

Introduction

Courses of Study contains information primarily concerned with academic resources and procedures, college and department programs, interdisciplinary programs, and undergraduate and graduate course offerings of the university. Not included in this publication is information concerning the Medical College and the Graduate School of Medical Sciences, located in New York City. Information about other important areas is available from other offices of the university or is included in publications distributed to students. The following is a list of offices and information sources for specific information:

Undergraduate admissions. Information pertinent to prospective applicants is available from the Undergraduate Admissions Office, 410 Thurston Avenue, Ithaca, New York 14850-9988 (telephone: 607/255-5241).

Graduate School. Information pertaining to admission to the Graduate School may be obtained by contacting the Graduate School, 100 Sage Graduate Center, Ithaca, New York 14853-6201 (telephone: 607/255-4884).

Law School. Admission information for the Law School is available from the Law School, Myron Taylor Hall, Ithaca, New York 14853-4901 (telephone: 607/255-5141).

Samuel Curtis Johnson Graduate School of Management. Information is available from the Office of Admissions, 315 Malott Hall, Ithaca, New York 14853-4201 (telephone: 607/255-2327).

College of Veterinary Medicine. Admission information is available from the Admissions Office, Schurman Hall, Ithaca, New York 14853-6401 (telephone: 607/253-3000).

Medical College and Graduate School of Medical Sciences. Information regarding admissions is available from the Office of Admissions, 1300 York Avenue, New York, New York 10021 (telephone: 212/472-5673).

Financial aid, loans, and student employment. Information is available from the Office of Financial Aid, 203 Day Hall, Ithaca, New York 14853-2801 (telephone: 607/255-5145).

Student accounts. Information on CornellCard, a student charge card, and payment of bills is available by contacting the Office of the Bursar, 260 Day Hall, Ithaca, New York 14853-2801 (telephone: 607/255-2336).

Dining and residence halls. Information is sent to matriculating students and is available from Cornell Dining, 1140 North Balch Hall, Ithaca, New York 14853-1401, and the Department of Residence Life, 2117 North Balch Hall, Ithaca, New York 14853-1401.

Student responsibility and regulations. The *Campus Code of Conduct* describes the regulations and policies for maintaining public order on campus. Other statements of student responsibility are set forth in *Policies and Procedures for Faculty, Staff and Students*. *Policies and Procedures* contains the Code of Academic Integrity, the university policy on student records, information on the university judicial system, library and motor vehicle regulations, and statements of other policies and procedures. Both publications are available for viewing on CUINFO, the university's electronic information system, and in print at the various university libraries, the Office of the Dean of Students, the Office of the Dean of the University Faculty, the Office of University Counsel, the Office of the Judicial Administrator, and the college offices.

Health services. University Health Services provides comprehensive medical and psychological care at the Gannett Health Center, 10 Central Avenue, Ithaca, New York 14853-3101 (telephone: 607/255-4082), adjacent to Willard Straight Hall. Information may be obtained by writing or visiting the center.

The University

Cornell University is a community set among the lakes and hills of central New York and lying within the boundaries of the city of Ithaca, New York. Two men were the university's creators: Ezra Cornell and Andrew Dickson White. Cornell had begun his career as a carpenter wandering in search of work. White, the younger, was well educated, a member of America's cultural aristocracy. Cornell came to Ithaca in 1828, worked hard, sometimes failed, more often succeeded, and succeeded to the extent that in the middle 1850s he went out into the American business world. There he met Morse, the inventor of the telegraph, became his partner, and was himself soon a wealthy man.

This success led him to the New York State Senate. White, a fellow senator, joined Cornell in discussing their common interest in higher education. They studied the Morrill Act of 1862, which gave land grants to the states as a means of financing state universities, and they saw here the opportunity to launch their own plan for a university. Cornell pledged half a million dollars as more financial support and a large part of his farm in Ithaca as a university campus. Cornell University was born. The first building, Morrill Hall, opened its doors in 1868.

From the beginning the university had two obligations. The first was to offer scholarships to New York State residents; the land-grant money made that necessary. In doing this, Cornell University acted as a public institution. And, as a private institution, it served all comers who could qualify for admission.

What should it teach? White, trained in the classical tradition of the older colleges and universities, wanted to teach philosophy, literature, government, history, and the sciences in a contemporary setting, shall we say, in terms of their usefulness to persons going out into the professions and business. Cornell put his wishes in a phrase that has become the university's motto: "I would found an institution where any person can find instruction in any subject."

White was the university's first president. He had assembled a faculty of distinguished scholars from the United States, Canada, and Great Britain, many of whom, including a prominent Oxford professor, came to Cornell because they regarded the university's approach to education as pioneering, lively, and suited to the needs of the time. What more appropriate than that, in this spirit of pioneering, Cornell should admit its first woman students in 1870.

In the last quarter of the nineteenth century the university grew rapidly and began to assume the shape it has today. As it rose to take its place among the so-called Ivy League universities, Cornell had a unique structure, part private and part public; part supported by private funds, part by grants from New York State. On the one hand were the endowed colleges: arts and sciences, engineering, law, and architecture; on the other were state-supported, or statutory, colleges: veterinary, agriculture, and home economics.

The university drew strength from its two groups of colleges. A single administration, a single president, a single board of trustees presided over the affairs of all; a single body, the University Faculty, directed educational policy. The needs of the endowed colleges called for the services of physicists, chemists, mathematicians, economists, historians, philosophers, biologists, lawyers. The needs of the statutory colleges called for many persons who had similar training but whose study of mankind and other animals and of plants followed a different path from that of the scholars in the endowed colleges. But this was for the good. The two groups of scholars had common ground for discussion. Out of diversity they could build unity.

By the early twentieth century Cornell was well on the way to greatness. President White had served as America's ambassador to Russia and to Germany. Schurman, a later president, was to be ambassador to Germany and to China. To the university's faculty came scholars from many countries, as teachers and as

students. To join Cornell's undergraduates and graduate students came men and women from all over the world, with the result that the university became what it is today, one of the most cosmopolitan in the United States.

The student population grew from the five to six thousand of the early twentieth century to its present figure of about eighteen thousand; the faculty from about two hundred to the present two thousand. More persons to study, to carry on research, and to teach meant more classrooms and laboratories, more libraries and dormitories, more places for worship and social centers, more playing fields and swimming pools. Buildings and places for outdoor recreation grew up on Ezra Cornell's farm, with a massive art gallery on the very spot where he once stood to admire Cayuga Lake and the city of Ithaca.

This growth of faculty, students, and the facilities they needed led to great specialization in the university's schools and colleges. The engineering college divided into many parts, such as mechanical, electrical, and chemical, and among the biological sciences there were similar divisions. Among the endowed colleges a School of Hotel Administration appeared, and a Graduate School of Business and Public Administration, now called the Samuel Curtis Johnson Graduate School of Management. Among the statutory colleges the College of Agriculture took a new title, the College of Agriculture and Life Sciences. So did the College of Home Economics; it became the College of Human Ecology. The Veterinary College became the College of Veterinary Medicine. And there was a new school, the School of Industrial and Labor Relations. The process of expansion carried beyond Ithaca. A vast medical school arose in New York City; an agricultural experiment station at Geneva, New York; a marine laboratory off the New England coast; and a government study center at Washington, D.C. More remote is the National Astronomy and Ionosphere Center in Puerto Rico, which has the world's largest radio-radar telescope.

Cornell University has come to be a place of learning whose scholars and students have reached out into every aspect of human affairs, into all forms of study relating to our planet, and to the limits of the universe as humankind knows them. Behind this achievement lie more than a century of steady, solid growth, the enterprise of hundreds of thousands of students, the dedication of thousands of professors, the skill of administrators, the wisdom of trustees.

The vast range of knowledge and experience assembled at Cornell gives to student and professor a sense of security. The security comes from being heir to a century of Cornell's history and of having available in libraries and art galleries and concert halls the words of wise men and the creations of artists. And more than security. To the student, what could be more stimulating than to know that he or she has joined a community that affords infinite opportunity for study, for new friendships, and for association with persons dedicated to the pursuit of knowledge?

Frederick G. Marcham
Goldwin Smith Professor of English History Emeritus

The Students

Cornell University has a student body of about 18,000, which includes seven undergraduate divisions of about 13,000 students and four graduate divisions of about 5,000 students in Ithaca. The undergraduate student body is diverse in interests and background, with 51 percent of the undergraduates from New York State, 45 percent from the remaining fifty states, and 4 percent from approximately one hundred foreign countries.

Regional Origin of Students

New England	1,844
New York State	8,512
Middle states	2,586
South	884
Midwest	1,281
Southwest	245
West	1,239
Foreign and United States possessions	1,613
Unknown	72
Total enrollment	18,276*

*Figures are for fall 1987 and do not include students registered in absentia or students in the New York City divisions.

