1978-80

# Graduate Programs

University of Illinois at Urbana-Champaign

# 1978-80
# Graduate Programs

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

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**CONTENTS**

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# UNIVERSITY CALENDAR — URBANA-CHAMPAIGN CAMPUS

A Graduate College calendar giving important dates and deadlines for graduate students enrolled on campus may be obtained in 330 Administration Building.

**First Semester 1978-79**

| | |
|---|---|
| Aug. 23, Wed.-Aug. 25, Fri. | Registration |
| Aug. 28, Mon. | Instruction begins |
| Sept. 4, Mon. | Labor Day (all-campus holiday) |
| Nov. 22, Wed., 5:00 p.m.-Nov. 26, Sun. | Thanksgiving vacation |
| Dec. 15, Fri.-Dec. 22, Fri. | Semester examinations |

**Second Semester 1978-79**

| | |
|---|---|
| Jan. 17, Wed.-Jan. 19, Fri. | Registration |
| Jan. 22, Mon. | Instruction begins |
| Mar. 17, Sat., 1:00 p.m.-Mar. 25, Sun. | Spring vacation |
| May 12, Sat.-May 19, Sat. | Semester examinations |
| May 20, Sun. | Commencement exercises |

**Summer Session 1979**

| | |
|---|---|
| June 11, Mon.-June 12, Tues. | Registration |
| June 13, Wed. | Instruction begins |
| July 4, Wed. | Independence Day (all-campus holiday) |
| July 9, Mon. | Beginning of second four-week session |
| Aug. 3, Fri.-Aug. 4, Sat. | Summer session examinations |

**First Semester 1979-80**

| | |
|---|---|
| Aug. 22, Wed.-Aug. 24, Fri. | Registration |
| Aug. 27, Mon. | Instruction begins |
| Sept. 3, Mon. | Labor Day (all-campus holiday) |
| Nov. 21, Wed., 5:00 p.m.-Nov. 25, Sun. | Thanksgiving vacation |
| Dec. 14, Fri.-Dec. 21, Fri. | Semester examinations |

**Second Semester 1979-80**

| | |
|---|---|
| Jan. 16, Wed.-Jan. 18, Fri. | Registration |
| Jan. 21, Mon. | Instruction begins |
| Mar. 29, Sat., 1:00 p.m.-Apr. 6, Sun. | Spring vacation |
| May 10, Sat.-May 17, Sat. | Semester examinations |
| May 18, Sun. | Commencement exercises |

**Summer Session 1980**

| | |
|---|---|
| June 12, Thurs.-June 13, Fri. | Registration |
| June 16, Mon. | Instruction begins |
| July 4, Fri. | Independence Day (all-campus holiday) |
| July 14, Mon. | Beginning of second four-week session |
| Aug. 8, Fri.-Aug. 9, Sat. | Summer session examinations |

# GRADUATE EDUCATION AT THE UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

The University of Illinois was founded in 1867 as the land grant institution of the State of Illinois. The University of Illinois is composed of three campuses — the Medical Center and the Chicago Circle campuses in Chicago and the original campus at Urbana-Champaign.

From modest beginnings as the Illinois Industrial College, the Urbana-Champaign campus has grown to a community of more than 34,000 students of whom 7,500 are enrolled in the Graduate College. The Urbana-Champaign campus is the center of graduate education in the University of Illinois system. A distinguished graduate faculty of more than 1,300 members supervises and guides graduate study leading to advanced degrees in more than 100 fields of study.

The Graduate College is an administrative unit which has jurisdiction over all programs leading to advanced degrees. It is the statutory responsibility of the Graduate College to develop and safeguard standards of graduate work and to promote and assist research by faculty members and graduate students in all fields.

The responsibility for initiating, developing, and administering degree programs is delegated to the departments and other academic units. The Graduate College provides supporting services as well as general supervision to these degree-granting units. All postbaccalaureate students, except those in curricula leading to the degrees of Juris Doctor and Doctor of Veterinary Medicine, are enrolled in the Graduate College rather than in a disciplinary college.

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# RESEARCH AND INSTRUCTIONAL RESOURCES

The University of Illinois at Urbana-Champaign is a comprehensive graduate institution. A distinguished graduate faculty, outstanding research facilities, one of the top-ranked libraries in the nation, and superior computer facilities make the Urbana-Champaign campus a stimulating environment for graduate study and research.

It is not possible to describe here all of the research facilities and educational opportunities available to graduate students on the Urbana-Champaign campus. The information on the following pages provides some description of the facilities and resources which are centralized and available to students and faculty in the ten broad fields of study of the disciplinary colleges — agriculture, applied life studies, commerce and business administration, communications, education, engineering, fine and applied arts, law, liberal arts and sciences, and veterinary medicine. The instructional and research programs of individual departments and of interdisciplinary and other graduate units are described in the "Programs of Study" section of this catalog.

