Applications and supporting materials should be submitted at least four weeks before the term of registration. Those applying for graduate assistantships or fellowships should complete their applications by February 1.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Master of Arts Degree Requirements

Admission. Applicants for the Master of Arts degree program are admitted only with the approval of the graduate studies committee of the department. The department imposes requirements for admission in addition to those of the Graduate School. The department will ordinarily accept as candidates for the Master of Arts degree only those applicants who (1) have graduated from an accredited four year college or university; (2) have completed a minimum of 24 quarter or 16 semester hours in government or political science; (3) have a 2.7 (4-point

scale) overall grade point average or, alternatively, have a 2.9 overall grade point average for the last 2 years of undergraduate work; and (4) have a 3.0 average in government or political science.

Retention. Retention is governed by the rules of the Graduate School. Students should avoid the accumulation of incomplete grades. No student with more than 2 incomplete grades can be awarded a graduate student appointment, and a student holding a graduate student appointment is subject to having the appointment terminated upon acquiring 2 or more incomplete grades.

Course Work. The director of graduate studies serves as adviser to each M.A. student until an advisory committee has been selected by the student with the approval of the director, normally no later than the middle of the student's first semester in residence. The advisory committee must approve the student's program. The student must earn a minimum of 30 semester hours of acceptable graduate credit to qualify for the Master of Arts degree. A maximum of 12 hours can be earned in 400-level courses. A minimum of 6 semester hours must be completed in each of 3 of the following fields: political theory; methodology; American government and politics; public law; public administration and policy analysis; comparative government and politics; international relations; a cognate or interdisciplinary field. M.A. candidates must complete pro-seminars in at least 2 of the 3 areas of emphasis offered by the student for examination except in cases of cognate fields that do not stipulate pro-seminar requirements. The selection of areas of emphasis must be approved by the student's advisory committee.

The student who completes the minimum of 30 semester hours of course work may devote no more than 6 of those hours to courses taken outside of the department unless the work is in an approved cognate area. In the latter case, a maximum of 12 hours in the cognate area may be counted toward the fulfillment of area and degree requirements.

Each candidate for the Master of Arts degree must complete POLS 500. Proficiency in one research tool complementing the selected areas of emphasis is also required, i.e., statistics, data management, or foreign language. Methods of demonstrating proficiency are the same as those required of Ph.D. students. A student may count a maximum of 6 semester hours of 400- or 500-level tool course work toward partial completion of degree requirements, provided that (1) no more than 6 semester hours of an approved cognate area are counted as part of the 30 semester hours and (2) the tool courses are not counted as fulfilling one of the area requirements.

Thesis. In addition to the required course work, the student must submit a thesis. A student may receive a maximum of 6 hours credit for the thesis. Before registering for thesis credit, the student must have an overall GPA in M.A. work of at least 3.0 ($A = 4.0$) and must have completed the research tool requirement and selected a thesis committee approved by the director of graduate studies. The membership of the advisory committee and the thesis committee will normally be different from that of the advisory committee. A prospectus outlining the research proposed for the thesis must be approved by the members of the thesis committee and filed with the director of graduate studies.

A final oral examination conducted by the appropriate committee and open to the public will cover the thesis and the student's general competence in political science. A student may not take the examination if there are any incomplete grades on record except by petition to the graduate studies committee. If the student fails the examination or if the thesis is rejected, the student may be dropped from the department's degree program or may submit a new or revised thesis or repeat the examination at the discretion of the examining committee.

Copies of the thesis should be submitted to the student's thesis committee members no later than one week before the scheduled final oral examination. A copy of the approved thesis must be filed with the director of graduate studies.

Exceptions. An exception from these rules must be justified in a petition approved and signed by the student's committee members, submitted to the director of graduate studies and approved by the members of the graduate studies committee at a scheduled meeting.

Master of Public Administration Degree Requirements

Admission. Students are admitted to either pre-entry or mid-career status. To be admitted as a mid-career student, the student must have at least one year of professional experience in a public or quasi-public agency. Students having less than one year of professional experience are admitted to pre-entry status.

Applications for admission should be directed to the Graduate School and the director, Master of Public Administration degree program, Department of Political Science. To be considered for admission, applicants must have: (1) graduated from an accredited four-year college or university and (2) received an overall grade point average of 2.7 (4.0 scale) or, alternatively, a 2.9 overall grade point average for the last two years of undergraduate work. In instances where a candidate's promise is indicated by professional experience rather than undergraduate record, consideration will be given on an individual basis to admission or conditional admission. Retention is governed by the standards of the Graduate School. A GRE, GMAT, or LSAT score is required. An application fee of $20.00 is mandatory.

Degree Requirements. M.P.A. students complete a 42 semester hour program of study, as follows: (1) a 5-course core curriculum, totaling 15 semester hours, with a minimum of 2.8 grade point average, (2) 18 semester hours of elective course work, 6 of which must be earned in graduate level courses in the Department of Political Science, (3) a research paper in public affairs, for which 3 semester hours are awarded, (4) an oral examination, and (5) an internship, for which 6 semester hours are earned. Of the 33 hours of graduate level course work, at least 18 semester hours must be taken in the Department of Political Science. Each of these requirements is described more fully below.

Prerequisites. Students lacking undergraduate preparation in American government and public administration must complete GEB 212 and POLS 340 during their first semester of study. Exceptions to this may be granted to mid-career students, on a case-by-case basis. Competence in statistics is required before enrollment in certain core courses and may be demonstrated by completion of an appropriate graduate level course, or, on occasion, by previous undergraduate course work.

The Core Curriculum. The core curriculum consists of the following five courses.
POLS 540-3 Environment of Public Administration
POLS 542-3 Public Budgeting and Fiscal Management
POLS 543-3 Public Personnel Management
POLS 544-3 Program Analysis and Evaluation
POLS 545-3 Organization Theory and Behavior

To facilitate the work of part-time (employed) students, each of the core courses is offered in the evening at least once every 3 years. A substitution for 1 core course may be allowed if the substituted course is similar in content to the particular core course or if competence in the subject matter of the course is clearly evident.

Electives. Elective courses may be selected from the offerings of various departments across the University, as well as those of the Department of Political Science. The student and the faculty adviser consult in selecting courses best suited to the student's individual career goals, which may be either specific or general in nature.

The Research Report. The research report is to be an examination of some issue or problem in public administration. It may be either theoretical or applied, or some combination of theoretical and applied concerns. Early preparation for the research project and related report begins during the student's first semester of study, and completion is normally a prerequisite for internship placement. The report is written under the supervision of the student's faculty committee.

The Oral Examination. After completion of course work and the research report, an oral examination is scheduled and conducted by the student's faculty committee. The examination gives attention to course work as well as the methodology and findings of the research report. After satisfactory performance in the oral examination, a copy of the approved research report must be filed with the Graduate School and program director. Students who fail the examination are allowed a second examination after remedial work as recommended by the committee. Candidates who fail more than once are dropped from the program.

The Internship. Pre-entry students must serve an internship in a governmental agency, unless a substitution as described below is made. The internship is usually for 4.5 months of full-time work or 9 months of half-time work, and it provides a stipend as negotiated by representatives of the program and agency. The internship is normally scheduled to begin after course work and the research report have been completed. Mid-career students receive credit for the internship on the basis of previous professional experience and submission of a paper as specified in program guidelines.

The student may substitute 6 semester hours of course work for the internship if a request is approved by the program director or if an appropriate internship is not available.

M.P.A. Aviation Administration Concentration

To be considered for admission, pre-entry applicants will need to have graduated from an accredited four year college or university with a major in some aspect of aviation, and normally have either a grade point average of 2.7 (4.0 scale) or, alternatively, a 2.9 for the last two undergraduate years. Mid-career applicants with strong professional experience may be admitted with grade point averages below these levels and with undergraduate majors outside the aviation field. Undergraduate coursework and letters of recommendation will also be considered in admission decisions.

Prerequisites in American government, public administration and statistics for aviation concentration students are the same as for other M.P.A. students. In addition, aviation concentration students lacking undergraduate preparation in aviation management must complete a basic aviation management course.

All degree requirements for the M.P.A. program also apply to the aviation administration concentration. However, students in the aviation concentration will be required to take three of the four courses in Aviation Policy and Administration and one of the five courses in Quantitative Techniques for Decision Making, listed below. This additional curriculum of four courses (12 semester hours) reduces the electives available to aviation concentration students to 6 semester hours, instead of 18 semester hours of electives available to other M.P.A. students.

Aviation Policy and Administration
POLS 551 Aviation Policy and Planning
POLS 552 Advanced Airport Administration
POLS 553 Advanced Aviation Safety Administration
POLS 554 Aviation Law and Regulation

Quantitative Techniques for Decision Making
POLS 444 Public Policy Analysis
POLS 547a Topical Seminar in Public Administration (Tools and Techniques)
BA 452 Operations Research
BA 560 Management Information Systems
BA 572 Forecasting and Decision Making Models

It is expected that students in the aviation administration concentration will write their required master's research report on an administrative issue or problem in the aviation field. Pre-entry students in the concentration would be placed only in an aviation organization for their internship.

Concurrent Degrees in Law and Public Administration

Students who have been admitted separately to the Southern Illinois University School of Law and graduate program in public affairs may study concurrently for the Juris Doctor and Master of Public Administration degrees. Students interested in concurrent study should inform both programs before entering the second academic year of either program and will register as law students with a minor in public affairs. Each program will maintain records and evaluate final degree requirements as if the student were enrolled in only one program.

Concurrent study students must complete a minimum of 81 semester hours of School of Law credits which meet all law area requirements, as well as all M.P.A. requirements to receive the J.D. degree. Students will not be permitted to take course work outside the prescribed law curriculum during the first year of law class work. Students may enroll for both law and graduate course work during subsequent years provided a minimum of 10 semester hours of law and 12 semester hours total are taken in any term which has law course enrollment.

Concurrent study students must complete a minimum of 42 semester hours which meet the distribution requirements of the M.P.A. program to receive the M.P.A. degree. A maximum of 6 semester hours of School of Law credits of a public affairs nature (for example administrative law, environmental law, labor law, natural resources law) may be applied to both J.D. and M.P.A. requirements if approved by the director of the M.P.A. program. All concurrent study students will complete either the M.P.A. internship experience and project, or the applied study project. Internships will normally be scheduled during the third or fourth year of concurrent study.

Doctor of Philosophy Degree Requirements

Admission. Applicants for the doctoral degree are admitted only with the approval of the graduate studies committee of the department. In addition to Graduate School and other departmental requirements, the committee ordinarily requires a grade point average of 3.5 (4-point scale) in graduate-level work and adequate background in political science. Admission is also possible through the accelerated entry option (see below) as well as direct entry from baccalaureate programs in those instances where the graduate studies committee identifies high achievement and potential in an applicant's undergraduate work. Applicants for direct entry should contact the director of graduate studies, Department of Political Science, for the most recent departmental regulations and procedures governing admission under this option.

Retention. Retention is governed by the rules of the Graduate School. Students should avoid accumulating incomplete grades. Students holding graduate assistant appointments are expected to make reasonable progress toward a degree. No student with more than 2 incomplete grades can be awarded a graduate assistant appointment, and a student holding a graduate assistant appointment is subject to having the appointment terminated upon acquiring two or more incomplete grades.

Accelerated Entry into the Ph.D. Degree Program. A student enrolled in the M.A. degree program may petition the graduate studies committee after 2 semesters in residence for waiver of the requirement of an M.A. degree as prerequisite for admission to the doctoral program, and for direct entry to the Ph.D. degree program in accordance with the following conditions. First, the student must be certified by the advisory committee to be an outstanding graduate student. In so doing, the committee must consider a wide range of supporting evidence including but not restricted to GPA, GRE, M.A. degree tool requirement, and evaluative letters from all graduate instructors from whom the student has taken courses. Second, the student must present 1 graduate research paper of outstanding quality or a published article of appropriate character and quality. The petition accompanied by the advisory committee recommendation and the supporting evidence must be presented to the graduate studies committee which will make the final decision on the petition. If admitted, the student will proceed toward the Ph.D. degree in accordance with the established rules of the department and Graduate School.

Direct Entry into the Ph.D. Degree Program. Students admitted under the direct entry option are required to fulfill M.A. degree method, tool, and course work requirements as part of the Ph.D. degree work. Additional measures of progress may be required by the student's advisory committee.

Program of Study. The work of a Ph.D. student is directed toward admission to candidacy for the doctorate, for which the student must meet the residency requirement, meet course, methods, and research tool requirements, maintain a GPA of at least 3.5, and pass preliminary examinations in 3 or 4 fields.

The student must be in residence for at least 1 year (2 semesters in each of which the student completes at least 9 hours or 6 hours if the student holds a graduate assistantship) after admission to the Ph.D. program before preliminary examinations can be taken. Residence shall be counted from the time the student passes the final examinations for the master's degree or, in cases of accelerated entry or direct post-baccalaureate entry to the Ph.D. degree program, when the student has met all graduate school and departmental requirements pertaining to those options.

The student's program must be approved by an advisory committee selected by the student and approved by the director of graduate studies. The members of the advisory committee should represent the student's fields.

Students prepare in 3 or 4 fields, depending on the degree of concentration they have chosen. They may take a minimum of 12 hours in a primary field, 9 hours in a secondary field, and 6 hours in each of two supporting fields. Or, they may take a minimum of 12 hours in each of 2 primary fields and 9 hours in a supporting field. Under both options, students must take a minimum of 33 hours of coursework exclusive of tool and methods requirements and pass written and oral examinations in all of their chosen fields. They also must take the appropriate pro-seminar in each of their fields; not more than 3 hours of readings or individual research may be counted for each field. The field in international studies requires two pro-seminars plus POLS 568, Research Problems in International Studies. The fields are: political theory; methodology; American govern-

ment and politics; public law; public administration and policy analysis; international studies; a cognate or interdisciplinary field.

The student must also complete the requirements for 2 research tools (see below) and the specialized research methods course best complementing the student's areas of study. The student's advisory committee may require additional course work, in or out of the areas of examination. The student, before enrolling in POLS 590, Readings or POLS 591, Individual Research, must have completed the appropriate pro-seminar for the area in which readings or individual research is to be done. At least half of all course work must be in 500-level courses.

Research Tools and Methods. The Ph.D. is a research degree, and students must acquire knowledge of research tools and methods.

1. Research tools: statistics, data management, foreign language. All Ph.D. students must satisfy a statistics requirement by successfully completing EPSY 506 and 507 or another statistics sequence approved by the graduate studies committee. Students must also satisfy one additional tool requirement. A data management tool may be satisfied by POLS 503a or b. A foreign language tool may be satisfied by a minimum score of 465 on the ETS examination or by successful completion of a 488 course in the Department of Foreign Languages and Literatures. A special examination approved by the graduate studies committee may be offered for a language not covered by ETS or the Department of Foreign Languages.

   Students whose native language is not English may offer English to satisfy the additional tool requirement.
2. Methods of research.
   a. POLS 500 is a general methodology course. It is required of M.A. students and of Ph.D. students who have not had a comparable graduate level methodology course.
   b. Specialized methods of research. Students are required to complete successfully one specialized methods course, chosen from the POLS 501 sequence or another appropriate course, such as EPSY 508 or 531, HIST 492, PSYC 522a or b or 527, or SOC 513. The course selected should be the one most appropriate to the student's primary area of emphasis.

This department is amenable to self-tailored programs subject to the expertise of the faculty and the approval of the graduate studies committee. Such approved programs may suggest the need for tools in addition to or in place of those tools specified in this section.

Preliminary Examinations. Before preliminary examinations can be scheduled a student must have completed all course work, 2 research tools, and a specialized methodology course, have a grade point average of at least 3.5, and have had a preliminary examination committee approved by the director of graduate studies. Students may not take preliminary examinations if there are any incomplete grades on their records except by petition to the graduate studies committee.

The written preliminary examinations are to be completed within a period of 10 days; an oral examination follows within 1 week of the last written examination upon the approval of the examination committee. A student who passes the written and oral examinations is advanced to candidacy for the Ph.D. degree; a student who does not pass the examinations may be permitted to retake them at a later date or be dropped from the degree program of the department, at the discretion of the advisory committee and the graduate studies committee.

Dissertation. A dissertation must be written under the direction of and with the approval of a five member committee, one of whom must be from outside the Department of Political Science. The membership of the dissertation committee will normally be different from that of the advisory committee. A dissertation

prospectus must be approved by the members of the dissertation committee and filed with the director of graduate studies. Students must register for a minimum of 24 hours of dissertation credit, POLS 600, and cannot register for dissertation credit until they have been admitted to candidacy or, with the approval of the advisory committee and the director of graduate studies, until the term during which preliminary examinations are scheduled.

An acceptable dissertation must be completed within 5 years after admission to candidacy, or the student will have to repeat preliminary examinations. Final copies of the dissertation should be submitted to the members of the dissertation committee no later than 10 days before the scheduled oral examination. The success of a final oral examination devoted primarily to a defense of the dissertation and open to the public will complete the requirements for the Doctor of Philosophy degree. A final copy of the dissertation must be filed with the director of graduate studies.

Application of Rules and Exceptions. The department's rules in force at the time of the student's admission to the Ph.D. program will apply while the student is in the program unless (1) the student voluntarily selects a newer set of rules in toto before graduation or (2) the time between admission to the Ph.D. program and passing the preliminary examinations exceeds 5 years. In the latter case, the student will automatically come under the rules in force at the beginning of the sixth year and every fifth year thereafter until the preliminary examinations are passed.

Requests for exceptions to any of the above requirements must be presented in a petition approved and signed by the members of the student's committee, submitted to the director of graduate studies, and approved at a scheduled meeting of the graduate studies committee.

Cooperative Program with University of Illinois at Springfield

The Department of Political Science at SIUC has an agreement with the political studies program at University of Illinois at Springfield (UIS) to facilitate the entry of UIS political studies students into the SIUC political science Ph.D. degree program. SIUC will accept appropriate UIS graduate credits to fulfill course work, methodology, and research tool requirements. UIS students can qualify for accelerated entry into the SIUC doctoral program after 2 semesters of study at UIS with 24 semester hours completed, a 3.5 GPA, 2 proseminars, and written evaluations from course instructors. A number of UIS faculty are eligible to serve on graduate student examination and dissertation committees. SIUC will accept up to 12 hours credit for course work, research projects, and internships completed under UIS faculty direction towards the SIUC political science Ph.D. degree. Other course work, residency, and dissertation requirements of the SIUC program must be met as described in other sections of this catalog. For more detailed information, ask the director of graduate studies, Department of Political Science, SIUC.

Courses (POLS)

The Department of Political Science offers courses toward the Master of Arts degree and Ph.D. degree in political science and the Master of Public Affairs.

403-4 Philosophy of Politics. (See Philosophy 441.)

404-3 History of Political Theory. Shall survey different theorists and perspectives which have contributed significantly to the development of the ongoing tradition of political theory up to modern times. Prerequisite: 303 or consent of instructor.

405-3 Democratic Theory. An examination of various species and aspects of democratic thought, including the liberal tradition and its impact upon the United States. Prerequisite: 114 or consent of instructor.

408-3 Contemporary Political Theory. Shall explore the theorists and perspectives which have contributed to contemporary views of the political world. Prerequisite: 303 or consent of instructor.

413-3 Contemporary Intergovernmental Relations. An examination of relationships among national, state, and local governments in the American federal system, with emphasis on recent literature and contemporary issues. Special attention is given to fiscal relations, and specific intergovernmental programs in areas such as housing and environmental quality are examined. Prerequisite: 114.

414-3 Political Systems of the American States. The state level of government viewed with emphasis upon recent developments and current research. Prerequisite: 213.

415-3 Urban Politics. An examination of the environment, institutions, processes, and functions of government in an urban society with particular emphasis on current problems of social control and the provision of services in the cities of the U.S. Prerequisite: 213.

418-3 Political Communications. (See Speech Communication 451.)

419-4 Political Sociology. (See Sociology 475.)

420-3 Interest Group Politics. An examination of the structure, mobilization and impact of interest groups on American political life. The course objectives are to study various normative critiques of American pluralism and examine the political influence of contemporary interest groups, such as labor, racial and women's organizations. Prerequisite: 114.

433-6 (3,3) Constitutional Law. (a) This, the initial course in a two-course sequence, is concerned with the basic structure and power relationships in the American constitutional system. Topics include judicial review, judicial restraint, separation of powers, the federal system, national powers, state powers, the contract clause and substantive due process. Prerequisite: 114. Political Science 330 recommended. **(b)** This, the second course in the constitutional law sequence concentrates on those provisions of the U.S. Constitution which protect individual rights and liberties against government encroachment. Prerequisite: 114.

435-3 Judicial Process and Behavior. An examination of the process by which judges in both trial and appellate courts at federal and state levels are selected and of the ways in which they make decisions. Attention to the structure of the courts. Study of the communication and impact of judicial decisions. The course will provide some insight into the methods used to study judicial behavior.

436-3 Administrative Law. The procedural law of public agencies, particularly the regulatory commissions but also executive branch agencies exercising regulatory functions. The exercise of discretion and its control through internal mechanisms and judicial review. Prerequisite: 114 or 340 recommended.

437-3 Jurisprudence (Theories of Law). Major schools in legal thinking. Positive law and natural law. Idea of justice and concept of natural rights.

441-3 Administration of Bureaucratic Organizations. A study of the elements of bureaucratic organization and of problems and procedures in administration of complex public agencies. Emphasis is placed on the personnel aspects of public bureaucracy, including the history and structure of civil service systems, conditions of public service employment and issues in leadership and supervision. Prerequisite: 340 or consent of instructor.

443-3 Public Financial Administration. An examination of governmental revenues and expenditures, with emphasis on state and local governments. Special attention is given to patterns of taxation and expenditure, intergovernmental fiscal relations, municipal debt and administrative decisionmaking. Prerequisite: 213 recommended.

444-3 Policy Analysis. An examination of basic concepts in the policy sciences, approaches to policy analysis, applications to selected areas of policy and instruments of policy development.

445-4 Administration of Environmental Quality and Natural Resources. (Same as Geography 426.) An examination of institutional arrangement and administrative practices in the protection and use of land, water, air and mineral resources. The course include analysis of responsibility and decision-making at all levels of government (federal, state, and local) as well as corporate, interest group, and individual responses to public programs. Particular attention will be given to administration of federal environmental quality legislation including the National Environmental Policy Act, the Clean Air Act, the Water Pollution Control Act and the Surface Mining Reclamation Act.

446-3 Museum Administration. A comprehensive introduction to museum administration and management, including fiscal and budget oversight; an understanding of museum ethics; acquisition, conservation and exhibition planning; personnel matters; and museum research. Museum practicum and research stressed.

447-4 to 5 (3, 1 or 2) Urban Planning. (See Geography 470a,b.)

457-3 Government and Politics of The United Kingdom and Canada. An examination of political institutions, behaviors, interest groups, parties and public policies of The United Kingdom (of Great Britain and Northern Ireland) and of Canada with particular reference to domestic and foreign policy. Prerequisite: 250 recommended.

458-3 Contemporary Europe. Comparative study of contemporary political systems and policy issues. Emphasis on selected countries and common problems facing governments. Topics covered include the European Community, security institutions, economic, social and other public policies and study of various governing processes.

459-3 Government and Politics Russia. Transitions from Communism in the former Soviet Union. Prerequisite: 250 recommended.

461-3 Governments and Politics of Southeast Asia. Politics and governments of Burma, Thailand, Malaysia, Vietnam, Cambodia, Laos, Singapore, Indonesia and the Philippines. Prerequisite: 250 recommended.

462-3 Governments and Politics of Vietnam. Origins of revolution. The war for national reunification. Impact of American involvement. Contemporary problems of consolidation and development under communist rule. Implications for regional security. Prerequisite: 250 recommended.

463-3 Government and Politics of China. Internal political, economic and social development of China. Prerequisite: 250 recommended.

464-3 Governments and Politics in the Middle East. Internal and international politics of the Islamic states of the Middle East and North Africa and Israel. Prerequisite: 250 recommended.

465-3 Governments and Politics of Sub-Saharan Africa. (Same as Black American Studies 465.) An examination of the impact of western colonial rule on the societies and politics of Africa, the methods by which these colonial areas became sovereign states in the post-World War II era, the role of domestic political institutions, African political thought and behavior, and the development of foreign policies regarding relations with other African states, continental and international organizations and non-African states. Prerequisite: 250 recommended.

466-3 Government and Politics of Latin America. An in-depth analysis of specific problem areas in Latin American political processes as well as comparative study of selected Latin American nation-states. Prerequisite: 366 recommended.

468-3 Comparative Civil-Military Politics. A comparative study of the growth of the relationship of the armed forces with the civilian sector of the body politic, the selection, training, and professionalization of the officer corps, the control of the armed forces by the executive and legislature, the growth of strategic doctrine, insurgency and counter-insurgency warfare, and the analysis of the role of the armed forces as a governing group in a large number of nonwestern states. Prerequisite: 250 recommended.

475-6 (3,3) International Law. (a) Rules and practices governing the nations in their relations in peace and war. Prerequisite: none. 270 recommended. **(b)** Investigation of special problems in international law. Prerequisite: 475a.

477-3 The Making of American Foreign Policy. An advanced course dealing with the formulation and administration of American foreign policy. Prerequisite: 378 for undergraduates.

480-3 International Politics. Definition and analysis of the concepts of spheres of hegemony, alliances, regionalism, integration, interdependence, and an evaluation of their application to contemporary international politics. The course will stress the need for the continuing evaluation of the vague role of national power and influence within the framework of a changing world environment.

488-3 International Relations of the Western Hemisphere. Emphasis on the international behavior of Latin American nation-states and/or regions especially related to policy trends and historical and contemporary objectives of the U.S. Prerequisite: none. 270 recommended.

500-6 (3,3) Political Science as a Discipline. (a) Scope. Topics may include problems in the philosophy of science as it pertains to political science, conceptual frameworks, approaches, models and metaphors. This course and 500b are required of all M.A. and Ph.D. students to fulfill methods requirement for degree. **(b)** Methods. Topics may include strategies of research design, measurement problems, data acquisition, quantitative and qualitative analysis of political data and computer applications. This course and 500a are required of all M.A. and Ph.D. students to fulfill methods requirement for degree.

501-3 to 9 (3 per topic) Research Methods. (a) Experimental and quasi-experimental research design. The role of experimental and quasi-experimental research design in political science. Specific topics discussed include the logic of experimental control, principles of research design, threats to internal and external validity, and ethical considerations in experimenting with human beings. Prerequisite: Educational Psychology 506 and 507. **(b)** Simulation. Analysis, design, construction, and evaluation of human, human-computer, and computer games and simulations for teaching, training and research in political science. Prerequisite: Educational Psychology 506 and 507. **(c)** Survey research and sampling. Basic concepts of sampling, sampling frames; types of sample design; survey designs, questionnaire construction, interviewing, coding, introductory survey analysis techniques and ethical considerations in political science. Prerequisite: Educational Psychology 506 and 507. **(d)** Causal modeling. Statistical techniques for the non-experimental investigation of causal systems. Logic of causal analysis, systems of simultaneous linear equations, causal modeling, path analysis and structural equation models. Prerequisite: Educational Psychology 506 and 507. **(e)** Theory and methods of scaling. (See Psychology 527.) **(f)** Theory building. Techniques of theory-building and typology construction. Probability theory; game theory; systems of differential equations; difference equation models; time series models; computer simulation models and causal models. Criteria for evaluating internal and external validity for the best theory. Prerequisite: Educational Psychology 506 and 507.

502-3 to 6 Topical Seminar in Research Methods. Advanced seminar in empirical research methods. Topics will vary with instructor. Prerequisite: consent of instructor.

503A-3 Data Preparation and Management-Mainframe. Covers the mainframe computer creation, dictionarying, cleaning and management of data files using SAS, SPSSX, BMD, OSIRIS and the IBM OS/VS utility programs. Also treats the use of the IBM Job Control Language (JCL), the Conversational Monitor System (CMS), catalogued procedures, instream procs and CMS EXEC's. A research tool course not to be counted toward graduate degree requirements.

503B-3 Data Preparation and Management-Microcomputer. Covers the micro computer creation, dictionarying, and cleaning and management of data files using SPSSPC, SASPC, or other micro packages. Also treats Disk Operating Language and procedures for moving data between micro and main frame computers. A research tool course not to be counted toward graduate degree requirements. Prerequisite: admission to political science or MPA graduate program or consent.

504-3 Pro-Seminar in Political theory. The course will survey a sampling of the best works from the broad and diverse spectrum of political theory. Normative, empirical, analytical, critical and other types of theoretical works will be analyzed. Students offering political theory as a graduate area are required to complete this course prior to enrolling in research seminars in political theory.

505-3 to 6 (3,3) Topical Seminar in Normative Theory. Topic will vary with instructor. Student should see director of graduate studies for advanced syllabus.

508-3 to 6 (3,3) Topical Seminar in Empirical Theory. Systems, structural-functional, conflict, decision-making, integration, organization, exchange, communications, democratic, totalitarian, change and revolution theories will be analyzed to determine their domain and predictive and/or explanatory capacities. Generally, half of these theories will be offered every other year. Prerequisite: consent of instructor.

510-3 Pro-Seminar in American Politics. Designed to survey the major literature in the field of American government at the graduate level. The course will synthesize and integrate the literature and give an overview of topics that will be covered in greater depth in each subject-matter research seminar. Highly recommended for new teaching assistants. Required for students offering American politics as a graduate area before enrolling in more advanced subject-matter seminars.

511-3 to 6 (3,3) Topical Seminar in American Politics. Topic will vary with instructor. Student should see director of graduate studies for advanced syllabus. Prerequisite: basic course, related training or consent of instructor.

514-3 Seminar in American State Politics. Student should see director of graduate studies of advance syllabus. Prerequisite: 414 or consent of instructor.

515-3 Seminar in Urban Politics. Student should see director of graduate studies for advance syllabus. Prerequisite: 415 or consent of instructor.

516-3 to 6 (3,3) Seminar in Political Behavior. Topic will vary with instructor. Student should see director of graduate studies for advance syllabus. Prerequisite: basic courses, related training or consent of instructor.

518-3 Seminar in Political Parties. Student should see director of graduate studies for advance syllabus. Prerequisite: basic courses, related training or consent of instructor.

521-3 Seminar in the Legislative Process. Student should see director of graduate studies for advance syllabus. Prerequisite: basic courses, related training or consent of instructor.

530-3 Pro-Seminar in Public Law. Designed to survey the major literature in the field of public law at the graduate level. The course will consider both traditional and nontraditional approaches to the subject and will acquaint students with readings and analyses covering the scope of this sub-field. Required of all students offering public law as a graduate area. Prerequisite: basic undergraduate work in the field or consent of instructor.

536-3 Seminar in Comparative Judicial Politics. An examination of judicial systems around the world including supra-national courts. Topics include the judicialization of politics, the activities of constitutional courts, the various modes of judicial selection and the political roles of legal professionals. Students may receive credit for this course in fulfillment of requirements in the subfield of public law, comparative politics, or international studies.

538-3 Topical Seminar in Public Law. A research seminar in which students are expected to produce one or more research papers on selected topics in the public law subfield. Topics will vary with instructor. Prerequisite: basic courses in the subfield.

540-3 Environment of Public Administration. Examination of the social, political, legal and managerial constraints on the behavior of public administrators. Special attention is given to the relationship between public sector managers, on the one hand, and legislators, interest group representatives, elected executives, agency employees, clients, and the general public, on the other hand. Issues in ethics and the public's expectations of professional administrators are also examined. Prerequisite: GEB 212 and Political Science 340 or equivalent or consent of instructor.

541-3 Seminar in Applied Problems of Public Administration. Study of selected problems in public administration and policy. Emphasis placed on the practitioner's perspective. Prerequisite: 340 or consent of instructor.

542-3 Public Budgeting and Fiscal Management. An examination of the theory and practice of budgeting in the public sector and of selected elements of fiscal management. The course focuses on administrative aspects of budgeting and is oriented toward preparation of students for careers in the public service. Approaches and techniques in revenue forecasting, program planning and performance measurement are included. Students utilize primary materials in conducting individual or class projects aimed at development of budgetary skills. Prerequisite: 340 or equivalent or consent of instructor.

543-3 Public Personnel Management. A study of the processes and procedures used in contemporary public personnel systems. Emphasis is placed on examination of competing models of personnel administration, application of personnel management strategies to specific case problems and public sector labor relations. Required of all M.P.A. degree candidates. Prerequisite: consent of instructor.

544-3 Program Analysis and Evaluation. An examination of approaches and problems in the analysis and evaluation of governmental programs. Emphasis is placed upon the use of analytical techniques to determine program impact and the use of evaluation in governmental decision making. Required of all M.P.A. degree candidates. Prerequisite: graduate level statistics course or consent of instructor.

545-3 Organization Theory and Behavior. An examination of various approaches to describing and understanding public organizations and the individuals within them. Emphasis is placed on study of the important theoretical literature in the field and on the application of theory of practical management problems in governmental units and agencies. Required of all M.P.A. students. Prerequisite: consent of instructor.

547-6 (3,3) Topical Seminar in Public Administration. (a) Devoted to selected techniques and tools of public administration; **(b)** In-depth study of selected problems in the process and environment of public administration.

548-3 Seminar in Comparative Public Administration. Comparative study of national and

subnational public administrative politics, structures, policies and programs across nations and cultures.

549-3 Administration of Nonprofit Organizations. Examines the characteristics of nonprofit organizations that distinguish them from the public and for-profit sectors. Explores social and economic functions of nonprofits and such administrative issues as fundraising, working with volunteers and governing boards, satisfying tax codes and service distribution. Prerequisite: 340 or equivalent or consent of instructor.

550-3 Pro-Seminar in Public Administration. A survey of the major literature in the field of public administration. The course will synthesize and integrate the literature and provide an overview of topics to be covered in greater detail in other seminars. Required of M.A. and Ph.D. students offering public administration as a graduate area before enrolling in more advanced subject-matter seminars.

551-3 Aviation Policy and Planning. This course presents an examination of civil and military aviation policy and planning at the federal, state and local levels. The course will focus primarily on federal aviation policy and planning with emphasis on the substance of key aviation policies, the policy making process and the various agencies and client groups which influence these policies. The annual aviation forecast of the Federal Aviation Administration and related policies and plans will be reviewed. Each student will prepare an aviation public policy issue paper. Prerequisite: MPAA students or consent of instructor.

552-3 Advanced Airport Administration. This course will address the role and function of the airport administrator, especially related to the tasks of developing, operating and maintaining various airport services to meet the needs of key airport users. This course will study key airport administration cases at primary, commercial service, reliever and general aviation airports. Meeting key airport regulations concerning operations and security will be a focus of the course. Prerequisite: MPAA students or consent of instructor.

553-3 Advanced Aviation Safety Administration. The Aviation Safety Administrator's job function and responsibility for safety and accident prevention within an aviation organization is examined using the case study method. The relevant theory, concepts, procedures and techniques of resource allocation, organizational design, decision modeling, task assignment, delegation of authority and responsibility, establishment of organizational goals and priorities and risk management as they relate to Aviation Safety are included. The job functions of an Aircraft Accident Investigation Team and of an Aviation Safety Inspector will be studied. Aviation safety administration literature will be reviewed. Prerequisite: MPAA students or consent of instructor.

554-3 Aviation Law and Regulation. An examination of both international and domestic laws, treaties and regulations. Students study the rulemaking process as it applies to aviation, the regulators, the laws and regulations and effects on the regulated. Special emphasis is given to the administration and enforcement of aviation regulations. Prerequisite: MPAA students or consent of instructor.

555-3 International Aviation. An examination of the economic, legal, political and administrative milieu of international aviation. Students will study the history of the bilateral route agreements, cabatoge and the legal and institutional arrangements that have evolved in international air transportation. The course will compare and contrast the domestic and international aviation policy environment. Particular attention will be placed on the emergence of international foreign ownership and marketing alliances that have been created recently, both between airlines themselves, and the dominant computer reservations systems (CRS) in existence. Other topics that will be discussed include both domestic and international labor, infrastructure and tourism development policies. Prerequisite: MPAA students or consent of instructor and 551.

556-3 Seminar in Municipal Administration. A study of the literature and recent developments in municipal administration. Emphasis is on literature and developments in areas of long-standing interest—including organization and management, state-local relations and finance and capital improvement. Prerequisite: completion of at least four of the MPA core courses, or consent of the instructor.

560-3 Pro-Seminar in Comparative Politics. Survey of the major literature in comparative politics at the graduate level. Overview of topics that may be covered in greater depth in subsequent seminars. Special attention will be devoted to conceptual and analytical problems associated with the various approaches, with emphasis on the criteria of suitable research designs. Required of all students with a Ph.D. concentration in international studies.

568-3 Research Problems in International Studies. Discussion, design and execution of research projects on non-state, sub-national, national, and supra-national actors and processes that have transnational or world systemic consequence. Required of all students with a Ph.D. concentration in international studies. Prerequisite: 560 and 570 or consent of the director of graduate studies.

569-3 to 6 (3,3) Topical Seminar in Comparative Politics. Topic will vary with instructor. Student should see director of graduate studies for advance syllabus. Prerequisite: basic courses, related training and consent of instructor.

570-3 Pro-Seminar in International Relations and Politics. Survey of the major literature in international relations and politics at the graduate level. Overview of topics that may be covered in greater depth in subsequent seminars. Special attention will be devoted to conceptual and analytical problems associated with the various approaches, with emphasis on the criteria of suitable research designs. Required of all students with a Ph.D. concentration in international studies.

573-3 Seminar in International Organization. Student should see director of graduate studies for advance syllabus.

575-3 Seminar in International Law. Student should see director of graduate studies for advance syllabus.

577-3 to 6 (3,3) Topical Seminar in Foreign Policy. Topic will vary with instructor. Student should see director of graduate studies for advance syllabus. Prerequisite: basic courses, related training or consent of instructor.

580-3 to 6 (3,3) Topical Seminar in International Relations. Topic will vary with instructor. Student should see director of graduate studies for advance syllabus. Prerequisite: basic courses, related training or consent of instructor.

590-1 to 6 Readings. Supervised readings in selected subjects. Prerequisite: completion of the appropriate pro-seminar for the field in which readings or individual research is to be done.

591-1 to 6 Individual Research. Selection, investigation and writing of a research paper under the personal supervision of a member of the department graduate staff. Prerequisite: completion of the appropriate pro-seminar for the field in which readings or individual research is to be done.

593-1 Preprofessional Seminar in Political Science. Designed to give the student an introduction to the major professional roles in the discipline. The requirements of teaching, research, publication and service are covered with discussion of where each fits into the professional role requirements and examples of how each is accomplished. Required of all Ph.D. and M.A. students in political science and other teaching assistants in political science. Graded *S/U* only.

595-1 to 6 Internship in Public Affairs. Fieldwork in the office of a governmental or quasi-governmental agency. The internship is arranged by the field coordinator of the M.P.A. degree program and provides a stipend as negotiated by the coordinator and agency representative. A paper in which the student correlates academic knowledge with practical internship experience is required. Mid-career M.P.A. students may receive credit upon completion of a paper relating previous work experience to public administration literature and theory. Prerequisite: consent of department. Graded *S/U* only.

596-1 to 6 Research Paper in Public Affairs. Upon successful completion of core courses, the student expands and develops a previously written MPA graduate program paper. The project involves an issue or problem in public administration and is written with the approval and under the supervision of the student's committee chair. Graded *S/U* required. Prerequisite: consent of department.

599-1 to 6 Thesis. Maximum of six hours to be counted toward a degree. Prerequisite: consent of instructor.