It is the policy of Cornell University actively to support equality of educational and employment opportunity. No person shall be denied admission to any educational program or activity or be denied employment on the basis of any legally prohibited discrimination involving, but not limited to, such factors as race, color, creed, religion, national or ethnic origin, sex, age, or handicap. The university is committed to the maintenance of affirmative action programs that will assure the continuation of such equality of opportunity.

Cornell University is committed to assisting those handicapped students who have special needs. A brochure describing services for the handicapped student may be obtained by writing to the Office of Equal Opportunity, Cornell University, 234 Day Hall, Ithaca, New York 14853-2801. Other questions or requests for special assistance may also be directed to that office.

Retention and Graduation of Undergraduates

By fall 1987, 82 percent of the first-time freshmen who entered the endowed undergraduate units in fall 1981 (Architecture, Art, and Planning; Arts and Sciences; Engineering; and Hotel Administration) had graduated. In the statutory units (Agriculture and Life Sciences, Human Ecology, and Industrial and Labor Relations), 84 percent of the first-time freshmen who entered in fall 1981 had graduated.

Accreditation

Cornell University is accredited by the Middle States Association of Colleges and Schools. Requests to review documentation supporting its accreditation should be addressed to the Vice President of Academic Programs, Cornell University, 309 Day Hall, Ithaca, New York 14853-2801.

University Resources

Students benefit from a wide variety of resources, both human and physical, that contribute significantly to their Cornell education. The following sections provide an idea of some of the more intriguing and stimulating possibilities.

University Library

Cornell University has one of the leading academic library systems in the United States. Its fifteen campus libraries contain over five million volumes and subscribe to more than sixty thousand periodicals. These libraries provide the facilities for research and study in hundreds of undergraduate major subject areas and in over eighty-five fields of study for advanced degrees.

All students at Cornell are entitled to use any of the libraries on campus, although access to the stacks may be limited in some cases. Students are particularly encouraged to participate in the orientation sessions and tours offered at the beginning of each semester by the larger campus libraries. Schedules and tour information are available at every library.

At the south end of the Arts Quadrangle is Uris Library, the building with the tower that has become the symbol of Cornell. Uris is essentially a library for undergraduates in the liberal arts. A principal aim of this library is to bring readers and books as close together as possible. Accordingly, the stacks, containing more than 150,000 volumes, are open to all, and only reserve books in heavy demand are held in a special category. There are listening rooms where students can hear recordings of the spoken word, and there is a lecture room with sound and projection capabilities.

Across the walk from Uris is the John M. Olin Library, devoted more specifically to graduate and faculty research. This closed-stack library houses many special collections of books and manuscripts, among them rare books, collections on East and Southeast Asia, the Icelandic Collection, the History of Science Collections, the archives of the university, maps, microfilms, and newspapers.

The two libraries, Uris and Olin, complement each other in support of the university's program of teaching and scholarship. In addition to these facilities, there is an extensive system of college and school libraries. Chief among them is the Albert R. Mann Library, serving the New York State Colleges of Agriculture and Life Sciences, and Human Ecology. Located at the east end of the Agriculture Quadrangle, Mann Library's open stacks hold more than half a million volumes and include the research library of the Division of Biological Sciences.

Other college libraries are the Fine Arts Library, serving the College of Architecture, Art, and Planning; the libraries of the College of Engineering and the New York State College of Veterinary Medicine; and the libraries that serve the Johnson Graduate School of Management, the Law School, the School of Hotel Administration, and the New York State School of Industrial and Labor Relations. In addition, there are many large department libraries on the campus. For more specific information, see *Libraries at Cornell*, available at all libraries.

Many of the libraries have special copying services, audiovisual facilities, bibliographic retrieval services, study rooms, microcomputers, microfilm and microfiche readers, typewriters, and interlibrary loan services, and some publish handbooks and bibliographies that are distributed without charge.

Museums and Art Exhibitions

The Herbert F. Johnson Museum of Art is recognized as one of the country's leading university art museums. Designed by world-renowned architect I. M. Pei, the building's upper-level galleries provide sweeping views of Cornell, Ithaca, Cayuga Lake, and the surrounding countryside.

The collections include paintings, drawings, sculptures, photographs, prints, textiles, and crafts spanning thirty centuries and six continents. They are particularly strong in Asian, nineteenth-century American, and contemporary art and graphics. In addition, the museum presents approximately fifteen special exhibitions each year as well as many lectures, art demonstrations, film screenings, workshops, music and dance performances, and other programs.

Student membership in the museum is \$20. Members receive a subscription to the bimonthly newsletter, invitations to opening receptions and special programs, discounts on catalogs and posters, and other benefits.

Located on the corner of Central and University avenues, the museum is open Tuesday through Sunday from 10:00 a.m. to 5:00 p.m. Admission is free. For further information call 255-6464.

Art exhibitions. Cornell is generously supplied with art exhibitions, some permanent and some temporary. The displays range from the works of students and visiting collections to the permanent university collection housed at the Herbert F. Johnson Museum of Art. Other campus locations for art displays include the Art Room in Willard Straight Hall, the John Hartell Gallery in Sibley Hall, and the galleries in Goldwin Smith Hall, Martha Van Rensselaer Hall, and Olive Tjaden Hall.

Music

Students who want to participate in music making will find a wide range of opportunity through the Sage Chapel Choir, the Cornell Chorus, the University Glee Club, the university orchestras and bands, chamber music ensembles, the Collegium Musicum, the Jazz Ensemble, and the Indonesian Gamelan. The Cornell chimes, housed in McGraw Tower, are rung by students.

The University Faculty Committee on Music sponsors programs by visiting soloists and major orchestras in the Bailey Hall Concert Series, string quartets and other chamber music ensembles in the Statter Series at the Alice Statter Auditorium, and occasional operas, ballets, and special events. The Department of Music presents nearly a hundred concerts, recitals, and other events each academic year, most free of charge. These include performances by members of the faculty, students, visiting artists, and department ensembles, as well as lectures by visiting musicians and scholars. Many take place in the Barnes Hall auditorium, and they include a wide variety of music from both Western and non-Western traditions.

The Cornell Concert Commission offers a series of student-produced popular concerts. Other student organizations have regular performances of Gilbert and Sullivan operettas, jazz, and folk music.

Astronomy

Cornell has a vigorous Department of Astronomy oriented towards research in modern astrophysical topics. Cornell operates two local optical observatories, the Fuertes Observatory (near the North Campus area) and the Hartung Boothroyd Observatory, and the world's largest radio-radar telescope, in Arecibo, Puerto Rico.

The Spacecraft Planetary Imaging Facility, a joint undertaking of NASA's Planetary Geology Program and the university, serves as a focus for planetary studies at Cornell. The facility contains a comprehensive collection of tens of thousands of images obtained by United States planetary and lunar spacecraft, as well as related cartographic and support data. Cornell astronomers have also played a major role in research in infrared astronomy from space, including the highly successful infrared astronomical satellite, and are currently involved in the construction of NASA's space infrared telescope. The department operates several computers, including two VAX 11/750s with high-resolution color graphics.

Study and research is focused on several broad areas, including theoretical astrophysics, infrared astronomy, planetary sciences, and radio-radar astronomy.

At Cornell there is an active undergraduate Astronomy Club, and interested students are encouraged to become members. The club has access to the Fuertes Observatory on campus, where public viewing sessions are held on clear Friday nights. The Astronomy Club is particularly proud of its collection of astronomical photographs of objects such as newly discovered comets, which have been taken by club members at the Fuertes Observatory in recent years.

Theater

Cornell students have numerous opportunities to attend or participate in theatrical productions.

The Department of Theatre Arts presents a full season of classical, modern, experimental, and musical dramas. All students in the university are encouraged to become involved in these productions as actors, crew members, stage managers, or assistant directors. Projects frequently include guest professional designers and directors as well as resident professional actors. All roles are cast through open auditions. Interested students should call the department for production details and audition dates. Many exciting theater projects are also carried out each semester by the undergraduate theater organization, the Cornell Dramatic Club.

Other theatrical opportunities can be found at Riskey Residential College, which has a small theater available for student productions; with the Cornell Savoyards, who produce two Gilbert and Sullivan operettas annually; and within the Ithaca community, which has several theater groups that mount various productions during the year.

Dance

The dance program, cosponsored by the Departments of Theatre Arts and Physical Education and Athletics, offers a range of possibilities for students interested in dance. Work by faculty, student, and guest choreographers is presented during the year by means of informal studio presentations as well as fully produced performances. The dance program also sponsors a series of performances by professional touring companies. The Ithaca community includes several studios that present workshops and performances in a wide range of dance forms.

Students interested in social and ethnic dance will find that dancing is a popular activity. Student organizations sponsor folk, contra, and square dances frequently. Most dances are taught at these events, and beginners are welcome.

Films

Throughout the year and on almost every night of the week, single film showings and film series make available educational and entertaining films at reduced rates. In addition, there are a half dozen commercial theaters in Ithaca itself, making moviegoing among the most popular leisure-time activities.