## UNIVERSITY LIBRARY

The University Library's resources for advanced study and research are exceptional. Its catalogued collections exceed 5½ million volumes. Its uncatalogued collections include 515,000 pamphlets, 460,000 maps and aerial photographs, 900,000 music scores and parts, and 1,350,000 microtexts. In addition, the Library receives more than 80,000 periodicals, serials, and newspapers. This wealth of material is housed in the main library (3,800,000 volumes in the bookstacks) and thirty-four departmental libraries at various locations about the campus.

Outstanding collections have been developed in a number of areas. In the humanities: classical literature and archaeology; English litera-

ture of the sixteenth through the twentieth centuries; Romance and Slavic literature; German literature of the sixteenth and seventeenth centuries; American humor and folklore; and comparative philology. In the fine arts: architecture; landscape architecture; and music. In the social sciences: history of the western United States; Abraham Lincoln and the Civil War; Latin America of the revolutionary period; the Slavic countries; Ireland; medieval and modern Europe; international law; labor ind industrial relations; and political science. In the sciences and technology: agriculture; biological sciences (especially entomology, ornithology, and parasitology); chemistry; geology; mathematics; and physics.

The Rare Book Room houses a superior collection of more than 115,000 volumes, including more than 1,000 incunabula. The collection has three major areas of strength: English history and literature, the history of geology, and the emblem book collection. The Milton collection is the finest in the world, including more than 400 different editions of his works published during the seventeenth and eighteenth centuries. The oldest printed book is a 1455 copy of the Book of Genesis of the Gutenberg Bible; the most valuable is the Audubon Folio on permanent display. The catalog of the collection has been published.

The completeness of the bibliographic and reference facilities makes any sort of research possible. In addition, interlibrary loan service is provided for faculty and graduate student research.

## GENERAL COMPUTING FACILITIES

The Computing Services Office (CSO) on the Urbana-Champaign campus provides support for all academic and research programs in which computers play a significant role. To meet this broad objective, CSO operates three general-purpose computers, a large CDC CYBER 175, an IBM 360/75, and a PDP 11/50. These systems are interconnected and serve a network of RJE facilities, public terminal sites, and dial-up terminals. CSO operates sites around the campus as well as serving private facilities.

Administration of computing facilities is guided by the principle that users should have easy access to computer support. Access to the system is provided through formal allocations for courses and research, and through a "limited free access" policy for students. In addition to its own facilities, CSO arranges access to other computers within the University.

Members of more than 100 University departments use CSO facilities. The graduate curricula are heavily dependent on computing support, and a large percentage of dissertations require some computer

use. Approximately two-thirds of the utilization is related to graduate programs and research. Unusual areas of strength include computer music and computer art, in addition to those in more quantitative disciplines. CSO is currently automating the circulation system of the University Library.

CSO offers a full complement of computer-related user services, including consulting on systems, packages, and hardware. Support services in keypunching, hardware maintenance, and text processing are also available on a limited basis.

The primary facility, CSO North, is located in the Digital Computer Laboratory, and houses the IBM 360/75, the CYBER 175, and most of the CSO offices. Here systems consultants offer a wide range of services ranging from a walk-in consulting office to short courses and seminars.

A second major facility, CSO South, is located in the Commerce Building (West). It consists of two remote job entry stations, terminals connected to the CYBER 175, and a statistical consulting office. Two major facilities staffed by students are located in residence halls.

The long tradition of computer use at Illinois has led to widespread strength both within CSO and across the campus, and CSO provides general support to keep the University in the forefront in areas where computing is important.

## COMPUTER-BASED EDUCATION

The PLATO system (Programmed Learning And Teaching Operations), a unique computer-based educational system, was developed in the Computer-based Education Research Laboratory (CERL) on the Urbana-Champaign campus. PLATO is an interactive, time-sharing system whose computers control 1,100 terminals located throughout the country. A CDC 6500-series computer with two central processors and 128,000 sixty-bit words of central memory and a CYBER 73 with two processors and 65,000 sixty-bit words of central memory are the heart of the system. The system also includes two million words of extended core storage and one million words of auxiliary memory storage, plus twenty disk drives providing permanent storage of ten million words per drive.

The PLATO terminals use plasma panels for visual display. The plasma panels and the computer-to-terminal communication scheme were developed at CERL, as were the terminals and other devices such as touch panels and audio. Although the computers are dedicated to educational use and provide teaching facilities for about 140,000 hours of student and author use per semester, hardware and software research continues in the laboratory. Opportunities are

available for research in designing smaller and less expensive terminals, low-cost replacement of core-based swapping memory, communication devices, and voice recognition and synthesis devices.

CERL also cooperates with faculty in many departments who wish to develop courseware for the system and to incorporate it in their instruction. There are approximately 350 PLATO terminals on the Urbana-Champaign campus, more than 200 of which are available for student use. Individualized instruction on the PLATO system with immediate and rapid feedback is offered in many campus courses, both undergraduate and graduate. Lessons exist in more than 100 subject areas. The PLATO system also plays a role in the recreational life of the campus with its variety of interesting games, and is a fascinating communication device providing electronic mail service and immediate message exchange between users. At least 8,000 students per semester are involved with the PLATO system.