600-1 to 36 (1 to 12 per semester) Dissertation. Minimum of 24 hours to be earned for the Doctor of Philosophy degree.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Psychology

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COLLEGE OF LIBERAL ARTS

Berenbaum, Sheri A., Professor, Ph.D., University of California-Berkeley, 1977; 1995. Developmental neuropsychology, behavior genetics, development of sex-typed behavior, biological and social influences, statistics.

Brutten, Gene J., Professor, *Emeritus,* Ph.D., University of Illinois, 1957; 1957.

Buck, Terence D., Associate Professor, Ph.D., University of Missouri, 1968; 1969. Counseling and psychotherapy, group process and group dynamics, management of psychological services.

Chwalisz, Kathleen, Assistant Professor, Ph.D., University of Iowa, 1992; 1992. Counseling, health psychology, neuropsychology, group process and intervention, personality.

Corcoran, Kevin, Associate Professor, Ph.D., University of Connecticut, 1984; 1988. Clinical applications of social learning theory to addiction, parental adjustment to the handicapped child.

DiLalla, David, Assistant Professor, Ph.D., University of California, 1989; 1990. Personality and psychopathology, developmental, behavioral genetics.

DiLalla, Lizabeth, Assistant Professor, Ph.D., University of Virginia, 1987; 1992. Experimental developmental, behavioral genetics, social cognition.

Dillon, Ronna, Professor, Ph.D., University of California, Riverside, 1978; 1978. Experimental human psychosociology, cognitive assessment, life span, cognitive development.

Dollinger, Stephanie M. C., Associate Professor, Ph.D., Syracuse University, 1989; 1989. Lifespan development, cerebral asymmetrics, aging and cognition, skilled visual processing.

Dollinger, Stephen J., Professor, Ph.D., University of Missouri, 1977; 1977. Clinical, child and family therapy, applications of attribution theory.

Ehrenfreund, David, Professor, *Emeritus,* Ph.D., State University of Iowa, 1947; 1962.

Gannon, Linda, Professor, Ph.D., University of Wisconsin, 1975; 1975. Clinical, human psychophysiology, behavioral medicine, psychosomatic disorders, learned helplessness, feminist therapy.

Gilbert, Brenda O., Associate Professor, Ph.D., University of Florida, 1985; 1986. Clinical, child behavior therapy, pediatric psychology, child behavior assessment.

Gilbert, David G., Associate Professor, Ph.D., Florida State University, 1978; 1985. Clinical, behavior therapy, marital research and therapy, behavioral medicine, smoking psychophysiology, personality, emotions.

Glidden, Cynthia, Assistant Professor, Ph.D., University of Illinois, 1991; 1990. Counseling, counselor and client attributions regarding gender role and cultural issues.

Graham, Jack W., Professor, *Emeritus,* Ph.D., Purdue University, 1951; 1951.

Guthrie, Robert V., Professor, Ph.D., U.S. International University, 1970; 1991. Experimental applied experimental, personnel, minority issued.

Hetherington, John, Assistant Professor, Ph.D., 1992, University of Arizona, Experimental, applied experimental, cognitive, environmental.

Jensen, Robert, Associate Professor, Ph.D., Northern Illinois University, 1976; 1981. Biopsychology, psychopharmacology, developmental psychobiology.

Kelley, Noble H., Professor, *Emeritus,* Ph.D., State University of Iowa, 1936; 1951.

Labott, Susan, Assistant Professor, Ph.D., Northern Illinois University, 1986; 1993. Clinical, human emotion, medical psychology, dissociative disorders.

Lit, Alfred, Professor, *Emeritus,* Ph.D., Columbia University, 1948; 1961.

McHose, James H., Professor and *Chair,* Ph.D., University of Iowa, 1961; 1961. Experimental, learning theory, motivation, animal learning.

McKillip, John A., Professor, Ph.D., Loyola University of Chicago, 1974; 1975. Experimental, counseling, program evaluation, need assessment, health promotion programming.

Meltzer, Donald, Professor, Ph.D., University of Pittsburgh, 1963; 1966. Experimental, learning instrumentation, psychopharmacology.

Mitchell, Thomas O., Associate Professor, *Emeritus,* Ph.D., University of Colorado, 1969; 1968.

Molfese, Dennis L., Professor, Ph.D., Pennsylvania State University, 1972; 1972. Experimental, developmental biopsychology, developmental neurolinguistics, psycholinguistics, cognition.

Molfese, Victoria J., Professor, Ph.D., Pennsylvania State University, 1974; 1972. Experimental, developmental biopsychology, cognition, aging, perinatal risk, infant behavioral and neuroelectrical assessments.

O'Donnell, James P., Associate Professor, Ph.D., University of Pittsburgh, 1965; 1965. Clinical, child psychopathology, clinical neuropsychology.

Pitz, Gordon F., Professor, Ph.D., Carnegie Institute of Technology, 1963; 1963. Experimental, decision making, cognitive processes and judgment.

Purcell, Thomas D., Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1965; 1960. Personnel psychology.

Radtke, Robert C., Associate Professor, Ph.D., State University of Iowa, 1963; 1966. Experimental, memory, cognitive processes, aging.

Ramanaiah, Nerella, Professor, Ph.D., University of Oregon, 1971; 1971. Experimental, clinical personality assessment, test theory, quantitative methods.

Ringuette, Eugene L., Associate Professor, *Emeritus,* Ph.D., Purdue University, 1963; 1967.

Schill, Thomas R., Professor, Ph.D., Oklahoma State University, 1963; 1963. Clinical, personality theory and dynamics, personality evaluation, rational emotive psychotherapy.

Schmeck, Ronald R., Professor, Ph.D., Ohio University, 1969; 1969. Experimental, teaching methods, individual differences in learning, learning style, cognitive style.

Shea, Sandra, Associate Professor, Ph.D., Vanderbilt University, 1980; 1988. Experimental vision, sensation, and perception.

Shoemaker, Donald J., Professor, *Emeritus,* Ph.D., Ohio State University, 1955; 1960.

Smith, Douglas C., Associate Professor, Ph.D., Kansas State University, 1977; 1978. Experimental, biopsychology, neurophysiology, vision, development, learning and memory.

Snyder, John F., Associate Professor, Ph.D., Loyola University, 1965; 1968. Counseling, crisis intervention, consultation, supervision, rural drug abuse prevention programming, counseling evaluation research.

Stockdale, Margaret, Assistant Professor, Ph.D., Kansas State University, 1990; 1990. Experimental, industrial/organizational, gender bias in personnel decisions.

Swanson, Jane L., Associate Professor, Ph.D., University of Minnesota, 1986; 1986. Counseling, career choice and development, measurement of vocational interests, counselor training.

Tinsley, Howard EA., Professor, Ph.D., University of Minnesota, 1971; 1973. Counseling, career counseling, psychological measurement, leisure activities, personality.

Vaux, Alan, Professor, Ph.D., Trinity College, 1979; Ph.D., University of California/Irvine, 1981; 1980. Clinical, community psychology, environmental psychology, behavioral analysis, intervention and theory, social support and stress.

Westberg, William C., Professor, *Emeritus,* Ph.D., Pennsylvania State University, 1948; 1952.

Yanico, Barbara, Associate Professor, Ph.D., Ohio State University, 1977; 1978. Counseling, psychology of women, sex roles, counseling theories, vocational development, employee relations.

The Department of Psychology offers graduate work leading to the Master of Arts, Master of Science, and Doctor of Philosophy degrees with a major in psychology with concentrations in the following areas: experimental, clinical, and counseling psychology. The primary emphasis is on doctoral training, for which the master's degree is a prerequisite.

The goal of graduate study in the Department of Psychology at SIUC is to develop psychologists who will have a broad perspective and scientific sophistication as well as the requisite skills to advance the field of psychology and meet changing needs. The program emphasizes formal course work in the core cur-

riculum and in the concentrations, preprofessional activities in training assignments, research, and practicum opportunities.

Admission and Advisement

Separate application forms must be submitted to the Department of Psychology and to the Graduate School. Graduate School and departmental application forms may be obtained from the Department of Psychology. Separate forms are not required for application for financial assistance, except for Graduate School fellowships. Students will be accepted for graduate work in psychology only upon approval by the departmental admissions committee as well as the Graduate School. Evaluations of applicants by the departmental admissions committee are based on information from the application form, GRE scores, transcripts, and letters of recommendation.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Upon admission to the department, each student is assigned to a faculty adviser, who assists in academic matters, including the planning of the student's program of study: required courses, planned electives, anticipated dates for fulfillment of specified requirements, etc.

A new adviser may be assigned to a student for 2 reasons: (a) the student or adviser may request a change of adviser; (b) the student may change to a different major area. Requests for a change of adviser should be made in writing to the student's major area committee. To change majors, the student should petition the area subcommittee of the new major.

Core Curriculum

All students must complete the following minimum requirements which may be supplemented by requirements specific to concentration areas.

1. two of three courses from 522, 524, and Educational Psychology 507.
2. 509 for students who have not completed a course in thc history and systems of psychology.
3. thesis (599) registration; students enrolled in the master's degree program should complete the thesis requirement (599, 4–6 hours) by the end of the second year.
4. one course from each of the four core coverage areas specified by the American Psychological Association. A list of course which meet core coverage requirements is maintained by the department.

Areas of Concentration

EXPERIMENTAL PSYCHOLOGY CONCENTRATION

The experimental psychology program provides students with thorough training in theory and research methods applicable to the study of behavior. The program is designed to provide a variety of career paths for research and teaching in academic and nonacademic settings. The student emphasizes 1 of the 3 areas of experimental psychology: applied experimental psychology; biopsychology of learning and memory; and life span developmental psychology. In addition to general departmental requirements, students in experimental psychology take a course in computer programming and must register for research credit (593, 594a, 599, or 600) during all but the first 2 semesters of residence.

Students in applied experimental psychology take the following courses: 523, 524, 569, 571, two additional courses in research methodology, and an additional course computer use. PSYC 571 should be taken during the first semester in residence, and 569 during the second, third, and fourth years. Students in the biopsychology of learning and memory take 510, 511, 514, and courses in animal

models of human memory and neuroanatomy. Students take 3 additional courses or seminars relevant to their interests in the biological bases of behavior and/or learning and memory. Students in life span development take 551, 554, either 514 or 515, and 5 additional approved courses or seminars presenting the biological, cognitive and perceptual aspects of human development. The additional course work must emphasize at least 2 of the major developmental periods: infancy/childhood, adolescence, and adulthood/old age.

CLINICAL PSYCHOLOGY CONCENTRATION

The clinical psychology program, approved by the Education and Training Board of the American Psychological Association, is designed to develop clinical psychologists for careers in clinical service, teaching, and research. All clinical students take the core of courses and receive early and continued practicum training in both clinical activities and research. Individual interests are accommodated through electives and training assignments and through specialty programs. The following courses are required of all clinical students: 432, 523, 530a and b, 531, 535, 540, 586, 594e, 598.

In addition to the clinical core students take a minimum of 6 additional courses in their emphasis: (1) general clinical students are required to take an assessment practicum and an additional semester of therapy practicum plus 4 electives; (2) the experimental clinical students are expected in their 6 additional courses to take those which have a research orientation, e.g., 532, 533, 539, etc.; in addition, except when enrolled for thesis or dissertation hours, the student is expected to be involved in research each term after the first year; (3) students in the child clinical emphasis are required to take 556 plus 5 electives. In addition it is expected that they will take 552 and 554 as a part of departmental electives.

COUNSELING PSYCHOLOGY CONCENTRATION

The counseling psychology program, approved by the Education and Training Board of the American Psychological Association, is designed to teach students a wide range of skills which will prepare them to function as scientist-practitioners. Graduates are qualified for employment in a university setting (either in an academic department or a counseling center), in hospitals, community agencies, and educational and correctional institutions. The student is expected to develop competence in counseling, psychological assessment, consultation, research, and teaching. The required courses are as follows: 523, 526, 530, 536, 538, 540a, 547, 548, 553, 558, 594f, and 598.

Research, Practicum, and Training Assignments

Research or practica are required in each area of concentration. In addition, each term the student must be engaged in a training assignment which supplements formal course work by professional activities such as research, teaching, or clinical service. The assignment varies according to the needs, professional goals, and competencies of the student, and increases in responsibility as the student progresses. The assignments require from 10 to 20 hours of service per week. This is a degree requirement of all students each term and is independent of any financial support. Therefore, each term the student signs up for one hour of 597.

Master's Degree Requirements

The master's degree requires a minimum of 48 semester hours of acceptable graduate credit, distributed according to the requirements of the student's major area, and the completion of an approved thesis. The master's thesis may be either original research or the replication of an important study. The master's degree is a prerequisite for the doctorate.

Doctoral Requirements

Admission. Admission to the Ph.D. program requires a master's degree, a grade point average of 3.25 or above in graduate studies, and acceptance by the department. A student who receives the master's degree from SIUC must apply formally to the Graduate School for admission to doctoral-level study, and must be approved by the faculty.

Records of students entering the program with a master's degree from another institution are evaluated by the departmental admissions committee which notes deficiencies, recommends methods for removing them, and specifies a time limit to do so. Such deficiencies must be removed before the student can be classified as a Ph.D. candidate. The student is recommended to the graduate dean for admission to Ph.D. candidacy only when core curriculum requirements and the preliminary examination(s) have been satisfactorily completed.

Accelerated Entry into Ph.D. Degree Program. Students enrolled in the M.A. degree program may be admitted directly to the Ph.D. degree program following departmental certification of graduate work comparable to a master's degree in psychology at SIUC. Accelerated entry is acceptable only for students who have completed substantial work in other programs in psychology which grant the Ph.D. degree but not a master's degree. Students seeking accelerated entry may apply after enrollment at the master's level for one semester. Applications for accelerated entry are reviewed and decided by a faculty committee appointed by the department chair.

Internship. Doctoral students who are concentrating in counseling or clinical psychology must complete an APA-approved internship. The internship is viewed as an integral part of training and the Ph.D. degree is not awarded until the completion of all academic work and the internship. Students are responsible for scheduling and obtaining internships. Internships in counseling and clinical psychology require a full-time experience either for one calendar year, or for two years of half-time experience. Counseling and clinical students are approved for internship after completion of their master's degree, major and minor preliminary examinations, and all courses required for the Ph.D.

Students in applied experimental psychology are encouraged to complete an internship in an applied setting away from campus that is selected with the help of their faculty advisers in their major area of concentration.

Preliminary Examinations. Ph.D. candidacy is contingent upon successful completion of a written preliminary examination in the student's major area of concentration. The examination is composed primarily of essay questions requiring substantive knowledge of empirical and theoretical topics. Questions are not limited to course content.

Every student is expected to pass each examination on first taking. In any event a second failure on a preliminary examination will result in a thorough faculty review of the student's entire academic record in order to determine whether the student will be allowed to continue in the program and, if continued, under what conditions.

Major / Comprehensive. Fields of concentration for the major/comprehensive preliminary examination are listed below:

1. Experimental. Any one field from the following may be selected for the comprehensive examination: applied experimental, biopsychology of learning and memory, life-span developmental.
2. Clinical. The major examination includes the following: psychological assessment, psychotherapy, psychopathology, and personality. In addition for

the student, the examination reflects the specialization emphasis, i.e., general, child, or experimental.

3. Counseling. The major examination includes the following areas: (a) adult personal, social, and career development, (b) assessment, (c) group and individual counseling theories and techniques, (d) research methodology and measurement, and professional issues.

Major/comprehensive examinations are scheduled by the department once a term, ordinarily within the first 2 weeks. Notices are posted well in advance and students are expected to notify the graduate secretary of their intention to take the examination. Examination committees are appointed by the chair.

Minor/Specialization. In addition to the major/comprehensive preliminary examination, a minor/specialization preliminary examination may be required or optional in the student's concentration area.

Dissertation. Each candidate for the Ph.D. degree must write a dissertation showing high attainment in independent, original scholarship and creative effort. A total of 24 semester hours is required. A maximum of 8 hours of dissertation credit may be taken subsequent to passing the minor preliminary examination and prior to passing the major preliminary examination. A student may not hold a prospectus meeting before successful completion of both minor and major examinations.

Thesis and Dissertation Committee

Because the thesis or dissertation project and the proposed committee composition must be formally approved by the department chair, the student should arrange a meeting with the chair well in advance of the prospectus meeting.

A master's thesis committee consists of 3 members including the chair of the committee and a psychology faculty member who is typically from some field other than the student's major area of interest. The Ph.D. dissertation committee consists of 5 members, 1 of whom serves as chair. One of the members must be from a department other than psychology.

Prospectus. Prior to starting the experimental research on a thesis or dissertation, a student must submit a written prospectus to each member of the committee. A carefully written prospectus ordinarily serves as the opening chapters of the thesis or dissertation. The student also prepares an abstract (normally no more than 2 pages) to be posted in the psychology department office one week before the prospectus meeting.

The approval of the prospectus indicates that the committee members accept the research design. Faculty members not on the committee may attend the prospectus meeting, or may forward suggestions and comments to the committee chair prior to the meeting. Prospectus meetings are not scheduled during the recess period between semesters.

If the prospectus is approved with no major modifications, one copy of the prospectus and a letter of approval, noting any minor modifications are sent by the committee chair to the department chair for filing in the student's permanent records. If major modifications are needed, the student may be asked to rewrite the prospectus, circulate the revised prospectus, arrange another committee meeting, and then file the revised prospectus as above. A prospectus must be approved at least one semester before graduation.

Style. The student has the option of writing the thesis or dissertation in the traditional fashion or in journal style. In the latter case, ancillary material (full survey of literature, subsidiary analyses, etc.) are placed in the appendices, although figures and tables appear in the text. The psychology department prefers

that citations, table headings, etc. follow the APA style (*Publication Manual of the American Psychological Association,* 1983 revision, Washington, D.C.).

General Procedures. Students should not register for 599 or 600 hours until they have supervisors and will actually be using university facilities, or faculty time for assistance and direction.

Prior to graduation (a minimum of 5 weeks for master's students and 8 weeks for doctoral students) the candidate must submit a final rough draft of the thesis or dissertation to the full committee so that appropriate suggestions can be made. At least one week usually expires between the submission of the rough draft and the oral examination.

Number of Copies. Four copies of the complete thesis or dissertation are required: two copies are submitted to the Graduate School for placement in the University library, and two bound copies—one for the committee chair, and one for the departmental thesis and dissertation library.

Oral Examination

The Department of Psychology requires an oral examination, conducted by the student's thesis or dissertation committee, for each M.A. and Ph.D. candidate. The examination covers the thesis or dissertation and also includes questions designed to ascertain the student's general competence in psychology.

Oral examinations are open to all interested observers. Notices of the time and place of the examination, and abstracts of the thesis or dissertation, are circulated throughout the department and, in the case of Ph.D. examinations, throughout the University. Two copies of the abstract should be given to the graduate program secretary.

The candidate obtains copies of the oral examination form and the thesis or dissertation evaluation form from the graduate program secretary, and delivers them to the committee members on the day of the orals. Orals meetings are not scheduled during the recess period between semesters.

General Information

Waiving of Course Requirements. Students who wish to have a course waived should consult with their advisers, the course instructor, and the head of their major area. One of the following recommendations will be made: (a) the course will be waived; (b) a proficiency examination (theoretical, practical, or both) will be given prior to deciding on the student's request; (c) the request will be refused and the student will take the course. A student may appeal the decision by writing a letter to the department chair requesting that the case be reviewed.

Grading Policies. Any student who receives a grade of *Inc.* is responsible for contacting the instructor to determine the time allowed for the completion of the course (normally not more than one year).

For internal records to be used within the department only, pluses and minuses are added to the standard *A, B, C* grades reported to the Office of Admissions and Records.

Student Evaluation. All students are evaluated by the faculty at least once a year, normally during fall semester. New students are evaluated in the beginning of spring semester (first year) and students on departmental probation at times specified in their probation. The evaluation is based on the following criteria: (1) academic performance on a ten point rating scale ($A^+ = 10$); (2) ratings on the training assignment; and (3) progress toward the degree. The student's evaluation may also be based upon evidence relating to professional attitudes or ethical behavior.

Each student's adviser informs the student of the evaluation and of any faculty recommendations as soon as possible after the meeting. In addition, the department chair writes a formal letter notifying the student of the evaluation and recommendations.

Courses (PSYC)

407-3 Theoretical Issues in Learning. An introduction to the major theoretical issues in learning and their importance. A brief review of the history of such problems will be followed by a summary of the current research concerning these issues. Traditional figures in learning theory will be considered within the context of their positions on specific questions. Prerequisite: 211 and 309 or equivalent, or graduate status.

409-3 History and Systems of Psychology. A review of the conceptual and empirical antecedents of modern psychology. Prerequisite: 211 and senior status or graduate status.

411-3 Principles of Training. An in-depth coverage of practical problems concerned with training to which the principles of learning derived from pure laboratory investigations can be applied. Prerequisite: 211 and 309, or graduate status.

413-3 Individual Differences. Reviews the reliable and theoretically significant individual and group differences that have been revealed by research in the behavioral sciences. Examines differences in general intelligence, specific verbal and spatial abilities, stylistic and personality characteristics, as well as such group differences as sex, race and socioeconomic status. Prerequisite: 211 and 305, or graduate status.

415-4 Psychopharmacology. A survey of the effects of drugs on the normal and abnormal behavior of humans and animals. A primary focus is upon understanding drug influences on behavior in relation to actions on the nervous and endocrine systems. Prerequisite: 211 and 302 or graduate status.

416-3 Recovery of Function Following Brain Damage. A survey of experimental animal and human clinical research as they relate to behavioral recovery following damage in the central nervous system. Recent theories and literature are stressed. Prerequisite: 211 and 302, or graduate status, or consent of instructor.

419-3 Behavior and Heredity. Provides an overview of the experimental and quantitative methods used in studying behavioral differences associated with genetic variables. Elementary aspects of genetics will be included in the course, which will examine several aspects of both human and nonhuman behavior. Prerequisite: 211 or consent of instructor, or graduate status. Zoology 214, Biology 305 or equivalent recommended.

420-3 Advanced Industrial and Organizational Psychology. Advanced examination of topics in industrial and organizational psychology focusing more heavily than Psychology 320 on applications of psychology to human resource management, such as job analysis, performance appraisal systems, personnel selection and training. In addition to exams covering content, students are required to apply knowledge and skills learned on individual and group projects. Prerequisite: 211.

421-3 Psychological Tests and Measurements. Introduction to test theory and test development. Detailed coverage of selected tests from such areas as intelligence, aptitude and personality. Prerequisite: 211 or graduate status.

431-3 Psychopathology. A comprehensive overview of major psychological problems, including emotional, personality, psychotic and developmental disorders. Problems will be described in terms of their principal features, and research and theory will be reviewed. Strategies of assessment, the utility and limitations of diagnostic systems, alternative views of abnormality and clinical research methods will be examined. Prerequisite: 211 and 305, consent of instructor or graduate status.

432-3 Psychopathology of Childhood. An extensive review and systematic evaluation of theories and research pertaining to the behavior disorders of childhood. Emphasis will be upon empirical data and the implications of these data for the classification and treatment of these disorders. Prerequisite: 211 and 301 or graduate status.

440-3 Theories of Personality. A review and evaluation of major personality theories and their supporting evidence. Prerequisite: 211 and 305 or graduate status or consent of instructor.

441-3 Helping Skills in Clinical and Counseling Psychology. Provides systematic training in helping skills for students considering clinical or counseling psychology as a career. Students learn to identify and demonstrate such individual skills as encouragement, paraphrasing, and reflection of feeling, and will use them in practice situations. Students will also learn to apply various approaches to psychotherapy and counseling using hypothetical case studies. The course is complementary to 340. Prerequisite: 211 and 340 or graduate status or consent of instructor.

445-4 Psycholinguistics. (Same as Linguistics 445.) A broad spectrum introduction to psycholinguistics. Topics to be covered include general methodology for the study of psycholinguistics, the nature of language, theories of human communication, language comprehension and production, first and second language acquisition, meaning and thought, natural animal communication systems, and language and the brain. Prerequisite: 211.

451-3 Advanced Child Psychology. An assessment of concepts, methods and research techniques within selected topic areas of developmental psychology. Prerequisite: 211 and 301 or graduate status or consent of instructor.

461-3 Advanced Social Psychology. Critical examination of contemporary theories and research in social psychology. Practice in application of scientific findings to real-life problems of individuals and groups. Issues treated in depth are chosen for relevance to student's personal needs and career interests. Prerequisite: 211 and

307 or graduate status. Not for psychology graduate students.

463-3 Attitudes and Persuasion. An examination of theory and research regarding the formation of attitudes, the modification of attitudes, and the techniques for measuring attitudes. Prerequisite: 211 and 307 or graduate status.

464-4 Social Factors in Personality and Adjustment. (Same as Sociology 426) Review of selected theoretical orientations and research traditions in social psychology. Comparison of different theoretical and methodological approaches: symbolic interaction, role theory, developmental and social psychology, theories of attitude organization and change, studies of belief and value systems, theories of socialization. Prerequisite: 211 and 307.

465-3 Needs Assessment Techniques for Mental Health Planning. Surveys methodological techniques for assessing the need for mental health services including developing a resource inventory, use of census and other social indicator data, rates under treatments, community and consumer surveys, hearing and site visits. Attention is also paid to method of presenting results of need assessments to lay boards. Prerequisite: 211 and senior standing in psychology or graduate status or consent of instructor.

489-1 to 12 Seminar: Selected Topics. Varied content. Offered as need exists and as faculty interests and time permit. Prerequisite: 211 and consent of instructor.

503-3 Individual Differences. Reviews the reliable and theoretically significant individual and group difference that have been revealed by research in the behavioral sciences. Examines differences in general intelligence, specific verbal and spatial abilities, stylistic and personality characteristics, as well as such group differences as sex, race and socioeconomic status. Prerequisite: graduate status in Psychology.

509-3 History and Systems of Psychology. A review of conceptual and empirical antecedents of modern psychology. Students research and summarize topics on 20th Century systematic developments. Prerequisite: graduate status in Psychology.

510-3 Learning Processes. Reviews current literature in various areas of learning. Coverage is limited to those topics which are subject to laboratory investigation and which do not involve verbal processes.

511-3 Human Learning and Memory. Survey of the current experimental theoretical literature on human learning and memory with primary emphasis on verbal learning and memory. Prerequisite: consent of instructor.

512-4 Sensory Processes. A study of the structure and functions of the sense organs. Emphasizes the psychological data which describe the function of these organs. Lecture and laboratory. Prerequisite: consent of instructor.

513-3 Human Psychophysiology. Physiology, instrumentation, and methodology of psychophysiological measurements including both autonomic and central nervous systems. Attention will be given to basic and applied research. Prerequisite: graduate standing.

514-4 Neurobiological Bases of Behavior. An advanced study of neuroanatomical and neurophysiological principles underlying behavior. Topics covered include structure and function of neurons, synaptic transmission, sensory processing, motor control, development and plasticity of the nervous system and other current topics in neurobiology. Prerequisite: 302 or equivalent and consent of instructor.

515-3 Theory and Research in Cognitive Psychology. A detailed survey of current studies of attention, short-term memory and thought processes. Prerequisite: consent of instructor.

516-3 Human Clinical Neuroanatomy. Basic functioning of the nervous system, detailed gross anatomy and dissection of the human brain, functional disorders following brain damage, noninvasive cranial nerve examination. Prerequisite: graduate standing.

517-3 Aging, Memory and Cognition. A detailed survey of current methodology, research and theory dealing with cognitive and memory processes in later adulthood. Topics covered include attention, memory, reasoning and problem solving, language processing and inference and age-associated pathologies affecting cognition and memory. Prerequisite: consent of instructor.

518-4 Psychopharmachology and Behavior. A detailed survey of the effects of drugs on the normal and abnormal behaviors of human and animals. A primary focus is upon understanding drug influences on behavior in relation to actions on the nervous system, endocrine system and behavior pathology. Students review and summarize origional research in the area. Prerequisite: graduate status in psychology or permission of instructor.

519-3 Research on Individual Difference. Reviews the reliable and theoretically significant individual and group differences that have been revealed by research in the behavioral sciences. Examines difference in general intelligence, specific verbal and spacial abilities, stylistic and personality characteristics, as well as such group differences as gender, race and socioeconomic status. Students review and summarize original research in the area and lecture on that topic. Prerequisite: graduate status in psychology or permission of instructor.

520-3 Applications of the Psychology of Learning and Memory. A survey of the theories and methods of training that have resulted from research in the areas of learning and memory. Students will review some of the very recent methods as well as those that are better developed. Practice will be provided. Prerequisite: 309 or consent of instructor.

522-4 Experimental Design and Analysis. In-depth coverage of the rationale underlying the design and analysis of complex experimental designs used in psychological research. Prerequisite: psychology graduate student or consent of instructor.

523-3 Research Methods in Applied & Professional Psychology. Discussion of problems of experimental and quasi-experimental design, control and analysis that are encountered by researchers in applied and professional psychology. The course covers critical evaluation of internal, construct, and external validity and the application of randomized and non-randomized designs for causal inference. Passive-observational and

qualitative designs are covered at the instructor's discretion. Examples of current research practice from applied, counseling and clinical psychology are reviewed. Prerequisite: graduate status in psychology or consent of instructor.

524-3 Multivariate Methods of Psychology. Detailed treatment of multiple-factor analysis and multiple regression analysis. Also includes introduction to other multivariate methods such as discriminant analysis and cluster analysis. Prerequisite: 522b and Psychology graduate status.

525-3 Mental Test Theory. Intensive coverage of such topics in test theory as item analysis, reliability, validity, problems of weighting in differential prediction, and problems in selection and classification. Prerequisite: 421 or consent of instructor.

526-3 Research in Counseling Psychology. This course provides a basic foundation of research skills. The course includes extensive reading in counseling psychology research and coverage of research design, specific research techniques, technical writing and research ethics.

527-3 Theory and Methods of Scaling. The theory of measurement, by which observed behavioral events can be translated into quantitative scales of psychological constructs. The course will cover several axiom systems that form the foundation for psychological measurement, including representation in more than one dimension. Prerequisite: 522b.

528-3 Decision Analysis: Techniques for Aiding Decisions. A survey of formal methods for making decisions, based on subjective probability and multiattribute utility assessments. Students will be given practice in using methods of decision analysis for solving decision problems. Prerequisite: 522a or consent of instructor.

530-3 Theories of Counseling and Psychotherapy. A survey of the major theories of personality and systems of counseling and psychotherapy. Stresses relationship between theory and application. Prerequisite: consent of instructor.

531-3 to 6 Community and Institutional Field Placement. Introduction to a variety of area agencies with each student affiliating with two agencies at least two days per week. Individual and group supervision with special attention to the variety of clinically related problems and approaches to treatment encountered in the course of their activities. Required for clinical students. Prerequisite: 530b, psychology graduate in clinical or counseling.

532-2 Experimental Approaches to Personality. Presentation of conceptual formulations and research data from representative experimental approaches to personality. Students will be expected to carry out a research project during the course. Prerequisite: 530a or consent of instructor.

533-2 Experimental Approaches to Psychopathology. An examination of the research literature on several issues in clinical psychopathology. Prerequisite: psychology graduate or consent of instructor.

534-3 Principles of Behavior Therapy. (Same as Rehabilitation 554.) A presentation of the clinical techniques and research findings associated with the various behavior therapies (including desensitization, assertive training, modeling, operant techniques, aversive conditioning, "cognitive" behavior therapy). Prerequisite: graduate standing in the Psychology Department (clinical/counseling) or consent of instructor.

535-3 Psychopathology. Surveys the following issues and content areas in psychopathology: models and definitions of psychopathology, anxiety states, depression, schizophrenia, neurosis, behavior genetics, the mental hospital and the classification of psychopathology. This course required for all clinical students within their first two years. Prerequisite: psychology graduate student or consent of instructor.

536-4 Fundamentals of Counseling. An introduction to counseling psychology as a professional specialty. Professional and ethical issues in the training and work of counseling psychologists are examined. Basic counseling skills are acquired through practice interviewing. Prerequisite: psychology graduate student or consent of instructor.

538-3 Theory and Practice of Group Facilitation. Didactic presentation of group dynamics and group counseling/therapy. Theories coordinated with facilitation of Psychology 101 groups. Prerequisite: graduate status.

539-3 Experimental Approaches to Psychotherapy. A review and evaluation of empirical research related to the amelioration of maladjustment. Emphasis is on measurement and methodological problems. Prerequisite: 530 or consent of instructor.

540-7(4,3) Psychological Assessment. Basic theory, practice, underlying assumptions and research data on psychological assessment. **(a)** Objective psychological assessment. Methods include intelligence testing, objective personality scales, interviews and observations. Includes one hour laboratory section. **(b)** Projective psychological assessment. Methods include the Rorschach Inkblot technique and Thematic Apperception Test. Prerequisite: psychology graduate status.

542-3 Principles and Problems in Personality Assessment. Critical review of research related to such topics as scale construction strategies, response styles, trait attribution, judgmental accuracy, and judgmental processes. Prerequisite: consent of instructor.

543-3 Advanced Child Assessment. Basic theory, research, and practice in the psychological assessment of children's learning and emotional problems. Prerequisite: 540a, consent of instructor and psychology graduate standing.

544-3 Advanced Adult Assessment. Practical experience at conceptualizing psychopathology from a standard clinical test battery and in writing clinically meaningful test reports. Prerequisite: 540a, 540b, consent of instructor and Psychology graduate standing.

545-3 Introduction to Neuropsychological Assessment. Overview of the development of neuropsychology from signs to test batteries and methodology. Prerequisite: 540a, consent of instructor and psychology graduate status.

546-3 Human Clinical Neuropsychology. This course will familiarize students with the basic concepts, empirical foundations, and clinical applications of human clinical neuropsychology. The neurobehavioral manifestations of both acute and

chronic conditions will be covered. Prerequisite: 540a, psychology graduate status and consent of instructor.

547-3 Fundamentals of Psychological Measurement. Examination of the fundamental principles and concepts of psychological measurement, including theories of personality and ability structure, test construction and standardization procedures, and conceptions of reliability and validity. Prerequisite: 421 or consent of instructor.

548-3 Vocational Psychology and Career Development. Introduces students to vocational psychology as an area of academic inquiry. The topics covered include theories of career development, occupational information, computer applications, research issues, and vocational counseling techniques. Prerequisite: 547 or consent of instructor.

549-3 Behavioral Assessment. A didactic and practicum course concerned with principles and methods of behavioral assessment including behavioral interviewing, questionnaires, self-monitoring, naturalistic and structured observation and psychophysiological assessment.

550-3 The Psychological Construction of Gender. (See Women's Studies 550).

551-3 Advanced Developmental Psychology I. Studies current research trends in experimental child psychology: an introduction to methods and theory, the biological bases of development, infancy, cognition, perceptual development and language. Prerequisite: consent of instructor.

552-3 Advanced Developmental Psychology II. Consideration of current methods, research, and theory in developmental psychology with particular attention to social and personality development, and parent-child relations. Prerequisite: consent of instructor.

553-3 Cross-Cultural Psychology. Examines different topics in areas such as psychopathology, social and developmental psychology from a cross-cultural perspective. Prerequisite: consent of instructor.

554-3 Developmental Theories. An analysis of contemporary theories of development and related research as they are derived from major historical theories of development. Prerequisite: 551 and consent of instructor.

555-3 Language and Cognition. Current theoretical problems in language and cognitive developments are investigated from the perspective of psychology, physiology, linguistics and computer simulations. Prerequisite: consent of instructor.

556-3 Child Psychotherapy. Survey and analysis of traditional and contemporary approaches to individual child psychotherapy. Includes psychodynamic, humanistic-nondirective, hypnotherapy-imagery and other perspectives as well as therapy outcome research. Prerequisite: consent of instructor and psychology graduate status.

557-3 Family Psychotherapy. Investigation of the psychosocial interior of the family. Evolution and dynamics of interaction in families. Study of the methods of therapeutic intervention with families. Prerequisite: consent of instructor and psychology graduate status.

558-3 Personality and Social Development of Adults. A lecture-discussion course which presents the major theoretical and empirical literature in the area of adult personality and social development. Students are encouraged to apply normal developmental constructs to understand individual adults, as well as to gain competence in research methods in this area. Prerequisite: psychology graduate student or consent of instructor.

559-3 Behavioral Child Therapy. Survey and analysis of behavioral and cognitive-behavioral approaches to the treatment of child psychopathology. Prerequisite: consent of instructor and psychology graduate status.

563-3 Research in Attitudes and Persuasion. Detailed review of current theory and research in social psychology of attitude formation and change and of persuasion techniques. Students will develop literature reviews and conduct origional research. Prerequisite: graduate status in psychology or consent of instructor.

564-3 Program Evaluation: Experimental and Quasi-Experimental Approaches. Review of experimental and quasi-experimental designs for assessment of program impact. Discussion of design, logistic, and political implementation problems. Detailed examination of a number of attempts at program evaluation. Prerequisite: 500-level statistics course.

565-3 Research in Organizational Psychology. In depth examination of theoretical and research literature in organizational psychology. Topics include, but are not limited to, theory and research literature on work motivation, job attitudes, leadership, group processes, organizational stress and women and minorities in the work place. Prerequisite: graduate status in psychology or permission of instructor.

567-3 Stress, Coping and Social Support. Overview of theory and research on stress, coping and social support. Emphasis is on psychosocial approaches to the stress process including life events, hassles, work stress, and family stress. Social support also is examined, both as a moderator of stress effects and as a valuable resource in its own right.

568-3 Community Psychology. Comprehensive overview of community theory, research, and action. Topics covered include: (1) paradigmatic assumptions of the community approach to psychosocial problems; (2) basic concepts, models and issues including prevention, paraprofessionals, systems theory, and social context; (3) social intervention strategies; and (4) examination of selected contemporary psychosocial problems. Prerequisite: psychology graduate status or consent of instructor.

569-1 to 3 Applied Research Consultants. Consulting firm which provides applied research experiences for advanced graduate students on planning, data gathering, evaluation, and decision making projects for units of university and area agencies and businesses. Students exercise decision making power in all aspects of the firm: project solicitation, fee setting, expenditures. Graded *S/U* only. Prerequisite: 571 or consent of instructor.

571-6 (2,2,2) Proseminar in Applied Experimental Psychology. A survey of the problem areas to which applied experimental psychology is applicable and of the principal methods employed by applied experimental psychologists. Integration of these approaches within a comprehensive

metatheory. Case studies apply the information to actual and simulated application problems.

576-3 Human Engineering. Analysis of human-machine systems, human factors in the design of display and control systems, limitations and capabilities of the operator. Lecture and research or field study. Prerequisite: consent of instructor.

585-1 to 18 Advanced Seminar. Seminars of varied content for advanced students. Prerequisite: consent of instructor.

586-1 Clinical Research Seminar. Required seminar for students enrolled in the Clinical Psychology program. Prerequisite: Psychology graduate status and classified status in Clinical Program.

590-1 to 12 Readings in Psychology. Readings in selected topics in psychology under staff supervision. Graded *S/U* only. Prerequisite: consent of instructor.

593-1 to 24 Research in Psychology. Research under staff supervision in selected areas of psychology. Graded *S/U* only. Prerequisite: consent of instructor.

594-1 to 16 Practicum in Psychology. Practicum experience in a professional setting is offered under staff supervision in the following areas: **(a)** Applied experimental psychology; **(c)** Clinical skills. Introduction to the professional skills and issues of clinical psychology including ethics, interviewing, change processes, diversity issues. **(f)** Counseling psychology; **(l)** Teaching of psychology. Graded *S/U* only. Prerequisite: consent of instructor.