Students interested in producing their own films may participate in the filmmaking program sponsored by the Department of Theatre Arts.

Lectures

On the more academic side of audience entertainment, there is the lecture. Dozens of extracurricular lectures are given every week, ranging from scholarly presentations on subjects of narrow interest to lectures by well-known speakers with campuswide appeal.

Publications

Cornell students edit and publish a wide variety of publications, including a yearbook, literary magazines, and a number of magazines relating to special fields of interest. Students are in complete charge of the publication of the *Cornell Daily Sun*, an independent daily newspaper.

Interdisciplinary Scholarship and Research

Medical Sciences

Major Cornell research facilities are located in the Medical College in New York City, which also houses the Graduate School of Medical Sciences. These institutions provide opportunities for research in areas of basic biomedical science, such as biochemistry, biomathematics, cell biology, genetics, immunology, microbiology, molecular biology, neurobiology and behavior, pathology, pharmacology, and physiology. A number of major research centers funded by the National Institutes of Health and also located in the Medical College offer opportunities for both basic and clinical research on AIDS, burns and trauma, hypertension, the immunology of aging, and stroke and thrombosis. In addition, there are active research programs in endocrinology, both adult and pediatric; infectious diseases; nephrology (including transplantation immunology); and neurosciences (including neuroanatomy, neuroendocrinology, neurochemistry, psychopharmacology, and neuroimaging), with major facilities for magnetic resonance imaging). At the Westchester Division, located in White Plains, New York, an NIH-funded Center for Sleep Disorders conducts research in chronobiology. Other facilities at Cornell, mostly located in Ithaca, offer faculty members and students a range of opportunities.

Humanities

Society for the Humanities

Founded in 1966 to support research and encourage imaginative teaching in the humanities, the Society for the Humanities is a research institute, a sponsor of interdisciplinary or innovative courses, and a sponsor of lectures, seminars, and conferences on topics of interest to more than one humanities department. Each year it awards six postdoctoral fellowships and four senior fellowships for scholars from the United States and abroad to work at Cornell on a theme selected for the year, such as "Relations between Western and Non-Western Cultures" or "The Humanities and Science: A Reassessment." Cornell University, Andrew D. White House, Ithaca, New York 14853-1101 (telephone: 607/255-4086).

Center for International Studies (CIS)

CIS facilitates cooperation in international work among the independent academic units at Cornell. It encourages and supports international comparative and interdisciplinary research through area studies in China-Japan, Latin America, South Asia, Southeast Asia, Western Societies, and the Soviet Union—Eastern Europe. CIS also supports research in developing

countries through its International Agriculture, Rural Development, and International Nutrition programs and is responsible for expanding study-abroad options for Cornellians and for establishing preprofessional internships overseas. Many other international initiatives are nurtured by the center, bringing the total the center supports to eighteen different international programs.

Cornell University, 170 Uris Hall, Ithaca, New York 14853-7601 (telephone: 607/255-6370).

Social Sciences

Africana Studies and Research Center

Since 1969 the Africana Studies and Research Center has offered a unique program that leads to an undergraduate degree through the College of Arts and Sciences and a graduate degree, the Master of Professional Studies (African and Afro-American Studies), through the Graduate School. The curriculum reflects an interdisciplinary approach to the experience of African peoples throughout the world. Areas of interest of the center's faculty include African and Caribbean literature, politics and international relations, African civilizations, African history, Afro-American history, Afro-American literature, Black political sociology, Black psychology, political economy of Black workers, and Swahili language and literature. The center provides a unified approach to learning based on the recognition that the responsibility of the Black educator is not only to pioneer and develop Black studies as an educational field but also to produce intellectually disciplined, creative, insightful social analysts and to lay the foundation for technically competent professionals. Cornell University, 310 Triphammer Road, Ithaca, New York 14853-2599 (telephone: 607/255-5218).

Cornell Institute for Social and Economic Research (CISER)

As a coordinating organization capitalizing on Cornell's diverse strengths in the social sciences, CISER seeks to enhance the social science environment by supporting a wide range of research. Through a data archive, an information and referral center, the New York State Information System, a survey research facility, and computing support, CISER fosters collaborative research among over four hundred social science faculty members, as well as interaction between them and public and private agencies and with other social scientists worldwide. Assistance is provided to social scientists who want to identify colleagues on campus with similar research interests. CISER aids in the preparation of proposals, issues publications supporting the Cornell social science community, and organizes seminars and workshops. Cornell University, 391 Uris Hall, Ithaca, New York 14853-7601 (telephone: 607/255-4801).

Program for Employment and Workplace Systems (PEWS)

A part of the New York State School of Industrial and Labor Relations since 1982, PEWS was established to help companies and unions realize dramatic improvements in performance through the exercise of options not generally explored in collective bargaining and human resource planning. PEWS specializes in organizational and human resource changes and work restructuring. Its interventions have included such innovations as redesign of work flow and individual jobs; training in quality improvement methods, problem solving and team building, flexible manufacturing approaches, and gainsharing-compensation incentive systems; self-managing work groups; and study-action teams. PEWS also conducts research on labor-management economic development activities and organizes conferences for industries striving to retain their competitive status. PEWS's two locations are at the New York State School of Industrial and Labor Relations, Cornell University, Ithaca, New York 14853-0952 (telephone: 607/255-2125 and 607/255-2074), and NYSSILR, Cornell University, 15 East Twenty-sixth Street, New York, New York 10010 (telephone: 212/340-2811).

Physical Sciences

Center for Applied Mathematics (CAM)

CAM brings together graduate students from varied educational backgrounds with strong mathematics components for advanced courses in pure mathematics and thorough grounding in mathematical methods and numerical analysis. Its principal research areas are in analysis, applied logic and theory of computing, discrete and numerical mathematics, information and control theory, mathematical biology, economics, mechanics and dynamics, and probability and statistics. CAM is located at Cornell University, Sage Hall, Ithaca, New York 14853-6201 (telephone: 607/255-4335). A new subunit under this program, the Mathematical Sciences Institute, is a national focal point for comprehensive integrated fundamental research. With graduate research and a vigorous program of postdoctoral junior and senior visitors as an integral part, this program will conduct research and provide technical and educational assistance to the U.S. Army. Its disciplines will include applied analysis, physical mathematics, numerical methods and computing, statistics, and applied probability. The institute is located at Cornell University, 294 Caldwell Hall, Ithaca, New York 14853-2602 (telephone: 607/255-8005).

Center for Theory and Simulation in Science and Engineering

Supported by the National Science Foundation as one of five National Advanced Scientific Computing Centers, the Theory Center is meeting the computing requirements of today's researchers with the Production Supercomputer Facility, designed in partnership with IBM and Floating Point Systems. Dedicated to far more than providing cycles on a supermachine, however, the Theory Center encompasses a full research environment, bringing together scientists and engineers in a variety of interdisciplinary projects, as well as researchers from government, industry, and academia, in a cooperative research institute. The Theory Center's programs are complemented by a sophisticated graphics laboratory, an advanced high-speed communications network, and a software development effort. Finally, the Theory Center is working to provide for the computing needs of the future: with the acquisition of two highly parallel machines in 1986, the center began to develop a modular, upgradeable supercomputer that will perform one thousand times faster and at lower cost than the current state of the art. The supercomputer will thus be made affordable—and therefore available—to a wider number of researchers than ever possible before. Cornell University, 265 Olin Hall, Ithaca, New York 14853-5201 (telephone: 607/255-8686).

National Astronomy and Ionosphere Center (NAIC)

Operated by Cornell University under contract with the National Science Foundation, NAIC supports research programs in radio astronomy, planetary radar astronomy, and atmospheric science. Its main instrument, located near Arecibo, Puerto Rico, is a 305-meter antenna, the world's largest radio-radar telescope. NAIC also operates two remote sites north of the observatory: a 31-meter antenna used for interferometry and the High-Frequency Ionosphere Heating Facility. Associated with the Arecibo telescope is a broad spectrum of observing and data processing equipment that includes receivers, very powerful radar transmitters, and computers. NAIC is headquartered on the Cornell campus in Ithaca, where electronic development laboratories to support Arecibo's research efforts are operated as well. Puerto Rico facilities are operated on an equal, competitive basis for all qualified scientists. Cornell University, 405 Space Sciences Building, Ithaca, New York 14853-6801 (telephone: 607/255-3734).

Center for Radiophysics and Space Research (CRSR)

Located in Cornell's Space Sciences Building, CRSR conducts research on our solar system, on the stars, on gas and dust in our own Milky Way galaxy, and on the

extragalactic universe. The center's observational work is both space based (NASA satellites and space-probes) and ground based, using optical, infrared, and—in collaboration with the National Astronomy and Ionosphere Center—radio telescopes. The center's planetary group manages a planetary image facility (SPIF) and is involved in project GALILEO, an ambitious Jupiter probe. CRSR's Infrared Group was instrumental in the successful launch and operation of a satellite that produced an unprecedented atlas of infrared sources in the sky (IRAS) and is planning an even more ambitious successor (SIRTF). The Theoretical Astrophysics Group specializes in such relativistic phenomena as neutron stars and black holes and, working with Cornell's Theory Center, has pioneered supercomputing applied to astronomical problems. Cornell University, Space Sciences Building, Ithaca, New York 14853-6801 (telephone: 607/255-4341).