Courseware is written in the TUTOR language, a powerful and efficient language created for the PLATO system, which allows design, programming, and testing of lesson materials by the authors directly at the terminals. The PLATO computers are dedicated to teaching, but the system is also used for scientific computation, information retrieval, word processing, data processing, and personal services.

In addition to the University of Illinois system, there now exist six other PLATO systems in Canada, Minnesota, Belgium, Florida, and Delaware, with electronic linkage to each other.

## AGRICULTURE

The College of Agriculture is a diverse organization with a number of different missions that have been developed and refined during the more than a century that it has been in existence. Broadly speaking, the missions relate to commercial agriculture, including environmental concerns and preservation of our natural resources, and to improvement of the quality of life both in the home and the community. Much of the work of the college is a search for solutions to specific problems and for ways to bring new knowledge to those who need it. Its work penetrates into all parts of society and all parts of the world.

The College has active programs in four broad areas — teaching, research, international programs, and extension education and public service. The college includes the School of Human Resources and Family Studies and the Departments of Agricultural Economics, Agricultural Engineering, Agronomy, Animal Science, Dairy Science, Food Science, Forestry, Horticulture, and Plant Pathology. More than

16,000 acres of college farmland in all parts of Illinois are used for experimentation. The academic and professional staff numbers more than 1,500, many of whom work in more than one of the four areas of the college.

Progams for graduate students in the various departments and the school are described in their sections later in this catalog. Approximately 125 of the college faculty are members of the graduate faculty. About 525 graduate students register each year for work in the college, and approximately 50 Ph.D. and 120 M.S. degrees are conferred annually. Nearly 2,500 students are enrolled in the undergraduate programs of the college.

The college conducts research through the Agricultural Experiment Station, and graduate students are an integral part of that research. Because research often involves more than one field of study, much of it is conducted in cooperation with other colleges on the Urbana-Champaign campus, with the state surveys located on the campus (Geological, Natural History, and Water), with the U.S. Department of Agriculture, and with other agricultural colleges. Interdisciplinary research is encouraged in such special areas as crop and animal production, environmental quality, pest management, and food and nutrition. Financial support for research comes from appropriations by the State of Illinois, from federal appropriations and contracts, and from private gifts.

Student interest and requests for information and assistance demonstrate that Illinois education, agriculture, and agribusiness are in the forefront of world food production and development. In the future, many students will go into the world employment market, directly or indirectly, even if they live and work in the United States. Several courses in the departments of the college emphasize international agriculture; research is carried on with the goal of assisting developing countries to expand their own capability for food production. Faculty exchanges and cooperative research with foreign institutions and agencies offer opportunities for mutually beneficial programs. The broad supervision of the college's international activity is in the Office of International Agricultural Programs. Some major international interests in the College of Agriculture include soybeans, maize, animal agriculture, and food nutrition.

Most of the college's extension education work is through the Cooperative Extension Service, which has a staff of state, regional, and county specialists in 115 offices throughout the state. The Cooperative Extension Service has nearly 550 academic and professional staff and about 675 paraprofessionals and other support personnel.

At present the College of Agriculture is in an early phase of a pro-

jected major development in buildings, land, and equipment called "Food for Century III." Over the next decade the program calls for twenty-one new building projects, major remodeling of several present buildings, acquisition of land for research and major pieces of fixed equipment, and development of research and extension facilities in northern, southern, and western Illinois. The first phase of the program will be the construction of the Agricultural Engineering Sciences Building in 1978-79.

## APPLIED LIFE STUDIES

The College of Applied Life Studies is composed of three academic departments: Health and Safety Education, Leisure Studies, and Physical Education.

The goal of the Department of Health and Safety Education is an informed society which practices healthful and safe living patterns. The mission of the department and the role of the professional in the field of health and safety education include developing processes which effectively inform and motivate society and advocating and working toward achieving the desired individual, institutional, and environmental changes necessary to the attainment of this goal. Emphasis is placed on the development of analytical competencies by students such as the use of model construction and evaluation and the use of these tools of analysis for program development in the field of health and safety. Research facilities in the department include a general-purpose resource laboratory, driving simulator units, a multiple car driving range, PLATO terminals, and a classroom individual student response system.

The Department of Leisure Studies has as its central focus a concern for leisure behavior; its goals are to improve the understanding of leisure behavior and the quality of leisure service delivery systems. The Leisure Behavior Research Laboratory is the organized research unit of the department. The primary research objectives are to acquire knowledge about leisure behavior from the social-psychological and sociological perspective, and play and movement behavior of children and adults in leisure-time activities. The laboratory also studies leisure of the handicapped and other special populations.

The Department of Physical Education is committed to the study of human movement in its bioscientific, social scientific, and educational aspects. Research areas include biomechanics, structure and function of the moving organism, motor learning and development, physiology of activity, psychology of sport, sociology of sport, and program development (curricula, adapted programming, and exercise therapy). The department maintains outstanding research facili-

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