595-1 to 12 Internship. Placement in an approved setting required of all students in clinical, bio-clinical, and counseling psychology. Graded *S/U* only. Prerequisite: psychology graduate student.

596-3 Behavior Therapy Practicum. Practicum experiences with a variety of behavior therapies in a variety of settings. Experiences may include operant and nonoperant therapies in the clinic, school, institution, home or community. Prerequisite: 534, 549.

597-1 to 15 Preprofessional Training. Experience given in research, teaching, or clinical or counseling activities. One hour required each semester of residence. Graded *S/U* only. Prerequisite: psychology graduate student.

598-3 Ethical and Professional Problems in Psychology. The code of ethics in professional practice, in teaching and research; problems and issues of the field are discussed; and relations to other professions and the public are considered. Prerequisite: consent of instructor.

599-1 to 6 Thesis.

600-1 to 24 Dissertation.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Public Administration

E-mail: mpaprog@siu.edu

(See Political Science for program description.)

Radio-Television

E-mail: telecom@siu.edu

(See Telecommunications for program description.)

Recreation

E-mail: ge1840@siucvmb.siu.edu

COLLEGE OF EDUCATION

Glover, James M., Associate Professor, Ph.D., University of Maryland, 1980; 1989. Outdoor recreation, wilderness preservation, historical research, environmental related research, wilderness leadership.

Glover, Regina B., Associate Professor and *Chair,* Ph.D., University of Maryland, 1983; 1983. Leisure service administration, leadership personnel, communication, marketing, politics.

Malkin, Marjorie J., Associate Professor, Ed.D., University of Georgia, 1986; 1989. Therapeutic recreation, aging, substance abuse, curriculum development.

McEwen, Douglas N., Professor, Ph.D., Michigan State University, 1973; 1975. Recreation philosophy and history, outdoor recreation resource management, nature interpretation, ecology, campground management, risk in recreation.

O'Brien, William, Professor, *Emeritus,* Re.D., Indiana University, 1967; 1948.

O'Dell, Irma, Assistant Professor, Ph.D., University of New Mexico, 1992; 1995. Administration, programming, management, leadership, community satisfaction/life satisfaction, youth at risk, rural recreation.

Taylor, Loren, Professor, *Emeritus,* Ed.D., Columbia University, 1957; 1957.

Teaff, Joseph D., Professor, Ed.D., Columbia University, 1973; 1980. Therapeutic recreation, community recreation for special populations, recreation in corrections, leisure services with the elderly, administration of therapeutic recreation, research methods.

The Department of Health Education and Recreation offers a broad interdisciplinary program of studies preparing students for administrative careers in recreation management. The program leads to the Master of Science in Education degree with a major in recreation. A non-refundable application fee of $20.00 must be submitted with the application. (The application can be obtained from the department.) Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Master of Science in Education Degree

Graduate work in recreation stresses administration and research and is open only to highly qualified students. All students must be admitted to the Graduate School in good standing.

The graduate students in recreation must complete a common core of courses required of all students pursuing the master's degree in recreation. Included in this core are the thesis requirements and Guidance 506 (Inferential Statistics). After the completion of the core, the student may select 17 hours of electives of which 6 hours must be approved graduate courses in recreation. By utilizing the electives the student can emphasize a specific option or emphasis to pursue. This emphasis may include recreation administration, focusing on skills necessary for management of local, state, and federal recreation programs both in the public and commercial sector; outdoor recreation resource management which focuses on skills necessary to manage or administer programs, facilities and lands in the local, state, and federal park system; therapeutic recreation which focuses on skills necessary in the management of public and private organizations which provide a diverse array of therapeutic recreation services (this emphasis leads to certification). Variations of these include campus recreation management, expedition leadership, and facility management can also be pursued by the student.

The major requires a minimum of 36 semester hours of course work including 3 hours of thesis, 3 hours of research methods, and 4 hours of inferential statistic. A student must maintain an overall 3.0 (4 point scale) grade point average in order to be eligible for a recommendation to graduate. Upon completion of the required research course a student should select a chairperson for the thesis supervisor committee as soon as is practicable. A minimum of two additional graduate faculty members, one holding rank outside the faculty of recreation, are needed to form the full committee. More than three graduate faculty members will be appointed if necessary. After approval of a thesis topic the student will conduct a research effort under the committee's guidance. Upon completion of the research a final oral examination covering the thesis is required.

Major in Recreation

The core requirement for the degree is listed below.

MANAGEMENT OF RECREATION SERVICES

Theory Core
- REC 500-3 Principles of Recreation
- REC 501-3 Personnel in Leisure Services
- REC 508-3 Trends and Global Issues in Leisure Services

Research Methodology Core
- REC 550-3 Research in Recreation

Research Core
- GUID 506-4 Inferential Statistics
- REC 599-3 Thesis

Total core hours: 19
Elective hours: 17

Total hours required: 36

Courses (REC)

Courses in this major may require the purchase of supplemental materials. Field trips are required for certain courses.

401-3 Fundamentals of Environmental Education. (Same as Agriculture 401.)

423-3 Environmental Interpretation. (Same as Agriculture and Forestry 423.)

425-3 Planning and Design of Recreational Facilities. An examination of major design considerations for a variety of recreation facilities such as recreation centers, recreation sport complexes, parks, visitors centers, and natatoriums. Special attention will be given to long range facility planning. Prerequisite: senior or graduate standing.

431-3 Expedition Leadership. Course focuses on professional leadership of highly adventurous wilderness trips. Emphasis is on development of sound judgment, decision-making, and teaching in wilderness expeditions. Three-to five-week expeditions in a wilderness setting. Trip fee not to exceed $500. Outdoor Leader certification by Wilderness Education Association is offered.

440-15 (3 per topic) Therapeutic Recreation for Selected Populations. Students will be made aware of problems and characteristics of special population groups. Emphasis is upon the role of therapeutic recreation with these groups in institutional and community settings: **(a)** Therapeutic Recreation for the Mentally Ill. **(b)** Therapeutic Recreation for the Developmentally Disabled. **(c)** Therapeutic Recreation for the Aged. **(d)** Therapeutic Recreation for the Socially Deviant. **(e)** Therapeutic Recreation for the Physically Disabled. Prerequisite: 300, 302, 304 or consent of department.

445-3 Outdoor Recreation Management. Philosophy and principles underlying the growth and development of outdoor recreation management. Outdoor recreation is examined in terms of historical values, long range planning, site design, visitor needs and environment impact. A laboratory cost of up to $14 may be required. Prerequisite: 300, 302, 303 or consent of department.

460-3 Therapeutic Recreation Management. Organization and administration of therapeutic recreation programs in hospitals, nursing homes, schools for the retarded, detention centers, prisons and other institutions. Financial management and reimbursement issues are stressed. Prerequisite: 300, 302, 304 or consent of department.

461-3 Program Design and Evaluation for Therapeutic Recreation. To equip the student with skills necessary to systematically design and evaluate programs. Philosophy and nature of systems, system analysis, assessment, individual treatment planning, implementation and evaluation of treatment programs. Prerequisite: 300, 302, 304, one section of 440, concurrent enrollment in 380, or consent of department.

462-3 Facilitation Techniques in Therapeutic Recreation. This course is designed to provide an understanding of the basic processes and techniques of therapeutic recreation and to develop technical competencies necessary for the provision of quality therapeutic recreation services. Emphasis is on the skillful application of various processes and techniques to facilitate therapeutic changes in the client and the client's environment. Prerequisite: 304 or concurrent enrollment.

465-3 Advanced Administrative Techniques. Designed to examine current administrative topics in recreation such as practices and trends in budget and finance, legal aspects, grant writing, personnel practices and policies and others. Prerequisite: 365, 380.

475-3 to 39 (3 per topic) Recreation Workshop. Critical examination and analysis of innovative programs and practices in one of the following areas: **(a)** Budget and finance, **(b)** Campus recreation services, **(c)** Commercial, **(d)** Maintenance of areas and facilities, **(e)** Outdoor recreation, **(f)** Personnel, **(g)** Technological advances, **(h)** Therapeutic recreation–aging, **(i)** Therapeutic recreation–developmental disability, **(j)** Therapeutic recreation–emotional illness, **(k)** Therapeutic recreation–physical disability, **(l)** Therapeutic recreation–prisons and detention centers, **(m)** Tourism.

485-2 to 12 Practicum in Outdoor Education. A supervised experience in a professional setting. Emphasis on administrative, supervisory, teaching and program leadership in outdoor, conservation, or environmental education setting. Costs for travel are the responsibility of the student. Prerequisite: consent of instructor.

500-3 Modern Concepts of Leisure. This course explores the meaning of leisure, recreation, and play from a philosophical and psychological perspective. The historical and contemporary relationships among work, time, lifestyles and leisure are analyzed. In addition, the course attempts to develop students' viewpoints toward these topics in order that they formulate a philosophy of leisure. Required of all majors.

501-3 Personnel in Leisure Services. This course will examine administrative issues regarding personnel in leisure delivery systems. Topics include: leadership theory, selection and training, legislation, collective bargaining, motivation, performance appraisal, power and gender. Prerequisite: 365.

502-3 Revenue Production for Leisure Service Organizations. An integrative view of revenue production for leisure service organizations. Numerous practices of generating income, such as fees and charges, facility rental, bonds, investments and public/private cooperative development will be examined in relationship to their ability to aid an organization in achieving its stated objectives. Prerequisite: 365.

503-3 Managing and Marketing Leisure Services. An examination of the critical functions of a manager in public and private leisure service organizations. Particular topics include goal and policy development, ethics, risk management, fiscal management and facility opera-

tions. Special attention is given to the leisure service managers role in marketing recreation. Prerequisite: 365.

508-3 Trends and Global Issues in Leisure Services. This course will study the various issues and trends that affect leisure delivery systems. This course will be the culminating seminar for graduate students in Recreation. Prerequisite: 500, 501, 502, 550.

524-3 Professional Skills in Therapeutic Recreation. This course focuses on professional skills necessary at the administrative and supervisory level. Program and staff development, conference presentations, and inservice training, grantsmanship, article writing, budgeting, consultation and public relations comprise the core of the course. Prerequisite: 304, 460 or consent of department.

525-3 Recreation for Special Populations. Planning, organizing, selecting, evaluating, and adapting activities to a variety of institutional and community settings. Prerequisite: 500 or consent of department.

526-3 Seminar in Current Issues in Therapeutic Recreation. This course focuses on current issues in therapeutic recreation services including credentialing, accreditation, professional associations, legislation, research and other relevant issues. Prerequisite: 304 or consent of department.

550-3 Research in Recreation. Critical analysis of the most significant research studies in park and community, special populations, commercial and outdoor recreation. Prerequisite: 500.

560-9 (3 per topic) Seminar in Recreation. Major issues, trends, and cultural, economic and social significance in **(a)** Park and community, **(b)** Therapeutic recreation and individuals with disabilities, and **(c)** Commercial recreation. Prerequisite: 500 or consent of department.

565-3 Seminar in Environmental and Outdoor Education. Discussion of individual projects, presentation of research problems and dissertation topics. Prerequisite: consent of instructor.

575-1 to 6 Individual Research. Selecting, investigating, and writing of a research topic under the personal supervision of a member of the department. Designed to help the student to develop ability to design, conduct, analyze and interpret research related to the problem of leisure. Not more than three hours may count toward Master's degree. Prerequisite: consent of instructor.

580-1 to 6 Readings in Leisure and Recreation. Readings in selected topics in leisure and recreation under staff supervision. Not more than three hours may count toward master's degree. Prerequisite: consent of instructor.

596-1 to 6 Field Work in Recreation. Field work in an approved recreation department. Field work is in the student's field of interest. Supervision under approved agency officer in charge and a member of the department. Prerequisite: major in recreation and permission of the department.

599-1 to 3 Thesis. Prerequisite: consent of department.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Rehabilitation Institute

E-mail: rehab@siu.edu

COLLEGE OF EDUCATION

Allen, Harry A., Professor, Ed.D., University of Arkansas, 1971; 1970. Mental illness, psychosocial aspects of physical disabilities, counseling, death, and dying.

Anderson, John O., Professor, *Emeritus*, Ph.D., Ohio State University 1950; 1950.

Austin, Gary F., Professor and *Chair/Director*, Ph.D., Northwestern University, 1973; 1984. Deafness rehabilitation; psychosocial aspects of disability.

Beck, Richard J., Assistant Professor, Ph.D., University of Wisconsin, 1987; 1990. Chronic pain, substance abuse, workers' compensation, and cross-cultural counseling.

Bender, Eleanor, Assistant Professor, *Emerita*, M.S., Southern Illinois University at Carbondale, 1972; 1961.

Benshoff, John J., Associate Professor, Ph.D., University of Northern Colorado, 1987; 1988. Rehabilitation administration, private sector rehabilitation, substance abuse.

Blache, Stephen E., Professor, Ph.D., Ohio State University, 1970; 1971. Phonology, distinctive feature theory, experimental phonetics, research design.

Bordieri, James E., Professor, Ph.D., Illinois Institute of Technology, 1980; 1986. Vocational evaluation, rehabilitation administration, job placement, rehabilitation management.

Brackett, Isaac P., Professor, *Emeritus*, Ph.D., Northwestern University, 1947; 1951.

Brutten, Gene J., Professor, *Emeritus*, Ph.D., University of Illinois, 1957; 1957.

Bryson, Seymour L., Professor, Ph.D., Southern Illinois University at Carbondale, 1972; 1969. Social, economic, and culturally different clients.

Crimando, William, Professor, Ph.D., Michigan State University, 1980; 1980. Job development and placement, computers in rehabilitation, adjustment services, staff training and development.

Cuvo, Anthony J., Professor, Ph.D., University of Connecticut, 1973; 1973. Behavior analysis and intervention in developmental disabilities, evaluation research, legal and ethical issues.

Davis, Paula K., Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1989; 1995. Developmental disabilities, behavior analysis, transition from school to adult life.

Dickey, Thomas W., Associate Professor, *Emeritus,* M.A., Southern Illinois University at Carbondale, 1964; 1964.

Falvo, Donna, Professor, Ph.D., Southern Illinois University at Carbondale, 1978; 1974. Maintenance and support of the disabled.

Garbutt, Cameron W., Associate Professor, *Emeritus,* Ph.D., Louisiana State University, 1951; 1947.

Gardner, Margaret S., Associate Professor, *Emerita,* Ph.D., Northwestern University, 1960; 1968.

Greene, Brandon, Professor, Ph.D., Florida State University, 1979; 1979. Behavior analysis in consumer affairs; parent and staff training.

Hoshiko, Michael S., Professor, *Emeritus*, Ph.D., Purdue University, 1957; 1957.

Janikowski, Timothy P., Associate Professor, Ph.D., University of Wisconsin-Madison, 1988; 1988. Assessment, credentialing, private for-profit rehabilitation, computers in rehabilitation.

Koepp-Baker, Herbert, Professor, *Emeritus*, Ph.D., University of Iowa, 1938; 1961.

Lehr, Robert P., Jr., Professor, Ph.D., Baylor University, 1971; 1973. Neuroanatomy, medical problems of speech.

McCabe-Smith, Linda, Assistant Professor, Ph.D., Southern Illinois University at Carbondale, 1994; 1994. Language development/language disorders in children, multicultural populations, assessment of language in children.

Moncur, John P., Professor, *Emeritus,* Ph.D., Stanford University, 1950; 1972.

Poppen, Roger L., Professor, Ph.D., Stanford University, 1968; 1970. Stress reduction, relaxation, biofeedback, human operant conditioning.

Renzaglia, Guy A., Professor, *Emeritus,* Ph.D., University of Minnesota, 1952; 1955.

Riggar, Theodore, Professor, Ed.D., University of Northern Colorado, 1977; 1979. Rehabilitation administration, professional burnout.

Rubin, Harris B., Professor, Ph.D., University of Chicago, 1965; 1966. Sexual behavior, applied behavior analysis, treatment of incarcerated offenders, and prison reform.

Rubin, Stanford E., Professor, Ed.D., University of Illinois, 1968; 1980. Rehabilitation research, case management, history and philosophy of rehabilitation.

Ruder, Kenneth F., Professor, Ph.D., University of Florida, 1969; 1984. Psycholinguistics-child language and language intervention.

Schultz, Martin C., Professor, Ph.D., University of Iowa, 1955; 1986. Audiology, methodology.

Schumacher, Brockman, Professor, *Emeritus,* Ph.D., Washington University, 1969; 1967.

Simpson, Kenneth O., Assistant Professor, Ph.D., University of Nebraska-Lincoln, 1995; 1994. Alternative/augmentative communication, motor speech disorders.

Taylor, Darrell, Assistant Professor, Ph.D., University of South Florida, 1992. Vocational evaluation and work adjustment, cognate rehabilitation counseling.

Vieceli, Louis, Associate Professor, *Emeritus,* M.S.Ed., Southern Illinois University at Carbondale, 1959; 1958.

Wright, W. Russell, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1974; 1971. Design and conduct of survey research and selected analysis.

In response to pressing human and social needs, the applied field of rehabilitation has solidly entrenched itself as a professional discipline. Multidisciplinary courses of study have been drawn together from the behavioral, social, and medical sciences appropriate to the development of competent practitioners, supervisors, and programmers in rehabilitation and welfare agencies. The overall program is left purposely broad and flexible to permit the inclusion of training innovations and emerging career patterns.

The Rehabilitation Institute offers graduate programs leading to the Doctor of Rehabilitation degree and to the Master of Science degree with majors in behavior analysis and therapy, rehabilitation administration and services, and rehabilitation counseling.

A non-refundable application fee of $20.00 must be submitted with the application. (The Application can be obtained from the department). Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

The Master's Degree Program

The master's degree programs in rehabilitation administration and services, behavior analysis and therapy are 45 semester hour programs and rehabilitation counseling is 48 semester hours. Candidates have the option of a research paper or a thesis. Candidates concentrating primarily on preparation for entry into the helping profession ordinarily opt to complete a research paper in their area of concentration. The thesis option typically requires a thesis of an experimental

nature, a survey, or other form of research in which empirical data are collected and analyzed. Candidates must demonstrate their skills in formulating researchable questions or hypotheses, in identifying and/or manipulating relevant variables, and in the analysis and reporting of the results.

BEHAVIOR ANALYSIS AND THERAPY

The behavior analysis and therapy program is devoted to the empirically-based development and application of learning principles to a wide variety of human needs. Training is offered in behavioral practice, research and theory as it applies to problems such as child abuse and neglect, developmental disabilities, chronic medical conditions, and traumatic head injury.

Degree Requirements

In fulfilling the 45 semester hour requirement, the student must complete the required courses or their equivalent, at least two elective courses from those listed below, at least one 3-hour practicum, an internship, and either a research paper or thesis.

REQUIRED COURSES

REHB 503 Basic Behavior Analysis
REHB 508 Complex Behavior Analysis
REHB 509a Scientific Methods: Single-Subject Designs
REHB 509b Scientific Methods: Group Designs
REHB 512 Legal and Ethical Issues in Behavior Analysis
REHB 535 Behavioral Observation Methods
REHB 574 Staff Training and Development
REHB 594b Practicum in Behavior Analysis and Therapy

ELECTIVE COURSES

REHB 515 Behavioral Applications to Medical Problems
REHB 543 Child Behavior
REHB 545 Behavior Analysis in Developmental Disabilities
REHB 553 Learning Therapies for Special Populations
REHB 557a Self-Regulation of Behavior: Self-control
REHB 557b Self-Regulation of Behavior: Biofeedback
REHB 563 Behavioral Analysis: Community Applications
REHB 564 School-Related Behavior
REHB 568 Sexual Behavior and Rehabilitation
REHB 584 Seminar in Behavior Analysis and Therapy
REHB 589 Professional Seminar in Rehabilitation

Internship

The student must complete satisfactorily 9 hours of REHB 595 (Internship in Rehabilitation) under the supervision of a behavior analysis and therapy faculty member. The internship is typically begun following two semesters of course work.

Research Paper or Thesis

The student must complete satisfactorily 3 to 6 hours of REHB 593 (Research in Rehabilitation) under the direction of a chairperson. The chairperson is a member of the behavior analysis and therapy faculty selected by mutual agreement between the student and the faculty member.

For the research paper, an additional graduate faculty member may be selected by mutual agreement between the student and the chairperson to serve as a reader. This is not required.

For the thesis, a second faculty member of the behavior analysis and therapy program will be selected by mutual agreement between the student and the chairperson to serve as thesis committee member. The committee will review the thesis prior to its initiation, as a prospectus, and after its completion, in an oral defense. At the oral defense, a third graduate faculty member, selected by mutual agreement between all parties, will be added to the committee to serve as a reader.

COMMUNICATION DISORDERS AND SCIENCES

The communication disorders and sciences program offers graduate work leading to the Master of Science degree. The program in communication disorders and sciences is designed to develop competence in the assessment and treatment of persons with communication disorders.

Course work is planned to meet the academic and professional requirements for state and national certification, which are required for professional employment. These requirements comprise a minimum of 75 semester hours of course work, at least 30 semester hours of which must be at the graduate level. The M.S. degree program in speech-language pathology will culminate in eligibility for the Certificate of Clinical Competence of the American Speech-Language-Hearing Association and state licenser. ASLHA certification is required for work in agencies, hospitals, medical centers, and higher education settings. In addition, students may take additional course work to qualify them for the Type 10 special certificate in speech and language impaired of the Illinois State Teacher Certification Board.

The program maintains many active research facilities which provide laboratories and specialized equipment for the study of both the normal and impaired functions of the speech, language, and hearing processes. The speech science laboratory is equipped for electromyographic study of the speech musculature, radiotelemetry, electrophysiology of hearing, and spectrographic analysis of speech signals. The experimental audiology laboratory, which includes a large anechoic chamber, is equipped for investigations in hearing sensitivity, localization, central tests, speech discrimination, and evoked response audiometry. The laboratory also has equipment needed for studies in automatic audiometry, middle ear immittance, and acoustic reflex experimentation. The laboratory also has equipment for the measurement of physiological indices of emotion, such as electrophysiologic skin measurements. The department maintains its own mainframe computer terminal and microcomputer laboratory.

Additional information regarding financial aid, programs, and application procedures can be secured by writing to: Communication Disorders and Sciences, Southern Illinois University at Carbondale, Carbondale, IL 62901-6616.

Master's Degree Program Leading to Certification in Speech Pathology

The master's degree requires a minimum of 30 semester hours of acceptable graduate credit (3.0 average), at least 15 semester hours of which are at the 500 level, and the completion of approximately 33 to 36 graduate semester hours in clinic courses, and an approved thesis or research project. The program for the M.S. degree is a five semester course of study of approximately 60 to 66 semester hours. Specific course requirements and total number of hours are generally determined by advisement after consultation with the graduate student.

Students are encouraged to follow one of the following plans:

THESIS PROGRAM: CERTIFICATION IN SPEECH PATHOLOGY.

Core Courses (Required): 14 hours

CDS 507 3 Language I
CDS 517 3 Language II

CDS 505 3 Speech I
CDS 540 3 Neurogenics I
CDS 541 2 Neurogenics II

Electives: 4 hours
5 hours selected from: CDS 408, 428, 431, 438, 450, 460, 485, 503, 512, 517, 521, 525, 526, 528, 530, 533, 536, 544, 548, 550.
Courses selected must show a balance across professional fields of competency and interest.

Clinic Courses: 33 hours
33 hours from CDS 494, 495, 497, 597, 598.

Research Tools: 9 hours
6 hours from CDS 500; and 431, 503, or equivalent.
3 hours additional statistics or research design.

Thesis: 3 hours
3 hours from CDS 593

Total: 63 hours

NON-THESIS PROGRAM: CERTIFICATION IN SPEECH LANGUAGE PATHOLOGY

Core Courses (Required): 14 hours
CDS 507 3 Language I
CDS 517 3 Language II
CDS 505 3 Speech I
CDS 540 3 Neurogenics I
CDS 541 2 Neurogenics

Electives: 9 hours
10 hours selected from: CDS 408, 428, 431, 438, 450, 460, 485, 503, 512, 517, 521, 525, 526, 528, 530, 533, 536, 544, 548, 550.
Courses selected must show a balance across professional fields of competency and interest.

Clinic Courses: 33 hours
33 hours for CDS 494, 495, 497, 597, 598.

Research Tools: 6 hours
6 hours from CDS 500; and 431, 503, or equivalent.

Research Paper: 1 hour
1 hour from CDS 593

Total: 63 hours

In addition to the academic programs detailed above, ASHA certification in speech pathology requires a minimum of 350 clock hours of supervised clinical experience in a combination of settings. Within these settings, there are requirements for types of disorders as well as ages of the population. These requirements are met by assignment to the university clinical center, off-site school practicums and off-site medical practicums. Students will average approximately 50 clock hours per semester in the university clinic and 100 hours in each of the off-site practicums. The actual semester hours of credit for the typical student will vary due to client load but approximately 33 semester hours of credit total (i.e., 3 semesters in the university clinic for 9 semester hours of credit total, and 12 semester hours for each of the two semesters off-site). It should be emphasized that it is the clock hours accumulated that is important in the clinical area and it may be necessary to exceed the 33 semester hours of clinical experience in order to obtain the necessary clock hours for certification. The total program for the M.S. degree meeting the ASHA certification requirements is usually a five semester program of approximately 66 semester hours of credit. Additional time may be required for the thesis program student, or if the student has not met the necessary prerequisites for graduate courses.

The College of Education is entitled to certify students for the public schools; the Department of Communication Disorders and Sciences is entitled to certify

students for the American Speech Language Hearing Association. A comprehensive examination is required by the Graduate School for non-thesis programs. This requirement is met by the successful passing of the NTE ASHA Examination given at regular times during the year.

REHABILITATION ADMINISTRATION AND SERVICES

Students receive their degrees in rehabilitation administration and services. Students may elect to pursue a sequence of classes in rehabilitation administration. However, those with fewer than three years of rehabilitation or related work experience are generally encouraged to take the vocational evaluation and placement sequence. All students must complete a minimum of 45 semester hours of graduate course work, which includes a full-time internship and a research paper or thesis. During the first semester of full-time study or a comparable period for part-time students, the student must have a plan of study approved by an adviser and the degree program coordinator. This plan of study normally includes rehabilitation core, professional course work, and elective coursework, although specific plans may differ for students with varying backgrounds and career goals. The requirements are as follows:

Rehabilitation Core (21 hours)

REHB 513-3 to 4 Medical and Psychosocial Aspects of Disability
REHB 594a-3 Practicum in Rehabilitation
REHB 595-8 Internship in Rehabilitation
REHB 593-6 Research in Rehabilitation
REHB 593-3 Research in Rehabilitation
REHB 599-3 Thesis

Professional Coursework

The student must complete a series of courses approved by the student's faculty adviser and degree program coordinator. This series of courses will normally consist of the 21 hour rehabilitation administration sequence plus 3 hours of electives, or the 18 hour vocational evaluation and placement sequence and 6 hours of electives. Electives are chosen on the basis of their relevance to the career goals. Persons graduating with the vocational evaluation and placement sequence and appropriate field experience (practicum and internship) are immediately eligible to sit for the CCWAVES examination. Persons graduating with the vocational evaluation and placement sequence, and a double major in rehabilitation counseling (including appropriate supervised field experience) are immediately eligible to sit for the CRC examination.

REHABILITATION ADMINISTRATION SEQUENCE

REHB 570-3 Rehabilitation Administration
REHB 573-3 Programming, Budgeting, and Community Resources
REHB 574-3 Staff Training and Development
REHB 576-3 Development and Supervision of Rehabilitation Employees
REHB 578-3 Program Evaluation in Rehabilitation
REHB 581-3 Professional Issues in Rehabilitation
REHB 582-3 Seminar in Rehabilitation Services

Suggested Electives (minimum of 3 hours)
REHB 400-3 Introduction to Rehabilitation
REHB 580-3 Professional and Community Relations in Rehabilitation

VOCATIONAL EVALUATION AND PLACEMENT SEQUENCE
REHB 400-3 Introduction to Rehabilitation
REHB 421-3 Vocational Development and Placement
REHB 431-3 Assessment Procedures in Rehabilitation
REHB 526-3 Issues in Supported Employment
REHB 533-3 Vocational Appraisal
REHB 583-3 Seminar in Vocational Evaluation

Suggested Electives (minimum of 6 hours)
Any course in the rehabilitation administration sequence.
REHB 451-3 General Rehabilitation Counseling
REHB 501-3 Rehabilitation Foundations
REHB 531-3 Individual Assessment Procedures in Rehabilitation
REHB 575-3 Case Management in Rehabilitation
REHB 586-3 Seminar in Job Development and Placement

Practicum and Internship Requirements

Although students are usually required to complete at least 3 semester hours of practicum as well as a full-time internship, prior and concurrent work experience may be substituted for these requirements if recommended by the student's adviser and approved by the rehabilitation administration and services faculty. The options available to the student wishing to substitute work experience for either practicum or internship requirements are as follows.

Option One. A student may request a waiver of the internship requirement and, if approved, substitute 3 semester credit hours of practicum and additional course work to bring the student's program up to the required 45 hour minimum.

Option Two. Students with extensive previous work experience in the field of rehabilitation may request waivers of both the practicum and internship requirements. If the waiver is approved, they will enroll in 6 semester hours of REHB 494, Work Experiences in Rehabilitation, and additional graduate course work up to the required 45 hour minimum.

Waiver request related to options one and two above must be submitted by the student through the faculty adviser to the coordinator of the rehabilitation administration and services program and must be approved by a vote of the rehabilitation administration and services faculty. Waiver requests must include written documentation of the reasons for the request and provide sufficient supporting evidence. Suggested guidelines for the appropriateness of each of the options are: 1) option one for the student with three or more years of satisfactory rehabilitation related work experience and 2) option two for the student with three or more years of satisfactory work experience directly related to the student's chosen professional course sequence. The student with minimal or no rehabilitation related work experience will be expected to complete the required three hours of practicum and a full-time internship.

Requirements for Research Paper or Thesis and Comprehensive Examination

All students are required to complete a scholarly research paper or thesis in a rehabilitation-related area and an oral comprehensive examination. The student completing a graduate thesis must orally defend it before a thesis committee.

REHABILITATION COUNSELING

Rehabilitation counseling is a process which assists individuals with disabilities to cope constructively with their disability, to maximize their abilities, and to enhance their quality of life physically, psychologically, socially, and vocationally. Through training, professional rehabilitation counselors obtain skills in counseling, evaluation, career exploration. job development and placement, and case management.

The focus of the rehabilitation counselor training program is to prepare professional rehabilitation counselors with the knowledge, skills, and attitudes needed to enter the field. During the training program, students acquire counseling skills, knowledge and understanding of medical and psychological impact of chronic illness and disability on all areas of the individual's life including vocational and independent living issues, as well as skills related to assessment and evaluation, and an understanding of the legislative, historical, and philosophical background of rehabilitation. Student's professional development is encouraged through participation in professional rehabilitation counseling organizations.

The rehabilitation counselor training program is fully accredited by the Council on Rehabilitation Education (CORE). Graduates of the program are eligible to sit for the CRC (Certified Rehabilitation Counselor) examination, a national examination administered by the Commission on Rehabilitation Counselor Certification (CRCC).

General Requirements

The course of study within the rehabilitation counselor training program consists of a minimum of 48 semester hours and involves a blend of academic and field experiences. In addition to course work, students must complete one semester of practicum, one semester of internship, and a thesis or research paper. Before graduation students must also pass a comprehensive examination. The required program of study is:

REHB 400 Introduction to Rehabilitation
REHB 421 Vocational Development and Placement
REHB 431 Assessment Procedures in Rehabilitation
REHB 451 General Rehabilitation Counseling
REHB 501 Interpersonal Communication Skills in Rehabilitation
REHB 513 Medical and Psychosocial Aspects of Disability
REHB 575 Case Management in Rehabilitation
REHB 594c Practicum in Rehabilitation
REHB 595 Internship in Rehabilitation

Students are also given the opportunity within their program of study to take electives. In addition to the required course of study for rehabilitation counseling, students may choose to specialize in a particular area by taking additional elective courses. Examples of possibilities of specialization are listed below.

Studies in Substance Abuse

A special sequence of courses is offered within the rehabilitation counselor training program for students interested in working with individuals who have substance abuse problems. Students are required to complete a specific sequence of courses and an internship in a substance abuse treatment setting in addition to the courses required for the master's degree in rehabilitation counseling. Successful completion of this course sequence and field work enables students to sit for the Certification Substance Abuse Counselor Examination in Illinois. Graduate students from other disciplines in the University are eligible to enroll in these courses to complete substance abuse counselor certification requirements.

Studies in Aging

This area of special study offered within the Rehabilitation Institute includes a sequence of three elective courses in aging in addition to those courses required for the general rehabilitation counseling curriculum, and an internship in an agency or facility which serves older adults. Students in other disciplines within the University are eligible to enroll in any of the three courses in aging, however only rehabilitation students will be eligible for the internship.

DOCTOR OF REHABILITATION

The doctoral program in rehabilitation prepares students to function effectively as rehabilitation educators, researchers, or administrators. It does this by fostering the student's development and acquisition of relevant conceptual and experiential skills in evaluation and research methodologies, in rehabilitation service, or in the management of service units.

Admission and Retention Standards

All applicable policies and procedures of the Graduate School with regard to the admission of doctoral students will be followed. Requirements for admission to the doctoral program in rehabilitation exceed those of the Graduate School. The admissions committee of the doctoral program will review all candidates carefully for their special strengths. The following will be considered for all candidates.

1. High academic achievement (normally indicated by a grade point average of 3.5 on a 4-point scale) in a master's program in rehabilitation or a closely related field at an accredited university.
2. Interest in conducting rehabilitation research.
3. Two years of successful performance equivalent to full-time paid employment (post-baccalaureate) in a rehabilitation or related professional position. This may include an approved internship experience at the master's level.
4. At least three letters of recommendation by professional persons familiar with the applicant's performance in academic, research, or service work settings.
5. A personal or telephone interview with the Rh.D. program admissions committee.
6. GRE scores dating back no farther than 5 years.

Applicants will be considered for acceptance into the doctoral program at the beginning of either the fall or spring semester. For a student to be retained in the program, a 3.5 overall grade point average (GPA) must be maintained. Courses in which a grade below *B* is obtained will not be counted toward satisfying the hour requirements for the degree.

Doctoral Committee

The student shall select a chair who will serve as his/her major adviser. In consultation with the chair the student shall select a doctoral committee which is approved by the coordinator of doctoral studies and the Graduate School. At least one member shall be external to the Rehabilitation Institute.

Working together with the chair, the student shall develop a plan of study, designating the courses to be completed. This plan shall be approved by the student's doctoral committee and by the coordinator of doctoral studies and then shall be made a matter of record. Further, the doctoral committee shall serve as the student's dissertation committee.

Admission to Candidacy

Admission to candidacy is granted by the dean of the Graduate School upon the recommendation of the faculty responsible for the student's program after the student has fulfilled the Graduate School residency requirement for the doctoral degree and passed the preliminary examinations.

The written preliminary examinations are designed to assess the breadth and depth of the student's knowledge. They are prepared, administered, and evaluated by Rehabilitation Institute faculty committees appointed by the coordinator of doctoral studies. The preliminary examinations will ordinarily be taken in the fall of the second year of doctoral study.

Dissertation

After admission to candidacy, the student will prepare a dissertation based on original research conducted under the direct supervision of the dissertation chair and committee. The requirements of the Graduate School will govern the formation of the dissertation committee and the preparation and defense of the dissertation. While the dissertation is in preparation, the student will register for no fewer than 24 semester hours in REHB 600, Dissertation. The dissertation should conform to the current edition of the *Publication Manual of the American Psychological Association* and the standards required by the Graduate School.

Degree Requirements

The Doctor of Rehabilitation program emphasizes mastery of skills in research methodology, knowledge of medical and psychosocial aspects of disability, and knowledge of public policy on disability, as well as competency in the area of rehabilitation counseling, rehabilitation administration, behavior analysis and therapy, or communication disorders and sciences. The course of study requires a minimum of 96 post-baccalaureate semester hours, 24 of which are dissertation hours and 27 of which are fulfilled by required courses. All remaining coursework taken by the student will be electives, selected with the approval of the student's doctoral committee.

Required Courses

The student must have successfully completed the following courses no later than 24 months after entering the Doctor of Rehabilitation program:
EPSY 506-4 Inferential Statistics
EPSY 507-4 Multiple Regression
REHB 509a-3 Single Subject Experimental Designs
REHB 509b-3 Group Experimental Designs
REHB 588-3 Seminar in Research in Rehabilitation
REHB 513-3 or 4 Medical and Psychosocial Aspects of Disability
REHB 581-3 Legal and Ethical Issues
REHB 589-3 Professional Seminar in Rehabilitation

The student's preparation at the master's level will be evaluated and up to 30 hours of didactic course work may be accepted toward the completion of the 96 hour minimum requirement for the doctorate. Graduate level didactic courses in rehabilitation counseling, rehabilitation services, rehabilitation administration, behavior analysis and therapy, and communication disorders and sciences will usually be acceptable. Course work in related areas such as counseling, psychology, and social work may qualify.

The goal of the program is to develop high quality professionals. Thus, the student must demonstrate competence in the areas of rehabilitation services offered by the Rehabilitation Institute. This is accomplished through the student's master's degree program, previous work experience, the required courses, supervised

professional experiences, and electives. Rh.D. degree graduates should be well prepared for leadership roles in the areas of rehabilitation administration, service, education, or research.

Courses (REHB)

Courses in this unit may require the purchase ofsupplemental materials not to exceed $10 per course. Field trips are required for certain courses.

400-2 to 3 Introduction to Rehabilitation. An introduction to the broad field of rehabilitation, to include the processes (services), facilities and personnel involved. Note: students can enroll in the didactic portion for two credits, or three credits if they elect the field trips. No student can take the field trips alone without taking the didactic portion as well.

401-3 Rehabilitation for Non-Majors. An introduction to the process and practice of rehabilitation for students not majoring in this field. An overview of counseling, evaluation, physical restoration, adjustment services, job placement and rehabilitation administration will be presented. Also a survey of client characteristics will be provided. Clients with sensory, physical, developmental and psychiatric disabilities will be discussed. Career opportunities in rehabilitation will be examined.

403-3 Independent Living Rehabilitation. Survey of principles and methods of independent living for persons with disabilities with attention to client assessment for rehabilitation, effective techniques for specific individuals with disabilities, and the variety of types and organization of independent living programs.

405-3 Introduction to Aging and Rehabilitation. Introduction to the field of aging. Includes social, political, economic and legal issues pertinent to an aging society and rehabilitation.

406-3 Introduction to Behavior Analysis and Therapy. A survey of the principles and procedures in behavior analysis and therapy and the scope of its application to human needs and problems.

419-1 to 3 Cross-Cultural Rehabilitation. (Same as Black American Studies 490.) Major focus on the relationship/comparison of basic cultural, economic and psychosocial processes relative to the rehabilitation of people in contemporary societies. Prerequisite: consent of instructor.

421-3 Vocational Development and Placement. Relates the psychosocial meaning of work, process of vocational development, theories of occupational choice and labor market trends to current and innovative methods of job development, selective placement and follow-up with the handicapped. Prerequisite: consent of instructor.

425-1 to 6 Developing Employment Opportunities. Designed to train rehabilitation personnel in the attitudes, methods and skills pertinent to placement of persons with disabilities in competitive and other occupations. Prerequisite: special standing and consent of instructor.

436-3 to 4 Vocational Evaluation and Adjustment Services. Introduction to the philosophies of evaluation and adjustment services in rehabilitation settings with emphasis on the rationale for use of psychometric testing, functional behavioral analysis, work sampling, situational assessment and on the job evaluation in relation to the development of individualized adjustment service programs.