Floyd R. Newman Laboratory of Nuclear Studies (LNS)

One of six major laboratories in the world active in this area, LNS is the center for research in elementary particle and accelerator physics at Cornell. It is the home of CESR, an electron-positron storage ring designed and built by members of the laboratory, which has produced most of our knowledge of the properties of the b quark, the most massive observed quark and the one with the richest structure. About one hundred physicists from ten universities have built and are operating the two experiments at CESR. A \$36 million upgrade of the larger experiment is under construction. The accelerator group is unique in regularly training graduate students in accelerator physics and has led the development of superconducting radio frequency accelerating cavities, which are expected to play a decisive role in the next generation of accelerators. The theoretical physics group leads the development of supercomputers for research in all theoretical sciences and investigates problems in astrophysics and the structure and dynamics of matter. Cornell University, Wilson Laboratory, Ithaca, New York 14853-8001 (telephone: 607/255-4952).

Laboratory of Atomic and Solid State Physics (LASSP)

LASSP consists of the twenty-four professorial members of the Cornell Department of Physics whose research lies in the general field of condensed-matter physics. Collectively the ten theorists and fourteen experimentalists constitute one of the largest and most distinguished such groups at any university in the world. At any given time there are typically about sixty full-time graduate students, fifteen postdoctoral associates, and ten senior visitors in the laboratory. Activities range over the entire field of condensed-matter physics, from theoretical studies of dynamical systems to experimental studies of new phenomena at the lowest temperatures ever obtained. Cornell University, Clark Hall, Ithaca, New York 14853-2501 (telephone: 607/255-6053).

Cornell High Energy Synchrotron Source (CHESS)

The CHESS laboratory is a national facility supplying high-energy X rays called synchrotron radiation to the scientific community. This radiation comes as a by-product of the acceleration of electrons in the CESR storage ring. The laboratory provides experimental time to approximately three hundred scientists each year from universities, national laboratories, industry, and Cornell. CHESS has earned an international reputation for its studies on diffraction phenomena and X-ray optics. Of particular note are the nanosecond time resolved experiments on the surface melting of semiconductors and the first determination of a crystal structure of a mammalian virus (the common cold virus—rhino 15). The laboratory staff conducts research on many aspects of structure determination. Magnetic scattering, surface structures, and deformation and structure of polymers have been some of the important areas. Many unique contributions have come from laboratory staff in the development of X-ray optics and instrumentation for synchrotron radiation studies in condensed-matter science. Cornell University, 227 Clark Hall, Ithaca, New York 14853-2501

(telephone: 607/255-5161), or Cornell University, Wilson Laboratory, Ithaca, New York 14853-8001 (telephone: 607/255-7163).

Laboratory of Plasma Studies

About forty Cornell faculty members, postdoctoral scientists, and graduate students from four College of Engineering fields are involved in basic physics and applications research in plasma physics, the science of electrically conducting fluids and high-temperature ionized gases, under the auspices of the Laboratory of Plasma Studies. With the largest high-power beam research program in any United States university, Cornell has been a leader in this field since 1967. Although the best-known impetus for this research is the desire for controlled thermonuclear fusion as a potential source of electric power, plasma physics also underlies many solar, astrophysical, and ionospheric phenomena. The program's specialty has been the physics and technology of high-power electron and ion beams and their applications. Cornell scientists make use of state-of-the-art pulsed-power accelerators (up to a trillion watts) to produce and study electron and ion beams for application to fusion research, advanced accelerator concepts, and the generation of high-power microwave radiation. The program involves active collaboration between experimentalists and theorists, who must often make extensive use of the most powerful computers available to this country to adequately model an experiment. Cornell University, 379 Upson Hall, Ithaca, New York 14853-7501 (telephone: 607/255-3916).

Engineering

Computer Graphics

Originally established through a National Science Foundation grant in 1974, this program has conducted collaborative research in many scientific, design, and engineering disciplines and is one of the most advanced computer graphics laboratories in the United States. Its interdisciplinary research has been dedicated to the development of interactive graphics input and display techniques and their uses in computer-aided design. The laboratory is a leader in developing techniques to generate full-color three-dimensional images of photographic quality. Graphic research investigations include modeling techniques, color science, light reflection models, parallel processing, and display algorithms for realistic image synthesis. Since its inception research has continually been conducted in engineering mechanics, resulting in a full set of interactive graphic finite-element and boundary-element analysis systems for three-dimensional, time-dependent, nonlinear problems typical in the mechanical, structural, and geotechnical disciplines. Architectural applications, including building design and full-color three-dimensional graphics simulations, are also being developed. The Program of Computer Graphics is responsible for the development of the advanced graphics hardware-software environment surrounding Cornell's supercomputer facility. Digital Equipment Corporation and Hewlett-Packard provide major support for these pioneering efforts. Approximately twenty-five graduate students perform research in the laboratory. Cornell University, 120 Rand Hall, Ithaca, New York 14853-5501 (telephone: 607/255-4880).

Cornell Ceramics Program

The goals of the Cornell Ceramics Program, which supports research in high-technology ceramics, are threefold: to increase the number of Ph.D.'s, to increase the fundamental understanding in ceramics science, and to bring about increased and more-rapid information exchange with industry. The Cornell Ceramics Program supports research in high-technology ceramics. With assistance from the federal government, industry, and New York State, joint research is conducted on the fundamental aspects of ceramics. The program seeks to expand in those areas where the industrial need is likely to be acute: ceramic thin films and coatings; ceramics for electrical, magnetic, and optical applications; and tough ceramics. Research areas will include studies of

colloids, fine powders, whiskers, fibers, composites of ceramics, polymers and metals, ceramic machining, surface chemistry and physics, interfaces, microstructure and defects, multicomponent kinetics, sintering processes, coating technologies, sol-gel behavior, and other areas. Cornell University, 229 Bard Hall, Ithaca, New York 14853-1501 (telephone: 607/255-4040).

Materials Science Center (MSC)

MSC is the central focus of an interdisciplinary materials research community of sixty faculty members in applied physics, chemistry, chemical engineering, geological sciences, materials science and engineering, mechanical and aerospace engineering, electrical engineering, physics, and theoretical and applied mechanics. It directly supports collaborative and individual research projects of its members in such diverse areas of materials science as ceramics, low-temperature behavior of matter, phase transitions, optical phenomena, and surface science. It provides additional support through the operation of a system of central laboratory facilities, offering state-of-the-art capabilities in electron microscopy, X-ray analysis, mechanical testing, and single-crystal and thin-film preparation. Cornell University, 627 Clark Hall, Ithaca, New York 14853-2501 (telephone: 607/255-4272).

National Nanofabrication Facility

The goals for the National Nanofabrication Facility (NNF), as stated in its charter, were to advance the state of the art in submicron fabrication and to train scientists and engineers in this field, to provide a resource for submicron fabrication technology to the scientific community, to encourage innovative research using submicron dimensions in fields other than microelectronics, and to provide microfabrication information and technology transfer to the technical community. A highly successful partnership between the National Science Foundation, United States industry, and Cornell University, NNF is the only university facility with a proven processing capability at a quarter-micron and below that is openly available to researchers from industry, universities, and federal laboratories. The nearly one hundred research programs that use the facility originate in at least ten different fields of science—from plant pathology to electrical engineering to astronomy—resulting in over one hundred publications annually and contributing to the award of over forty graduate degrees each year. During the next few years NNF will establish itself as the international leader in fabrication at dimensions from 0.01 to 0.1 μm , providing unlimited new research opportunities to researchers throughout the country. Cornell University, Knight Laboratory, Ithaca, New York 14853-5403 (telephone: 607/255-2329).

Semiconductor Research Corporation—Cornell University Center of Excellence for Microscience and Technology

This Semiconductor Research Corporation-supported program seeks to identify and investigate key technical issues related to the fabrication, modeling, and characterization of microstructures for integrated circuits that support a 0.25 micrometer minimum-feature-size (MFS) design rule. In a typical year twenty-four faculty members in applied and engineering physics, electrical engineering, materials science and engineering, and physics participate and thirty-four graduate students are supported by this program, which represents a balanced effort in the four microstructure sciences areas: integrated device and circuit fabrication, process and materials research, microstructure characterization, and quantum size effects (postshrink) research. Cornell University, 217 Phillips Hall, Ithaca, New York 14853-5401 (telephone: 607/255-8519).

Cornell University Joint Services Electronics Program (JSEP)

With major funding from the U.S. Department of Defense, JSEP houses one of the world's leading programs in compound semiconductor materials and performs research on the state of the art in

microelectronics, electronic, and opto-electronic devices and circuits. It provides support to the research of approximately ten faculty members from the Department of Electrical Engineering in Phillips Hall. The program has resulted in at least fifty advanced degrees in the areas of high-speed devices, optoelectronics, and epitaxial growth. Cornell University, Phillips Hall, Ithaca, New York 14853-5401 (telephone: 607/255-3409).

Cornell Manufacturing Engineering and Productivity Program (COMEPP)

With thirty faculty members from nine departments in three colleges and support from over fifteen industries, COMEPP explores innovative technologies and procedures to increase productivity, exchanges information with key industries through collaborative research, and develops close working relationships and continuing education programs with company sponsors. In active support of the effort to provide a new breed of engineers with the technical background and vision needed to implement modern manufacturing methods, COMEPP's cross-disciplinary research focuses on such key manufacturing issues as object representation, materials processing, automated manufacture of discrete parts and integrated circuits, robotics, and production management. Cornell University, 254 Olin Hall, Ithaca, New York 14853-5201 (telephone: 607/255-4616).

Institute for the Study of the Continents (INSTOC)

As an interdisciplinary organization centered in Cornell's engineering college, INSTOC explores and investigates the structure, composition, and evolution of the continents. Based on the premise that the continental crust is the major frontier of modern earth science, it seeks to improve scientific understanding of the earth's major features to find ways for its wise and beneficial use by mankind. It parallels the great institutes of oceanography that have added so much to mankind's understanding of the earth's water-covered areas in the last few decades. One of INSTOC's major projects, the Consortium for Continental Reflection Profiling (COCORP) uses the powerful seismic reflection profiling technique developed by the petroleum industry for the study of the continental crust's entire thickness. Cornell University, 3122 Sneek Hall, Ithaca, New York 14853-1504 (telephone: 607/255-3474).

Environmental Research

Center for Environmental Research (CER)

CER supports a wide variety of teaching, research, and public service activities that address major environmental issues. Over the past several years these have been carried out under four major programs. The Environmental Law and Policy Program promotes research and sponsors symposia and seminars focusing on such issues as science and the courts and environmental regulation. The Ecosystems Research Center is funded by Cornell and the Environmental Protection Agency (EPA). Its basic ecosystems orientation and expertise support EPA's regulatory activities. The Cornell Laboratory for Environmental Applications of Remote Sensing conducts teaching, research, and extension activities on remote sensing techniques. The Water Resources Institute's research and extension efforts focus on problems of surface and groundwater contamination. Cornell University, 468 Hollister Hall, Ithaca, New York 14853-3501 (telephone: 607/255-7535).

Institute for Comparative and Environmental Toxicology (ICET)

ICET consolidates and stimulates teaching, research, and public service activities related to environmental toxicology—a multidisciplinary science that studies the fate and effects of chemicals on living organisms and natural ecosystems. Established in 1981 as an interdisciplinary, campuswide administrative unit, ICET administers the graduate Field of Environmental Toxicology for some twenty-five graduate students and encourages collaborative interactions with government,

industry, and other academic institutions. The institute helps strengthen its approximately thirty faculty members' individual research programs while fostering an interdisciplinary team approach to research problems. To support program activities, ICET seeks and administers government, foundation, and corporate funds. Environmental toxicology at Cornell has grown to encompass the effects of complex pollutants that threaten our natural and industrial resources and call for important responses in the realm of risk management and public policy. ICET is designed to manage the anticipated future growth of environmental toxicology and to enhance Cornell's national leadership position in this important area. Cornell University, 102B Fernow Hall, Ithaca, New York 14853-3001 (telephone: 607/255-2163).

Biological Sciences

The Corson and Mudd buildings, a complex for biological sciences, house many different controlled environments: cold rooms; chambers controllable for constant light, humidity, and temperature; aviaries; aquarium rooms; rooms for electron microscopy; and anechoic chambers, among other facilities.

Biotechnology Program

New York State (through its Science and Technology Foundation), industry, and Cornell jointly sponsor this recently initiated program that provides corporations interested in biotechnology with a window at the forefront of research. A primary goal is the transfer of basic research results and technology to applications that will lead to new products and economic development. Eastman Kodak, General Foods, and Union Carbide have already pledged substantial funds over a six-year period, and Corning Glass has contributed significantly to the program. Research focuses on molecular aspects of genetics and cell biology with applications to plants, animals, and cell production. Cornell University, Box 547, Baker Laboratory, Ithaca, New York 14853-1301 (telephone: 607/255-2300).

Boyce Thompson Institute for Plant Research (BTI)

In new state-of-the-art laboratories, twenty greenhouses, controlled environment chambers, and a twenty-acre experimental farm at the outskirts of Cornell's Ithaca campus, this private, independent, nonprofit corporation seeks to increase understanding of plant growth and development and to contribute knowledge essential for maintaining environmental quality. BTI's Biological Control Program centers on microbial insect diseases. Its research is in the isolation, identification, and characterization of pathogenic organisms and naturally occurring chemicals for use in the biological control of important insect pests. Behavior-regulating plant constituents are identified and environmental effects on host-plant qualities studied to determine how plant diseases can control insect pests that damage crops. The Environmental Biology Program seeks to determine the effects of such pollutants as acid rain, fluorides, ozone, nitrogen compounds, and PCBs on vegetation. Its scientists also study the interaction of atmospheric pollutants with insects and diseases. The Nitrogen and Crop Yields program concentrates mainly on basic studies of the physiological and genetic relationships in nitrogen fixation and on techniques to improve the genetic capabilities of nitrogen-fixing bacteria with program areas in disease tolerance, disease organism physiology, chemical characterization of fungal toxins, seed physiology, salinity, and drought tolerance. The Plant Stress Program increases understanding of those stress-related phenomena in plants that are associated with environmental conditions or disease development. Boyce Thompson Institute for Plant Research, Cornell University, Tower Road, Ithaca, New York 14853-1801 (telephone: 607/257-2030).

Laboratory of Ornithology

This unique Cornell department is located a short distance from the main Ithaca campus in scenic Sapsucker Woods. It acts as an interface between

professional ornithologists and the amateur birding community. The laboratory conducts research on bird populations through its Cooperative Research Program and on acoustic communication through the Library of Natural Sounds. Birders gather data that form the research base for the laboratory's programs. In addition, the laboratory publishes a magazine, the *Living Bird Quarterly*, for its ten thousand members. Laboratory of Ornithology, Cornell University, Sapsucker Woods, Ithaca, New York 14850-1999 (telephone: 607/255-4783).

Shoals Marine Laboratory

Other renowned off-campus facilities include Shoals Marine Laboratory, a marine biology laboratory six miles off the Maine and New Hampshire coasts.

Agriculture

Bradfield Hall houses computers, radar, and other specialized equipment used in making up-to-the-minute weather forecasts. The insect collection, newly housed in Comstock Hall, contains more than four million specimens, making it one of the largest university insect collections anywhere. Liberty Hyde Bailey Hortorium is the world's leading center for the study of palms, a plant family second only to grasses in economic importance. The Department of Food Science operates a full-scale dairy plant and a salesroom.

The new Comstock Hall provides modern facilities for the Department of Entomology, teaching in the biological sciences, and Media Services.

The Departments of Plant Breeding, Plant Pathology, Floriculture and Ornamental Horticulture, and Vegetable Crops; the Section of Plant Biology, housed in the Plant Science Building, Guterman Laboratories, and Bradfield Hall; the Boyce Thompson Institute for Plant Research, which is housed in facilities on Tower Road; and the Agricultural Experiment Station at Geneva give the university the largest concentration of plant scientists in the world.

Cornell's unique location, on Cayuga Lake and between Cascadilla and Fall creeks, offers many opportunities to explore ecology and aquatic science. The Fisheries and Ecotoxicology laboratories and experimental ponds are located near the campus; an additional one hundred ponds are located near the Tompkins County Airport. A major toxicology facility, the Equine Drug Testing Laboratory of the New York State School of Veterinary Medicine, is also situated near the airport, about three miles from campus. Twenty-five miles away the four-thousand-acre Arnot Forest serves as an outdoor laboratory in wildlife and forestry for the Department of Natural Resources, which also operates a two-hundred-acre maple sugar and forestry extension field station at Lake Placid and the Cornell Biological Field Station at Shackleton Point on Oneida Lake, near Syracuse. The latter not only provides excellent facilities for fisheries and aquatic science research and teaching but also includes four hundred acres of meadows and forest for terrestrial ecology and conservation studies.

The Animal Science Teaching and Research Center was established in 1973 on twenty-five hundred acres of fertile valley and hillside land near Dryden, about fifteen miles from campus. It now houses some 760 head of dairy cattle, 300 beef cattle, 400 sheep, and an aquaculture facility for brook trout. About one thousand acres of corn and grasses are planted and harvested each year.