445-3 to 12 Rehabilitation Services with Special Populations. Procedures and programs pertinent to the care and treatment of special populations. Three semester credits will ordinarily be granted for each unit. Prerequisite: consent of instructor.

(a)-9 (3, 3, 3) Alcohol and Drug Abuse.
(b)-9 (3, 3, 3) Emotionally Disturbed.
(c)-9 (3, 3, 3) Juvenile Offender.
(d)-9 (3, 3, 3) Mental Retardation.
(e)-9 (3, 3, 3) Physically Disabled.
(f)-9 (3, 3, 3) Public Offender.
(g)-9 (3, 3, 3) Sensory Disabled.
(h)-9 (3, 3, 3) Developmental Disabilities.

446-3 Psychosocial Aspects of Aging. Selected theories of psychosocial aspects of aging will be presented and the psychological and sociological processes of aging with the ensuing changes will be related to these conceptual frameworks. Included for discussion and related to field experience will be such concerns as stress reactions to retirement, physical disabilities, impact of reduced economic resources, and other personal-social changes in aging. Topics will address the knowledge base needed by students concerned with rehabilitation of aging clients in institutional, community and home settings. Therapeutic techniques to ameliorate these stresses will be an integral part of the course.

447-3 Biomedical Aspect of Aging. The aging process in a life-span developmental perspective; biological theories of aging, physiological changes in middle and old age and their effects on behavior, performance potential, and psychosocial functioning; senility and other age-related disabilities, their prevention and management; geriatric health maintenance and rehabilitation; institutionalization; death and dying. No prerequisites.

452-3 Behavior Change Applications. An overview of the development and evolution of applied behavior analysis. Applications of behavior analysis to problems of social significance in institutions, schools and communities are surveyed. Prerequisite: 406 or consent of instructor.

453-1 to 4 Personal and Family Life Styling. The academic and personal competencies that are characteristic of fully-functioning, integrated persons within the context of our twentieth century environment will be systematically reviewed for adoption in every day living as well as in professional functions. Participants will focus on and experience life styling theories, models, and skills for their own growth and development and learn to assess basic risk-factors in their rehabilitation clients and families prior to helping them program a more balanced, synergistic, and holistic

approach to living. Prerequisite: consent of instructor.

461-3 Introduction to Alcoholism and Drug Abuse. Orientation and introduction to a variety of topics related to alcohol and drug abuse; surveys history, theories of cause and development, consequences of abuse, classes and types of drugs, legislation and other current issues relating to substance abuse and addiction.

468-3 Sexuality and Disability. Research and rehabilitation practices pertaining to the unique psychosexual aspects of various chronically disabling conditions will be examined.

471-3 Rehabilitation and Treatment of the Alcohol and Drug Abusers. A comprehensive examination of substance abuse treatment and rehabilitation; focus on various treatment approaches, treatment settings, and types of counseling to include an overview of individual, group and family techniques; the rehabilitation counselor's role is addressed and necessary skills in treating drug and alcohol abusers. Prerequisite: 461 or consent of instructor.

479-3 Technical Writing in Rehabilitation. Fundamentals of writing skills for rehabilitation specialists, including preparation and drafting of program/grant proposals, vocational evaluation/work adjustment reports, news releases and other publicity materials. Prerequisite: consent of instructor.

490-1 to 6 (1 to 3 per semester) Readings in Rehabilitation. Supervised readings in selected areas. Prerequisite: consent of instructor.

494-1 to 12 Work Experience in Rehabilitation. Rehabilitation 494 and 594 both cannot be counted for a graduate degree, only one or the other can satisfy requirements toward a master's degree. Prerequisite: consent of department.

501-3 Introduction to Interpersonal Skills Development in Rehabilitation Counseling. Focuses upon facilitative interpersonal communication skills necessary in Rehabilitation Counseling Practice. The course provides theory and practice in facilitative interpersonal communication in counseling, behavior therapy and administration services. Included is pre-practicum orientation. Prerequisite: consent of instructor.

503-3 Basic Behavior Analysis. Philosophy, terminology, and basic methodology of experimental and applied behavior analysis. Focuses on a variety of operant and respondent conditioning procedures for shaping new behaviors and modifying established behaviors. Prerequisite: consent of department.

504-3 Foundations of Rehabilitation Research. This course includes: the logic of scientific inquiry; the concepts of research questions and hypotheses; the notion of variables; the relationship among theoretical constructs, operationalism, and measurement instrument reliability and validity; the concepts of control, internal validity and casual inference; sampling methods and external validity; and experimental and descriptive research. Prerequisite: enrollment in Rh.D. degree program or consent.

508-3 Complex Behavior Analysis. Experimental analysis of procedures that result in acquisition, maintenance, and attenuation of complex individual and social behavior. Prerequisite: consent of instructor.

509-6 (3,3) Behavior Analysis Research Designs. Focuses on behavior analysis research design and methodology. Three semester hours will be granted for each unit. **(a)** Single subject experimental designs; **(b)** Group experimental designs.

512-3 Legal and Ethical Issues in Behavior Analysis. Focuses on federal and state legislation, litigation, policies, guidelines, and other forms of legal and ethical control of the professional practice of behavior analysis and therapy. Implications for research and service will be discussed.

513-1 to 4 Medical and Psycho-Social Aspects of Disability. A review of the impact of disease and trauma on the human system with special attention on the effects physical limitations and socio-emotional correlates have on human functioning and the rehabilitation process. Prerequisite: consent of department.

515-3 Behavioral Applications to Medical Problems. Examines the use of behavior change procedures and applied behavior analysis in the treatment and rehabilitation of medically related problems such as obesity, alcoholism, headaches, hypertension and cerebral palsy; also, compliance to medical regimens, e.g., diabetes, dental hygiene, exercise; and promotes the utilization of health facilities and community health programs. Issues in training medical personnel to disseminate behavior change programs are also covered. Prerequisite: 409 and 503 or consent of instructor.

523-3 Job Restructuring for Individuals with Disabilities. Introduction to the analysis and measurement of job tasks and the design and layout of work environments with special emphasis on the use of jigs, job restructuring and prosthetic environments for persons with disabilities. Prerequisite: 421 and consent of instructor.

525-3 Developing Job Readiness. Designed to prepare job development and placement specialists and other rehabilitation personnel to develop programs of job readiness aimed at training individuals with disabilities to seek and hold gainful employment. Prerequisite: consent of the instructor.

526-3 Issues in Supported Employment. Focuses on community work options for adults with severe disabilities. These community work options, supported work and supported employment, the issues surrounding transition from school to work, and the difference between sheltered and nonsheltered employment will be discussed from philosophical and practical viewpoints.

530-3 Assessment Procedures in Rehabilitation. Review of fundamental bases of measurement, criteria for evaluating tests, exposure to representative instruments in major categories, and use of test and work samples in assessing the functioning abilities and work potential of individuals with disabilities. Prerequisite: consent of instructor.

531-3 Individual Assessment Procedures in Rehabilitation. Thorough familiarization and practice with independent assessment devices used in program selection and job placement of individuals with various handicaps. Prerequisite: 431 and consent of instructor.

533-3 Vocational Appraisal. An extensive exposure to instruments designed for use with voca-

tional rehabilitation clients. Administration and interpretation of a wide variety of instruments used to gain information to be used in planning for vocational development. Both didactic and experiential to include consideration of information obtained from interviews, tests, and other diagnostic techniques. Prerequisite: consent of instructor.

535-3 Behavioral Observation Methods. Behavioral targeting, observational recording techniques, and issues of validity and reliability of measurement relevant to rehabilitation will be examined. Prerequisite: previous or concurrent enrollment in either 409, 452, or 503 or consent of instructor.

543-3 Child Behavior. A systematic analysis of child behavior. Included is an examination of popular books on child rearing. Emphasizes approaches for remediation of behavior disorders. Prerequisite: consent of instructor.

545-3 Behavior Modification in Mental Retardation. Consideration of behavioral principles as applied in the development of responsive behavior in mentally retarded persons. Prerequisite: consent of instructor.

551-4 Rehabilitation Counseling: Theory and Practice. A didactic and experiential analysis of the underlying theory and techniques of individual and group counseling of individuals with disabilities. Prerequisite: consent of instructor.

553-3 Learning Therapies for Special Populations. Describes treatment, rehabilitation, and teaching procedures with the emotionally disturbed, problem drinkers, mentally retarded, and autisms and other disruptive behaviors. Prerequisite: consent of instructor.

554-3 Behavior Therapy. Considers research findings and basic principles of behavior modification relative to such behavior therapies as desensitization, assertive training, aversive conditioning and behavior rehearsal. Prerequisite: consent of instructor.

557A-3 Self-Regulation of Behavior: Self-Control. The course provides a thorough review of self-control techniques and their application to habit disorders such as smoking, eating, exercise, time-management and nervous habits. Prerequisite: consent of instructor.

557B-3 Self-Regulation of Behavior: Biofeedback. The course provides a comprehensive review of experimental and clinical studies of biofeedback. It concentrates on stress related disorders and provides supervised laboratory experience A $10 laboratory fee is charged. Prerequisite: consent of instructor.

558-3 Rehabilitation of Special Alcoholic and Drug Abusing Populations. Emphasis is on the characteristics, assessment, rehabilitation, and unique problems of drug and alcohol abusers within specific populations. Particular attention is given to substance abuse of women, minorities, elderly, adolescents, homosexuals and disabled. Prerequisite: 461 or consent of instructor.

560-3 Private Sector Rehabilitation. A comprehensive introduction to many of the unique characteristics of rehabilitation services offered within the private-for-profit sector which can be applied by practitioners on a national basis.

561-3 Rehabilitation and the Courts. The role of the rehabilitation worker in a variety of court proceedings will be explored. Emphasis will be on Social Security disability and workmen's compensation cases. The course will involve review of evidence and preparation for testimony. There will be opportunities for mock trials and observation of actual legal proceedings. Some field trips may be required.

562-3 Rehabilitation Facilities and Developmental Centers. Surveys the history and development of rehabilitation facilities and developmental centers for individuals with disabilities and then focuses on current principles and practices of these facilities in terms of nature, classification, objectives, standards, philosophies, theories, programs of services, organization, administration, financing and trends for the future. Prerequisite: consent of instructor.

563-3 Behavioral Analysis: Community Applications. All aspects of behavior analysis applications in the community are examined including historical development, the "state of the art", practical issues and obstacles to conducting behavioral analysis/community research; future trends and directions. Prerequisite: 503 or consent of instructor.

564-3 School Related Behavior. Analysis of student and teacher behavior and the behavioral methods of improving teaching and learning. Prerequisite: consent of instructor.

565-3 Private Practice Rehabilitation. An examination of the establishment of a private rehabilitation practice. How to set up a private practice, the do's and don'ts and attracting and keeping business are detailed. Knowledge concerning how insurance companies evaluate rehabilitation facilities is critical.

566-3 Alcoholism, Drug Abuse and the Family. The family system model is emphasized as a rehabilitation procedure for drug and alcohol abuse. Examines etiology of drug and alcohol abuse, assessment procedures, treatment and rehabilitation, and associated problems such as spouse or child abuse, divorce, and incest from a family context. Prevention techniques are additionally covered. Prerequisite: 461 or consent of instructor.

568-3 Sexual Behavior and Rehabilitation. Consideration of human sexual behavior including basic anatomy and physiology; sexual facts and fallacies; and analysis of sexual inadequacies, variances and deviances. Special emphasis is placed on the application of therapies for the rehabilitation of people with sexual problems. Prerequisite: consent of instructor.

570-3 Rehabilitation Administration. Problem solving approach to current issues in organizational structure and management functions in public and voluntary rehabilitation agencies, decision making, leadership, program development and evaluation. Prerequisite: consent of instructor.

573-3 Programming, Budgeting, and Community Resources. Designed to prepare the student to develop and operate comprehensive or specialized rehabilitation programs with special attention to resource development, fiscal management, and community and public relations. Prerequisite: 570 or consent of instructor.

574-3 Staff Training and Development. This course prepares the student to design, implement,

and supervise an institutional program to train staff in methods of direct service to the institution's clients. Each student will actually design and submit a program through simulation. Lecture/workshop format.

575-3 Case Management in Rehabilitation Counseling. Basic procedures in providing and coordinating available human services based on individual need in the context of a professional-client relationship, and the basics of recording and reporting such services. Prerequisite: consent of instructor.

576-2 to 3 Development and Supervision of Rehabilitation Employees. Current and progressive supervisory practices in rehabilitation with emphasis on employee development through in-service training, periodic evaluation and related methods. Prerequisite: consent of instructor.

578-3 Program Evaluation in Rehabilitation. An analysis of the development and utilization of a program evaluation system in rehabilitation settings with focus given to system design, monitoring techniques and service program development. Students will be trained in the advanced practice of program evaluation techniques and their application to rehabilitation settings. Prerequisite: consent of instructor.

579-3 Advanced Fiscal Management in Rehabilitation. Application of fund and functional accounting in rehabilitation to include fiscal reporting and record keeping, fiscal planning and management in rehabilitation. Prerequisite: 570 and 573.

580-3 Professional and Community Relations in Rehabilitation. Examination of the linkages and needs of rehabilitation programs and agencies in the area of community and professional relations, with special reference to the role of administrator. Application of marketing principles to the management of external relations in rehabilitation settings. Prerequisite: consent of instructor.

581-3 Professional Issues in Rehabilitation. Focus is on legal and ethical issues and issues related to legislative and public policy formulation. Implications for rehabilitation programs, practice and research are emphasized.

582-1 to 4 Seminar in Rehabilitation Services. Special consideration of factors in the organization and management of rehabilitation services. Prerequisite: consent of instructor.

583-1 to 4 Seminar in Work Evaluation. Select attention to procedures/models for assessing work readiness of personnel with disabilities. Prerequisite: consent of instructor.

584-1 to 6 (1 to 2 per semester) Seminar in Behavior Analysis and Therapy. Special topics and new developments in modifying human behavior. Prerequisite: consent of instructor.

585-1 to 4 Seminar in Counseling/Coordination Services. Consideration of special issues in counseling and delivery of services. Prerequisite: consent of instructor.

586-3 Seminar in Job Development and Placement. Consideration of special issues in job development and placement philosophy, techniques and research concerning individuals with disabilities. Prerequisite: consent of instructor.

587-3 Seminar in Correlates of Disability. A systematic analysis of the behavioral socio-cultural implication of disabling conditions. Emphasizes the rehabilitation process in remediation of debilitating conditions. Prerequisite: 513 or consent of instructor.

588-3 Seminar in Research in Rehabilitation. Advanced seminar focusing upon specialized and advanced topics in research in rehabilitation. This course is designed to prepare doctoral students in rehabilitation with the special tools needed to carry out doctoral dissertation and other advanced research projects. Prerequisite: consent of instructor.

589-1 to 18 (1 per semester) Professional Seminar in Rehabilitation. The course involves advanced level presentations focusing on current research, applied practices, and innovations in rehabilitation. Presentations are made by faculty, graduate students and guest experts. A minimum of four semester hours required for Doctor of Rehabilitation degree.

591-1 to 18 Independent Projects in Rehabilitation. Systematic readings and development of individual projects in pertinent rehabilitation areas. No more than six hours may be counted toward the master's degree. Prerequisite: consent of instructor.

592-1 to 16 Professional Supervision in Rehabilitation. Experience provided in the supervision of research, teaching, and rehabilitation services. No more than four hours may be taken in any semester. Prerequisite: Doctoral student in rehabilitation and consent of instructor.

593-1 to 18 Research in Rehabilitation. Systematic investigation of factors and procedures relevant to rehabilitation. No more than six hours may be counted toward the master's degree. Prerequisite: consent of instructor.

594-1 to 12 Practicum in Rehabilitation. Supervised experiences in agencies in rehabilitation. **(a)** Administration. Rehabilitation facilities management/supervision, in planning, programming and evaluation. **(b)** (Same as Psychology 596.) Behavior modification. Application of behavioral analysis/methods in human treatment and in management. **(c)** Counseling. Development of counseling skills with individuals and groups to include work related functions. Prerequisite: **(a,b,c)** admission to the specific degree program; **(c)** 501 and 551.

595-1 to 12 Internship in Rehabilitation. Extended practice in rehabilitation settings cooperatively guided and supervised by agency staff and university faculty. Graded *S/U* only. Prerequisite: appropriate degree specific practicum and consent of department.

599-1 to 6 Thesis. Prerequisite: consent of instr.

600-1 to 30 (1 to 12 per semester) Dissertation. Minimum of 24 hours to be earned for the Doctor of Rehabilitation degree. Prerequisite: doctoral candidate in rehabilitation.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Social Work

E-mail: sandyb@siucvmb.siu.edu

SCHOOL OF SOCIAL WORK

Bratton, Letitia B., Assistant Professor, D.S.W., Catholic University of America, 1992; 1995. Health/mental health practice, policy, health care needs of adolescents and the elderly.

Gammon, Elizabeth A., Assistant Professor, Ph.D., University of Wisconsin at Madison, 1989; 1991. Medical social work, international social work with disabilities, coping skills and training.

Miah, Muhammad M.R., Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1985; 1985. Health/mental health policy, research, human behavior in the social enviornment ethnicity/multiculturisim.

Raske, Martha, Assistant Professor, Ph.D., University of Illinois at Chicago, 1995; 1994. Research, policy, practice, mental health services research, programs and policies regarding women diagnosed mentally ill.

Reichert, Elisabeth, Assistant Professor, Ph.D., University of Tennessee at Knoxville, 1989; 1994. Practice, policy, human behavior and the social environment, clinical social work with sexual abuse/incest survivors, battered women, crisis intervention.

Soliman, Hussein H., Assistant Professor, Ph.D., University of Tennessee 1993; 1993. Research, mental health services/environmental disaster, community and family.

Tracy, Martin B., Professor and *Director*, Ph.D., University of Illinois, 1982; 1994. Policy, cross-national policy analysis of income maintenance, health care, and family allowance systems in industrial and economically developing nations; community-based, integrated social service delivery systems for both children and elderly populations; public retirement systems for low-income workers and women.

The School of Social Work offers graduate work leading to the Master of Social Work degree. The M.S.W. program is fully accredited by the Council on Social Work Education.

Master of Social Work

The Master of Social Work degree program offers preparation for professional social work practice. The organizing principle of the M.S.W. program is the improvement of the quality of individual life through the enhancement of social and economic justice and opportunity. Upon completion of the M.S.W. program, the student will acquire knowledge, values, and skills consonant with the social work profession and be capable ultimately of engaging in autonomous social work practice. Graduates with such preparation will be able to effectively deliver the social services needed to meet human needs in both urban and rural areas.

Students in the first year of the program take the foundation curriculum which consists of 30 semester hours and includes the following courses:

Fall (15 semester hours)
SW 500-3 Human Behavior & the Social Environment I
SW 505-3 Foundations of Social Work & Services
SW 510-3 Social Work Practice I
SW 511-3 Social Work Research
SW 542-4 Social Work Practicum I

Spring (15 semester hours)
SW 501-3 Human Behavior & the Social Environment II
SW 504-2 Ethnic Diversity & Social Work Practice
SW 506-3 Social Welfare Policy Analysis & Design
SW 520-3 Social Work Practice I
SW 542-4 Social Work Practicum II

The second year curriculum is organized around the following emphasis areas: health/mental health and child welfare. The school also offers course work in preparation for School Social Work Type 73 Certification by the Illinois State Board of Education. Applicants must indicate their preference for an emphasis area. Although we attempt to accommodate the applicant's first preference for a

second year emphasis area, we do not guarantee that individuals will receive their first choice in emphasis area or in field practicum assignment.

In each year of study, in addition to classroom work, students are required to take field practicum. Applied learning through field practice is an integral component of social work education. Field instruction provides the student with the opportunity for applying social work theory and conceptual learning to realistic and practical situations. Students may not substitute current or past, paid or volunteer, social work experience for field practicum requirements of the M.S.W. program. While the school takes into account the student's career goals in the selection of the field practicum assignment, we do not guarantee that students will receive their first preference of field assignment.

Admission Requirements

To be considered for admission to the regular two year M.S.W. program applicants must:

1. Meet all admission requirements set forth by the Graduate School.
2. Have a GPA of at least 3.0 (on a 4.0 scale) in the last two years of undergraduate course work.
3. Show evidence of a broad liberal arts base with substantial preparation in the social and behavioral science and humanities.
4. Demonstrated content in human biology and introductory statistics.
5. Receive a satisfactory score on the Graduate Record Examination (GRE).

Documented potential for the profession of social work is considered a part of the admission criteria which may also include an interview prior to acceptance. Entry is in the fall semester for the regular two year program.

To apply, you must complete and submit a Graduate School application and an M.S.W. program application. Application material may be obtained from: M.S.W. Admission's Office, School of Social Work, Southern Illinois University at Carbondale, Carbondale, IL 62901.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Applicants who wish to be considered for advanced standing must meet all criteria noted above, with the addition of a bachelor's degree in social work from an accredited program. Applicants seeking admission with advanced standing must demonstrate content in human biology, introductory statistics and have GRE scores on file. To be considered for admission applicants are required to register as unclassified students with the Graduate School, and receive a grade of *B* or better in each of the following courses: SW 502, 512, and 522. Such applicants then are eligible for recommendation to the M.S.W. program with advanced standing in the fall semester.

Applicants admitted for either the basic two-year program or for advanced standing may be required to take additional courses as a condition of admission.

A reduced-load program is available for a limited number of students with or without a B.S. degree in social work, who are either fully employed or prefer to take fewer than 3 courses per semester. This program requires a minimum of 2 consecutive semesters of full-time residency as defined by the University (e.g., fall-spring, spring-summer, or summer-fall). Requests to change from full-time to full-time reduced-load status requires prior approval of the director.

Each application will be individually reviewed; however, meeting all stated criteria will not automatically guarantee admission to the school.

The deadline for applications is February 15 for the advanced standing program and March 15 for the regular two year program.

Applicants must apply to the School of Social Work and be recommended to the Graduate School for official admissions. Students accepted into the M.S.W.

program are admitted in the fall and must register for the semester they are admitted.

Degree Requirements

Students admitted to the regular two-year program are required to complete the first year foundation curriculum and the second year advanced curriculum. They are required to complete a minimum of 60 semester hours of graduate course work taken in the approved sequence.

Students with a bachelor's degree in social work from an accredited program may be admitted with advanced standing. These students are required to complete 9 semester hours of transition courses with a grade of *B* or better in each course, and a minimum of 30 semester hours of the second year graduate course curriculum, including all required courses, taken in the approved sequence.

Within limits imposed by the policies of the Graduate School of the University, transfer credits will be permitted for up to 30 semester hours for applicants who wish to transfer from another graduate program in social work. Candidates must maintain a 3.0 on a 4.0 scale.

Student Advisement

Upon admission to the Master of Social Work degree program, the student will be assigned a faculty adviser. The adviser is responsible for supervision of the student's progress and is available for career counseling as well as assisting in other matters which might arise in connection with the student's work.

Financial Aid

The program offers limited financial assistance through graduate assistantships. Other scholarships, grants-in-aid, etc., may be applied for through the Graduate School, Southern Illinois University at Carbondale, Carbondale, IL 62901-4716.

Courses (SOCW)

421-3 Social Welfare Policy. In-depth examination of current social welfare policy and program issues in the context of social welfare history in the United States. Utilizes a systematic analytical framework for critical study of multiple causal factors (socio-economic, cultural, governmental structure). Prerequisite: 275, 291 and 383.

426-4 Social Factors in Personality and Adjustment. (Same as Psychology 464) Review of selected theoretical orientations and research traditions in social psychology. Comparison of different theoretical and methodological approaches — symbolic interaction, role theory, developmental and social psychology, theories of attitude organization and change, studies of belief and value systems, theories of socialization.

446-1 to 4 Selected Topics in Social Work. Seminar on selected problems and issues in the social work practice. Content varies with interests of instructor and students. Prerequisite: junior standing.

478-1 to 6 International Social Work: Generalist Policy and Practice. Provides an international perspective for the study of social work groups, organizations and communities. Focuses on the examination of assessment and problem solving interventions and cross-cultural comparisons of policy and practice in Austria, Switzerland and Germany.

496-1 to 6 Independent Research in Social Work. Provides opportunity for students to conduct independent research with the guidance of a faculty member. Topics of research are identified by the student and faculty member. Prerequisite: consent of instructor.

500-3 Human Behavior in the Social Environment. Life span development. Students acquire a foundation knowledge of human development in the social environment over the life span. Normal development stages and impacts of social systems on the growth of individuals in diverse populations of rural areas is emphasized. Prerequisite: admission to the program.

501-3 Generalist Practice. This course emphasizes the development of advanced intervention skills related to generalist practice with individuals, families, groups, organizations and communities in multiple-service, community-based agencies characteristic of rural areas. Includes mandatory interviewing skills weekend. Prerequisite: admission to the program.

502-3 Perspectives on Human Behavior and Social Environment. Selective examination of the theoretical basis of development and inter-relational aspects of individuals and families throughout the life span. Normal development stages and impacts of social systems on the growth of individuals in diverse populations of rural areas is emphasized. Prerequisite: eligibility for advanced standing. Must be taken concurrently with 512 and 522. Grade of *B* or better required for admission to the advanced standing program.

504-2 Ethnic Diversity and Social Service. Examination of issues involved in delivering social services to various ethnic and cultural groups. Sensitizes students to personal, familial, or community problems of ethnic or cultural origin. Implications for understanding social services to populations who have experienced discrimination are discussed. Prerequisite: admission to the program.

505-2 Foundations of Social Work and Services. Examination of both historical and philosophical developments of the social welfare system as an institution and social work as a profession in the United States. Future trends in social work education and practice are predicted based on social and political mentality prevailing at present time. Prerequisite: admission to program.

510-3 Generalist Systems Theory. Examination of systems and advanced generalist practice theories within the context of rural, integrated and multiple-service social services delivery systems. Specific practice examples will be used to facilitate understanding of how theory guides practice with individuals, families, groups, organizations and communities. Prerequisite: admission to the program.

511-3 Social Work Research. This course emphasizes the importance of scientific inquiry within social work practice and covers the application of basic concepts of research methodology to social work including problem formulation, research design, sampling, measurement, and data analysis. Includes single-system methodology as it applies to social work practice in rural areas. Prepares students to conduct an individualized single-system project based on practice intervention with clients or systems in their practicum setting in the final semester of their studies. Prerequisite: admission to program and introduction to statistics course.

512-3 Research Design/Theory Building. Selective examination of inductive and deductive methods in social work knowledge building. Includes research methodologies and group designs as applied to social work practices in rural areas. Prepares students to conduct an individualized single-system project based on practice intervention with clients or systems in their practicum setting in the final semester of their studies. Prerequisite: eligibility for advanced standing. Must be taken concurrently with 502 and 522. Grade of *B* or better required for admission to the advanced standing program.

520-3 Social Work Practice II. Foundation practice focusing on process, methods, and skills for work with groups, communities, and organizations. Prerequisite: 510.

521-3 Social Welfare Policy. Examines the historical development of social welfare and professional social work in Europe and the United States. The course introduces a systematic framework for policy analysis with particular attention paid to policies affecting diverse rural population, women and minorities. Prerequisite: admission to program.

522-3 Social Welfare Policy Development and Analysis. Selective examination of the historical development of social welfare and professional social work in Europe and the United States. Uses a systematic framework for policy analysis with particular attention paid to policies affecting women, low income, oppressed and diverse rural populations. Prerequisite: eligibility for advanced standing. Must be taken concurrently with 502, 512. Grade of *B* or better required for admission to the advanced standing program.

530-3 Substance Abuse and Social Work Practice. In-depth knowledge of social work assessment of both individuals and families involved in substance abuse. Students are provided with advanced knowledge and skills in various social work intervention models applicable to the area of substance abuse. Prerequisite: completion of foundation or transition courses or consent of school.

531-2 Psychopathology. This course provides a basic knowledge of psychopathology and how it impacts individual functioning and family dynamics. Students become familiar with the theoretical basis and the basic structure of DSM-IV and models of interdisciplinary clinical practice in mental health. Prerequisite: admission to program.

532-3 Evaluation Research. This course focuses on the application of research methods especially in evaluating programs or program components in the area of concentration and to the practicum experience. Includes content on self-evaluation in practice. Prerequisite: 543 and introduction to statistics course.

533-2 Social Work Practice in the Schools. In-depth examination of the history and practice of social work in primary and secondary schools. Roles of school social workers and practice approaches are emphasized. Prerequisite: completion of foundation or transition courses and admission to the School of Social Work certification program.

535-3 Legal Aspects of Social Work Practice. Examination of law and legal procedures that relate directly to social work practice in general. Legal perspectives of a specific concentration field of practice are discussed in depth. Prerequisite: completion of foundation or transition courses or school consent.

541-4 Foundation Practicum/Seminar I. Structured and supervised on-site field practice in selected agency with concurrent seminar. Practicum is equivalent to twelve hours per week for 15 weeks (360 hours) and seminar meets once per week for two hours. Graded *S / U*. The seminar emphasized the relationship between practice, policy, HBSE and research curricula. Prerequisite: admission to the program.

542-4 Foundation Practicum/Seminar II. Second on-site field practice with concurrent seminar. Continuation of 541. Graded *S / U*. Prerequisite: 541.

543-1 to 6 Advanced Practicum/Seminar I. On-site concentration specific field practice in an approved agency with appropriate supervision. Practicum is equivalent to twelve hours per week for 15 weeks with a concurrent seminar. Credit based on time spent in the agency. Six credit hours of practicum will be equivalent to 360 on-site hours. Field practicum requirement (six credit hours) may be met through two consecutive semesters or one block field placement. The practicum and practicum seminar focus on the

application of advanced generalist theory, knowledge and skills covered in the curriculum. Prerequisite: completion of foundation courses or advanced standing and 502, 512 and 522.

544-1 to 6 Advanced Practicum/Seminar II. A continuation of the concentration specific practicum of three days in the field for 15 weeks with a concurrent seminar. Graded *S/U*. Continuation of 543. Prerequisite: 543.

546-2 to 4 Selected Topics in Advanced Social Work. Advanced knowledge and skills particularly useful for management and supervision in social services with application to case materials. Theories, models and techniques of modern human service management, especially suitable to multiple-service agencies in rural settings. Prerequisite: completion of foundation or transition courses or consent of school.

550-2 Social Work Practice in Health and Mental Health Settings. Examination of social and emotional impacts of illness and death on individuals. Implications of physical and mental disorders to social work practice are discussed with particular emphasis on cultural, racial, religious, gender and other psychosocial aspects of illness. Prerequisite: completion of foundation or transition courses or school consent.

551-3 Health and Mental Health Practice I. This is the first of a two-part course that emphasizes health and mental health delivery within systems theory and an advanced generalist practice skills framework. Includes case studies and exercise aimed at practice with diverse populations in rural areas. Provides instruction on diagnosis using psychopathology and DSM-IV. Prerequisite: completion of foundation or standing and 502, 512 and 522.

552-3 Health and Mental Practice II. The second of the practice course on advanced skills in health and mental health. Continuation of 551. Application of treatment modalities. Prerequisite: 543.

555-3 Advanced Policy Analysis: Health and Mental Health. This course applies a systematic analytical framework for a critical and in-depth analysis of federal, state and local policies that shape programs affecting health and mental health in rural settings. Examines how policy impacts practice with diverse populations. Prerequisite: completion of foundation courses or advanced standing and 502, 512 and 522.

557-3 Community Mental Health and the African-American. Introduction to clinical techniques useful for facilitating community functions and changes within the context of the African-American experience. An exploration of the culture of the African-American community builds the basis for community mental health service strategies. Prerequisite: completion of foundation or transition courses or consent of school.

558-3 Women and Community Mental Health. Examination of mental health problems of American women and exploration of effective interventive strategies. Emphasis on rural mental health services for low-income women. Prerequisite: completion of foundation or transition courses or consent of school.

559-3 Aging and Mental Health. Examination of the nature and etiology of mental health problems facing older Americans. Review of research reports to build a theoretical basis for mental disorders. Prerequisite: completion of foundation or transition courses or consent of school.

560-2 Social Work Practice with Children and Youth. Advanced level of knowledge and skills that are relevant to the prevention and amelioration of problems related to maladaptive parent-child interaction, parental inability to provide child care, parents' unrealistic expectations of a physically and mentally limited child. Prerequisite: completion of foundation or transition courses or school consent.

561-3 Children, Youth and Families Practice I. This is the first part of a two-part course that emphasizes family-centered practice (family preservation, integrated services) within systems theory and an advanced generalist practice skills framework. Includes case studies and exercises aimed at practice with diverse populations in rural areas. Provides instruction on diagnosis using psychopathology and DSM-IV. Prerequisite: completion of foundation courses or advanced standing and 502, 512 and 522.

562-3 Children, Youth and Families Practice II. The second part of the practice course on advanced skills. Continuation of 561. Application of treatment modalities. Prerequisite: 543.

565-3 Advanced Policy Analysis: Children, Youth and Families. This course applies a systematic analytical framework for a critical and in-depth analysis of federal, state and local policies that shape programs affecting children, youth and families in rural settings. Examines how policy impacts practice with diverse populations. Prerequisite: completion of foundation courses or advanced standing and 502, 512 and 522.

567-2 Seminar in School Social Work. Exploration of policies, programs, practice and legislative trends affecting public service in school social work. Prerequisite: 533.

570-3 Gerontology and Social Work. Examines the major psycho-social and ecological theories of human aging within the framework of social work practice. Extrapolations of those theories and application of them to social work practice and research are emphasized. Prerequisite: completion of foundation or transition courses or consent of school.

575-3 Policy and Program Issues of Aging. Examination of public policies that impact on the quality of life of the elderly. Major programs are identified and analyzed. Future policy issues are discussed. Prerequisite: completion of foundation or transition courses or consent of school.

576-1 to 6 Selected Topics in Aging Practice Issues. Examination of selected knowledge and skills useful for gerontological social work practice. In-depth study on specific topics will be conducted. Prerequisite: 570.

577-1 to 4 Selected Topics in Research. Individualized advanced research projects related to student interest. Graded *S/U*. Prerequisite: completion of foundation or transition courses or consent of school.

578-3 International Social Work. Critical examination of nature and scope of social welfare programs in other nations including: personal social services, income maintenance, health care and social development programs. Emphasis on policies in Third World countries. Prerequisite:

completion of foundation or transition courses or consent of school.

598-1 to 4 Social Work Research Paper. Preparation of a final research paper as partial requirement for the M.S.W. degree. Graded *S / U* only. Prerequisite: completion of foundation or transition courses and approval of the school.

599-3 Thesis in Social Work. A partial and optional requirement for the M.S.W. degree. A written report of the student's research project in the area of concentration. Prerequisite: completion of all foundation or transition courses or school consent. Graded *S / U* only.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S / U* or *DEF* only.

Sociology

E-mail: sociolgy@siu.edu

COLLEGE OF LIBERAL ARTS

Alix, Ernest K., Associate Professor, *Emeritus*, Ph.D., Southern Illinois University at Carbondale, 1966; 1967.

Best, Joel, Professor and *Chair,* Ph.D., University of California at Berkeley, 1971; 1991. Deviance and social control, social problems, sociology of popular culture, history of crime.

Blinde, Elaine M., Associate Professor, Ph.D., University of Illinois, 1987; 1987. Sociology of sport, gender, social psychology.

Brooks, Melvin, Associate Professor, *Emeritus,* Ph.D., University of Wisconsin, 1941; 1956.

Burger, Thomas, Associate Professor, Ph.D., Duke University, 1972; 1973. Theory, history of social thought, social stratification.

Eynon, Thomas G., Professor, Ph.D., Ohio State University, 1959; 1968. Crime/delinquency, criminal justice/corrections, social change, energy and society.

Hawkes, Roland K., Associate Professor, *Emeritus,* Ph.D., Johns Hopkins University, 1967; 1970.

Hendrix, Lewellyn, Associate Professor, Ph.D., Princeton University, 1974; 1971. Family and kinship, cross-cultural research.

Hope, Keith, Professor, Ph.D., London University, 1963; 1986. Statistics, social stratification and mobility, methods, political sociology.

Matsuo, Hisako, Assistant Professor, Ph.D., University of California, Riverside, 1994; 1994. Race and ethnicity, complex organizations, comparative studies, methods.

Nall, Frank C., II, Associate Professor, *Emeritus,* Ph.D., Michigan State University, 1959; 1964.

Pryor, Doug, Assistant Professor, Ph.D., Indiana University, 1994; 1995. Deviant behavior, criminology, sexuality.

Schneider, Mark A., Assistant Professor, Yale, 1985; 1994. Theory, culture, and science.

Shelby, Lon R., Professor, *Emeritus,* Ph.D., University of North Carolina, 1962; 1969.

Snyder, Charles R., Professor, *Emeritus,* Ph.D., Yale University, 1954; 1960.

Taub, Diane E., Associate Professor, Ph.D., University of Kentucky, 1986; 1987. Deviant behavior, medical sociology, social psychology.

Ward, Kathryn B., Professor, Ph.D., University of Iowa, 1982; 1982. Social demography, women, cross-national studies.

Williams, Rhys H., Associate Professor, Ph.D., University of Massachusetts, Amherst, 1988; 1989. Political sociology, culture, religion, theory.

Wright, Mareena, Assistant Professor, Ph.D., University of North Carolina 1992; 1992. Family, aging, life course, methodology, women's studies.

Associate Faculty in Doctoral Program

Castellano, Thomas C...... Admin. of Justice
Ferdinand, Theodore N...... Admin. of Justice
Garofalo, James...... Admin. of Justice
Riedel, Marc P...... Admin. of Justice

The Department of Sociology offers graduate work leading to the M.A. and Ph.D. degrees. The M.A. degree program gives students an opportunity to acquire a general knowledge of sociology through lecture courses, seminars, and exposure to a variety of theoretical and methodological approaches. The Ph.D. degree program is centered around advanced offerings in the areas of theory-methods, family, power and inequality, and deviance. The faculty of the department is research-oriented and supports such an orientation on the part of its students. The department maintains a small library and computer facility.

Admission to Graduate Study in Sociology

The department requires an undergraduate GPA of 3.0 for admission to the M.A. degree program and a graduate GPA of 3.5 for admission to the Ph.D. degree program. Reference letters and transcripts of all undergraduate and graduate academic grades must be submitted to the department for review by the graduate admissions committee. Scores from the Graduate Record Examination

are welcome. International students must achieve 550 or better on TOEFL scores. Persons seeking more information should write: Director of Graduate Studies, Department of Sociology, Southern Illinois University at Carbondale, Carbondale, IL 62901-4524.

Graduate Assistantships and Fellowships

Assistantships for qualified students are available through the department on a competitive basis. There are also various fellowships awarded by the Graduate School in University-wide competition. Students funded through the department are required to enroll in three courses each semester, taking no more than one audit and one individual readings course each academic year. Funding is limited to four semesters for M.A. degree students and eight semesters for Ph.D. degree students. A student's continued funding is contingent on the student's normal progress in the program and on the availability of funds.

Master of Arts Degree

The Master of Arts degree in sociology requires a minimum of 32 semester hours of course work and a research paper. The specific course requirements are: SOC 501, Classical Sociological Theory; SOC 526a, Quantitative Methods in Sociology; SOC 512, Sociological Research; three research seminars in sociology; one additional 400 or 500 level course in sociology; and four semester hours in SOC 591, Individual Research (for completion of the master's degree research paper). The director of graduate studies serves as academic adviser for all M.A. degree students.