A new Large Animal Research and Teaching Unit on campus greatly expands the research on, and teaching of, metabolic control of growth and lactation in large animals.

The orchard laboratory conducts research on fruit crops; the poplar salesroom may be reached by campus bus.

Agricultural Experiment Stations at Cornell University

Initiated through the Hatch Act of 1887, which established federal funding for agricultural research, the experiment stations provide the fundamental

knowledge and research base to sustain agriculture and food production throughout New York State and to contribute the state's share to the national agricultural research program. At the Cornell University agricultural experiment station research ranges from the basic sciences represented by modern biotechnology to more-applied agricultural research areas in plant, animal, physical, and social sciences. Total research support exceeds \$40 million from the state of New York, Federal Formula Funds, USDA special and competitive grants, federal agencies, private industry, foundations, and gifts. The equivalent of three hundred full-time researchers work on over nine hundred active projects in the diverse areas of soils, water, and forestry; crops; animals; economics and agricultural policy; people and social institutions; food and human nutrition; and biotechnology. The New York State Agricultural Experiment Station in Geneva, New York, contains the most all-inclusive apple orchard in the United States, with over one thousand varieties, and is over a century old. In addition to developing sixty-five new apple varieties, researchers have produced experimental wines from grapes grown in the station's own vineyards, which are now widely grown by New York State's farm wineries. The station's work also extends to growing techniques, plant disease, pests and pesticides, and many other areas. The mechanical grape harvester, for example, which can pick 95 percent of all grapes, was designed here in cooperation with agricultural engineers. The activities of Cornell's agricultural experiment stations are coordinated by Cornell's Office for Research, in the New York State College of Agriculture and Life Sciences, 292 Roberts Hall, Cornell University, Ithaca, New York 14853-5901 (telephone: 255-5420). The Geneva experiment station can be reached by calling the director's office at 315/787-2211 or writing to the New York State Agricultural Experiment Station, Geneva, New York 14456 (or Box 15, Cornell University, Roberts Hall, Ithaca, New York 14853-5901).

Long Island Horticultural Research Laboratory (LIHRL)

The laboratory is a unit of Cornell University that serves the research needs of Long Island horticultural enterprises and provides extension information through close ties with local cooperative extension associations. It is located at Riverhead, New York, in the major agricultural area of Long Island. The facility houses individuals from the Departments of Entomology, Floriculture and Ornamental Horticulture, Plant Pathology, and Vegetable Crops at Ithaca and the Horticultural Sciences and Integrated Pest Management units at Geneva. The staff at LIHRL is only a part of Cornell's total program to serve the needs of Long Island agriculture. The facilities are available and are used by numerous individuals stationed at Ithaca and Geneva to carry out programs important to Long Island and the Northeast. Long Island Horticultural Research Laboratory, 39 Sound Avenue, Riverhead, New York 11901 (telephone: 516/727-3596).

Nutritional Science

Institute of Food Science

The program's faculty participants deal with all facets of food processing, formulation, packaging, safety, and nutrient content. This strong, diverse research program includes both basic and applied disciplines. It encompasses all major commodities of plant, animal, avian, and marine origin. Multidisciplinary research programs exist in the following areas: biochemistry and flavor chemistry; food microbiology, safety, and biotechnology; computer modeling, structure-function relationship and physical properties research with emphasis on polysaccharides, proteins, and lipid components of food; and food engineering, with emphasis on thermal processing, separation processes, computer-integrated controls, packaging, and storage capability. Strong complementary programs are available in nutrition research and food marketing. The institute has two large modern research facilities, computers, and two modern excellent pilot plant facilities capable of handling (processing, packaging, storage evaluation) all types of food

products from fluid to dried materials. Cornell University, 16 Stocking Hall, Ithaca, New York 14853-7201 (telephone: 607/255-7916).

Veterinary Medicine

James A. Baker Institute for Animal Health

The institute conducts research on agents that cause disease in domestic animals. Its aims are to increase knowledge about the nature of diseases and the means by which they are spread and to develop methods of controlling their spread. The staff includes specialists in molecular biology, virology, bacteriology, parasitology, immunology, biochemistry, and genetics. Noted for leadership in canine research, the institute's Cornell Research Laboratory for Diseases of Dogs has been directly or indirectly involved in the development of almost every vaccine for the prevention of infectious diseases in dogs. James Baker Institute for Animal Health, Cornell University, Snyder Hill Road, Ithaca, New York 14853-6401 (telephone: 607/277-2772).

Cornell Computer Services

At Cornell, computers are used by students and faculty members in every discipline. Cornell Computer Services (CCS) provides and maintains computing hardware, operating systems, and general and specialized software to meet a broad spectrum of needs.

To make these resources readily accessible, CCS operates public terminal and microcomputing facilities, provides generous free consulting, produces informative documentation, and offers a variety of workshops and other programs for teaching clients how to use both hardware and software. CCS also operates a software lending library and self-training facility, provides some software for use in staffed public sites, and negotiates with software vendors to obtain substantial discounts for students, faculty, and staff.

As part of the support for academic computing, CCS also operates Microcomputers and Office Systems, which sells computing and office equipment at attractive prices to eligible members of the Cornell community.

Cornell's computers available for instruction and research consist of an IBM 4381-13, an IBM 3090-200, a DEC VAX 8530, two VAX 11/750s, and two MicroVAX IIs. Public or semipublic computing facilities, containing more than five hundred microcomputers, are located in twenty-four different areas on and off campus. Students and faculty are provided with a weekly allowance of computing time, and vendacard facilities are available for obtaining high-quality laser printing at modest prices.

A substantial number of computing systems and related equipment—from supercomputers to microcomputers—have been donated to Cornell by various major computer vendors in support of instruction and research. Cornell is one of five institutions in the country to house a national advanced scientific computing center and was the first center to become fully operational. The Cornell National Supercomputer Facility (CNSF) provides access to an IBM 3090-600E computing system and five (Floating Point Systems) FPS-264 minisupercomputers. A second 3090-600E is scheduled for installation in the near future.

Cornell subscribes to Telenet and TYMNET, which allow access to Cornell's mainframes via a local telephone call from all fifty states, Mexico, Canada, and Europe. Besides being a charter member of EDUCOM, Cornell is also a member of BITNET, providing two-way electronic mail service between Cornell and other colleges and universities worldwide.

Degree Programs

Undergraduate Degrees

The undergraduate curricula at Cornell University lead to the Bachelor of Arts (A.B.) degree in the College of Arts and Sciences or the Bachelor of Science (B.S.) degree, offered by the College of Agriculture and Life Sciences, the College of Human Ecology, the School of Hotel Administration, the College of Engineering, and the School of Industrial and Labor Relations. The College of Architecture, Art, and Planning offers the Bachelor of Architecture (B. Arch.), the Bachelor of Fine Arts (B.F.A.), and the Bachelor of Science (B.S.) degrees.

Graduate Degrees

The graduate program at Cornell, with its emphasis on flexibility and independence, permits an unusual degree of accommodation to the needs and interests of the individual student. Most graduate degrees are offered through the Graduate School. Professional graduate degrees are offered through the professional schools and colleges. More information on the graduate degrees offered by Cornell may be found in the section on the Johnson Graduate School of Management, the Graduate School, the Law School, and the New York State College of Veterinary Medicine.

Use of Animals for Courses

The Cornell University Institutional Animal Care and Use Committee has made the following statement on the use of animals for courses: "In certain courses the use of vertebrate animals serves as an invaluable aid in instruction. It is recognized, however, that some students have ethical objections to the use of vertebrate animals in this manner. Courses that use vertebrate animals are identified as such in the course descriptions. Students who have concerns about the use of animals in these courses should consult the course instructor for more information about the precise ways in which the animals are used. A set of university guidelines on the use of vertebrate animals in teaching for faculty and students is available from departments in which the courses are offered. A student who is reluctant to voice his or her concerns about animal use in a particular course, or who thinks these concerns have not received proper attention, may seek assistance from the director of the Cornell Center for Research Animal Resources."

Division of Unclassified Students

The Division of Unclassified Students (DUS) assists Cornell undergraduates in transferring between colleges of the university when direct internal transfer is not possible. The division also serves as a counseling agency for students whose academic and career goals have changed. Such students are advised about alternatives within the Cornell system.

To apply to the division, students must

- 1) Make an appointment for an interview in DUS (telephone: 255-4386)
- 2) Complete the DUS application form and return it to the division office, 158 Olin Hall
- 3) Submit application for transfer coupons to their college registrar, requesting transfer to DUS

Candidates are admitted to the division when, in the judgment of the DUS Administrative Committee, there is reasonable evidence that a transfer can be accomplished and that the proposed program is consistent with the student's stated objectives. Students are admitted for one semester but may be allowed to continue in the division for a second term if that is necessary and the student is making progress toward transfer.