Master's Research Paper. The research paper is developed from a seminar paper produced in a 500-level sociology course. Students wishing to do a master's research paper on a topic not covered under the seminar offerings can petition the department's graduate studies committee for an exception to this rule. The faculty member in charge of the seminar will also serve as the adviser for the master's research paper. Students will enroll with this faculty member for 4 semester hours in SOC 591, Individual Research, for the completion of the research paper. This course can be taken concurrently with or after the research seminar. The research paper will then be submitted for evaluation to another faculty member appointed by the director of graduate studies, in concurrence with the faculty adviser for the paper. The master's research paper normally is 20 to 40 pages in length and uses the standard ASA reference style. In addition to the copy required by the Graduate School, 1 suitably bound copy must be deposited in the department library.

Early Admission to the Ph.D. Degree Program. Upon completion of 2 semesters of full-time study, a student may petition to waive the M.A. degree and be admitted to the Ph.D. degree program in sociology, if the following conditions have been met: 1) minimum GPA of 3.7 during the first year of study; and 2) departmental approval of a research paper completed during the first year of study. The procedure and standards for approval of the paper are the same as with the regular master's research paper.

Doctor of Philosophy Degree

Advisement. The responsibility for initial advisement rests with the director of graduate studies. As soon as possible, the director of graduate studies, in consultation with the student, will request an appropriate member of the department's graduate faculty to serve as the student's academic adviser. This adviser will help prepare a general plan of study. Any change of adviser must have the concurrence of the director of graduate studies.

It is the student's responsibility to develop, in consultation with the adviser, a plan of study designating the primary and secondary areas of examination. At this point, the student expresses a preference for a program committee of 3 or 4 faculty representing the chosen areas of examination. After consultation with the appropriate faculty, the director of graduate studies appoints the student's program committee and enters the membership of the committee in the student's records, along with the declared primary and secondary areas of examination. The program committee is chaired by the student's academic adviser.

Research Tool Requirement. Doctoral students must complete the following courses: SOC 501, 502, 512, and 526a,b. In addition to these courses students must develop research skills that are appropriate and necessary for their dissertation research. It is the responsibility of the student's program adviser to supervise the student's development of these research skills.

Course Work and Readings. In addition to the regularly offered courses and seminars, the department provides supervised readings and research courses, depending upon the availability of faculty members. Supervised readings and research courses are not to be taken as substitutes for regularly scheduled courses and seminars, and registration in them requires prior approval by the student's adviser.

Preparation of a Readings List. Students are expected to prepare themselves for comprehensive examinations through course work and reading. Each student must develop, with the assistance of the program committee, a readings list covering the student's examination areas. This readings list must include major works in each of the examination areas. It must also include the most recent works pertinent to the student's anticipated dissertation research. The readings list as a whole, must be prefaced by a statement of purpose providing a rationale for the selected titles. The final list must be approved, in formal session, by the student's program committee, no later than the end of the full-time student's third semester in residence.

Comprehensive Examinations. Each student must declare 2 primary areas for the comprehensive examination (one of which must be sociological theory-methods) and 2 secondary areas of examination. Students, in consultation with their advisers, may select their own examination areas. However, the student must have taken at least 1 graduate seminar in each primary area, or be able to show other substantial preparation in the area while at SIUC.

One secondary area may be chosen in a department other than sociology. The student shall in this case meet the requirements for a Ph.D. secondary field in the department concerned. Relevance of the outside area to the student's total program must be demonstrated, and approval must be obtained from the graduate studies committee.

To qualify for the status of candidate for the Ph.D. degree, the student must pass written comprehensive examinations. Examinations are based on the final readings list as approved by the student's program committee. The comprehensive examinations consist of a six-hour exam in each primary area and a three-hour exam in each secondary area.

The examinations are prepared, administered, and evaluated by the student's program committee and supplemented by other members of the graduate faculty, in order to provide at least two readers in each or the primary and secondary areas. For each primary and secondary area, the student must obtain the consent of two faculty members with competence in the area to serve as readers. The student and adviser must submit a list of the student's areas and proposed readers to the director of graduate studies. The chair of the program committee

also serves as chair of the examination committee. Supplementary members of the examination committee are, upon the recommendation of the program committee's chair, appointed by the director of graduate studies.

The comprehensive examinations must be taken during the full-time student's fifth semester in the program. The student may take all exams in either the fourth or the twelfth week of the semester, or opt to take theory-methods and one secondary exam at the early date and the rest at the later date. It is the responsibility of the chair of the examination committee, and of the director of graduate studies, to ensure that the examinations are properly prepared, scheduled, administered, and monitored.

Examination results are reported to the director of graduate studies by the chair of the student's examination committee within two weeks from the date of the examination, and the director of graduate studies notifies the student of the results. A failed examination in any area must be retaken no later than the next semester's scheduled dates. If an area exam is failed a second time, the graduate studies committee must be petitioned for the privilege of a final retake. The written petition must include the student's diagnosis of the reasons for the failure and a detailed plan for remedial work. The recommendation of the graduate studies committee is forwarded to the department chair, who has the final decision on the matter. A student is entitled to a combined total of no more than three retakes.

On successful completion of the comprehensive examinations and upon the recommendation of the director of graduate studies to the dean of the Graduate School, the student attains the status of candidate for the Ph.D. degree.

Dissertation. The dissertation is the single most important requirement for the Ph.D. degree, and the student should start thinking about potential dissertation topics soon after admission. Information concerning Graduate School requirements regarding the dissertation is contained in the Graduate Catalog.

After completing comprehensive examinations, the student selects a dissertation director who must be approved by the department chair and the dean of the Graduate School. In consultation with the dissertation director, the student prepares a detailed dissertation prospectus, showing clearly the purpose and scope of the research, its relation to the previous work in the field, its theoretical relevance and significance, and the research methods and techniques. The prospectus must contain a section documenting the student's training and abilities in using the proposed research methods and techniques. When the prospectus is ready for presentation, the department chair appoints a dissertation committee with the student's dissertation director serving as chair. The dissertation committee shall consist of 5 graduate faculty members, including 1 from outside the Department of Sociology.

The prospectus must be approved by the dissertation committee in formal session and filed with the graduate program secretary. A prospectus must be approved no later than the end of the full-time student's sixth semester in the program.

Dissertation Defense. The completed dissertation must be acceptable to the chair of the dissertation committee before being circulated among committee members for evaluation.

After acceptance of the dissertation by the candidate's dissertation committee, an oral examination will be conducted by the committee in open meeting, as specified by Graduate School regulations. This examination will be based upon the contents and implications of the dissertation. The examination may not be scheduled sooner than 4 weeks after the completed dissertation has been distributed to the dissertation committee. A public announcement and a copy of the dissertation shall be made available to other faculty of the department at least 1

week before the examination. Upon satisfactory completion of the oral examination, the student must submit 2 copies of the dissertation to the Graduate School and another copy, suitably bound, must be deposited in the department library.

Expected Progress Through the Ph.D. Degree Program for a Full-Time Student.
Semesters 1 and 2: Course work: Minimum grade point average of 3.5; at least four 500-level sociology courses to be taken during the 2 semesters.
Semester 3: Course work and approved reading lists.
Semester 4: Course work and intensive preparation for comprehensive examinations.
Semester 5: Comprehensive examinations.
Semester 6: Approved prospectus.
Semester 7: Dissertation.
Semester 8: Dissertation.

Sociology as a Secondary Emphasis in Another Ph.D. Degree Program. A student who is enrolled in another Ph.D. degree program and who wishes to declare sociology as a secondary area must submit to the director of graduate studies a written request which includes the following: a plan of course work, a personal reading list, and an overall program statement indicating the relationship of the area in sociology to the student's total program.

Interdisciplinary Ph.D. Degree Program in Sociology. Students who have been admitted to the Ph.D. degree program in sociology, and who wish to develop an interdisciplinary program, should review the guidelines set forth by the Graduate School. The graduate dean approves interdisciplinary Ph.D. degree programs only when they bear the endorsement of a department that offers a Ph.D. degree program. A student who wishes to apply for an interdisciplinary program in which sociology will be the sponsoring department, should understand that the program of study must include substantial involvement in sociology courses and seminars, and that the department may require the student to meet other requirements similar to those established for the Ph.D. degree program in sociology.

Courses (SOC)

406-4 Social Change. Theories and problems of social change; their application, with emphasis on the modern industrial period.

415-3 Logic of the Social Sciences. (See Philosophy 415.)

423-4 Sociology of Gender. (Same as Women's Studies 442.) Examines social science theory and research on gender issues and contemporary roles of men and women. The impact of gender on social life is examined on the micro level, in work and family roles, in social institutions, and at the global, cross-cultural level.

424-4 Social Movements and Collective Behavior. A sociological analysis of the behavior of collectivities in uninstitutionalized settings; crowds, masses, publics, and social movements will be examined with relation to their social and cultural backgrounds, forms of expression and organization and their functions in society.

426-4 Social Factors in Personality and Adjustment. (Same as Psychology 464) Review of selected theoretical orientations and research traditions in social psychology. Comparison of different theoretical and methodological approaches — symbolic interaction, role theory, developmental and social psychology, theories of attitude organization and change, studies of belief and value systems, theories of socialization.

435-4 Social Inequality. Discussion of theories and evidence pertaining to the socio-structural causes and consequences of inequality based on social class, prestige, power, gender, wealth and income.

437-4 Sociology of Development. Survey of sociological theories of development including modernization, dependency, and world-system perspectives. Problem areas of development are examined: economic growth, state structures, multinational corporations, labor force, education, migration, population and women's roles.

438-4 Sociology of Ethnic Relations in World Perspective. Examines theories, concepts and research on the structure of ethnic relations and ethnic problems in contemporary societies in major world regions. Assimilationist, pluralist, secessionist, and militant types of ethnic and racial group relations are covered in selected societies. Designed for students with advanced interest in comparative ethnic relations. Prerequisite: GEB 215 is recommended.

450-4 Social Thought. A survey of Western social thought from the ancient world to the found-

ing of the modern social sciences in the 19th century.

460-4 Sociology of Medicine. Examination of the sociological factors involved in health and illness, the role of medicine in society, the organization of medical care and health institutions in the United States and the prospects for sociological research in this area.

465-4 Sociology of Aging. The adult life cycle from a sociological perspective, with emphasis on the later stages of adulthood. Special topics on aging include demographic aspects, family interaction, ethnicity and cross-cultural trends.

471-4 Introduction to Social Demography. Survey of concepts, theories, and techniques of population analysis; contemporary trends and patterns in composition, growth, fertility, mortality and migration. Emphasis is on relationship between population and social, economic, and political factors.

473-4 Juvenile Delinquency. (Same as Administration of Justice 473.) Nature of sociological theories of delinquency; analytical skills in studying the delinquent offenders; systematic assessment of efforts at prevention, control and rehabilitation in light of theoretical perspectives. Prerequisite: 6 hours of social/behavioral science recommended.

474-4 Sociology of Education. Methods, principles and data of sociology applied to the educational situation; relation of education to other institutions and groups.

475-4 Political Sociology. (Same as Political Science 419.) An examination of the nature and function of power in social systems at both the macro- and micro-sociological levels of analysis, the social bases of power and politics; and various formal and informal power structures; the chief focus will be on American society.

476-4 Politics and Religion in Comparative Perspective. Examination of the interaction between politics and religion in the United States, with a comparative look at other nations and global regions. Consideration given to politics and religion as cultural and institutional systems, and to the impact of each upon the other.

484-3 Correctional Institutions. (Same as Administration of Justice 484.) Examination of the roles, purposes, structures and functioning of institutional corrections within the U.S. Emphasis is placed on understanding the philosophies, elements, structures and programs that shape current institution operations and their impacts on offenders, staff and the community. Prerequisite: Administration of Justice 201, 290, 316 or consent of instructor.

501-4 Classical Sociological Theory. A systematic survey of sociological theory with the focus on 19th and early 20th-century sociological thought. An in-depth examination of a selected number of thinkers whose work laid the foundation for major schools of contemporary sociology. Students are expected to be familiar with the fundamentals of sociological analysis.

502-4 Contemporary Sociological Theory. A survey of major 20th-century theoretical orientations in sociology with emphasis on their differing modes of conceptualization and alternative research programs. Students are expected to be familiar with the classics of sociological thought.

506-4 Seminar on Contemporary Sociological Theory. Recent trends in sociological theory; current approaches to the construction and application of theoretical models and their relations to empirical research. Prerequisite: 501 or consent of instructor.

512-4 Sociological Research. An overview of sociological research methods including survey, quantitative, comparative-historical and ethnographic techniques of research. Special attention will be given to research design and implementation. Students will do one or more limited research projects and will write reports on the projects.

514-4 Qualitative Methodology. Focus on research strategies involving the systematic exploration, documentation and analytic description of social settings, interactions, meanings, lifeworlds and texts. Includes discussion of field observation, depth interviewing, oral histories/narratives, case studies, biographies and life histories, focus group interviewing, content analysis of written and visual data, historical/archival investigations, among other approaches.

521-4 Seminar in Social Psychology. In-depth examination of specific theoretical systems or substantive problems in social psychology. Students wishing specific information on the topic of the seminar should consult with the instructor for more detail. Prerequisite: 426 or consent of instructor.

526-8 (4,4) Quantitative Methods in Sociology. (a) Linear causal models as a tool in theory and research. Central tendency, variation, covariation and correlation. Bivariate and multivariate regression models. Path analysis and related techniques. Bivariate and multivariate statistics for nominal and ordinal measures. **(b)** Application of linear models. Linear models of measurement error, reliability and validity. Models of reciprocal causation feedback and control. The identification problem. Must be taken in a, b sequence. Prerequisite: graduate standing.

530-2 to 12 (2 to 4 per topic) Topical Seminar in Sociology. Content varies with interests of instructor and students. Prerequisite: consent of instructor.

533-4 Seminar in Social Stratification. Comparative study of power, social class, and status; conceptions of social structure and measurement techniques; explanations of social and occupational mobility; institutions and differential life-changes.

534-4 Seminar in Social Change. Overview of prevailing theories, research, and issues in social change. These include social and economic change in capitalism; modernization development and underdevelopment in the world system; gender; race and ethnic relations; class relations and labor markets; social and revolutionary movements.

539-4 Seminar in Complex Organizations. Overview of theories, research, and prevailing issues of complex organizations. These will include the power structure of the business community, emergence and structure of the bureaucrative organization, bases of authority, systems of formal and informal relations, unanticipated consequences of organizational structure, labor relations, total institutions and social movements as organizations.

542-4 Seminar on the Family. Overview of the theoretical approaches, substantive issues, and techniques of research and measurement in the study of American family life. Approaches include structural-functionalism, conflict theory, and the feminist critique. Among the substantive topics are family roles and relationships, kinship, relationships of the family to other institutions and family change.

543-4 Seminar on Comparative Family Systems. Analysis of cross-cultural and historical variation in family structure. Methods and sources of information for research on family structure.

544-4 Sociology of Gender. Examines major theories, themes and research methods on the intersection of gender, race, class and sexuality. Topics may include: construction of gender, race, class and sexual identities; work; social movements; intersection of family and work; parenting and reproduction; historical and cross-national dimensions.

550-4 Seminar in Social Problems. Theoretical perspectives and empirical findings on the emergence and evolution of social problems. Examination of institutional responses and formation of social policy.

551-4 Sociology of Religion. Theoretical and empirical study of the origin, location and function of religious ideas and institutions in society.

552-4 Seminar in Race and Ethnic Relations. Overview of theories, research and prevailing issues of race and ethnic relations in contemporary societies. Discussions will include world expansion during colonialism, political economy of minority groups, class and gender issues in the global development.

555-4 Social Movements and Collective Action. A seminar designed to survey the major sociological approaches to social movements and collective action. Emphasis will be on movement culture, social movement organizations and the social environment in which collective action occurs.

562-4 Seminar in the Sociology of Deviance and Social Control. Critical analysis of sociological theories and methods used in the study of social deviance and control. Examination of social deviance such as suicide, mental illness, sexual variance, drug use and alcoholism.

572-4 Seminar in Criminology. Students will learn research methods appropriate to the student of crime within various theoretical schools of criminology. Particular attention will be paid to quantitative and qualitative approaches to symbolic interactionism, functionalism, social structural, ecological and control theories.

591-1 to 4 Individual Research—Supervised Research Projects. Open to graduate students with a major in sociology. Graded *S/U* only. Prerequisite: consent of instructor and departmental director of graduate studies.

596-1 to 8 Readings in Sociology. Supervised readings in selected subjects. Graded *S/U* only. Prerequisite: consent of instructor and departmental director of graduate studies.

600-1 to 32 (1 to 16 per semester) Dissertation. Prerequisite: consent of chair.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Special Education

E-mail: lviernum@siu.edu

COLLEGE OF EDUCATION

Bates, Paul, Professor, Ph.D., University of Wisconsin, 1978; 1978.

Casey, John P., Professor, *Emeritus*, Ed.D., Indiana University, 1963; 1964.

Cordoni, Barbara, Professor, Ed.D., Duke University, 1976; 1977.

Crowner, James, Professor, *Emeritus*, Ph.D., Michigan State University, 1960; 1966.

Ewing, Norma J., Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1974; 1973.

Foley, Regina, Associate Professor, Ed.D., Northern Illinois University, 1989; 1990.

Hisama, Toshiaki, Associate Professor, *Emeritus*, Ph.D., University of Oregon, 1971; 1971.

Juul, Kristen, Professor, *Emeritus,* Ph.D., Wayne State University, 1953; 1970.

Miller, Sidney, Professor, Ph.D., Pennsylvania State University, 1974; 1978.

Morgan, Howard, Professor, *Emeritus,* Ed.D., Wayne State University, 1962; 1969.

Mundschenk, Nancy, Assistant Professor, Ph.D., University of Iowa, 1992; 1992.

Teska, James A., Associate Professor, Ph.D., University of Illinois, 1969; 1973.

The Department of Educational Psychology and Special Education offers programs leading to the Master of Science and Doctor of Philosophy degree in special education.

Master of Science in Education degree

In the master's degree program, which requires a minimum of 30 semester hours for completion, 6 emphases are offered. All are designed for those who have attained an undergraduate grade point average of at least 2.7 on a 4 point

scale. Selected emphases may require prior certification in one or more areas of special education. Students desiring entry into the program and lacking prerequisites may complete the necessary requirements in conjunction with their program. Applicants with grade point averages less than 2.7 may at the discretion of the departmental faculty be admitted conditionally. They may also be required to complete all or a part of the Graduate Record Examination or Miller's Analogy and to submit the results as a part of their application to the department.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

There are 6 emphases open to those seeking a master's degree in special education: (1) early childhood special education, (2) resource teacher of the mildly handicapped, (3) teacher of the moderately and severely handicapped, (4) teacher of the severely behavior disordered, (5) teacher of the secondary aged mildly handicapped, (6) special education supervisor. Program requirements for each of these emphases include the following courses: SPED 500-3, 578-3, 580-3, and 599-3 to 6. In addition, they require completion of the courses specified in the explanation of each of the 6 areas of emphasis.

Early Childhood Special Education. Those selecting this emphasis will, as a rule, have completed certification requirements in one other area of special education or early childhood education. During the program students will complete requirements for state approval in Early Childhood Special Education. Upon completion of the program, students will be prepared to work either as educators or service providers in Early Childhood Special Education programs. In addition to core courses and courses required for approval (currently these are SPED 400, 412, CI 513, 518), students must complete SPED 405, 412, 505, 512, 594, and at least one of 513, 514, or 515.

Resource Teacher of the Mildly Handicapped. Students choosing this emphasis will ordinarily enter the program with certification in at least one area of special education and during the program will find another area of special education certification. Their training will prepare them to work as resource personnel in school programs where mildly handicapped children have been returned to regular classes. In addition to the core courses, they must complete: one of SPED 401-3, or 404-3; 511-3; at least one of 513-3, 514-3, or 515-2; and additional electives selected in cooperation with their graduate adviser to a total of at least 30 semester hours.

Teacher of the Moderately and Severely Handicapped. Students choosing this emphasis will ordinarily have been certified in the area of trainable-severely/profoundly handicapped or behavior disorders, and during their master's degree program will be pursuing an advanced degree of knowledge and expertise. However, persons without a teaching certification are also admitted to this degree program but must complete all course deficiencies. The major objective of this program is to prepare educators to apply systematic instruction technology to the learning and behavioral problems of moderately and severely handicapped persons so that they might function as fully as possible in community life. After completion of this program, graduates will be prepared to directly teach or supervise educational efforts in school, community, domestic, and vocational settings. Program applicants may declare an emphasis in severe behavior disorders or moderate/severe/profound mental retardation. In addition to the core course requirements, students must complete characteristics and methods deficiencies, SPED 550-3, and additional electives selected in cooperation with

their graduate adviser. For a student choosing a joint emphasis in mental retardation and behavior disorders, specific departmental and nondepartmental electives may be designed from which the student must choose.

Teacher of Individuals Labeled Severely Behavior Disordered. Students choosing this emphasis will ordinarily have been certified in the area of behavior disorders, and during their master's degree program will be pursuing an advanced level of knowledge and expertise. Persons without a teaching certificate are also admitted to this degree program, but must complete all course deficiencies. The major objective of this program is to prepare educators to apply systematic instruction technology to the learning and behavioral problems of severely handicapped persons so that they might function as full as possible in community life. After completion of this program, graduates will be prepared to directly teach or supervise educational efforts in school, community, domestic, and vocational settings.

In addition to the core course requirements, students must complete characteristics and methods deficiencies, SPED 501-3; SPED 516-3; 550-3; and additional electives selected in cooperation with their graduate adviser. For a student choosing a joint emphasis in mental retardation and behavior disorders, specific departmental and nondepartmental electives may be designated from which the student must choose.

Special Education Supervisor. Students choosing this emphasis will enter the program with certification in at least one area of special education and a minimum of 2 years teaching experience in their area of certification. Upon successful completion of the program, the students will be eligible for supervisory certification in the special education area of teaching experience. The program has as its purpose the training of effective instructional leaders. In addition to the core courses, they must complete: EAHE 501-3, 503-3, 517-3 or 519-3, 511-3 or C&I 531-3 or C&I 571-3, SPED 513-3, 514-3, and additional electives selected in cooperation with their graduate adviser to a total of at least 32 semester hours.

Research requirements for all master's program are as follows:

1. The student must successfully complete SPED 500-3, and then SPED 599-2 to 6 during which the thesis is completed.
2. The student must successfully defend the thesis in an oral examination conducted by the student's committee chair and 2 additional committee members.

A comprehensive examination over the field of special education is also required and conducted by the student's committee chair and 2 additional committee members.

All full-time graduate students in the department may be required to work a maximum of 5 hours per week in departmental activities as a part of their professional development.

Doctor of Philosophy Degree in Education

The Department of Educational Psychology and Special Education participates in the doctoral program in education with a concentration in special education. Inquiries regarding application should be directed to the chair. See the description of the Ph.D. degree in education.

Courses (SPED)

400-3 Introduction to Special Education. An overview of characteristics of all types of exceptional children and youth including physical, mental, emotional and social traits. The course also covers the effects of disabling conditions in learning situations, and an overview of the history of special education including legislation and litigation.

401-3 Characteristics of Children and Youth Labeled Behavior Disordered. Diagnosis, screening, classroom management, placement considerations, goals and the effective use of an-

cillary services for individuals who experience emotional disturbance and/or social adjustment problems. Emphasis on the understanding of maladaptive behavior through principle of learning and behavior. Prerequisite: 400 or concurrent enrollment or consent of department chair.

402-3 Characteristics of Children and Youth Labeled Mentally Retarded. Emphasizes a developmental approach to understanding and dealing with children who have mildly and moderately reduced mental abilities. Considers historical, theoretical and practical factors pertinent to mental retardation. Prerequisite: 400 or concurrent enrollment or consent of department chair.

403-3 Characteristics of Children and Youth labeled Gifted. Designed to help teachers in the identification of and programming for children labeled gifted and talented. Prerequisite: 400 or concurrent enrollment or consent of department chair.

404-3 Characteristics of Children and Youth Labeled Learning Disabled. Behavioral, emotional, physical and learning characteristics of children and youth, with learning disabilities. Emphasis on receptive and expressive modalities for learning; theories dealing with causes and management. Prerequisite: 400 or concurrent enrollment or consent of department chair.

405-3 Introduction to Early Childhood Special Education: Infants, Toddlers and Preschoolers with Special Needs and Families. This course presents an overview of Early Childhood Special Education including typical and atypical early development, federal and state legislation, goal setting, IEP and IFSPs, working with families, service delivery, case-management, curriculum methods and procedures for enhancing development in young children with special needs. Prerequisite: 400, concurrent enrollment, or consent of instructor.

406-3 Characteristics of Children and Youth with Moderate and Severe Disabilities. Presents historical, theoretical and research developments in service delivery for individuals of all ages (0-21) with severe disabilities. Provides the basic developmental, instructional and curricular background essential for prospective educators. Emphasizes a behavioral approach. Thirty hours of observation or equivalent applied experience is required.

408-3 Integrating Children and Youth with Disabilities in Normalized Environments. For regular education and related service personnel who provide services for children and youth with a disability. This course focuses on providing an understanding of essential characteristics and methods required to provide an appropriate education for students with disabilities.

409-1 to 6 Cross-Cultural Studies. Seminar and/or directed independent study concerned with socio-cultural variables affecting the educational needs of children and youth with a disability. Prerequisite: 400 or consent of instructor and department chair.

411-4 Assessment in Special Education. Course covers general assessment information, intelligence and academic norm-referenced test, informal inventories and adaptive behavior and rating scales. A laboratory fee is required to cover the cost of materials. Prerequisite: 400; one of 401, 402 or 404; or consent of department chair.

412-3 Introduction to Assessment and Curriculum Methods in Early Childhood Special Education. This course presents and introduction to child and family assessment and the development of child and family goals in Early Childhood Special Education. Topics will include types of assessment commonly used, rationale for assessment, methods of assessment, reporting assessment results, writing child and family goals, and curricula to meet child and family goals. A fee for testing materials is required. Prerequisite: 400, concurrent enrollment or consent of instructor.

417-3 Methods and Materials for Teaching Children and Youth Labeled Behavior Disordered. Psychoeducational procedures used in teaching the children and youth labeled behavior disordered. Includes field trips, meetings with parents and visits by resource persons from schools and agencies. Prerequisite: 400, 401.

418-3 Methods and Materials for Teaching Children and Youth Labeled Mildly Retarded. Psychoeducational strategies used in teaching the children and youth with mild mental retardation. Prerequisite: 400, 402.

419-3 Methods and Materials for Teaching Children and Youth Labeled Learning Disabled. Psychoeducational strategies used in teaching children and youth labeled learning disabled. Prerequisite: 400, 404.

421-3 Methods and Materials for Teaching Children and Youth Labeled Moderately and Severely Disabled. Emphasizes a behavioral approach (i.e., systematic instruction) in teaching young students with severe disabilities (e.g., moderate MR, severe MR, profound MR, multiple handicapped, autistic). Systematic instruction is discussed in relation to applications across various curriculum domains. Each student must have access to working with students labeled moderately and severely disabled during the semester. All students are to develop and implement an instructional program during the course of the semester. Prerequisite: 400, 406.

423-3 General Procedures in Special Education. Presents key provisions of Public Law 94-142 and subsequent amendments, including Individualized Education Programs (IEPS). Course content also includes principles of behavior management effective for use in the instruction of students with special needs. Prerequisite: 400; and one of 401, 402, 403 or 404; or consent of department chair.

425-3 Home-School Coordination in Special Education. Cover techniques used in parent interviews, conferences and referrals by school personnel; due process and procedural safeguards for parents of children and youth with disabilities. Prerequisite: 400 or consent of department chair.

430-3 Secondary Programming for Students Labeled Mildly Disabled. Deals with modifications of and additions to school programs to ensure that they are appropriate to the needs of adolescents labeled mildly disabled. Includes detailed coverage of joint work-study programs as preparation for vocational adequacy, and addition of remedial and compensatory program models. Prerequisite: 400 and one of 401, 402, 403 or 404.

431-2 Work-Study Programs for Adolescents Labeled Severely Disabled. Deals with program offerings in public school special education programs designed to prepare adolescents labeled severely disabled for maximum vocational adequacy. Prerequisite: 400 and one of 401, 402, 404 or 406.

500-3 Special Education Research Problems. Research design and methodology in special education. Prerequisite: consent of instructor.

501-3 Methods and Materials for Persons with Severe Behavior Challenges. Deals with methods, materials and instructional management practices common to the instruction and management of student experiencing severe behavioral challenges in the schools and in residential settings.

503-3 Educational Program Delivery for Gifted and Talented Students. Planning implementation and evaluation of differential educational programs for gifted and talented students. Reviews historical through modern day approaches to the systematic delivery of educational services to exceptional populations. Evaluation methods for the expansion and refinement of gifted programming are planned. Prerequisite: 403.

505-3 Organizing and Implementing Early Childhood Special Education Programs. This course presents the philosophy and current best practices involved in the development and maintenance of Early Childhood Special Education programs. Content will include models of teaming and working with children and adults, legal and ethical issues, interagency coordination, transition, multicultural concerns, parent support and involvement, integration, program evaluation and supervision. Prerequisite: 400, 405, concurrent enrollment and using ECSE literature as a resource program.

511A-3 Advanced Assessment and Remedial Planning in Special Education. Administration and interpretation of typical instruments used to gain information to be used in remedial planning for children in special education programs. Designed to provide students with thorough knowledge of testing procedures, this course will include supervised practicum in testing and development of remedial programs. Prerequisite: 411.

511B-3 Advanced Remediation in Special Education. Designed to provide the graduate student with experience in designing and implementing a remedial program. Prerequisite: 511A.

512-3 Advanced Child and Family Assessment, Curriculum Methods and Evaluation in Early Childhood Special Education. This course presents advanced coursework and practical experience in child and family assessment, development and selection of curricula and evaluation in Early Childhood Special Education. Students will review current assessment, and curricula packages, conduct evaluations, and write assessment reports. Practical experience will be an integral part of this course. Prerequisite: 400, 405, 412, or concurrent enrollment, and consent of instructor and chair.

513-3 Organization, Administration, and Supervision in Special Education. Emphasis upon the functions, underlying principles and cautions to be observed in the organization and administration of special education. The selecting and training of teachers, problems of supervision, special equipment, transportation, cooperating agencies and legal aspects of the problem. Prerequisite: 400 and consent.

514-3 Simulation of Administrative Tasks in Special Education. Development of skills required of special education administrators and supervisors through the use of simulation materials focusing on developing administrative skills. Prerequisite: 400 and consent.

515-2 Itinerant and Resource Teaching in Special Education. The role, responsibilities, problems of the itinerant and resource teacher in special education. Alternate systems and models for providing educational experiences for children with disabilities. Review of the role and responsibilities of other ancillary school personnel. Prerequisite: consent of instructor.

516-3 Advanced Assessment for Educationally Handicapped Youth in Special Education. Administration and interpretation of typical instruments used to gain information to be used in program planning for adolescents in special education programs. Designed to provide potential secondary teachers with thorough knowledge of testing procedures, this course will include supervised practicum in testing and development of remedial programs. Prerequisite: 411.

517-2 The Atypical Child and Social Agencies. A survey of social agencies contributing to the welfare and care of exceptional children. Emphasis is given to services rendered and to method of contact and costs. Specialists invited to appear before the class. Prerequisite: 400 and consent.

518-1 to 6 Workshop in Special Education. Topical workshops centered on current practices and new developments in special education. Designed to promote better understanding of the psychological and educational problems of exceptional children. Open to graduate students majoring in education and related fields. Prerequisite: 400 and consent of instructor and department chair.

519-3 Career Development Opportunities for Educationally Handicapped Youth. This course is designed to prepare special educators to understand the career needs of the educationally handicapped youth and the procedures for developing appropriate career services for such students. Prerequisite: 430.

550-3 Behavior Management of Exceptional Children and Youth. Describes assessment, implementation, and monitoring procedures involved with the use of behavior change techniques in special education programming. Emphasis will be placed on the actual implementation of behavior change techniques with handicapped school aged students in public school settings. Prerequisite: concurrent enrollment in 594 and Rehabilitation 406 or consent of instructor.

560-2 Inservice Delivery. Covers theoretical and practical aspects of inservice delivery/staff development. Special focus on organizing inservice programs, delivery techniques, consultative skills development, select inservice models, needs assessment and evaluative techniques. Prerequi-

site: Curriculum and Instruction 483 or consent of instructor.

578-3 Legal Framework for Special Education Services. Covers PL 94-142 (Education for all Handicapped Children Act) and Section 504: The Rehabilitation Act of 1973. Emphasis on both pieces of legislation with respect to provision of educational services for handicapped children and youth/young adults. Prerequisite: 400, or concurrent enrollment, or consent of instructor.

580-3 Master's Seminar: Issues and Trends in Special Education. Analysis of research, trends, and programs in the education of handicapped children. Open to graduate students in special education only. Prerequisite: 400, consent of instructor and department chair.

582-3 Post-Master's Seminar: Theories and Models in Special Education. Critical discussion of eight major intervention models used historically and currently with handicapped children in educational settings. Prerequisite: consent of instructor.

583-3 Post-Master's Seminar: Program Coordination in Special Education. Analysis of organizational principles and practices required for the creation and maintenance of programs to meet the needs of persons who are handicapped and require specialized educational programs within the school setting. Prerequisite: consent of instructor.

584-3 Doctoral Seminar: Research in Special Education. An analysis of purposes, approaches, design, methodology, and applications of experimental studies of handicapping conditions, as they relate to special education. Prerequisite: 582, 583.

585-3 Doctoral Seminar: Evaluation in Special Education. An analysis of the purposes, approaches, design, methodology and applications of evaluative studies in special education. Prerequisite: 582, 583.

586-1 to 4 (1,1,1,1) Proseminar in Special Education. A topical seminar providing for the systematic discussion of current research in the field of special education. Specific content is determined by participating faculty and students, relative to current faculty research and dissertations in progress within the department. Doctoral students will register for a total of four credit hours, one per semester, after which they will audit the course during the pursuit of their dissertation.

590-1 to 6 Readings in Special Education. Study of a highly specific problem area in the education of exceptional children. Open only to graduate students. Graded *S/U* only. Prerequisite: 400, consent of instructor.

591-1 to 6 Independent Investigation. A field study for graduate students. Conducted in a school system where full cooperation is extended. The study will involve selection of a problem, surveying pertinent literature, development of experimental design and procedures, recording results and appropriate interpretations and summaries. Prerequisite: consent of instructor.

594-1 to 6 Practicum in Special Education. Supervised experience in school or institutional programs for atypical children. Special research project. Open to graduate students only. Prerequisite: consent of instructor and department chair.

595-1 to 12 (1 to 6) Internship. The doctoral internship is a required experience. Internship hours do not apply to minimum needed for graduation. Each student shall engage in specialized service areas within a school system, university, state office, federal office, or private agency. Internship assignments include: **(a)** Research and applied studies; **(b)** Evaluation; **(c)** Administration; **(d)** University teaching; **(e)** Program planning and management; **(f)** Supervision; and **(g)** Specialized delivery systems. Interns will participate in regularly scheduled on-campus or on-site seminars with the university and field internship supervisors.

599-1 to 6 Thesis. Independent hours to be taken under the supervision of the student's Master's degree chair for the purpose of conducting and writing the Master's thesis. Prerequisite: consent of instructor.

600-1 to 32 (1 to 12 per semester) Dissertation. Prerequisite: consent of chair.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Speech Communication

E-mail: spcmgrad@siucvmb.siu.edu

COLLEGE OF LIBERAL ARTS

Breniman, Lester R., Associate Professor, *Emeritus,* Ph.D., Ohio State University, 1953; 1954.

Crow, Bryan, Associate Professor, Ph.D., University of Iowa, 1982; 1981. Interpersonal communication, conversation analysis, media studies.

Daughton, Suzanne, Assistant Professor, Ph.D., University of Texas-Austin, 1991; 1990. Rhetorical theory and criticism.

Ekachai, Daradirek, Assistant Professor, Ph.D., Southern Illinois University at Carbondale, 1991; 1990. Public relations, intercultural communication.

French, Kathryn, Assistant Professor, Ph.D., University of Southern California, 1989; 1990. Conversation analysis, interpersonal communication, and health communication.

Glenn, Phillip, Associate Professor, Ph.D., University of Texas-Austin, 1987; 1989. Conversation analysis, interpersonal communication, laughter, play, conversational performance, conflict.

Hetherington, Laurel T., Assistant Professor, Ph.D., University of Iowa, 1981; 1995. Interpersonal communication, public relations, communication management.

Higgerson, Mary Lou, Associate Professor, Ph.D., University of Kansas, 1974; 1973. Organizational communication and public relations.

Hinchcliff-Pelias, Mary, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1982; 1983. Communication and instruction, research methods, quantitative, special populations and communication instruction.

Kleinau, Marion L., Professor, *Emeritus,* Ph.D., University of Wisconsin, 1961; 1959.

Kleinau, Marvin D., Associate Professor, *Emeritus,* Ph.D., Southern Illinois University at Carbondale, 1977; 1963.

Langsdorf, Lenore, Professor, Ph.D., State University of New York at Stonybrook, 1977; 1990. Communication, rhetorical, argumentation, and social-political theory.

Lanigan, Richard L., Professor, Ph.D., Southern Illinois University at Carbondale, 1969; 1974. Continental-contemporary rhetoric, semiotics, phenomenology of communication, intercultural communication.

McOmber, James, Assistant Professor, Ph.D., University of Iowa, 1991; 1994. Rhetorical theory, public address, rhetoric of science, psychoanalysis.

Pace, Thomas J., Professor, *Emeritus*, Ph.D., University of Denver, 1957; 1965.

Parkinson, Michael, Associate Professor, Ph.D., University of Oklahoma, 1978, J.D., Southern Illinois University at Carbondale, 1987; 1978. Public relations and legal communication.

Pelias, Ronald, Professor, Ph.D., University of Illinois, 1979; 1981. Performance methodologies and criticism.

Pineau, Elyse, Assistant Professor, Ph.D., Northwestern University, 1990; 1990. Women's autobiography and personal narratives in performance.

Potter, David J., Professor, *Emeritus,* Ph.D., Columbia University, 1943; 1960.

Smith, William D., Associate Professor, *Emeritus,* Ph.D., Southern Illinois University at Carbondale, 1964; 1961.

Stucky, Nathan, Assistant Professor, Ph.D., University of Texas-Austin, 1988; 1990. Performance studies, staging literature, conversation analysis, dramatic literature.

Van Oosting, James, Professor and *Chair*, Ph.D., Northwestern University, 1981; 1981. Performance studies, creative writing, children's literature.

At a time when many speech communication departments are staffed by individuals representing the same school of thought, our department has a healthy diversity of outlooks and approaches. Nevertheless our diversity has not prevented the development of an exceptionally supportive interpersonal climate. While we argue about a great many issues, we are committed as colleagues to effective teaching and productive scholarship. We believe that our students share these commitments, and we are most anxious to recruit students who want to study in such an environment.

Our facilities include a superior laboratory for oral performance studies, the Calipre stage, computer terminal laboratory room, video tape laboratory, library, and research carrels all housed in the department. We offer graduate assistants the opportunity for independent teaching experiences as well as the usual support duties as teaching and research assistants. All graduate students are eligible for training experiences through internships in business, governmental, and political organizations.

Financial Assistance

There are several forms of financial assistance available to graduate students in the Department of Speech Communication. First, there are graduate fellowships awarded on the basis of superior scholarship, which do not require any departmental service. Second, there are several special fellowships offered annually to students who show promise of success in graduate studies even though their academic records have been only average because of economic or social disadvantages. These special fellowships have no service requirements. Third, there are graduate assistantships available which require up to 20 hours per week of service in teaching or research. Finally, there are dissertation research awards for students in their final year of work toward the Ph.D. degree.

The stipends for the above awards currently range from $5976 to $6372 for the 9 month academic year depending on the level of graduate study of the appointee and the type of appointment. These rates may be increased for the forthcoming year. All the appointments, fellowships, and assistantships, also include

a waiver of tuition (both in-state and out-of-state) for the student, although the student is responsible for student fees. Students who hold assistantship appointments for 2 consecutive semesters also receive a tuition waiver for the following summer session, and a limited number of appointments pay stipends for summer assignments as well.

Applications for financial assistance may be obtained by writing: Director of Graduate Studies, Department of Speech Communication, Southern Illinois University at Carbondale, Carbondale, Illinois 62901-6605. Completed applications for fellowships should be received by February 1 for appointment during the subsequent fall semester. Applications for fall semester assistantships should be received by March 1.

The Department of Speech Communication offers 3 graduate programs of instruction and research in the discipline of human communication leading respectively to the Master of Arts, Master of Science, and Doctor of Philosophy degrees.

Curriculum. The graduate faculty of the department offers curriculum areas in communication education, interpersonal communication, philosophy of communication, performance studies, and (at the doctoral level) theater as well as course work in intercultural communication (including semiotics), organizational communication and public relations, political communication, and rhetoric and public address.

Admissions. Applicants must meet the minimum requirements of the Graduate School and should have completed a minimum of 24 quarter or 16 semester credit hours in speech or related subjects. A program for remedying deficiencies in background can be arranged upon petition to the graduate committee of the Department of Speech Communication. In some instances applicants will be accepted for direct entry from the baccalaureate to the doctoral program when the graduate committee identifies high achievement and potential in the applicant's undergraduate work. Master's degree students seeking the Ph.D. degree should make application when they are within 16 hours of completing the degree.

Application for admission to graduate studies in speech communication should be directed to the director of graduate studies of the Department of Speech Communication. The GRE Aptitude Test is not required as a condition for admission but is strongly recommended. In some cases it may be requested to support application materials. Except for persons from English-speaking countries, international students are required by the department to have a TOEFL score of 600 or higher for admission. In addition to materials sent to the Graduate School, each applicant should submit to the Department of Speech Communication three recommendations from former instructors and an application form indicating professional and personal objectives. In addition, applicants for the Ph.D. degree program may be requested to furnish a thesis or research paper as evidence of research and writing ability.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Acceptance for graduate study in speech communication and subsequent continuation in the graduate program is determined by the graduate committee of the Department of Speech Communication. Students who are awarded graduate assistantships to provide assistance in the instruction of the department are required to take SPCH 539 if they have not had previous teaching experience at the secondary, college, or university level; the course is strongly recommended for all students planning careers in university teaching.

Research Style. In most cases graduate students are required to write a term research paper for each course taken; and, depending on the degree program, each student is required to write a research report, thesis, or dissertation. In all cases the writing must conform to the latest edition of *The MLA Style Manual* or the *APA Publication Manual,* depending on the nature of the research. In all cases the writing must conform to the current edition of the Graduate School *Guidelines for the Preparation of Research Reports, Theses, and Dissertations.*

Master's Degree Programs

A minimum of 30 semester credit hours is required for the M.A. or M.S. degree. At least 15 of these hours must be at the 500 level. A student who completes only the minimum of 30 hours of work may devote no more than 9 hours to work outside the Department of Speech Communication. However, a student may petition the graduate committee for a program to include 15 hours outside the department. Such outside work must be germane to one of the departmental curriculum areas for purposes of research and examination. Competence in one foreign language is required for the M.A. degree. Competence may be demonstrated by (1) E.T.S. examination, (2) achieving a grade of *B* or *A* in FR 488, GER 488, RUSS 488, or SPAN 488, or (3) achieving a passing grade in other approved foreign language courses on campus, a list of which is available in the department office. Current standards for passing the E.T.S. examination in French, German, Russian, or Spanish are available from the director of graduate studies.

A faculty adviser is named for the individual student before the end of the first semester. The faculty adviser and the student will plan the program of study. The program must consist of course work in at least 3 curriculum areas. In order to satisfy a given area of study, a student must complete at least 6 semester hours of work in that area. A course used for one curriculum area may not be counted toward another area. A comprehensive written examination is taken during the last semester of study.

The requirements for the master's degree may be met by either of the following plans chosen by the student in consultation with the adviser.

Plan 1: Thesis. Each student must complete a minimum of 30 semester credit hours, with no more than 6 hours or fewer than 3 hours of thesis credit in SPCH 599 counted toward the 30 hour minimum. In addition, the student must register for at least one semester hour of credit in SPCH 599 during any academic term in which the services of any faculty member are utilized in the supervision of or consultation concerning the thesis. If the student's reliance upon faculty assistance justifies, the director may require an appropriately greater number of semester hours in SPCH 599. The thesis is submitted to a committee of 3 members of the graduate faculty, at least 2 of whom must be from the Department of Speech Communication. The committee must approve the prospectus and will administer an oral examination over the thesis. Students are required to submit 2 copies of the thesis to the Graduate School, one copy to the Department of Speech Communication, and one copy to the thesis director.

Plan 2: Research Report. Each student must complete a minimum of 30 semester credit hours, with no more than 3 hours or fewer than 1 hour of research report credit in SPCH 595 counted toward the 30 hours minimum. A research report is submitted as evidence of research competence. This paper should be based on a special project or specific courses as recommended by an advisory committee composed of the student's adviser and one other member of the graduate faculty in the Department of Speech Communication selected by the student and the adviser. This advisory committee must approve the research paper before it is submitted to the graduate committee and, then, to the Graduate School. One copy of the research report is submitted to the Graduate School,

one copy to the Department of Speech Communication, and one copy to the adviser.

The subject of the thesis or research report must be in one of the curriculum areas chosen by the student. A student must have a graduate grade point average of 3.25 in order to be eligible for the master's degree.

Doctor of Philosophy Degree

A minimum of 42 semester credit hours of course work plus 9 hours of methodology (tool) courses beyond the master's degree and 24 semester credit hours of dissertation work are required for the Ph.D. degree. Course work outside the department must be germane to one of the departmental curriculum areas for purposes of examination and dissertation research. Throughout the program of study, the student must maintain a 3.25 grade point average in all work taken. If the grade point average drops below the minimum, the student is placed on academic warning for the following two semesters.

During the last half of the second semester of course work, the student's progress shall be reviewed by the advisory committee to determine continuation, change, or termination of the program. The advisory committee for each student shall be responsible for assembling the necessary information (grades, recommendations, progress in curriculum areas, etc.) for consideration in reaching the above decision.

Advisory Committee. A 3 person advisory committee shall be established during the first semester of graduate study to plan the program of study with each student. The chair of the committee shall act as the primary adviser and sign the graduate course request form. This advisory committee is responsible for certifying to the graduate committee that the student has met all departmental requirements for admission to candidacy and has passed the Ph.D. preliminary examination.

The advisory committee and the student will plan the program of study. The program of study focuses on at least one curriculum area. All students are required to take SPCH 501, Introduction to Speech Communication Research and SPCH 510, Rhetoric and Communication. Also students must take a minimum of 9 hours of methodology courses prescribed by the chosen curriculum area. Students selecting theater as a curriculum area must take 18 hours of speech communication courses including SPCH 501 and 510.

Attendance is required at proseminars as part of professional development. Graduate students are encouraged to present their scholarly work.

Preliminary Examination. The student must pass a preliminary examination on each of the declared curriculum areas in the program of study. The preparation and administration of the examination are determined by the advisory committee in consultation with the student. The examination is taken near the end of the course work.

Dissertation. Each student must register for at least 24 semester hours of dissertation credit in SPCH 600 or SPCH 601 or THEA 600 or THEA 601. In addition, the student must register for at least one semester hour of credit in SPCH 600 or THEA 600 during any academic term in which the services of any faculty member are utilized in the supervision of or consultation concerning the dissertation. If the students' reliance upon faculty assistance justifies, they may be required by the dissertation adviser to register for an appropriately greater number of semester hours.

The dissertation director shall, upon consultation with the student, be responsible for setting up a dissertation committee, supervising the dissertation, and administering the final oral examination. The dissertation committee shall ap-

prove the dissertation prospectus and pass upon the completed dissertation and oral examination. Students are required to submit two copies of the dissertation to the Graduate School, one copy to the Department of Speech Communication, and one copy to the dissertation director.

Interdisciplinary Program. Students who have been admitted to the doctoral program in speech communication and who wish to develop an interdisciplinary program, should review the guidelines set forth by the Graduate School. The graduate dean approves interdisciplinary Ph.D. programs only when they bear the endorsement of the principal sponsoring department. A student who wishes to apply for an interdisciplinary program in which speech communication will be the principal sponsoring department should understand that the program of study must include substantial involvement with courses in speech communication and that the department may require the student to meet other requirements similar to those established for the doctoral program in speech communication.

Courses (SPCM)

401-3 Communication Theories and Models. An introduction to theory construction and model utilization in communication research. Critical analysis of existing communication theories in the social sciences as a basis for generating new models. Emphasis on the heuristic nature and function of the language/speech act paradigm in communication studies. Satisfies the College of Liberal Arts Writing-Across-the-Curriculum requirement for Speech Communication majors.

411-3 Rhetorical Criticism. Designed to develop the student's ability to criticize public discourse, including speeches, written works, and the mass media. Satisfies the College of Liberal Arts Writing-Across-the-Curriculum requirement for Speech Communication majors.

421-3 to 9 (3,3,3) Studies in Public Address. Critical studies of speakers and issues relevant to social and political movements dominant in national and international affairs. A lecture, reading and discussion course. Students may repeat enrollment to a total of nine hours.

430-3 Speech in Elementary Schools. Survey of normal speech development with emphasis on the elementary school years. Concept of speech as skill basic to reading, writing and spelling. Psychological and sociological variables affecting language as it relates to school learning. Speech experiences supportive of the child's linguistic, intellectual and social development.

431-3 Speech in Secondary School. Philosophy of speech education, and effective teaching of speech through curricular and extra-curricular work. Prerequisite: twelve hours of speech and consent of instructor.

432-3 Secondary School Forensic Program. Designed to evaluate and plan the proper role of forensics in the secondary school and to prepare the students for their tasks as teachers and administrators in that program. Students enrolled as majors in speech communication with a specialization in communication education must complete this course before enrolling for student teaching. Not for graduate credit. Prerequisite: 325, GEC 200.

433-3 Children's Literature in Performance. Study of children's fiction and poetry through analysis, creative drama, and performance, including solo and group work.

435-3 to 6 (3,3) Topics in Performance Studies. An exploration of advanced theories and techniques for performance studies. Topics vary and are announced in advance. Students may repeat enrollment in the course, since the topics change. Lecture, discussion, class projects.

440-3 Language Behavior. Study of linguistic approaches to speech communication based on behavioral determinants such as culture, history, speech community, value orientations, social perception and expression and the nature and function of interpersonal transaction. Prerequisite: 340 or consent of instructor.

441-3 Intercultural Communication. Application of semiotic and cultural theories to language behavior. Emphasis on speech communication as an approach to the study of intercultural communication. Prerequisite: 341 or consent of instructor.

442-3 Psychology of Human Communication. Nature, development, and functions of verbal and nonverbal behavior; application of psychology theories and research to the communication process in individuals and groups. Emphasis on the systemic nature of communicative behavior.

443-3 General Semantics. Formulations from the works of Alfred Korzybski and from neo-Korzybskian interpreters are presented. General semantics is discussed as an interdisciplinary approach to knowledge. Relationships are made to contemporary problems in human affairs.

444-3 Studies in Language Acquisition. Research in and theories of the development of verbal and nonverbal language with attention to the maturational process. Includes investigation of social, phonological, syntactical and semantic correlates of communication development. Appropriate for advanced students interested in working with or conducting research involving children.

445-3 Conversational Performance. Analysis of performance acts within everyday interaction: stories, jokes, laughter, teasing, etc. Application of theories of play, metacommunication and framing. Re-performance of recorded, transcribed conversations as method of exploring aesthetic di-

mensions of communication. Prerequisite: nine hours of Speech Communication courses or consent of instructor.

446-3 Sociology of Language Discourse and Signs. Introduction to sociological semiotics, especially structuralism and post-structuralism. Reference to French theorists such as Barthes, Baudrillard, Bourdieu, Certeau, Deleuze and Guattari, Greimas, Group Mu, Lacan, Lyotard and Perelman. Emphasis on the practice of discourse, language, and signs as a model for research in the human science of communicology.

447-3 Semiotic. (Same as Philosophy 422.) Introduction to Semiotic as the general theory of signs, including natural signs, signals and linguistic expressions. Concentration on contrasts and comparisons between language and more primitive types of signs.

451-3 Political Communication. (Same as Political Science 418.) A critical review of theory and research which relate to the influence of communication variables on political values, attitudes and behavior. Prerequisite: 358 or consent of instructor.

452-3 Interpersonal Communication and the Mass Media. A review, synthesis and analysis of communication theory and research which deals with the process, interactive nature of interpersonal and mass channels of communication. Prerequisite: 401 or consent of instructor.

460-3 Small Group Communication: Theory and Research. A critical examination of small group theory and research in speech communication. Emphasis is given to the development of principles of effective communication and decision-making in the small, task-oriented groups. Prerequisite: 261 or consent of instructor.

461-3 Laboratory in Interpersonal Communication I. Interpersonal communication is studied as human encounter. The philosophy and theoretical bases of existential phenomenological approaches to human communication are discussed. Projects are evolved by small groups that contribute to the understanding of human communication.

462-3 Laboratory in Interpersonal Communications II. Various theories of social and cultural change are explored. The role of interpersonal communication in the development of human consciousness is explicated. Projects are evolved by small groups that examine values and priorities of human nature and cultural nature.

463-3 Interpersonal Conflict. Study of sources, patterns and outcomes of conflict in interpersonal relationships. Emphasis on interactive, systems-level analysis of naturally-occurring conflict episodes. Practice in managing conflicts, reframing, negotiation and mediation. Prerequisite: for undergraduates, 262 or consent of instructor.

465-3 Philosophy of Language. (See Philosophy 425.)

471-3 Prose Fiction in Performance. Study of prose fiction through analysis and individual performance. Satisfies the College of Liberal Arts Writing-Across-the-Curriculum requirement for Speech Communication majors. Prerequisite: 370 or consent of instructor.

472-3 Poetry in Performance. The study of poetic form through analysis and performance. Prerequisite: 370, GEC 200 or consent of instructor.

474-3 Staging Literature. Theory and practice of staging literature texts with emphasis on adaptation and directing. Prerequisite: 370 or 371 or consent of instructor.

475-3 to 6 (3,3) Production Texts and Contexts. Advanced study related to theoretical and practical issues in performance staging with special emphasis on textual production, scripting, social contexts and performance practices. May be repeated for a total of six hours. Prerequisite: six hours of performance studies courses or consent of instructor.

476-3 Writing as Performance. An examination of the practical and theoretical links between composition and performance. Lectures, reading and assignments focus on performance as a means and an end to creative writing. Satisfies the College of Liberal Arts Writing-Across-the-Curriculum requirement for Speech Communication majors.

480-3 Dynamics of Organizational Communication. Introduction to interrelationships of communicative behavioral and attitudes with organizational policies, structures, outcomes. Uses case studies and role-plays to teach principles. Individual research into selected aspects of organizational communication. Prerequisite: 280, 442, or consent of instructor.

481-3 Public Relations Cases and Campaigns. Advanced course in public relations case analysis and campaign planning. Students critique public relations campaigns created by various profit, nonprofit and agency organizations. Students also design public relations campaigns from problem identification through evaluation stages. Satisfies the College of Liberal Arts Writing-across-the-Curriculum requirements. Prerequisite: 381 and 382 with a grade of *C* or better.

483-3 Studies in Organizational Communication. Study of communication systems and behaviors within organizations. Consideration of relevance of communication to management operations, employee morale, networks, superior-subordinate relations, production and organizational climates. Individual research into selected aspects of organizational communication. Prerequisite: 480 or consent of instructor.

490-1 to 6 Communication Practicum. A supervised experience using communication skills. Emphasis on the development of performance skills in the following areas: **(a)** Communication studies. **(b)** Performance activity. **(c)** Interpersonal communication. **(d)** Debate and forensic activity. **(e)** Political communication. **(f)** Organizational communication. **(g)** Instructional communication. May be repeated for credit. Undergraduates limited to a total of six hours and graduate students to three to be counted toward degree requirements.

492-2 to 8 Workshop in Performance Studies. Summer offering concentrating in specialized areas of performance studies. Prerequisite: 370 and GED 200 or consent of instructor.

493-3 to 9 (3,3,3) Special Topics in Communication. An exploration of selected current topics in communication arts and studies. Topics vary and are announced in advance; both students and faculty suggest ideas. Students may repeat enrollment in the course, as the topic varies.

501-3 Introduction to Speech Communication Research. Survey of research methods utilized in the discipline of speech communication. Discussion of these methods as they apply to the various subject matter typologies. Introduction to basic conventions of research investigation and reporting.

502-3 Seminar: Quantitative Communication Research. Review and analysis of types of quantitative research and methods of data collection most relevant to the study of human communication. Prerequisite: 501.

503-3 Communicology as a Human Science. Introduction to the human science approach (phenomenology) to theory construction in human communication. Examination of the modality conditions for evidence (actuality, possibility, necessity, sufficiency) and the corresponding logics (assert, problematic, apodictic, thematic) for qualitative research. Focus on the Abduction models of human communication and practice used by theorists such as Gregory Bateson, Paul Waltzlawick, Roman Jakobson, Charles S. Pierce, Maurice Merleau-Ponty and Michel Foucault.

504-3 Seminar: Empirical Phenomenological Communication Research. Review and analysis of the types of empirical phenomenological research and methods of capta/data collection relevant to the study of human communication. Prerequisite: 501 and 503.

505-3 Seminar: Semiotic Phenomenology and Critical-Cultural Research. Review, analysis, and application of eidetic and hermeneutic models for conducting interpretive research in the tradition of semiology and phenomenology. Focus on those qualitative approaches which use a critical-cultural context of investigation in the human sciences, especially communicology. Prerequisite: 503 and 504 or consent of instructor.

506-3 Ethnography of Communication. Survey of research literature and methods in the ethnography of communication, emphasizing description of communicative practices situated in particular cultural contexts. Course includes such topics as theoretical assumptions and genres of ethnographic writing.

510-3 Seminar: Rhetoric Theory. A survey of selected theories of rhetoric. Emphasis on major contributors of historical or contemporary importance.

513-3 to 9 (3,3,3) Studies in Rhetoric. An exploration of selected topics in the field of rhetoric. May be repeated with change of topic area. Topics announced prior to each offering. May be repeated up to nine hours.

515-3 to 9 (3,3,3) Communication and Gender. How communicative activity constitutes and sustains human beings as gendered. Emphasis on gaining familiarity with contemporary research on gendering from a particular perspective (e.g. ethnography, performance, phenomenology, quantitative methods, rhetorical criticism). May be repeated when perspective varies. Perspective announced prior to each offering.

526-3 Seminar: Studies in Persuasion. The study of persuasion in social-political contexts. Exploration of contemporary research and selected theories in persuasion. Examination of philosophical-ethical questions related to persuasion. Readings, research and discussions.

531-3 to 9 (3,3,3) Seminar: Speech Education. Advanced study of selected problems in speech communication instruction. Analysis of research problems and methodologies in speech pedagogy research. Topics may vary from year to year. Prerequisite: consent of instructor. May be repeated only if topic differs each time repeated.

539-3 Speech Communication at University Level. Analysis and practice of instructional methods. Focus on the development of instructional skills with specific applications to teaching the basic college speech communication course.

540-3 Seminar: Language, Culture, and Semiology. Examination of communication problems and research focusing on the relation among cultural values, communication behaviors in the speech community, and social exchange. Emphasis on the semantics and pragmatics of intercultural communication and social semiotic systems. Prerequisite: 440 or 441 or consent of instructor.

545-3 Seminar: Semiology and Semiotic Communication. Advanced study of sign, signal, and symbol systems in the phenomenology of communication. Systematic analysis of the metatheory relationship between expression and perception as manifest in verbal and nonverbal communication systems. Emphasis on semiology as a communication theory in the human sciences. Some consideration of related theories such as structuralism, interspecies communication, human/machine communication and general systems theory. Prerequisite: 440 or 441 or consent of instructor.

546-3 Conversation Analysis: Pragmatics. (Same as Linguistics 546.) Study of the pragmatics of everyday conversation: sequential organization, topical coherence, speech act rules and functions, contextual frames, and background understandings. Emphasis on observational research methods and analysis of original data. Prerequisite: consent of instructor.

547-3 Conversation Analysis: Ethnomethodology. (Same as Linguistics 547) Descriptive study of sequential organization of interaction. Students read research literature and learn methods for transcription and analysis in the conversation analytic tradition. Topics include openings and closings, adjacency pair organization, turn taking, overlap, assessments, pre-sequences, repair, topic, nonvocal activities, response, laughter, storytelling, argument, play and institutional contexts. Prerequisite: consent of instructor.

551-3 Phenomenology Seminar I: French Communicology. A critical examination of dominant problematics, thematics, and rhetorics in communication theory and praxis developed as a human science (*science humaine de communicologie*) by such contemporary French theorists as Barthes, Bourdieu, Foucault, Merleau-Ponty, Perelman and Ricoeur. Prerequisite: 401 and 461 or consent of instructor.

552-3 to 9 (3,3,3) Phenomenology II: German Communicology. Ways of studing human communication which derive their impetus, orientation, or construal of questions and answers, theories and methods, from the German intellectual (philosophical and social-scientific) tradition. Focus on **(a)** Hermeneutic phenomenology, **(b)** Frankfurt School critical theory, and **(c)** Phenomenological sociology/ethnomethodology. May

be repeated with change of focus. Focus announced prior to each offering.

561-3 to 6 (3,3) Studies in Small Group Communication. Studies of group action, interaction and leadership designed to apply small group theory and communication theory. Emphasis on the nature of group communication as exemplified in the laboratory model or the discussion/conference model. Students may repeat enrollment to a total of six hours.

562-3 to 9 (3,3,3) Philosophy of Human Communication. (Same as Philosophy 562.) Study of selected topics in the philosophical study of communication. May be repeated with change in topic area. Topics announced prior to each offering.

563-3 Studies in Interpersonal Communication. An investigation of recent theories and empirical research concerning interpersonal communication. Emphasis will be placed on analyses of relational development, maintenance and change in the contexts of working relations, friendships and families. Both analytic and quantitative perspectives on interactional processes will be considered.

570-3 Performance Methodologies. The examination of performance methodologies for exploring human communication. Particular attention is given to generating and reporting performance knowledge. Prerequisite: nine hours of 400 level performance studies courses or consent of instructor.

571-3 History and Criticism in Performance Studies. A study of social and critical trends in performance studies with emphasis on their historical development. Prerequisite: nine hours of performance studies or consent of instructor.

572-3 Theory and Criticism in Performance Studies. A study of the theoretical trends in performance studies and literary criticism. Prerequisite: nine hours of performance studies or consent of instructor.

573-3 Performance Criticism. An examination of the theoretical and practical issues surrounding the evaluation of artistic performances for interpretation, rhetoric, theatre, journalism, film and television students interested in developing their critical skills. Prerequisite: consent of instructor.

574-3 to 6 (3,3) Studies in Interpretation. An exploration of selected current topics in the field of oral interpretation. May be repeated for a total of six hours. Prerequisite: twelve hours of interpretation or consent of instructor.

576-3 Performance Art. The study and creation of postmodern performance. Particular attention is given to performance artists in the theatrical tradition. Prerequisite: nine hours of performance studies or consent of instructor.

580-3 to 9 Issues in Organizational Communication and Public Relations. Advanced study and applications related to specific issues in **(a)** Organizational communication, **(b)** Public relations, and **(c)** Political communication. May be repeated with change of topic area. Topics announced prior to each offering. Prerequisite: consent of instructor.

593-1 to 3 Research Problems in Communication. Independent research study with a theoretical focus under the tutorial supervision of a member of the graduate faculty. Prerequisite: consent of instructor and departmental adviser.

595-1 to 3 Research Report. One to three hours required of all non-thesis students writing a research paper. Graded *S/U* or *DEF* only.

598-0 Proseminar in Human Communication. An open forum offered each semester for the systematic discussion of contemporary research in the field of communication arts and studies. Specific content is determined by participating faculty and students. Topics will usually be related to current faculty research or dissertations in progress in the department. Graded *S/U* only.

599-1 to 6 Thesis. Minimum of three hours to be counted toward a master's degree.

600-1 to 36 (1 to 12 per semester) Dissertation. Minimum of 24 hours to be earned for the Doctor of Philosophy degree.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Teaching English to Speakers of Other Languages

(See Linguistics for program description.)

Telecommunications

E-mail: telecom@siu.edu

COLLEGE OF MASS COMMUNICATION AND MEDIA ARTS

Birk, Thomas A., Assistant Professor, M.A., University of Nebraska, Omaha, 1990; 1990. Sales and management.

Collette, Larry, Assistant Professor, Ph.D., Michigan State, 1992; 1991. Media industry, analysis, social effects and new technologies.

Dybvig, Homer E., Associate Professor, *Emeritus*, Ph.D., Southern Illinois University at Carbondale, 1970; 1961.

Foote, Joe S., Professor and *Dean, Mass Communication and Media Arts*, Ph.D., University of Texas at Austin, 1979; 1986. Political news and management.

Gher, Leo A., Assistant Professor, M.S., Southern Illinois University at Carbondale, 1980; 1983. Sales, management, and programming.

Hodgson, Scott, Associate Professor, M.S., Southern Illinois University at Carbondale, 1992; 1988. Television producing and directing, corporate media production, documentary, field and studio production.

Johnson, Phylis W., Assistant Professor, M.A., Texas A&M University, 1985; 1990. Radio production.

Kaye, Barbara K., Assistant Professor, Ph.D., Florida State University, 1994; 1994. Media effects, mass communication, theory, writing.

Keller, Kenneth R., Associate Professor, M.A., University of Illinois, 1966; 1984. Broadcast journalism, television news, broadcast reporting, documentary production, television field production.

Kim, Haeryon, Assistant Professor, Ph.D., University of Iowa, Iowa City, 1990; 1994. Broadcast law and policy, social effects.

McCray, Judith, Assistant Professor, M.A., Rutgers University, 1985; 1994. Television documentary writing and production.

Murrie, Michael, Associate Professor, M.A., University of Missouri, Columbia, 1977; 1988. Television news performance, and new technology.

Robbins, Buren C., Associate Professor, *Emeritus,* M.A., University of Iowa, 1935; 1949.

Shipley, Charles W., Professor, *Emeritus,* Ph.D., Florida State University, 1971; 1971.

Sitaram, K. S., Professor, Ph.D., University of Oregon, 1969; 1979. Social effects, new technology and intercultural communications.

Starr, Michael, Associate Professor and *Chair,* J.D., Georgetown University Law Center, 1965; 1988. Broadcast law and policy, promotion, management.

The Master of Arts degree in telecommunications provides advanced professional training for students preparing for leadership positions in radio and television broadcasting, cable television, corporate video, and related fields. Content areas include the structure and organization of broadcast-related industries, mass media theories, economic and management perspectives, emerging new technologies, policy and regulatory issues, content criticism and review, programming innovations, international perspectives, and societal effects. Graduates of the program advance to leadership positions in broadcast stations, cable systems, production houses, corporate and public sector video departments, or teach in colleges and universities.

Admission

A baccalaureate degree is required from an accredited university for admission to the M.A. degree in telecommunications with preference given to those who have studied radio-television. For students coming from non-radio/TV backgrounds or whose preparation is lacking in certain areas, additional undergraduate course work may be required by the graduate faculty. Courses taken to satisfy deficiencies will not be counted towards the M.A. degree. Applicants must submit an application form obtained from the department, transcripts of all undergraduate work, evidence of scholarship such as a research paper, and evidence of proficiency in a foreign language or computer programming. In addition, all applicants must fulfill the requirements for admission to the Graduate School.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Requirements

A minimum of 30 graduate credit hours is required for the M.A. degree in telecommunications. Of these, 6 hours must be taken in an outside department but related to the student's program and approved by the student's adviser. For example, courses in business administration may be chosen by students focusing their studies in the area of management. A minimum of 18 hours must be successfully completed at the 500 level or above. All students in the program are required to successfully complete RT 500 Introduction to Research in Telecommunications, RT 532 Telecommunications Research, RT 573 Telecommunications

Management, RT 571 Telecommunications Policy. Students are also required to complete selected other 500 level courses in their major.

As a part of the 30 hours required for graduation, each student must select one of two options:

Plan 1. Thesis. Each student must complete a minimum of 30 semester credit hours including a traditional written thesis (RT 599, Thesis) which counts 3 to 6 hours in the program. An oral examination by the faculty advisory committee is given upon completion of the thesis.

Plan 2. Research report. Each student must complete a minimum of 30 semester hours including an individual research report (RT 591, Individual Study in Telecommunications) which counts 3 hours in the program. A research report is required which should be based upon supervised research or an independent investigative project approved by the student's advisory committee. An oral examination by the faculty advisory committee is given the student upon completion of the research report.

During the first semester of course work, the student will be appointed a major adviser and a committee of 2 additional graduate faculty members. The committee will work with the student to prepare a specific plan of study. The major adviser will also serve as the director of the student's thesis. In all instances students will be required to pass comprehensive examinations upon completion of course work and prior to work on the thesis.

Retention

A 3.0 grade point average in course work taken at the 400 level and above is required. It is expected that students will be in full-time residence for a minimum of one calendar year. A maximum of 12 hours of relevant transfer credit may be accepted into the student's program.

M.A. in Telecommunications/M.B.A. Concurrent Degree Program

The Department of Radio-Television (R-TV) in the College of Mass Communication and Media Arts (MCMA) and the College of Business and Administration (COBA) together offer an M.A. in telecommunications/M.B.A., a concurrent degree program leading to both the Master of Business Administration and the Master of Arts degrees with a major in telecommunications. The M.B.A. degree requires completion of 32 semester hours of coursework; the M.A. with a major in telecommunications requires the completion of 30 semester hours of coursework. In the concurrent M.A. in telecommunications/M.B.A. degree program, COBA accepts 6 semester hours of R-TV approved coursework, and R-TV accepts 6 hours of COBA approved coursework. The end result is that the concurrent degree program entails completion of 26 semester hours of COBA approved courses and 24 semester hours of R-TV approved courses, for a total of 50 hours; this is a savings of 12 semester hours over pursuing both degrees separately outside of the M.A. in telecommunications/M.B.A. concurrent degree program.

Students interested in enrolling in the concurrent M.A. in telecommunications/M.B.A. program must apply to both the graduate program in R-TV and the graduate program in COBA. The student must be accepted by both programs. This initiates the process to pursue the concurrent degrees.

Students enrolled only in the M.A. in telecommunications or only in the M.B.A. in COBA may request admission into the other program and approval to pursue the concurrent degree program. Admission to the concurrent degree program must be done one semester prior to the last semester of registration at SIUC.

Courses (RT)

Graduate work in the Department of Radio-Television is offered toward the Master of Arts degree in telecommunications. Four-hundred-level courses in this department may be taken for graduate credit unless otherwise indicated in the course description.

430-3 News and Public Affairs Programming. Examination of history and scope of news and public affairs programming. Effects of public affairs on programs and audiences. Responsibility of radio and television stations in news and public affairs and community relations. Issues in news and public affairs including ethics. Prerequisite: senior standing, *C* in Radio-Television 300m and Mass Communication and Media Arts 201, and successful completion of the language skills exam.

453-3 Educational and Public Broadcasting. The history and regulatory structure of educational and public broadcasting in the United States today, with special emphasis on organizations regulated under the Public Broadcasting Act of 1967. Methods of funding public stations, programming and careers in educational and public broadcasting considered. Prerequisite: senior standing, *C* in Radio-Television 300m and Mass Communication and Media Arts 201, and successful completion of the language skills exam.

467-3 International Broadcasting. An examination of broadcasting theory related to rural audiences in the United States and abroad. History of farm broadcasting in the United States and abroad. Communications in development is explored. Research on effects on rural audiences. Open to non-majors with consent of instructor. Prerequisite: Mass Communication and Media Arts 201, senior standing, successful completion of language skills exam.

470-3 Television News Field Production. Advanced field reporting for television. Students will work under the supervision of the instructor to develop, investigate and report news stories for television. This process will also study the development and production of the mini-documentary. Class will utilize 3/4-inch video recorders, cameras and editing systems. Prerequisite: Successful completion of language skills exam, 370 or consent of instructor.

481-3 Non-Broadcast Television. An examination of the special requirements of business, industrial and medical uses of television. Management, budgeting, planning and evaluating productions. Exploration of cable television, satellites and other technologies used in non-broadcast situations. Prerequisite: 365 or concurrent enrollment or consent of instructor, successful completion of language skills exam.

483-3 Advanced Radio-Television Writing. Exercises in writing broadcast manuscripts including documentary, drama, and children's programming. Prerequisite: Successful completion of language skills exam, senior standing and 340, 310 or 383 and consent of instructor.

489-2 to 6 Radio Television Workshop. Advanced work in various areas of radio-television and interrelated disciplines. Prerequisite: consent of instructor.

491-3 Independent Study. Area of study to be determined by student in consultation with graduate faculty. No more than two students may work on same project. Students must complete an application form which is available from the departmental adviser. Prerequisite: senior standing and consent of instructor.

500-3 Introduction to Telecommunications. Salient issues and prevailing trends in telecommunications. Introduction to telecommunications research methods with special attention given to the preparation of thesis proposals. Required for all graduate students in telecommunications. Prerequisite: restricted to M.A. telecommunications majors or by consent of the instructor.

510-3 Telecommunications Programming. Designed to train advanced students in programming strategies for telecommunications. Includes analysis of audience needs. Analysis and interpretation of program ratings. Analysis of program formats and programming strategies.

530-3 International Telecommunications. Thorough examination of telecommunications systems in other countries. Explores telecommunications across national borders and the role of telecommunications in developing countries.

532-3 Telecommunications Research. Techniques of social science research applied to the study of telecommunications. Emphasizes the conceptualization, design and implementation of various approaches including survey, experimental design and content analysis. Required of all graduate students in telecommunications. Prerequisite: restricted to M.A. telecommunications majors or by consent of instructor.

570-3 Aesthetics of Telecommunications. Development of critical criteria and application of methods of analysis by which the content, aesthetic elements, and forms of television programs are objectively evaluated. Extensive reading in critical literature and several critical analyses are required.

571-3 Telecommunications Policy. Study of the history and development of telecommunications policy. Broad issues in policy are discussed, including policy relating to telecommunications management and international telecommunications. Legal research techniques are emphasized. Extensive readings required. Required of all graduate students in telecommunications. Prerequisite: restricted to M.A. telecommunications majors or by consent of the instructor.

573-3 Telecommunications Management. Theoretical perspectives in telecommunications management. Includes examination of the organization and management of commercial and noncommercial telecommunications organizations with an emphasis on leadership theories and techniques. Required for all graduate students in telecommunications. Prerequisite: restricted to M.A. telecommunications majors or by consent of the instructor.

580-3 Telecommunications Technology. Ongoing examination of new and emerging commu-

nication technologies, analyses of their perceived uses and potential. Creative or theoretical research required.

589-3 Telecommunications and Society. The study of effects of telecommunications on various segments of society. Group and individual investigation into research methodology and literature on effects.

591-3 Individual Study in Telecommunications. Supervised research or independent investigative projects. Area of study should be determined by student in consultation with adviser and committee.

595-3 Advanced Seminar: Telecommunications. Advanced research and discussion of specialized issues in telecommunications.

598-1 to 3 Research Report. One to three hours required of all non-thesis students writing a research paper and engaging in a companion creative project. Graded *S/U* only.

599-1 to 6 Thesis. Thesis requirements may be satisfied only by a traditional written thesis. Maximum of six hours may be counted toward degree requirements.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Theater

E-mail: blacksj@siu.edu

COLLEGE OF LIBERAL ARTS

Barnes-McLain, Noreen, Associate Professor, Ph.D., Tufts University, 1986; 1995. Criticism, theater history and theory.

Blackstone, Sarah J., Associate Professor and *Director* of Graduate Studies, Ph.D., Northwestern University, 1983; 1991. Criticism, theater history and theory.

Chrestopoulos, Alexander, Assistant Professor, M.F.A., Arizona University, Tucson, 1980; 1990. Voice and acting.

Johnston, Jan, Assistant Professor, M.F.A., University of Washington, 1990; 1993. Costume design.

Krasner, David, Assistant Professor, M.F.A., Virginia Commonwealth University, 1990; 1995. Directing, writing.

McLain, David, Adjunct Associate Professor, M.F.A., University of Oregon, 1979; 1988. Lighting design and technical direction.

Merrill-Fink, Lori, Assistant Professor, M.F.A., University of Arizona, Tucson, 1988; 1988. Acting, voice, and movement.

Moe, Christian H., Professor and *Chair,* Ph.D., Cornell University, 1958; 1958. Playwriting, theater history, and criticism.

Naversen, Ronald, Assistant Professor, Ph.D., Southern Illinois University at Carbondale, 1989; 1989. Scenic design.

Stewart-Harrison, Eelin, Professor, *Emerita,* Ph.D., Louisiana State University, 1968; 1961.

The Department of Theater blends scholarship and practice into an academically based theater experience preparing the student for a career in professional, educational, or community theater. The extensive production schedule in two theaters—a proscenium house, the McLeod Theater, seating about 500 and a flexible space, the Laboratory Theater, seating about 100—provides training in all aspects of the theater augmented by courses in acting, voice, movement, directing, playwriting, production, design, and technical theater. Courses in theater history, dramatic theory and criticism, aesthetics, and specialized courses, e.g., children's theater and theater management, complement the program. Students are required to widen their horizons by appropriate courses outside the department. Seminars in theater and drama enhance the total experience.

The Department of Theater offers a graduate program of study leading to a Master of Fine Arts degree in theater. Doctoral study in theater is sponsored by the Department of Speech Communication. Interested students should consult the description of the program under speech communication.

Admissions

One set of forms must be submitted by the applicant to the Department of Theater. All forms should be requested from the director of graduate studies in theater. Applicants for graduate studies in theater must satisfy the minimum requirements of the Graduate School before being admitted to the department,

which requires the submission of a personal and professional data form together with 3 letters of recommendation from former teachers or supervisors.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Although an undergraduate major in theater is not essential for admission to a graduate degree program in theater, the director of graduate studies may require that certain course deficiencies in undergraduate subject areas be remedied. These requirements are stated in writing on the admissions approval form.

There are additional requirements established by each of the three areas of study in the M.F.A. program. Applicants in the directing area are interviewed and required to submit materials that are representative of their previous theater work and/or indicate an aptitude for stage direction (examples would include promptbooks, programs, reviews, photos, video tapes or casebooks from previous directing efforts. Alternatively, a detailed production plan for a play selected by the faculty may be required). Applicants in the production design/technical areas are required to submit portfolio samples of their work. Applicants in the playwriting area must submit examples of their writings. More detailed information about these requirements is obtainable from: Director of Graduate Studies, Department of Theater, Southern Illinois University at Carbondale, Carbondale, IL 62901-6608, 618-453-5741.