Business and Preprofessional Study

Undergraduate Business Study

Undergraduate preparation for business is found in many schools and colleges at Cornell. Students most frequently take courses in more than one area, as well as in related fields, to construct a program to suit their interests and career objectives. Each of the following areas provides a different focus for application and use of business study and training, and students should consider carefully the implications of each program when making a choice. (Graduate study is available in the Johnson Graduate School of Management as well as in graduate fields following each of the undergraduate options.)

The areas most often pursued include applied economics and business management (College of Agriculture and Life Sciences), economics (College of Arts and Sciences), engineering, hotel administration, consumer economics and housing (College of Human Ecology), and industrial and labor relations.

Applied economics and business management.

This program is designed to prepare students for a career in business or in public service. Emphasis is placed on the application of economic theory and management principles. Students are required to satisfy the distribution requirements of the College of Agriculture and Life Sciences and encouraged to take courses in the social sciences and humanities. Six areas of specialization are available: agricultural economics, business management and marketing, farm business management and finance, food industry management, public affairs management, and resource economics.

Economics. This program provides a broad view of that social science concerned with the description and analysis of the production, distribution, and consumption of goods and services, the understanding of monetary systems, and the comprehension of economic theories and models. It is viewed more often as preprofessional than as training for immediate practice in business or economics.

Engineering. This area provides much of the management personnel of modern industry. Engineers frequently climb the ladders of technological management that lead to more general management responsibilities; more than half of the management-level personnel of major corporations such as General Electric, Xerox, IBM, and Du Pont have engineering degrees. In addition to becoming managers by being effective technical supervisors, many students enter engineering explicitly anticipating graduate business education, judging that an engineering background is particularly appropriate for management in a technology-oriented society.

Hotel administration. The undergraduate program in hotel administration prepares individuals to be mid- to upper-level managers and entrepreneurs for the hospitality industry (lodging, food service, and travel) and allied fields. Instruction is provided in the areas of administration and general management, human-resources management, accounting and financial management, food and beverage management, law, properties management, communication, science and technology, economics, and marketing.

Consumer economics and housing. Study in the department develops an understanding of the market economy from both buyers' and sellers' perspectives. The focus is on the economic behavior and welfare of consumers in the private, public, and mixed sectors of the economy. An understanding of economics, sociology, and government policy provides the basis for an analysis of consumers' rights and responsibilities.

Industrial and labor relations focuses on the interactions among human beings, organizations, and institutions. It encompasses not only the relationships between employer and employee but the political, economic, social, and psychological factors that affect those relationships. It includes the study of the hiring, training, and motivating of individual workers; negotiation and conflict resolution; and the economic and technological changes that affect the jobs that people perform. Finally, it embraces the many regulations and regulatory agencies created by our society to protect and help both employer and employee.

Related Areas

Courses in areas directly related to these business programs are found in many of the university departments. For example, quantitative methods may be studied in the Departments of Mathematics and Computer Science, and courses in public administration are found in the Departments of Government, and City and Regional Planning. There are additional programs that allow students with an interest in business to focus on a particular geographic area. Examples are the Latin American Studies Program, the South Asia Program, and the Africana Studies and Research Center. Such interdisciplinary programs as the Program on Science, Technology, and Society and the various programs in international agriculture provide additional opportunities for study of interest to business students.

Combined Degree Programs

Because Cornell has the Samuel Curtis Johnson Graduate School of Management, special opportunities exist for highly qualified undergraduates to combine their undergraduate programs with graduate study in that school. Students in the double-registrant program generally receive a bachelor's degree after four years of study and a Master of Business Administration (M.B.A.) degree after the fifth year of study, rather than the usual six-year period. Students in all Cornell undergraduate colleges and schools are eligible to explore this option. There is also a program with the College of Engineering that allows qualified students to earn a B.S., M.B.A., and Master of Engineering degree in six years. Admission to these combined degree programs is limited to particularly promising applicants. Careful planning is required for successful integration of the work in the two schools.

Selected Business and Management Courses

Accounting

- Ag Ec 221 Financial Accounting
- Ag Ec 323 Managerial Accounting and Economics
- H Adm 120 Basic Principles of Accounting and Financial Management
- H Adm 220 Managerial Accounting
- H Adm 221 Financial Accounting
- JGSM NBA 500 Intermediate Accounting
- JGSM NBA 501 Advanced Accounting
- JGSM NBA 505 Auditing
- OR&IE 350 Cost Accounting Analysis and Control

Communications

- Comm 201 Oral Communication
- Comm 204 Effective Listening
- Comm 272 Principles of Public Relations and Advertising
- Comm 301 Business and Professional Speaking
- Comm 372 Advanced Advertising
- H Adm 165 Introduction to Writing for Business
- H Adm 265 Effective Oral Communication
- H Adm 364 Advanced Business Writing

Computing

- Ag Ec 412 Introduction to Linear Programming
- Ag Ec 418 Information Systems and Decision Analysis
- CS 100 Introduction to Computer Programming
- CS 101 The Computer Age

- CS 102 Introduction to Microcomputer Applications
- Educ 447 Instructional Applications of the Microcomputer
- H Adm 174 Information Systems

Economics

- Ag Ec 332 Economics of the Public Sector
- Ag Ec 350 Resource Economics
- CEE 321 Microeconomic Analysis
- CEH 355 Wealth and Income
- Econ 101 Introductory Microeconomics
- Econ 102 Introductory Macroeconomics
- Econ 301 Economics of Market Failure
- Econ 311 Intermediate Microeconomic Theory
- Econ 317 Intermediate Mathematical Economics I
- Econ 318 Intermediate Mathematical Economics II
- Econ 338 Macroeconomic Policy
- Econ 341 Labor Economics
- Econ 342 Problems in Labor Economics (also I&LR 343)
- Econ 351 Industrial Organization
- Econ 358 Current Economic Issues
- I&LR 240 Economics of Wages and Employment
- I&LR 340 Economic Security
- I&LR 440 Economics of Fringe Benefits

Entrepreneurship

- Ag Ec 441 Personal Enterprise and Small Business Management
- JGSM NBA 300 Entrepreneurship and Enterprise

Finance

- Ag Ec 324 Financial Management
- Ag Ec 405 Farm Finance
- Ag Ec 407 Advanced Agricultural Finances Seminar
- Ag Ec 411 Financial Markets and Policies
- CEH 315 Personal Financial Management
- Econ 331 Money and Credit
- Econ 333 Theory and Practice of Asset Markets
- Econ 336 Public Finance: Resource Allocation
- H Adm 125 Finance
- H Adm 222 Hospitality Financial Management
- H Adm 322 Investment Management
- H Adm 326 Corporate Finance
- OR&IE 451 Economic Analysis of Engineering and Management

International Business

- Ag Ec 150 Economics of Agricultural Geography
- Ag Ec 643 Export Marketing
- Econ 102 Introductory Macroeconomics
- Econ 314 Intermediate Macroeconomics Theory
- Econ 325 Economic History of Latin America
- Econ 329 Eastern Europe Today: Economics, Government, Culture (also Government 326 and Russian 329)
- Econ 330 The Soviet Union: Politics, Economics, and Culture (also Government 330 and Russian 330)
- Econ 338 Macroeconomics Policy
- Econ 366 The Economy of the Soviet Union
- Econ 369 Selected Topics in Socialist Economies: China
- Econ 561 International Trade Theory and Policy
- Econ 562 International Monetary Theory and Policy
- Govt 354 America in the World Economy
- Japan 141-142 Introductory Japanese for Business Purposes
- Japan 241-242 Intermediate Japanese for Business Purposes
- NES 463 International Trade, Market, and Politics in the Ancient Near East

Law, Regulation, and Ethics

- Ag Ec 320 Business Law
- Ag Ec 321 Law of Associations
- Ag Ec 322 Taxation in Business
- Ag Ec 451 Introduction to Energy Resources
- Ag Ec 420 Advanced Business Law
- Ag Ec 422 Estate Planning
- CEH 430 The Economics of Consumer Policy
- CEH 465 Economics of Consumer Law
- Comm 428 Communication Law
- Econ 302 The Impact and Control of Technological Change

Econ 304 Economics and the Law
 Econ 308 Economic Analysis of Government (also
 Civil and Environmental Engineering 322)
 Econ 552 Public Regulation of Business
 Econ 554 Economics of Regulation
 Govt 389 International Law
 H Adm 283 Law of Securities Regulation
 H Adm 385 Law of Business I
 H Adm 422 Taxation and Management Decisions
 I&LR 201 Labor Relations Law and Legislation
 I&LR 330 Comparative Industrial Relations Systems:
 Western Europe
 I&LR 331 Comparative Industrial Relations Systems:
 Non-Western Countries