Financial Assistance

There are several kinds of financial assistance available to graduate students in the Department of Theater. First, there are graduate fellowships awarded on the basis of superior scholarship. Second, special fellowships are offered annually to students who show promise of success in graduate studies although their academic records have been only average due to economic disadvantages. The fellowships have no service requirements. Third, graduate assistantships (over $5,000 per academic year) are available to students who are employed in various academic support positions, such as teaching, researching, and production. All fellowships and assistantships include a waiver of tuition (both in-state and out-of-state). Applications for financial assistance may be obtained by writing to the director of graduate studies.

The Master of Fine Arts Degree Program

The Master of Fine Arts degree program in theater emphasizes practical expertise in one of the following areas: directing, production design (separate emphases in scenic, lighting, costume design, and technical direction), and playwriting. Coordination of cognate areas within the University structure offers the possibility of study in such interdisciplinary fields as dramatic literature, American theater, and music theater, among others. In most instances, a minimum three year residency is required of all M.F.A. students.

All M.F.A. students must complete a minimum of 60 semester hours of course work, including the M.F.A. degree core requirements:

THEA 400 — 4 hours
THEA 500, 501 — 5 hours
Basic theater course in area — 3 hours
Total M.F.A. core — 12 hours

Besides the core requirements, the student will propose and successfully complete a project to qualify for further study in the chosen area. This project will be developed in concert with the student's committee consisting of three faculty members.

In addition, each of the three areas of study has specific area and elective requirements which are as follows.

Directing.
M.F.A. core (including THEA 402b) — 12 hours
Area requirements — 32
THEA 401-2 hours
THEA 403-3 hours
THEA 417-3 hours
THEA 454-3 hours
THEA 502-9 hours
THEA 511-3 hours
THEA 526a-3 hours
THEA 599-6 hours
Electives (by advisement) — 16 hours
Total: 60 hours

Production Design.
M.F.A. core (including THEA 407) — 12 hours
Area requirements — 32
THEA 414, 418-6 hours
THEA 510-8 hours
Area theater electives-6 hours
THEA 511 or 522-6 hours
THEA 599-6 hours
Electives (by advisement) — 16 hours
Total: 60 hours

Playwriting.
M.F.A. core (including THEA 411a) — 12 hours
Area requirements — 35
THEA 402a or b, or 502-3 hours
THEA 411b, 511, 526b-9 hours
THEA 504, 505-6 hours
THEA 511 or 522-3 hours
THEA 454 or 550-2 to 3 hours
THEA 530-6 to 5 hours
THEA 599-6 hours
Electives (by advisement) — 13 hours
Total: 60 hours

Thesis requirements vary for each area of study; however, they include a research component as well as a description and evaluation of the student's creative project. In concert with the student's committee, the candidate may choose to separate the two, submitting an approved research paper during the first academic year and a creative thesis after completion of the M.F.A. final project.

The Department of Theater requires an oral examination, conducted by the student's thesis or dissertation committee, for each M.F.A. and Ph.D. degree candidate. The examination covers the thesis or dissertation, and may include questions designed to ascertain the student's general competence in theater.

Courses (THEA)

400-1 to 6 (1 to 2 per semester) Production. Practicum for support of major department productions in all areas. Roles in department productions may fulfill requirement.

401-2 to 6 (2 per Semester) Stage Management. Study and practical application of the theories and skills required to successfully stage manage a theater production. Students will fulfill stage management assignments in departmental productions. Prerequisite: 218a and consent of instructor.

402-6 (3, 3) Play Directing. (a) Introduction to directing. The history of the director; the evolution of the director into a position of predominance in modern theater hierarchy. The function of the director; and examination of theoretical

viewpoint. Textual analysis; establishing the groundwork for the director's approach to production. Prerequisite: junior standing; 217 and 311a; or consent of instructor. **(b)** The principles of play direction including play selection, analysis and patterning of auditory and visual elements of production. Directing of a one-act play. Prerequisite: consent of instructor.

403A-3 Advanced Movement for the Actor. Advanced studies in stage movement with special attention to period styles. Prerequisite: 303a, 317a,b

403B-3 Advanced Voice for the Actor. Advanced studies in voice with special attention to stage dialects. Prerequisite: 303b, 317a.

404-3 Theater Management. Discussion of legal and financial aspects concerning the professional and community theaters of the United States. Consideration of and practice in managerial activities of an educational theater including administration, purchasing, accounting practices, direct sales, publicity, promotion and public relations.

406-3 Properties and Crafts for the Stage. Studio work in traditional and non-traditional crafts for theatrical events, including life masks, upholstery, puppetry, stage furniture and special effects.

407-3 Scene Design. Technical and artistic aspects of scene design. Theory and practice. Supplies at least $25 per semester. Prerequisite: 218a, 309, 409, or consent of department.

408-3 Model Making. The craft of scenic model making for the stage and other dramatic media. Prerequisite: 218a or consent of department.

409A-3 Scene Painting. Studio work in lining, paneling, tromp l'oeil ornament and drapery. Prerequisite: 218a or consent of department.

409B-3 Advanced Scene Painting. Advanced studio work in scene painting, including dye painting, transparencies, color mixing and mural work. Prerequisite: 409a or consent of instructor.

410-3 Children's Theater. Study of methods and their practical application of introducing children to theater and theatrical productions as an art form. Includes the writing of a short play for children. Recommended for majors in education programs.

411A-3 Playwriting — The One-Act Play. Principles of dramatic construction and practice in the writing of two one-act plays. Problems of adaptation are treated. Individual plays have the opportunity to be produced in the theater's program for new plays. Prerequisite: one course in dramatic literature for non-majors and graduates; 311a for undergraduate theater and speech communication majors; or consent of instructor.

411B-3 Playwriting — The Full-Length Play. Principles of dramatic construction and practice in the writing of a full-length play, encompassing such varied types as the children's play, the musical, the outdoor historical drama, etc. In special cases, students may elect to write three short plays. Prerequisite: 411A or consent of instructor for non-majors; 311a for undergraduate theater majors.

414-3 Costume Design. History of Western Costume from Greek to Renaissance and its adaptation to stage use. Theory and practical application of design and color. Supplies at least $25. Prerequisite: 218c or graduate standing.

417-3 to 6 (3,3)Advanced Acting. Utilization of the actor's process in the performance of European realism and various theories and styles of the Twentieth century. Prerequisite: 317b. May be repeated once for credit.

418-3 Introduction to Lighting Design. Investigation of stage lighting design, theory and professional practice. Special attention to color theory and its application to stage lighting. Four hours lecture/laboratory. Prerequisite: 218b, graduate standing or consent of instructor.

419-3 Advanced Stagecraft. Advanced study of principles and procedures of scenic construction and stage rigging. Includes scene shop organization, materials, and specialized stage equipment; preparation for professional technical direction. Lecture and laboratory to be arranged. Prerequisite: 218a,b, 309, 407; or graduate standing.

454-3 American Theater. The development of American theater from colonial times to the present. Includes a study of the American musical theater from preminstrels through contemporary music-drama.

500-2 Introduction to Research Methods. An introduction to the principles and methods of the various types of research in theater. The student may elect to focus on the research demands of a selected area of interest within the degree program pursued. One objective is the formulation of a research problem and a prospectus. Prerequisite: graduate standing.

501-3 Contemporary Developments. A survey of the significant developments in theater and related arts from the beginning of the 19th century to the present through the study of documentary material, critical works, and selected plays. Individual reports, guest lecturers and lectures provide focus on selected areas. Required reading encompasses a broad spectrum of subjects. Prerequisite: graduate standing.

502-3 to 9 Advanced Directing. Emphasis on practical directing problems and concerns of individual students through research, rehearsal and performance. Includes survey of directing theories and practices with laboratory application of directing techniques. Prerequisite: consent of instructor.

504-3 The Comic Theater. A study of comedic drama, theory, and criticism as applied to types of comedy with a focus on interpretation for the theater practitioner. Individual reports are assigned.

505-3 The Tragic Theater. An examination of tragic drama and criticism as related to the societies which produced such drama. Individual reports are assigned.

506-3 Spectacle: The Vision of Theater. Discussion and evaluation of the role and responsibility of theater artists to promote audience understanding of the visual through application of design and directing principles. Exploration and examination of the style and meaning of communication between members of a production team in today's theatre through group projects.

507-3 Advanced Scene Design. Advanced consideration of principles of scene design. Scenography as a dynamic force in theater and related media worldwide. Supplies at least $25 per semester. Prerequisite: 407 or consent of instructor.

510-2 to 8 Production Design Seminar. Exploratory workshop experience in innovative con-

temporary rendering techniques and methods for translation of metaphorical into theatrical visuals values, with emphasis on design sophistication. To include, among other topics, theatrical rendering presentation, sketching, and color and texture experimentation. Comprehensive development of portfolio projects. To be taken by graduate production design students each semester in residence.

511-3 to 6 Playwriting Workshop. A practical laboratory course in which playwriting students will have one or more original plays presented in staged readings or modified productions. Plays will be directed and, in part, acted by graduate acting/directing students also enrolled in the course. The workshop gathers a performance group for the presentation of the new plays. Student playwrights are expected to constantly improve their work before and after presentation, to attend rehearsals, to work closely with directors and actors. Plays will be evaluated in critique sessions. Restricted to graduate playwriting and acting/directing students in the theater program. Prerequisite: graduate standing; theater major; 411a and b or consent of instructor.

513-2 Stage Movement for Graduate Actors. Practical work in stylized movement. Prerequisite: consent of instructor.

514-3 Advanced Costume Design. Advanced consideration of principles of costume design. Theory and history of costumes from Renaissance through early 20th century. Practical applications of methods and procedures in designing costumes. Supplies at least $25 per semester. Prerequisite: 414 or consent of instructor.

517-3 Graduate Acting Studio. Advanced work on scenes from the classics, contemporary drama and/or musical theater. Prerequisite: consent of instructor.

518-3 Advanced Lighting Design. Expansion and refinement of the visual imagination of the lighting designer. Investigation of theatrical applications of lighting for dance, opera, performing arts, architecture, advertising and landscaping. Prerequisite: 218a,b, 309 and 418.

522-1 to 12 SIU Summer Theater. Practical experience in summer stock play production. Performance or technical work in SIU Summer Theater only. Maximum of six hours per summer. Prerequisite: audition and consent of instructor.

526-3 to 12 (3 per topic) Seminar in Theater Arts. Special topics of interest to advanced students. Subject is determined by department and instructor. Areas: **(a)** Performance/production. **(b)** Theory, criticism, and playwriting. Seminar in same area may be taken twice. Prerequisite: consent of instructor.

530-1 to 12 Independent Study. Independent research on selected problems. A maximum of three credit hours may be taken for a single project. Prerequisite: consent of instructor.

550-2 to 6 (2 per topic) Topical Seminar. In-depth studies of topics of special interest to advanced students concerning individual or groups of playwrights, directors, designers, and their techniques and theories. Topic is determined in advance. Prerequisite: consent of instructor.

560-1 to 21 Professional Work Experience. Credit may be granted for professional work experience prior to acceptance into the program. Prerequisite: approval by departmental graduate committee required. Graded *S/U* only.

561-1 to 12 Theater Internship. After completion of the M.F.A. core curriculum and basic courses in student's specialization, credit may be granted for internship at professional theaters, training programs, or studios. Prerequisite: prior approval of departmental graduate committee required. Graded *S/U* only.

599-1 to 6 Thesis. Minimum of three hours to be counted toward a master's degree.

600-1 to 36 (1 to 16 per semester) Dissertation. Minimum of 24 hours to be earned for the Doctor of Philosophy degree.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Workforce Education and Development E-mail: wed@siu.edu

COLLEGE OF EDUCATION

Anderson-Yates, Marcia, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1975; 1970. Workforce education program administration, administrative services training, teaching methodology, curriculum development, philosophy of vocational education, women in administration.

Bailey, Larry J., Professor, Ed.D., University of Illinois, 1968; 1969. Career education, school-to-work transitions, research methods, measurement and evaluation.

Baker, Clora Mae, Associate Professor, Ph.D., Ohio State University, 1989; 1989. Teaching methodology, curriculum & instruction, professional development, office administration, qualitative research.

Bortz, Richard F., Professor, Ph.D., University of Minnesota, 1967; 1977. Instructional systems design, occupational training and curriculum development, organizational and occupational analysis, competency-based education and training, individualized instruction, faculty development and evaluation.

Buila, Theodore, Associate Professor, Ph.D., Cornell University, Ithaca, NY, 1968; 1968. Education and training in developing countries, curriculum strategies in vocational education, nonformal education and training, agricultural development, foundation and policy issues in vocational-technical education.

Carter, Rose Mary, Assistant Professor, Ph.D., Purdue University, 1970; 1970. Special needs

learners, curriculum development, supervision, methods of instruction, experience based career education, at-risk populations, clientele characteristics.

Gooch, Bill G., Professor, Ed.D., University of Tennessee, 1973; 1973. Cooperative vocational education, management of vocational and technical education.

Huck, John F., Associate Professor, Ed.D., University of Illinois 1973; 1970. Instructional methods and development, computer based training, industrial training and adult education.

Jenkins, James, Professor, *Emeritus,* Ed.D., Pennsylvania State University, 1955; 1956.

Keenan, Dorothy, Professor, *Emerita,* Ed.D., University of Illinois, 1962; 1961.

Legacy, James, Professor, Ph.D., Cornell University, 1976; 1977. Agricultural education, microcomputer use in education, curriculum development, extension education, teacher education, competency based vocational education.

Ramp, Wayne S., Professor, *Emeritus,* Ed.D., Bradley University, 1956; 1957.

Reneau, Fred W., Professor., Ed.D, Virginia Polytechnic Institute and State University, 1979; 1979. Multimedia development, task analysis, research, adult education, curriculum development, program and student assessment, test development.

Ridley, Samantha Sue, Assistant Professor, M.S., Southern Illinois University at Carbondale, 1959; 1964. Patternmaking, tailoring, special clothing needs for the physically handicapped and the elderly, consumer clothing and shopping preferences.

Rosenbarger, Maxine, Associate Professor, *Emerita,* Ph.D., Southern Illinois University at Carbondale, 1970; 1973.

St. John, Wayne L., Associate Professor, *Emeritus,* Ph.D., University of Oregon, 1954; 1975.

Stadt, Ronald W., Professor, Ed.D., University of Illinois, 1962; 1967. Evaluation, curriculum, leadership characteristics, industrial occupations, cooperative education, special needs, corporate training.

Stitt, Thomas R., Professor, Ph.D., Ohio State University, 1967; 1967. Curriculum specialist, agricultural education, training and development, microcomputers, computer assisted instruction and methods.

Sullivan, James A., Professor, Ed.D., West Virginia University, 1967; 1968. Workforce development, performance assessment, certification testing, cooperative education, hydraulics and pneumatics training and testing.

Washburn, John S., Professor and *Chair,* Ed.D., University of Illinois, 1977; 1986. Employment and training, workforce development, research, curriculum development, personnel development, and programs for special populations.

Wood, Eugene S., Professor, *Emeritus,* Ed.D., University of Missouri, 1958; 1949.

Workman, Jane, Professor, Ph.D., Purdue University, 1982; 1989. Dress and social behavior, apparel technology and design, consumer behavior.

The Department of Workforce Education and Development offers programs of study leading to the Master of Science in Education and Doctor of Philosophy degrees. Information about either program may be obtained by writing: Coordinator of Graduate Studies, Department of Workforce Education and Development, Southern Illinois University at Carbondale, Carbondale, IL 62901-4605.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Master of Science in Education Degree

The master's degree with a major in workforce education and development is designed to accommodate a broad range of individuals preparing for teaching and non-teaching roles in education, business, industry, government, and other fields. The major consists of a minimum of 30 semester hours of course work organized into 3 components.

Professional Core Requirements. This consists of 4 courses: WED 561, 566, 580, and EPSY 402. Students are required to take a minimum of 9 hours (3 courses) from the core.

Speciality Area Courses. This consists of 12–18 semester hours of course work relevant to a student's career goals. Technical courses, professional courses, individualized study, and internships may be included. Courses may be taken within the department or in other units of the college or University.

Research Paper or Thesis. In accordance with Graduate School requirements, a research paper or thesis must be written showing evidence of the student's

knowledge of research techniques. The majority of students select the research paper option. Students enroll in 3 semester hours of WED 593 to develop the research paper. Students choosing the thesis option will enroll for 6 semester hours of WED 599.

The program of study is individually tailored based on the student's background, interests, and career goals. Representative programs of study include: secondary teacher of vocational or practical arts education, post-secondary technical teacher, local director of vocational education, coordinator of cooperative vocational education, industrial trainer, employment and training specialist, manager of human resource development, and extension adviser. Upon completion of all requirements, a final oral or written examination covering the course work and research paper or thesis is conducted by the student's advisory committee.

Doctor of Philosophy Degree in Education

Advanced studies leading to the Doctor of Philosophy degree in education with a concentration in workforce education and development is offered through the Department of Workforce Education and Development. The concentration is a broad, general leadership, and professional development degree that caters to people having knowledge, experience, and interests in the fields of: (a) vocational and technical education, (b) career education, (c) employment and training, or related fields. Even though many students who enter the program have a specific service area identity (e.g., agriculture education, business education, health occupations education, home economics education, industrial education), the degree is not awarded in a service area specialty.

Within the workforce education and development concentration a student may select one of 3 areas of specialization: (a) management, (b) professional development, or (c) research. The specialty area should be chosen based on the student's background, interests, and future career goals.

Persons seeking admission to the program must meet all requirements for admission established by (a) the Graduate School of the University, (b) the College of Education, and (c) the Department of Workforce Education and Development. It is required that applicants possess a background of academic and professional experience which will provide a basis for advanced study and research. More specifically, the program is designed for individuals with a background and experience in teaching, program administration, or training and development. Admission to the concentration is determined by a screening committee composed of a minimum of 3 members of the graduate faculty of the Department of Workforce Education and Development.

The program of study consists of 64 hours beyond the master's degree and includes an 8-hour professional seminar sequence in the College of Education, a 15-hour departmental core, 17 hours of supportive studies which may include an internship, research tool competence, and 24 hours of dissertation credit.

Courses (WED)

401-3 Authoring Computer Based Instruction in Workforce Education. Develops the basic practical skills and theoretical knowledge required to create computer based instruction for workforce education. Planning and developing CBT lessons are included.

410-3 Issues in Business Training/Education. Study of current issues in business training and education related to history, current status and trends. Organization of instruction, instructional settings, relation to general education, integration and impact of technology, curriculum development/review and evaluation of business training/education impact in the workplace.

412-3 Office Systems Planning and Implementation. Planning for office systems development through investigation of procedures and systems used in various types of offices. Study of work flow, information processing, employee and group interactions, office information systems from end user perspective. Study of development and implementation processes and strategies detailed through field-tested projects. Students enrolled for graduate credit will develop an end-user office support system as a result of the project.

415-7 (1,1,1,1,1,1,1,) Instructional Methods for Business Education. Specific methods, techniques and materials to deliver instruction in these business education areas of: **(a)** Accounting, **(b)** Basic business and marketing, **(c)** Computer systems, **(d)** Keyboarding, **(e)** Information processing, **(f)** Shorthand, **(g)** Employability skills. Prerequisite: 310, 462 or Education 315.

417-3 Administrative Office Communications. Application of communication theory, human relations concepts, research methods and information technology to professional application of automated information systems. Projects include oral and written reports, systems-related documents (reports, proposals and procedures) and systems documentation for users; emphasis on human factors of communication in a technological environment. Prerequisite: 302 or equivalent.

418-3 Training and Development in Administrative Services. Theories of learning and instructional development to the education/training of employees in office systems/administrative services. Analysis of office and administrative services occupations, instructional design, instructional and presentation strategies, training evaluation, use of instructional technology, and implementation and evaluation of training in an organizational environment. Prerequisite: Office Systems Specialties 412 or equivalent.

428-3 Home Economics for Elementary Teachers. Identification and development of home economics related experiences appropriate for various levels of elementary curriculum. Interpretation of current vocational education legislation and trends affecting elementary programs.

431-3 Demonstration and Laboratory Techniques in Home Economics Education. Practice in planning and carrying out instructional demonstrations in home economics for youth and adults. Use of audiovisual aids and hand-outs. Procedures for laboratory and guided practice to develop psychomotor skills. Attention given to TV presentations. $5 to $8 lab fee required. Prerequisite: 320.

439-3 Historic Clothing: Western Cultures. Development of clothing in western civilization to the present time. Consideration of social, economic, aesthetic factors and technical innovations influencing clothing. Prerequisite: 347.

440-3 Experimental Apparel Design. Development of apparel to meet aesthetic, structural and functional needs; problem solving for exceptional proportions, rehabilitation, activity, performing arts, new technology, materials and environment. Prerequisite: 340, 342, 344, and 348.

442-3 Clothing Economics. Factors of production, distribution and consumption influencing clothing industry; management of these factors in clothing related businesses; place of clothing industry in national and international markets. Prerequisite: GEB 211 or Economics 214.

444-3 Mass-Market Apparel Design. Design of a line to specifications; drafting; toiles, mass-production costs; work flow; use of industrial equipment. Field trips. Prerequisite: 340, 342, 344 and 348.

445-3 Textile Product Testing. Exposure to and experience with methods used by retailers and manufacturers of textile items to measure performance and maintain quality. Standards, sampling and replication requirements and interpretation of results. Prerequisite: 345a,b.

446-3 Professional Practices in Fashion Design. Business principles of apparel design, including systems, forms and logistics of money and materials. Functions and responsibilities of the fashion designer. Career opportunities in the fashion industry. Prerequisite: 340, 342, 344, 348.

448-3 Custom Tailoring. Individualizing, fitting and contouring male or female garments for customers from commercial pattern or from original pattern. Organization of work and time. Prerequisite: 348.

449-3 Historic Clothing: Non-Western Cultures. Traditional dress in non-western cultures. Aesthetics, symbolism and uses of costume in the culture; effect of clothing on economy. Cultures studied may vary with each offering. Offered alternate years. Prerequisite: junior standing.

460-3 Occupational Analysis and Curriculum Development. Systems approach to curriculum development. Includes analyzing occupations, specifying objectives and developing curriculum in **(a)** Administrative services training, **(b)** Business education, **(c)** Education, training and development, **(d)** Home economics, and **(e)** Vocational teacher development.

462-3 Instructional Methods and Materials. Instructional methods in occupational training in **(a)** Administrative services training, **(b)** Business education, **(c)** Education, training and development, **(d)** Home economics, and **(e)** Vocational teacher development. Prerequisite: 460.

463-3 Assessment of Learner Performance. Development and use of evaluation instruments to assess student performance in training classrooms and laboratories. Criterion- and norm-referenced objectives, applications of taxonomies in development of written tests, performance tests and attitude measures. Prerequisite: 460.

464-3 Special Needs Learners and Work Education. Theoretical and applied concepts in teaching special needs learners. Affective aspects of learning are emphasized. Curricula and teaching materials are examined and prepared. Field trips.

466-3 Foundations of Work Education. Examination of the historical, social, economic and psychological foundations of workforce education. Nature and role of education and training in preparing people for the world of work.

468-3 Education/Labor Force Linkages. Attention given to the following areas: overcoming barriers to the linkage process; developing effective lines of communication; resource sharing; conducting joint problem solving with other agencies and individuals within the community; and jointly developing and providing programs and services.

469-3 Training Systems Management. Insight and understanding of administration and management of organizational training. Principles and techniques of managing training organizations. Process of planning, organizing, programming, staffing, budgeting and evaluating a training organization.

472-3 Organizing Cooperative Education. Introduction to cooperative education including history, rational, legislation, goals and objectives.

Programming, public relations and evaluation of cooperative education. Introduction of student selection and management of cooperative education programs. Fulfills three semester hours of six required for State of Illinois certification.

473-3 Coordinating Cooperative Education. Competencies required for coordination of cooperative education programs. Selection and maintenance of training stations, student placement, related instruction and program management. Fulfills the remaining three semester hours required for State of Illinois certification. Prerequisite: 472.

474-3 Individualized Training. Study and development of theory, characteristics, appropriateness and evaluation techniques of individualized training packages. Review of current state of individualized instruction in work education. Prerequisite: 460.

484-3 Adult Training in Organizations, Business and Industry. A study of adult and workforce education as offered in a variety of educational settings. Major topics include organization, funding, instructional systems, adult characteristics and evaluation. Prerequisite: consent of instructor.

490-1 to 4 Readings. Supervised reading for qualified students. Includes the following areas: **(a)** Administrative services training, **(b)** Business education, **(c)** Education, training and development, **(d)** Home economics, **(e)** Vocational teacher development, or **(f)** Clothing and textiles. Prerequisite: consent of instructor.

491-1 to 5 Advanced Occupational Skills. Modern occupational practice in selected fields. For experienced professionals seeking advanced techniques in **(a)** Administrative services training, **(b)** Business education, **(c)** Education, training and development, **(d)** Home economics, **(e)** Vocational teacher development, or **(f)** Clothing and textiles. Prerequisite: consent of instructor.

494-1 to 4 Workshop. Current work education issues for teachers, supervisors and administrators. Emphasis of each workshop will be identified in each workshop announcements. **(a)** Administrative services training. **(b)** Business education, **(c)** Education, training and development, **(d)** home economics, **(e)** Vocational teacher development, or **(f)** Clothing and textiles.

497-1 to 6 Practicum. Applications of work education skills and knowledge. Cooperative arrangements with corporations and professional agencies to study under specialists. For **(a)** Administrative services training, **(b)** Business education, **(c)** Education, training and development, **(d)** Home economics, **(e)** Vocational teacher development, or **(f)** Clothing and textiles. Prerequisite: 20 hours in specialty.

498-1 to 5 Special Problems. Investigation of work education problems in **(a)** Administrative services training, **(b)** Business education, **(c)** Education, training and development, **(d)** Home economics, **(e)** Vocational teacher development, or **(f)** Clothing and textiles. Prerequisite: consent of instructor.

501-3 Mutimedia Production Technologies in Workforce Education. The application of multimedia technologies into workforce education and development delivery systems. Course participants will design, develop, edit and deliver individual training multimedia products. Prerequisite: consent of instructor.

502-3 Multimedia Delivery of Workforce Education by Distance Learning. The delivery of multimedia technologies to workforce education and development training settings. Course participants will be involved as members of a team in the design and delivery of the multimedia technologies used in training the workforce. Prerequisite: 501 and consent of instructor.

510-3 Improvement of Instruction in Business Education. Designed for the experienced teacher who is interested in the study of curriculum and teaching problems in business education. Deals with teaching procedures, instructional materials, tests and evaluation, and organizations of teaching units and projects. Prerequisite: 310 or 410 or consent of instruction; teaching experience in business.

518-3 Home Economics Programs in the Schools. Curriculum development in vocational home economics is the focus. Units in family life education, consumer-homemaking, and occupational programs are developed by students for use in their professional responsibilities. Offered alternate years.

520-3 Trends and Issues in Home Economics Education. Analysis and appraisal of current trends, problems and issues in the field. Attention is given to implications for teachers.

521-3 Advanced Methods of Teaching Home Economics. Recent trends in methodology based on research and experimentation. Attention given to methods which promote cognitive, affective and psychomotor learnings. Preparation of materials for special interests of students. Offered alternate years.

538-2 College Teaching of Clothing and Textiles. Central ideas, objectives and current practices. For preparation of college teachers.

547-3 Foundations of Fashion. Anthropological approaches to fashion and socioeconomic and psychological forces as determinants of fashion in modern times. Prerequisite: 347 or consent of instructor.

561-3 Research Methods. Basic research methods and techniques in the design, investigation and reporting of research studies relating to education for work.

562-3 Legislation and Organization. Historical and contemporary thought and practice regarding federal and state legislation related to education for work. Legislators are used as resource persons. Required for supervisors.

564-3 Program Evaluation for Work Education. Evaluation systems and activities for evaluating national, state, and local work education programs. Systems include programmatic accreditation and state agency evaluations. Activities include personnel, facilities, access and equity, community resources and community needs evaluations.

566-3 Administration and Supervision. Nature, function, and techniques of administration and supervision of education for work programs at all levels.

568-3 Facilities Planning. Principles and practices of planning classrooms and laboratories for various education for work programs. How to work with administrators, staff, and paid profes-

sionals to assure judicious location and design of facilities.

572-3 Trends and Issues in Cooperative Vocational Education. Theoretical basis of, and trends and issues in cooperative vocational education (CVE). Historical research into CVE, current directions, and related literature. Investigations into development, implementation and evaluation of CVE programs. Concentration on administration and supervision of major components. Special emphasis on developing a CVE program. Prerequisite: 472.

574-3 Occupational Information. The role of instructional and supervisory personnel in the total occupational information system. Kindergarten to adult.

576-6 (3,3) Policy Implementation and Supervision. Planning, implementing, and controlling local education agency components of state and federal occupational programs. **(a)** Objective program planning, leadership, communications. **(b)** Management information systems, financial decisions, staffing patterns.

578-3 Programs in Diverse Settings. Similarities and dissimilarities of education for work programs in public/private, civilian/military, union/management, and other settings. Expectation of instructional and supervisory personnel. Professional contributions of post-secondary teachers.

580-3 Characteristics of Clientele. Familiarization with the characteristics and programming needs of clientele served by various education for work programs.

584-3 Curriculum Foundations for Work Education. Acquaints students with different factors that influence, direct, and shape curriculum as it pertains to the work-oriented aspects of school and society. Topics include law and the curriculum, philosophies and organizational models, differing approaches by grade level and setting, and the development of work-related curriculum.

586-3 Adult Vocational Programs. Philosophy of adult education; current organizational patterns of adult programs; unit planning, methods, techniques and resources.

588-3 Performance-Based Professional Development. Key concepts, terminology, advantages, limitations, and techniques for using performance-based teacher education. Major performance-based teacher education models. Procedures for implementing pre-service and in-service programs. Published learning packages are used to develop skill in teaching in and managing performance-based teacher education programs. Prerequisite: admission to the Ph.D. program.

590-1 to 9 Readings. Supervised readings in selected advanced subjects. Prerequisite: consent of instructor.

591-1 to 9 New Developments. Recent developments and trends in various aspects of education for work. Instruction provided by recognized authorities.

592-3 Current Issues and Research. Examination of broad topics, issues, and research not covered in other regularly scheduled courses. Emphasis will be on recent and present issues which are in the process of evolving. Content will be selected from three primary professional fields: **(a)** Vocational/technical education, **(b)** Employment and training, and **(c)** Career education. Required of all Ph.D. students.

593-1 to 6 Individual Research. The selection and investigation of a research topic culminating in a paper satisfying the research requirement for a Master of Science in Education degree. Prerequisite: consent of instructor.

594-3 Advanced Research Methods. Development of research competencies and preparation of proposal for thesis or dissertation research. Familiarity with research in various foundation areas of education for work.

595-1 to 16 Professional Internship. Supervised professional experience in appropriate educational settings. May be done on- or off-campus.

598-1 to 6 Special Investigations. Selection and investigation of a problem: use of relevant sources and techniques; collection and analysis, evaluation, interpretation of data, and the writing of a report of the investigation for students whose particular needs are not met by existing classes. Prerequisite: consent of instructor.

599-1 to 6 Thesis.

600-1 to 36 (1 to 12 per semester) Dissertation.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S / U* or *DEF* only.

Zoology

E-mail: zoology@zoology.siu.edu

COLLEGE OF SCIENCE

Anthoney, Terence R., Associate Professor, M.D., University of Chicago, 1968; and Ph.D., University of Chicago, 1975; 1971. Ethology, neurosciences.

Beatty, Joseph A., Associate Professor, Ph.D., Harvard University, 1969; 1965. Invertebrates: arachnology.

Billington, Neil, Assistant Professor, Ph.D., Loughborough University of Technology, England, 1985; 1991. Fish population and molecular genetics, aquatic ecology, invertebrate genetics.

Blackwelder, Richard E., Professor, *Emeritus*, Ph.D., Stanford University, 1934; 1958.

Brandon, Ronald A., Professor, Ph.D., University of Illinois, 1962; 1963. Herpetology, systematics of amphibians.

Breen, Thomas R., Assistant Professor, Ph.D., University of North Carolina-Chapel Hill, 1985; 1993. Molecular genetics.

Burr, Brooks M., Professor and *Director of Graduate Studies,* Ph.D., University of Illinois, 1977; 1977. Ichthyology.

Drickamer, Lee C., Professor, Ph.D., Michigan State University, 1970; 1987. Animal behavior.

Dyer, William G., Professor, Ph.D., Colorado State University, 1965; 1969. Parasitology: helminthology.

Englert, DuWayne C., Professor, Ph.D., Purdue University, 1964; 1963. Genetics.

Feldhamer, George A., Associate Professor, Ph.D., Oregon State University, 1977; 1984. Mammalogy, wildlife ecology.

Garoian, George, Professor, *Emeritus,* Ph.D., University of Illinois, 1956; 1956.

Gates, Robert J., Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1989; 1990. Waterfowl/wetlands ecology and management.

Halbrook, Richard S., Assistant Professor, Ph.D., Virginia Polytechnic Institute and State University, 1990; 1993. Wildlife toxicology.

Heidinger, Roy C., Professor, Ph.D., Southern Illinois University at Carbondale, 1970; 1970. Ecology of fishes.

Jakubas, Walter J., Assistant Professor, Ph.D., University of Minnesota, 1989; 1993. Wildlife science.

King, David G., Associate Professor, Ph.D., University of California, San Diego, 1975; 1977. Invertebrate neurobiology; evolution.

Kohler, Christopher C., Professor, Ph.D., Virginia Polytechnic Institute, 1980; 1981. Ecology: management, and culture of aquatic organisms.

Krajewski, Carey, Assistant Professor, Ph.D., University of Wisconsin-Madison, 1988; 1990. Molecular systematics; molecular evolution.

LeFebvre, Eugene A., Associate Professor, *Emeritus,* Ph.D., University of Minnesota, 1962; 1966.

Lewis, William M., Professor, *Emeritus,* Ph.D., Iowa State University, 1949; 1949.

Martan, Jan, Professor, *Emeritus,* Ph.D., University of Oregon, 1963; 1964.

McPherson, John E., Jr., Professor, Ph.D., Michigan State University, 1968; 1969. Entomology: insect ecology.

Muhlach, William L., Associate Professor and *Chair,* Ph.D., University of Illinois at Chicago, 1986; 1987. Developmental biology.

Newman, Jonathan A., Assistant Professor, Ph.D., State University of New York at Albany, 1990; 1994. Population and community ecology.

Sheehan, Robert J., Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1984; 1986. Environmental biology of fishes.

Shepherd, Benjamin A., Professor, Ph.D., Kansas State University, 1970; 1969. Reproduction: comparative endocrinology.

Stahl, John B., Associate Professor, Ph.D., Indiana University, 1958; 1966. Limnology.

Stains, Howard J., Professor, *Emeritus,* Ph.D., University of Kansas, 1955; 1955.

Waring, George H., Professor, Ph.D., Colorado State University, 1966; 1966. Behavioral ecology and applied ethology.

Woolf, Alan, Professor, Ph.D., Cornell University, 1972; 1979. Wildlife ecology, population dynamics, diseases.

The Department of Zoology's teaching and research programs are supported by appropriate courses, equipment, and facilities in a modern life science building. Available are an electron microscope complex, a centralized animal holding unit, a variety of sophisticated computer facilities, shops for design and construction of research equipment, Morris Library with approximately 1.8 million volumes, specialized research laboratories, and significant research collections. In proximity to the central campus are experimental ponds, wildlife enclosures, and natural laboratories. The Cooperative Fisheries and Wildlife Research laboratories, closely allied with the Department of Zoology, make important contributions to research facilities and research appointments for graduate students. The geographic location, physiographic features, and prevailing land use practices of southern Illinois and adjacent states offer unequaled opportunities for the use of natural and man-made environments in teaching and research. Of special value are the numerous refuges and parks, a national forest, large acreages of surface-mined lands, and a variety of streams and lakes. The Department of Zoology offers the Master of Science and the Doctor of Philosophy degrees. These degrees are awarded on the basis of demonstrated scholarship and the ability to organize, conduct, and report original research. Opportunities are available for experience in teaching and research.

Admission

Applicants for all graduate degrees must fulfill the requirements of the Graduate School.

Applicants for the master's degree must possess the following academic background: 24 semester hours in courses covering the basic principles of zoology; one year of college chemistry (organic or biochemistry is also desirable); one year

of college mathematics including college algebra and trigonometry (calculus and statistics are desirable). A grade point average of 2.70 ($A = 4.0$) or above. Applicants with less than 2.70 will be considered on individual merit.

Applicants for the doctoral degree must demonstrate a sound background of academic training in the biological sciences; hold a master's degree or its equivalent and have a grade point average in graduate work of 3.25 or above. Direct entry from a bachelor's degree to doctoral program is possible for students demonstrating exceptional potential.

Inquiries should be directed to the director of graduate studies in zoology. Separate applications must be made to the Graduate School and to the Department of Zoology. A completed departmental application for admission includes: departmental application form, transcript of all previous college credits, scores from the aptitude test of the Graduate Record Examination, and three letters of evaluation relative to professional and academic competence. All applicants will be notified of the action taken on their application by the director of graduate studies in zoology.

A non-refundable application fee of $20.00 must be submitted with the application. Attach your check or money order, payable to Southern Illinois University, to the top of the application form. Do not send cash. Only checks or money orders payable to United States banks will be accepted.

Advisement

Following admission to the department, and prior to registration, a student should consult appropriate faculty (representing student's area of interest) or the director of graduate studies in zoology for assistance in registration. Each student must arrange with a faculty member to serve as an adviser no later than the end of the first semester of registration in the program. A change in the adviser will be coordinated by the director of graduate studies in zoology at the request of the student and with the approval of the current and prospective professors.

Following selection and approval of an adviser, an advisory and research committee is to be recommended to the director of graduate studies in zoology for approval by the graduate dean. For the master's degree, the committee shall consist of a minimum of 3 members, 1 of whom may be from outside the department, with the adviser serving as chair.

For the doctoral degree the advisory and research committee shall consist of 5 faculty members, one of whom must be from outside of the department. The adviser shall serve as chair.

A program of course work and research tools as required must be approved by the advisory and research committee, and made a part of the student's departmental file no later than the first week of the second semester of registration in the program.

A research plan approved by the student's advisory and research committee must be placed in the student's departmental file prior to registration for ZOOL 599 or 600 and no later than the end of the second semester of registration in the program.

While pursuing the completion of degree requirements, continuous registration is required until such time as the degree has been completed. The number of hours required per session will reflect the extent of the demand for use of time and University and department facilities and academic personnel.

Academic Credit

Audited courses may not be counted toward completion of minimum hour requirements toward the degree. No course with a grade below *C* will fulfill minimal requirements of the degree. A petition for the use of transfer credits must be approved by the student's advisory and research committee and submitted to the

director of graduate studies in zoology for forwarding to the dean of the Graduate School for approval.

Master of Science Degree

A minimum of 30 hours of graduate credit (15 hours at the 500 level) is required beyond the bachelor's degree, including at least 18 hours of graded coursework, 6 hours of ZOOL 599, and one of the following tools: a foreign language either by completion of FL 488 with a grade of A or B or a score of at least 465 on the ETS proficiency exam, or two semesters of one of the following: statistics, computer science, mathematics, biochemistry or biotechnology. The entire program of study must be approved by the student's advisory committee and the department chair.

A thesis embodying results and analysis of original research and a final examination are required.

Final Examination.

1. Each candidate for a master's degree is required to pass a final examination. The examination will be oral and should be taken no later than 4 weeks before graduation.
2. The examination consists of 2 parts:
   a. Presentation of the results of the research in a seminar.
   b. A closed session of inquiry by the student's advisory and research committee following the seminar.

Graduation. Candidates for a master's degree must follow and fulfill all Graduate School procedures and requirements for processing one's application for graduation.

The Ph.D. Degree

Graduate study and research in the Department of Zoology is organized around three broad, overlapping areas in the life sciences: animal diversity; ecology and environmental science; and genetics, molecular and cell biology. Entering doctoral students are expected to take (or have taken) at least eight courses: three courses from each of any two areas and two courses from the third.

There is no minimal credit-hour requirement beyond the Graduate School's residency and dissertation hour requirements. A student in consultation with an adviser prepares a program of study including courses in the major, in the minor, in areas of deficiency, and to complete the research tool requirement. This program when approved by the student's advisory and research committee is filed with the director of graduate studies in zoology.

Acceptable tools include foreign language, statistics, computer science, mathematics, biochemistry, and biotechnology. Normally two tools are required; however, one tool with exceptional expertise may satisfy the requirement if approved by the student's committee (exception: English as a second language). A student may qualify in a foreign language by completion of FL 488 with a grade of *A* or *B* or a score of at least 465 on the ETS proficiency exam. To qualify in statistics, a student must have course work through multiple regression analysis, which is GUID 506 and 507. In computer science a student should take CS 200 and one of the following: 129, 215, 220, and 470. For the tool requirements in mathematics, biochemistry, and biotechnology, the student will arrange a program of 2 or 3 courses acceptable to the advisory committee. Previously acquired skills or knowledge may satisfy the tool requirement if the student passes an appropriate proficiency examination.

A 3.25 grade point average in graduate level course work must be maintained; failure to meet this requirement will result in loss of any financial support pro-

vided by the department. No course in which the grade is below *C* is acceptable for credit.

Preliminary Examinations. These examinations (oral and written) are taken after the tool requirement and a major portion (approximately 80 percent) of formal course work are completed, usually at the end of the second year of graduate study. The student with the approval of the adviser, advisory committee, and the director of graduate studies in zoology registers with the chair of the preliminary examination committee to take the examination. The written and oral examinations emphasize competence in the area of specialization and the minor.

Dissertation. The nature of the research to be used for the dissertation is established in consultation with the student's adviser, and is approved by the advisory and research committee. An approved copy of the research proposal is filed with the director of graduate studies in zoology. The student is required to register for a minimum of 24 semester hours in ZOOL 600, Dissertation Research. The dissertation is evaluated by the student's advisory and research committee, reviewed for approval by the chair and submitted to the graduate dean for final approval.

Final Examination. Upon approval of the dissertation by the student's advisory and research committee, the candidate requests the director of graduate studies in zoology to schedule a seminar and a final examination. Following the seminar, the final examination over the dissertation is conducted by the student's committee.

Graduation. Candidates for a Ph.D. degree must follow and fulfill all Graduate School procedures and requirements for processing one's application for graduation.

Courses (ZOOL)

Students enrolled in zoology courses may incur field trip or laboratory expenses of $5 to $25.

400-3 Cell Biology of Development. Cellular molecular mechanisms of embryogenesis and differentiation. Examination of the cell as a component of interacting tissues constituting the developing organism. Prerequisite: 300 or Biology 309, or advanced standing in Life Sciences or consent of instructor.

401-3 Developmental Neurobiology. This course presents a survey of the basic principles that underlie the development of the nervous system, including an examination of the important questions and issues currently being studied by neuroembryologists. Prerequisite: advanced standing in biology/science or consent of instructor.

402-3 Natural History of Invertebrates. Introduction to ecology, intraspecies communication and interspecies relationships of invertebrate animals. Recommended for teacher preparation programs. Two lectures and one 2-hour laboratory per week. Offered Fall term. Prerequisite: 220a.

403-3 Natural History of Vertebrates. Life histories, adaptations, and identification of fish, amphibians, reptiles, birds, and mammals, emphasizing local species. Recommended for teacher preparation programs. One lecture and two 2-hour laboratories per week. Offered Spring semester. Prerequisite: 220b or consent of instructor.

404-3 Evolutionary Biology. Concepts and principles of modern evolutionary theory at a level appropriate for upper-division majors and graduate students in any biological science. Prerequisite: 220a,b or equivalent and Biology 305 or consent of instructor.

405-3 Systematic Zoology. Theory and procedure of classification; population taxonomy; variation and its analysis; rules of zoological nomenclature; taxonomic publication. Three one-hour lecture-discussion meetings per week. Prerequisite: 220a,b and consent of instructor.

406-3 Protozoology. Taxonomy, cytology, reproduction, and physiology of unicellular animals. Laboratory methods for culture and study. One lecture and two 2-hour laboratories per week. Offered Fall term. Prerequisite: 220a.

407-4 Parasitology. Principles, collection, identification, morphology, life histories and control measures. Two lectures and two 2-hour laboratories per week. Offered Spring term. Prerequisite: 220a.

408-3 Herpetology. Taxonomic groups, identification, morphology, and natural history of amphibians and reptiles. One lecture and two 2-hour

laboratories per week. Offered Fall term. Prerequisite: 220b.

409-4 Vertebrate Histology. Microscopic structure of organs and tissues with emphasis on mammalian material. Two lectures and two 2-hour laboratories per week. Offered Spring term. Prerequisite: 10 to 12 semester hours of biological science.

413-4 The Invertebrates. Structure, phylogeny, distinguishing features and habitats of the invertebrates. Two lectures and two 2-hour laboratories per week. Offered Spring term. Prerequisite: 220a.

414-4 Freshwater Invertebrates. Taxonomic groups, identification, distribution and habitats of the North American freshwater invertebrate fauna. Two lectures, two 2-hour laboratories per week. Offered Fall term. Prerequisite: 220a.

415-3 Limnology. Lakes and inland waters; the organisms living in them, and the factors affecting these organisms. Two lectures per week and one four-hour laboratory alternate weeks. Offered Fall term. Prerequisite: 220a.

418-4 Comparative Vertebrate Anatomy. The comparative structure and evolution of vertebrate organ systems. Two lectures and two 2-hour laboratories per week. Offered spring term. Prerequisite: 220b.

421-4 Histological Techniques. Methods of preparing animal tissue for microscopic study and learn theories of staining and histochemistry. One lecture and two three-hour laboratories per week. Offered Fall term. Prerequisite: ten semester hours of biological science.

426-3 Comparative Endocrinology. Comparison of mechanisms influencing hormone release, hormone biosynthesis and the effects of hormones on target tissues. Include ablation and histology of glands and chemical and bio-assays with vertebrates and invertebrates. Two lectures and one two-hour laboratory per week. Offered Spring term.

458-3 Issues in Aquatic Ecology. With its primary focus on freshwater ecosystems, this course will cover important issues in aquatic ecology including: surface water and groundwater quality, global warming, use of fish hatcheries, exotic species, genetically manipulated organisms, stream habitat degradation, dams, diversions, the Great Lakes, local issues. Prerequisite: Biology 307 or consent of instructor.

460-2 Upland Game Birds. Biological overview and identification of upland and shoreline game birds plus raptors and selectively-managed species. One lecture and one two-hour laboratory per week; there will be up to two Saturday field trips. Offered Spring term. Prerequisite: 220b or consent of instructor.

461-3 Mammalogy. Taxonomic characteristics, identification, and natural history of mammals. Two one-hour lectures and one two-hour laboratory per week. Offered Spring semester. Prerequisite: 220b.

462-3 Waterfowl. Identification, life history, ecology, and management. Two lectures and one two-hour laboratory per week; there will be three or four Saturday field trips. Prerequisite: 220b or consent of instructor.

463-3 Game Mammals. Natural history and management. Two lectures and one two-hour laboratory per week. Prerequisite: 220b or consent of instructor.

464-3 Wildlife Administration and Policy. Responsibilities of private, state, and federal natural resources management agencies. Legal and political processes in areas of wildlife and natural resources. Three lecture per week. Offered Spring term. Prerequisite: consent of instructor.

465-3 Ichthyology. Taxonomic groups, identification, and natural history of fishes. Two lectures and one two-hour laboratory per week. Offered Spring term. Prerequisite: 220b.

466-3 Fish Management. Sampling, age and growth, dynamics, habitat improvement, manipulation of fish populations, and management of freshwater and marine fish stock. Two lectures per week and one four-hour laboratory alternate weeks. Offered Fall term. Prerequisite: ten hours of biological science or consent of instructor.

467-3 Ornithology. Classification and recognition of birds and the study of their songs, nests, migratory habits and other behavior. One lecture and one four-hour laboratory per week. Offered Spring term. Prerequisite: 220b.

468-3 Wildlife Biology Principles. Basic concepts of wildlife ecology and management. Includes lectures on ecological physiology, population dynamics and wildlife management strategies. Prerequisite: Biology 307 and seven other semester hours of biological science.

469-3 Wildlife Techniques. Field-oriented course with instruction in techniques for management of wild species and their habitat. One 1 1/2-hour lecture and one 3-hour laboratory per week, two of which may be field trips on Saturdays. Prerequisite: 10 semester hours in Biology and/or Zoology or consent of instructor.

471-4 Entomology. Structure, classification, and life histories of insects. Two lectures and two 2-hour laboratories per week. Offered Fall term. Prerequisite: 220a.

473-4 Aquatic Entomology. Structure, classification and biology of aquatic insects. Two lectures and two 2-hour laboratories per week. Offered Fall semester. Prerequisite: 220a.

475-3 Advanced Cell Biology. (Same as Plant Biology 475) Cell structure at molecular and cytological levels. Includes discussions of research methods, and plasma membrane, cell exterior and recognition, the endomembrane system and related organelles, self-replicating organelles, the cytoskeleton, nuclear structure and function in cell replication, cell differentiation and response, and eukaryotic cell evolution. Prerequisite: Biology 306 or equivalent.

476-2 Advanced Cell Biology Laboratory. (Same as Plant Biology 476) Laboratory course to accompany 475. Light and electron microscopy, cell culturing, biochemical methods, and experimental protocols are used to study the structure of cell membranes, intracellular organelles, including the Golgi apparatus, ER, mitochondria, plastids, lysosomes, the cytoskeleton and nucleus. Prerequisite: 475 or concurrent enrollment.

477-3 Fish Culture. Production of game, food and bait fishes. Design of facilities, chemical and biological variables, spawning techniques, diseases and nutrition. Two lectures per week and one four-hour laboratory alternate weeks. Prereq-

uisite: ten hours of biological science or consent of instructor.

478-3 Animal Behavior. Biological basis of the behavior of animals. Two lectures and one two-hour laboratory per week. Offered Fall semester. Prerequisite: one year of biological science or permission of instructor.

480-3 to 4 Research Methods in Animal Behavior. Skills relevant to conducting research in animal behavior. Guided self-instructional format, with two 2.5-hour periods scheduled weekly, primarily as question/answer and evaluation sessions. Offered Spring semester. Prerequisite: 478 and a course in statistics is recommended, or permission of instructor.

485-2 to 4 Special Topics in Zoology. Examination of topics of special interest not available in other departmental courses. Offered in response to student need and faculty availability. Prerequisite: consent of instructor.

496-2 to 4 Zoology Field Studies. A trip of four to eight weeks to acquaint students with animals in various environments and with methods of field study, collection, and preservation. Offered Fall, Spring, Summer terms. Prerequisite: consent of department.

497-3 Helminthology. Identification, structure, physiology, and life history of parasitic helminths. Three lectures per week. Prerequisite: 407.

500-3 Molecular Evolution. (Same as Plant Biology 504) Survey of the theory and processes of organic evolution at the level of protein and DNA in animals. Quantitative analysis of empirical genetic information; methods of phylogenetic inference from molecular data. Three lectures per week. Prerequisite: 404 or equivalent.

510-3 Seminar on Evolution. Current topics in evolutionary biology and systematics. Format is student presentations and group discussions of relevant literature and research. Prerequisite: consent of instructor.

514-3 Advanced Entomology. Morphology, physiology, systematics, and distribution of insects. One lecture and two 2-hour laboratories. Prerequisite: 471.

520-3 Advanced Invertebrates. The nature and life of invertebrate animals with emphasis on comparative form, function, behavior and occurrence. Three two-hour meetings per week. Prerequisite: consent of instructor.

521-3 Stream Ecology. The physical, chemical, and biological factors affecting organisms in streams. Two lectures per week and one four-hour laboratory alternate weeks. Prerequisite: 415 and consent of instructor.

525-3 Cytology. An analysis of the subcellular and cytochemical organization of the cell. Structural-functional aspects of organelles, membranes, and other cellular components, their relationship to the metabolic nucleus, substructural organization of hereditary material, and subcellular aspects of mitosis and meiosis are emphasized. Two lectures and one laboratory per week.

530-3 Wildlife Diseases. Introduction to the causes and nature of diseases of wildlife with emphasis on wild mammals and birds. The relationship of disease to the population ecology of species will be emphasized further. Two lectures and one two-hour laboratory per week. Offered Spring term. Prerequisite: consent of instructor.

532-3 Wildlife Toxicology. Fate and effects of environmental toxicants in wildlife. Review of descriptive and mechanistic toxicology for environmental contaminants. Investigation of the relationship between individual and community responses to toxicant exposure. Examination of current hazard assessment protocols and associated regulatory agencies. Prerequisite: 468a or consent of instructor.

534-3 Wildlife Habitat Analysis. Physical, biological and behavioral factors that influence habitat use and selection by wild vertebrate populations. Landscape level analysis of wildlife habitats. Modeling habitat suitability, environmental impact and wildlife population dynamics with habitat data. Application and use of remote sensing and geographic information systems in natural resource management and habitat evaluation. One two-hour lecture and one two-hour laboratory per week. Prerequisite: consent of instructor.

540-3 Factors in Animal Reproduction. Genetic and physiological factors in determination, differentiation and modification of sex in animals. Three lectures a week. Prerequisite: consent of instructor.

550-3 Developmental Gene Regulation. Gene regulation during animal development and its analysis. Describes the hierarchy of gene interactions that lead to cell fate determination. The function and regulation of transcription factors and signal transduction proteins are covered. Methods of investigation are discussed. Examples are taken from yeast, Drosophila, Xenopus, and mouse. Three lectures per week. Prerequisite: Biology 305 or 309 or equivalent, or by permission.

564-1 to 2 Fish Culture Techniques. Practical experience in fish culture techniques. Course consists of modules which require student participation in hands-on experience, (e.g., spawning, induction of spawning, production of fry, operation and grading, diagnosis and treatment of parasites and diseases, and transporting of fish). One credit for completion of two modules. Register any semester, one year to complete elected number of modules. Written report and examination required for each module. Cost incurred by student varies with modules selected. Prerequisite: 566 or consent of instructor.

565-3 Environmental Physiology of Fish. Synthesis of effects of pollutants on physiological processes of fish. Course begins with an overview of fish physiology. Topics include: concepts, methods, and measurements in aquatic toxicology; histopathological, physiological, and behavioral responses to pollutants; and toxicity of heavy metals, organics, particulates and other pollutants. Three lectures per week. Prerequisite: 465 or consent of instructor.

568-2 Fish Stock Assessment. Methods of characterizing fish populations including mortality rates, age growth analysis, population sampling, yield models, habitat evaluation procedures and creel survey techniques. Two one-hour meetings per week. Prerequisite: 466 or consent of instructor.

569-3 Advanced Fisheries Management. Advanced topics related to the management of fisheries including urban fisheries, native American fisheries, freshwater commercial fisheries, Great Lakes fisheries, impact of power generating

plants on fishes, and in-depth consideration of indices of community structure and current topics in fish management. Three lectures per week. Prerequisite: 466 or consent of instructor.

570-3 Advanced Fish Culture. Methods for the production of coldwater, coolwater, warmwater and tropical species. Three lectures a week. Prerequisite: 566 or consent of instructor.

573-3 Physiological Ecology. The role of physiological, morphological, and behavioral adaptations and adjustments in the ecology of vertebrate organisms with special emphasis on examining the energy balance and environment as it influences vertebrate ecology. Two hours of lecture and one two-hour laboratory. Prerequisite: Biology 307 or equivalent, and consent of instructor.

577-2 Population Ecology. Principles of population dynamics as related to animals. Two lectures per week. Prerequisite: consent of instructor.

578-3 Population Genetics. Genetic structure of populations, factors causing changes and principles governing rate and direction of change. Three lectures per week. Prerequisite: Biology 305 and consent of instructor.

579-3 Molecular Genetics Techniques. Practical experience in molecular genetics techniques currently used in zoology for population genetic analysis and for molecular systematics. Emphasis will be on methods for allozyme, mtDNA and nuclear DNA analysis. Class projects will focus on experimental design, data collection and analysis. Prerequisite: consent of instructor.

581-2 Zoological Literature. Diversity and functions of zoological literatures, scientific writing and the publication process. Two lectures per week. Prerequisite: graduate status in a biological science.

582-1 to 4 (1,1,1,1) Graduate Zoology Seminars. Special topics in zoology. Consult department for each semester's topic. One meeting per week. Prerequisite: consent of instructor and department.

583-1 Teaching Zoology in College. Methods, practices, and objectives in teaching zoology at the college/university level. Designed as part of the apprenticeship program for preparation of college teachers. Required of departmental teaching assistants. One hour lecture per week. Graded *S/U* only. Prerequisite: graduate status in a biological science.

584-3 Fish Genetics. Genetic principles and their application to management and culture of fish. Course includes an overview of biochemical and molecular genetics, conservation genetics, genomic manipulations and quantitative genetics. Prerequisite: Biology 305 or consent of instructor.

585-36 (3 per topic) Seminar. Advanced study of special topics in zoology. **(a)** Seminar in animal behavior. **(b)** Seminar in neurobiology of metazoa. Survey of the cytology and histology of nerve cells, and the sheath elements separately as they appear in organized tissues of metazoa. **(c)** Seminar in ecosystems. **(d)** Seminar in wetland ecology. **(e)** Seminar in wildlife ecology: impact of land use. **(f)** Seminar in fish biology. Survey of fish biology and ecology dealing largely with topics not covered in 465. Life history strategies, physiology and other fundamental biological features of fishes will be covered in some depth. Prerequisite: 465. **(g)** Seminar in parasitology. **(h)** Seminar on the amphibia. **(j)** Seminar in developmental biology. Detailed coverage of current topics of interest in developmental biology; the course will emphasize interacting systems in the development of both vertebrates and invertebrates, from the molecular to the tissue levels. Prerequisite: 300, Biology 309, or equivalent. **(z)** Seminar in selected topics. Prerequisite: consent of instructor or department.

593-1 to 12 Individual Research. Investigation in zoology other than those for theses. Only three hours may be credited toward a degree. Some costs may be borne by the student.

596-1 to 66 (1 to 12 per semester) Research. Graded *S/U* only. Credit may not be used toward a degree in Zoology. Prerequisite: consent of instructor.

597-1 to 12 Advanced Zoological Techniques. Individualized techniques or experimental procedures to prepare for dissertation research. May be taken at another university. Number of credits determined by committee. Graded on *S/U* basis following final report submitted to major adviser. Prerequisite: admission to Ph.D. degree program in Zoology and consent of major adviser.

598-1 to 6 Research Paper. Research paper for Master of Science degree for Biological Sciences major. Some cost may be borne by the student. Graded *S/U* only. Prerequisite: consent of instructor.

599-1 to 12 Research and Thesis. Thesis for Master of Science degree. Only six hours may count toward the degree. Some cost may be borne by student. Graded *S/U* only. Prerequisite: consent of instructor.

600-1 to 32 (1 to 16 per semester) Research and Dissertation. Research and dissertation for Doctor of Philosophy degree. Some cost may be borne by student. Graded *S/U* only. Prerequisite: consent of instructor.

601-1 per semester Continuing Enrollment. For those graduate students who have not finished their degree programs and who are in the process of working on their dissertation, thesis, or research paper. The student must have completed a minimum of 24 hours of dissertation research, or the minimum thesis, or research hours before being eligible to register for this course. Concurrent enrollment in any other course is not permitted. Graded *S/U* or *DEF* only.

Other Graduate Faculty

Some faculty listed below may not be directly affiliated with a graduate program but have been awarded graduate faculty status to perform certain functions at the graduate level. These individuals are arranged according to their unit affiliation.

The first of the two dates listed with the name of a faculty member indicates the year in which the highest degree was earned; the second date indicates the year when the person first became a faculty member at Southern Illinois University at Carbondale.

Library Affairs

Bauner, Ruth E., Associate Professor, *Emeritus,* Ph.D., Southern Illinois University at Carbondale, 1978; 1956.

Black, George W., Jr., Professor, *Emeritus,* M.S.L.S., Columbia University, 1966; 1968.

Brown, F. Dale, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1978; 1970.

Cox, Shelley M., Associate Professor, M.A.L.S., University of Chicago, 1973; 1973.

Fox, James W., Assistant Professor, M.L.S., University of North Carolina, 1975; 1975.

Harwood, Judith A., Associate Professor, *Emeritus*, Ph.D., Southern Illinois University at Carbondale, 1981; 1969.

Hostetler, Jerry, Assistant Professor, Ph.D., Southern Illinois University at Carbondale, 1977; 1968.

Koch, Dave V., Associate Professor, M.A., Southern Illinois University at Carbondale, 1963; 1959.

Matthews, Elizabeth W., Professor, *Emeritus,* Ph.D., Southern Illinois University at Carbondale, 1972; 1964.

Person, Roland C., Professor, Ph.D., Southern Illinois University at Carbondale, 1982; 1970.

Peterson, Kenneth G., Professor, *Emeritus,* Ph.D., University of California, Berkeley, 1968; 1976.

Russell, Thyra K., Assistant Professor, Ph.D., Southern Illinois University at Carbondale, 1987; 1972.

Simon, John Y., Professor, Ph.D., Harvard University, 1961; 1964.

Snyder, Carolyn, Professor and *Dean* of Library Affairs, M.L.S., University of Denver, 1965; 1991.

Starratt, Jay, Associate Professor, M.L.S., Emory University, 1980; 1987.

Stubbs, Walter R., Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1983; 1968.

School of Medicine

CARBONDALE AND SPRINGFIELD CAMPUSES

Birtch, Alan G., Professor, M.D., Johns Hopkins University, 1958; 1972.

Borkon, Eli, Professor, *Emeritus,* M.D., University of Chicago, 1937; 1971.

Chavez, Daniel J., Associate Professor, Ph.D., Colorado State University, 1979; 1981.

Clough, Richard W., Associate Professor, Ph.D., University of Nebraska, Medicine, 1983; 1987.

Colvin, Robert H., Assistant Professor, *Emeritus*, Ph.D., Southern Illinois University at Carbondale, 1971; 1972.

Dayringer, Richard, Professor, Th.D., New Orleans Baptist Theological Seminary, 1968; 1974.

Estavillo, Jaime A., Professor, Ph.D., University of California, 1970; 1975.

Evans, Miles S., Associate Professor, M.D., M.S., University of Louisville School of Medicine, 1982; 1990.

Folse, J. Roland, Professor, M.D., Johns Hopkins University, 1958; 1971.

Getto, Carl, Professor and *Dean* of the School of Medicine, M.D., Loyola University Stritch School of Medicine, 1972; 1993.

Hawe, Anthony, Clinical Associate Professor, M.B., Ch.B., Liverpool University, 1959; 1971.

Jackson, Robert W., Professor and *Executive Associate Dean,* Ph.D., Purdue University, 1963; 1974.

Johnson, Robert Peter, Professor, *Emeritus,* M.D., University of Illinois, 1950; 1972.

Kabisch, William T., Professor, *Emeritus,* Ph.D., University of Chicago, 1954; 1970.

Khardori, Nancy, Associate Professor, M.B.B.S., Government Medical College; 1972; 1989.

Koschmann, Timothy, Associate Professor, Ph.D., Illinois Institute of Technology, 1987; 1988.

Lacey, Ella, Associate Professor, *Emerita*, Ph.D., Southern Illinois University at Carbondale, 1979; 1972.

Metzmaker, Charles O., Professor, *Emeritus,* M.D., University of Illinois, 1947; 1971.

Moy, Richard H., Professor, *Emeritus,* M.D., University of Chicago, 1957; 1970.

Parr, Margaret, Assistant Professor, Ph.D., Columbia University, 1966; 1978.

Parr, Earl L., Professor, Ph.D., Rockefeller University, 1968; 1981.

Pearson, Emmet F., Clinical Professor, *Emeritus,* M.D., Washington University, 1930; 1971.

Rabinovich, Sergio, Professor, M.D., University of San Marcos, 1953; 1973.

Roddick, J. W. Jr., Professor, *Emeritus,* M.D., Northwestern University, 1950; 1972.

Strano, Alfonso J., Clinical Professor, M.D., University of Texas, 1960; 1974.

Travis, Terry, Professor, M.D., Kansas University, 1964; 1972.

Zook, Elvin G., Professor, M.D., Indiana University, 1963; 1973.

College of Technical Careers

Bleyer, Dorothy R., Associate Professor, *Emerita,* Ph.D., Southern Illinois University at Carbondale, 1977; 1957.

Clarke, David S. C., Professor, M.S., Catholic University, 1980; 1981. Architecture, urban design, business, and economics.

Davis, Diane, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1990; 1973. Business and office occupation training in education.

Ellner, Jack R., Professor, *Emeritus,* Ph.D., New York University, 1969; 1971.

Evans, Candy, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1992; 1989. Educational administration.

Gonzenbach, Nancy, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1990; 1975. Business and office occupation training in education.

Grace, Linda, Assistant Professor, Ph.D., Southern Illinois University at Carbondale, 1985; 1981. Education.

Henry, Janice S., Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1987; 1983. Vocational education and business.

Isberner, Fred R., Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1984; 1983. Health education.

Morgan, Barbara, Assistant Professor, Ph.D., Southern Illinois University at Carbondale, 1992; 1988. Business and office occupation training in education.

Morse, Pauletta, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1989; 1976. Business and office occupation training in education.

NewMyer, David A., Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1987; 1977. Education.

Rehwaldt, Susan, Assistant Professor, Ph.D., Southern Illinois University at Carbondale, 1982; 1987. Organizational communication, professional development, gender issues, higher education administration.

Rutledge, Clifton D., Associate Professor, *Emeritus,* M.Arch., Kansas State University, 1968; 1965.

Schafer, Joseph A., Associate Professor, Aviation Technology, B.S., Lewis College, 1960.

Soderstrom, Harry, Professor, *Emeritus,* M.S., Bradley University, 1952; 1962.

Stitt, Beverly, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1980; 1982. Business and office occupation training in education.

Troutt-Ervin, Eileen, Associate Professor, Ph.D., Southern Illinois University at Carbondale, 1986; 1976. Occupational education.

Vitello, Elaine M., Professor and *Dean,* College of Technical Careers, Ph.D., Southern Illinois University at Carbondale, 1977; 1977.

Other Graduate Courses

The 400- and 500-level courses listed below are offered by Southern Illinois University at Carbondale for graduate credit, but they are not linked to a specific department.

Agriculture

E-mail: gradinfo@siucvmb.siu.edu

Courses (AGRI)

401-3 Fundamentals of Environmental Education. (Same as Forestry 401 and Recreation 401.) A survey course designed to help education majors develop an understanding of environmental problems and an awareness of how these types of problems can be handled both inside and outside the classroom. Prerequisite: ten hours of biological science, or ten hours of recreation and/or education, or consent of instructor.

423-3 Environmental Interpretation. (Same as Forestry 423 and Recreation 423.) Principles and techniques of natural and cultural interpretation. Two hours lecture, three hours laboratory. Approximately $10 cost for field trips. Prerequisite: ten hours biological science or ten hours of recreation.

450-2 Farming Systems Research and Development. An introduction to farming systems, which is an interdisciplinary approach to agricultural research and development emphasizing small farms. The whole farm is viewed as a system of interdependent components controlled by the farm household. Focuses on analyzing interactions of these components as well as the physical, biological and socioeconomic factors not controlled by the household. Techniques of analysis are applicable domestically and internationally.

481-1 International Agricultural Seminar. Discussion of special topics relating to worldwide agricultural development. Prerequisite: consent of instructor.

Engineering Technology

E-mail: shellie@engr.siu.edu

Courses (ET)

There is no graduate program offered through engineering technology. See manufacturing systems for graduate program description. Four-hundred-level courses in this listing may be taken for graduate credit unless otherwise indicated in the course description.

The student is required to purchase photographs and maps for certain courses, and a suitable slide rule is strongly recommended for most courses. Cost is approximately $10 to $25.

401-3 Refrigeration and Air Conditioning. Applications of thermodynamics and heat flow to air conditioning systems. Heating and cooling load analysis. Principles of human comfort. Discussion of various refrigeration and air conditioning cycles and their application to laboratory simulators. Laboratory. Prerequisite: 313.

403-8 (4,4) Electronics Technology. (a) Fundamental theory and operation of semiconductor diodes and bipolar transistors, incremental models for transistors, biasing, stability, and feedback of single and multistage amplifiers. Parameters and applications of field-effect transistors, optoelectronic devices, thyristors, unijunction transistors and amorphous semi-conductors. Laboratory. **(b)** Parameters and applications of operational amplifiers, linear integrated circuits, monolithic voltage regulators, and digital integrated circuits. Laboratory. Must be taken in a,b sequence. Prerequisite: 304b.

413-4 Field Survey Problems. Perform extensive field projects in the areas of engineering, hydographic, land and control surveying. To be held at Crab Orchard National Wildlife Refuge. Course must be taken concurrently with 414. Prerequisite: 263 and one of 361, 362 or 363.

414-2 Field Project Planning and Computations. Planning, organization, computations, and drafting of field survey projects including the needed mapping utilizing calculators, computers, and CAD. This course must be taken concurrently with 413. Prerequisite: 263 and one of 361, 362 or 363.

415-4 Elementary Structural Design. Introduction to structural properties of steel and reinforced concrete. Design of basic steel elements: tension members, beams, columns, and connections. Basic design of reinforced concrete elements: beams, columns, and footings. Use of AISC and ACI codes. Prerequisite: 202, 311 (or concurrent enrollment), 315.

424-6 (3,3) Power Systems Technology. (a) Fundamentals of basic power plant operation, economics and equipment. Advanced Rankine cycles and cogeneration. Fuel classification and combustion principles. Alternative energy source and conversion. Students work concurrently on group design projects emphasizing written and oral deliverables. Prerequisite: 311, 312, 313, 317, 318 **(b)** Alternate energy systems, e.g. wind power, solar energy, geothermal energy, biomass. Extension of 424a with heavier emphasis on optimization of design. Prerequisite: 424a.

426-5 (3,2) 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. Laboratory. Prerequisite: 263 or consent of instructor. **(b)** Rectification of tilted photographs; stereoscopic plotting instruments; principles and use of oblique photography; analytic photogrammetry and new concepts. Laboratory. Prerequisite: 426a or consent of instructor.

437-8 (4,4) Communications Systems Technology. (a) Theory and applications of radio frequency transmission lines, waveguides, optical fibers, wave propagation, and antennas. Laboratory. Prerequisite: 304b. **(b)** Theory and applications of analog and digital communications systems. Laboratory. Prerequisite: 403a, 437a.

438-8 (4,4) Continuous and Digital Control Systems. (a) Fundamentals of continuous control systems; equation of electrical, hydraulic and thermal systems; application of LaPlace transforms, transfer functions, block diagrams, and flow graphs. Computer implemented graphical analysis and design methods: root locus, frequency response. Nyquist diagrams and compensator design. Continuous systems laboratory. Prerequisite: 304b. **(b)** Fundamentals of digital control systems, Stepper motors, digital data acquisition and interface components, Fourier transforms, Z transforms, and applications of fast Fourier transform. Digital control laboratory. Prerequisite: 438a.

439-4 Microprocessor Applications and Hardware. A study of microprocessor applications and hardware based on microprocessor manufacturer's literature. System configuration, hardware, requirements, typical instruction set, programming, input/output techniques, interfaces and peripheral devices. Prerequisite: 238.

445-3 Computer-Aided Manufacturing. (Same as Industrial Technology 445) Introduction to the use of computers in the manufacturing of products. Includes the study of direct and computer numerical control of machine tools as well as interaction with process planning, inventory control and quality control. Laboratory. Prerequisite: 103 or Industrial Technology 105, Industrial Technology 208 or Engineering Technology 209, and computer programming.

455-3 Industrial Robotics. (Same as Industrial Technology 455) Study of industrial robots and

their applications; pendant and numerical programming of robots. Robotics design including tactile and visual sensors. Technical and psychological problems of justification, installation and management of robotic systems. Prerequisite: 445.

Industrial Technology

Courses (IT)

There is no graduate degree program offered through industrial technology. See Manufacturing Systems for graduate program descriptions.

410-3 Mining Reclamation. Study of reclamation techniques associated with underground and surface coal mining. Emphasis is placed on the integration and cost trade-offs associated with coal extraction and reclamation as well as federal, state and local regulations. Prerequisite: consent of instructor.

420-3 Coal Preparation and Analysis. Study of coal preparation and blending in association with coal analysis. Design and operation of preparation plants including water management, waste management, coal storage, loading and transportation.

425-3 Advanced Process Design and Control. Extension of other process courses offered. Meets the need of those students who enter the field of manufacturing by giving more emphasis on planning, estimating and control of industrial processes. Laboratory. Prerequisite: 208, 209.

430-3 Health and Injury Control in A Work Setting. (Same as Health Education 430.) Assesses the health and injury control programs present in a work setting. Emphasis given to employee programs in health, wellness and injury control that are effective. Field trips to work sites are included.

439-3 Bulk Materials Handling. Study of the various types of equipment used in the mining industry. Estimation of costs and output of equipment used for excavating and transporting earth materials. Prerequisite: appropriate background.

440-3 Manufacturing Policy. Review of all areas covered by the industrial technology program. Includes problems which simulate existing conditions in industry. Students present their solutions to the class and to the instructor in a formal manner. Prerequisite: 358, 375, 382 and 475.

441-3 Mine-Safety Technology. An in-depth study of the technological implications of the Federal Coal Mine Health and Safety Act. Emphasis is placed on the technology required to operate safely underground coal mines. Prerequisite: appropriate background.

445-3 Computer-Aided Manufacturing. (Same as Engineering Technology 445) Introduction to the use of computers in the manufacture of products. Includes the study of direct and computer numerical control of machine tools as well as interaction with process planning, inventory control and quality control. Laboratory. Prerequisite: Engineering Technology 103 or Industrial Technology 105, Industrial Technology 208 or Engineering Technology 209, and computer programming.

455-3 Industrial Robotics. (Same as Engineering Technology 455) Study of industrial robots and their applications; pendant and numerical programming of robots. Robotics design including tactile and visual sensors. Technical and psychological problems of justification, installation and management of robotic systems. Prerequisite: 445.

460-3 Mining Technology. A capstone course to include all aspects of coal mining. Group projects are assigned on the design and development of a mine with emphasis on cost, productivity, yield, equipment and staffing. Prerequisite: 320, 321, 420 or consent of instructor.

475-3 Quality Control. Use of statistical quality control to improve work product quality. Topics include histogram, Pareto diagrams, control charts, acceptance sampling, process capability, cause and effect diagrams and reliability. Prerequisite: senior standing.

Mass Communication and Media Arts

Courses (MCMA)

497-1 to 6 Special Interdisciplinary Study. Designed to offer and test new and experimental courses and series of courses within the College of Mass Communication and Media Arts. Prerequisite: consent of instructor.

Medical Education Preparation

No graduate degree program is offered through medical education preparation. Four-hundred-level courses may be taken for graduate credit only with written permission of the relevant department and the graduate dean.

Science

Courses (SCI)

500-2 Science Information Sources. Methods and procedures to efficiently exploit the scientific literature are discussed. The two-hour class discussion will be supplemented by practical exercises in library usage. Prerequisite: consent of instructor.

501-4 (2,2) Research Transmission Electron Microscopy. (a) Theory of design of electron microscope, lenses, vacuum systems, alignment, specimen preparation and darkroom. **(b)** Practical experience in use of transmission electron microscope and specimen preparation.

502-4 (2,2) Research Scanning Electron Microscopy. (a) Theory of design for scanning electron microscope, lenses, vacuum systems, alignment, specimen preparation for biologists and materials scientists, darkroom. **(b)** Laboratory practical experience in use of scanning electron microscope and specimen preparation. Laboratory fee $100.

503A-1 to 3 Science for Elementary School Teachers. In-depth studies of selected basic concepts in general science for teachers of upper-level elementary grades. Topics include cells and simple organisms, characteristics of vertebrates, plate tectonics, solar system, nature of matter and magnetism. Prerequisite: currently teaching in an elementary school.

503B-1 to 3 Science for Elementary School Teachers. In depth studies of selected basic concepts in general science for teachers of upper-level elementary grades. Topics include human biology, characteristics of high plants, Earth's building blocks, the atmosphere, forces and simple machines. Prerequisite: currently teaching in an elementary school.

504-9 (1 to 3 per topic) Selected Topics in Science for Teachers. The course consists of selected basic concepts in general science for practicing teachers. Within a given semester a broad area is selected within either the biological sciences or the physical/earth sciences. Topics currently include: **(a)** Basic stream ecology; **(b)** Biological assessment of polluted streams; and, **(c)** Wetland ecosystems. Other topics may be added as deemed necessary. This course may not be used for graduate credit by College of Science majors. Prerequisite: currently teaching in an elementary school.

Women's Studies

Courses (WMST)

There is no approved graduate program in women's studies. Four-hundred-level courses may be taken for graduate credit unless otherwise indicated in the course description.

427-3 Women in the Visual Arts. (See Art and Design 457)

442-4 Sociology of Gender. (See Sociology 423)

445-3 Women and the American Political Process. (See Political Science 429)

454-3 to 6 Topics in Women's Literature. (See English 496)

456-3 Philosophical Perspectives on Women. (See Philosophy 446)

463-2 Greek Literature in Translation. (See Classics 405)

476-3 Women and the Criminal Justice System. (See Administration of Justice 460)

490-1 to 6 Readings. Supervised readings in selected content areas of women's studies. Prerequisite: consent of instructor and women's studies coordinator.

491-1 to 6 Special Topics. Concentration on a topic of interest not offered through the regular course listings. Prerequisite: consent of instructor and women's studies coordinator.

492-3 to 6 Seminar in Women's Studies. A synthesizing experience required of seniors completing a minor in women's studies. Activity may include, but is not limited to, the preparation and presentation of a scholarly paper or the conduct of a research project. Prerequisite: 221 or 222, senior standing, and consent of women's studies coordinator.

493-2 to 6 Individual Research. Exploration of a research project under the supervision of a faculty member having graduate faculty status. The project must result in a written research report which is filed with the coordinator of women's studies. Prerequisite: consent of instructor and coordinator of women's studies and senior standing.

494-1 to 6 Practicum. Supervised practical experience in situations centering on women's issues, organizations, services, etc. The setting may be in one's own field of study or in the general content areas recognized in the women's studies program. Prerequisite: consent of instructor and coordinator of women's studies.

550-3 The Psychological Construction of Gender. (Same as Psychology 550.) This course will focus on the psychology of gender within a feminist perspective and using a feminist ap-

proach. The term feminism, as used here, primarily implies that we will consider information and ideas for more diverse than simple empirical data. In our reading and discussion, we will consider politics, discrimination, the history of science, the history of patriarchy, the development of theory and ideas in general and the development of feminism in particular, and objective versus subjective views of science, and within these contexts, we will consider and study the psychology of gender.

560-3 Gender and Sport. (See Physical Education 560.)

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For more information, contact:

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618-536-7791 or
http://www.siu.edu/gradschl