Management

Ag Ec 220 Introduction to Business Management
 Ag Ec 302 Farm Business Management
 Ag Ec 402 Advanced Farm Business Management
 Ag Ec 424 Business Policy
 Ag Ec 426 Cooperative Management
 Ag Ec 443 Food Industry Management
 CRP 545 Introduction to Public Policy Analysis and
 Management
 Econ 326 History of American Business Enterprise
 H Adm 103 Principles of Management
 H Adm 401 Seminar in Management Principles
 JGSM NBA 573 The Professional Manager at Work
 Soc 328 Sociology of Work

Manufacturing

Econ 302 The Impact and Control of Technological
 Change
 OR&IE 410 Industrial Systems Analysis
 OR&IE 421 Production Planning and Control

Marketing

Ag Ec 240 Marketing
 Ag Ec 342 Marketing Management
 Ag Ec 346 Dairy Markets and Policy
 Ag Ec 347 Marketing Fruits, Vegetables, and
 Floriculture Products
 Ag Ec 448 Food Merchandising
 Ag Ec 449 Applications in Strategic Marketing
 CEH 233 Marketing and the Consumer
 CEH 431 Consumer Behavior
 CEH 432 Economic Organization of the Marketplace
 H Adm 243 Principles of Marketing

Personnel and Human Resource Management

Ag Ec 381 Economics of Participation and Workers'
 Management
 Ag Ec 382 The Practice and Implementation of Self-
 Management
 CEE 325 Social Implications of Technology
 CEH 411 Time as a Human Resource
 CEH 418 Work and Human Development
 H Adm 211 The Management of Human Resources
 H Adm 212 Human Relations Skills
 H Adm 311 Union-Management Relations in Private
 Industry: A Survey
 H Adm 313 Training for the Hospitality Industry
 H Adm 414 Organizational Behavior and Small-Group
 Processes
 H Adm 513 Situational Leadership and Organizational
 Behavior
 I&LR 120 Introduction to Macro Organizational
 Behavior and Analysis
 I&LR 121 Introduction to Micro Organizational
 Behavior and Analysis
 I&LR 151 Personnel Management
 I&LR 200 Collective Bargaining
 I&LR 222 Studies in Organizational Behavior:
 Regulating the Corporation
 I&LR 260 Personnel Management
 I&LR 320 Psychology of Industrial Engineering
 I&LR 326 Sociology of Occupations
 I&LR 327 Psychology of Industrial Conflict
 I&LR 360 Human Resource Economics and Public
 Policy
 I&LR 361 Effective Supervision
 I&LR 366 Women at Work
 I&LR 370 The Study of Work Motivation
 I&LR 373 Organizational Behavior Simulations

I&LR 374 Technology and the Worker
 I&LR 404 Contract Administration
 I&LR 420 Group Processes
 I&LR 425 Sociology of Industrial Conflict
 Psych 206 Psychology in Business and Industry (also
 Hotel 314)

Quantitative Decisions and Decision Science

Ag Ec 310 Introductory Statistics
 Ag Ec 408 Seminar in Farm Business Decision
 Making
 CEE 304 Uncertainty Analysis in Engineering
 CEE 323 Engineering Economics
 Econ 320 Introduction to Econometrics
 Econ 520 Quantitative Methods
 CEH 332 Consumer Decision Making
 H Adm 161 Keyboarding for Managers on the
 Macintosh
 H Adm 174 Information Systems
 H Adm 274 Hotel Computing Applications
 H Adm 374 End-User Business Computing Tools
 OR&IE 270 Basic Engineering Probability and
 Statistics

Real Estate

Ag Ec 406 Farm and Rural Real Estate
 CRP 654 Real Estate Development I: Advanced
 Analysis and Critique
 CRP 655 Real Estate Development II: Advanced
 Analysis and Critique
 CRP 664 Economics and Financing of Neighborhood
 Conservation and Preservation

Transportation

CEE 361 Introduction to Transportation Engineering
 CEE 660 Transportation Planning and Policy

Prelaw Study

Law schools do not prescribe any particular prelaw program, nor do they require any specific undergraduate courses as do medical schools. Law touches nearly every phase of human activity, and there is practically no subject that cannot be considered of value to the lawyer. Therefore, no undergraduate course of study is totally inappropriate. However, law students should be guided by certain principles when selecting college courses.

1. Interest encourages scholarship, and students will derive the greatest benefit from those studies that stimulate their interest.
2. Of first importance to the lawyer is the ability to express thoughts clearly and cogently in both speech and writing. Freshman writing seminars, required of nearly all Cornell freshmen, are designed to develop these skills. English literature and composition, and communication courses, also serve this purpose. Logic and mathematics develop exactness of thought. Also of value are economics, history, government, and sociology, because of their close relation to law and their influence on its development and ethics, and philosophy, because of the influence of philosophic reasoning on legal reasoning and jurisprudence. Psychology leads to an understanding of human nature and mental behavior. Some knowledge of the principles of accounting and of the sciences such as chemistry, physics, biology, and engineering is recommended and will prove of practical value to the lawyer in general practice in the modern world.
3. Cultural subjects, though they may have no direct bearing on law or a legal career, will expand students' interests; help cultivate a wider appreciation of literature, art, and music; and make better-educated and well-rounded persons.
4. Certain subjects are especially useful in specialized legal careers. For some, a broad scientific background—for example, in agriculture, chemistry, physics, or engineering—when coupled with training in law, may furnish qualifications necessary for specialized work with the government, for counseling certain types of businesses, or for a career as a patent

lawyer. A business background may be helpful for those planning to specialize in corporate or tax practice. Students who anticipate practice involving labor law and legislation might consider undergraduate study in the School of Industrial and Labor Relations. Whatever course of study is chosen, the important tasks are to acquire perspective, social awareness, and a critical cast of mind; to develop the ability to think logically and analytically; and to express thoughts clearly and forcefully. These are the crucial tools for a sound legal education and successful career.

The presence of the Cornell Law School on campus provides the opportunity for a limited number of highly qualified undergraduates registered in the College of Arts and Sciences at the university to be admitted to the Law School. At the time of entry they must have completed 105 of the 120 credits required for the Bachelor of Arts degree, including 92 credits of course work in the College of Arts and Sciences.

It may be possible for exceptionally well qualified students in other Cornell undergraduate colleges to arrange to enter the Law School after three years. The College of Human Ecology offers a program in which students spend their fourth year at the Law School. In addition, members of the Cornell Law School faculty often offer undergraduate courses such as Nature, Functions, and Limits of Law, which are open to all undergraduates.

Premedical Study

Medical and dental schools, while not requiring or recommending any particular major course of study, do require that a particular selection of undergraduate courses be completed. These courses usually include general chemistry and organic chemistry, biology, physics, and a year of English composition (or a freshman writing seminar). In addition, many medical schools require or recommend at least one advanced biological science course, such as genetics, embryology, histology, or physiology.

There is no major program that is the best for those considering medical or dental school, and students are therefore encouraged to pursue their own intellectual interests. Students are more likely to succeed at, and benefit from, subjects that interest and stimulate them, and there is no evidence that medical colleges give special consideration to any particular undergraduate training beyond completion of the required courses. In the past, successful Cornell applicants to medical and dental schools have come from the Colleges of Arts and Sciences, Agriculture and Life Sciences, Human Ecology, and Engineering. The appropriate choice depends to a great extent on the student's other interests.

Qualified students in the Colleges of Agriculture and Life Sciences, Arts and Sciences, and Human Ecology may apply for acceptance into a double-registration program arranged between Cornell University and Cornell University Medical College in New York City. This program allows registered students to save one year in pursuit of the bachelor's and M.D. degrees. Further information about this program is available from the Health Careers Program office at the Career Center, Cornell University, 203 Barnes Hall, Ithaca, New York 14853-1601.

Preveterinary Study

There is no specific preveterinary program at Cornell, and students interested in veterinary medicine as a career should select an area for study that fits their interests while at the same time meeting the entrance requirements for veterinary college listed below. Most preveterinary students at Cornell are enrolled in the College of Agriculture and Life Sciences, which offers several applied science majors, including animal science, that can lead to related careers if the student is not accepted into veterinary college. Some enter

other divisions of the university, especially the College of Arts and Sciences, because of secondary interests or the desire for a broad liberal arts curriculum.

The college-level prerequisite courses for admission to the New York State College of Veterinary Medicine at Cornell are English composition, biology or zoology, physics, inorganic chemistry, organic chemistry, biochemistry, and microbiology. All science courses must include a laboratory. The college also requires demonstrated proficiency in written and spoken English and encourages taking courses in mathematics and statistics. These requirements, necessary for admission to the New York State College of Veterinary Medicine at Cornell, may vary slightly at other veterinary colleges.

For information on additional preparation, including work experience and necessary examinations, students should consult the brochure *Admission to the New York State College of Veterinary Medicine*, obtained by writing to the Office of Admissions, New York State College of Veterinary Medicine, Cornell University, C117 Schurman Hall, Ithaca, New York 14853-6401.

Qualified students in the College of Agriculture and Life Sciences may apply for acceptance in a double-registration program arranged between Cornell University and the New York State College of Veterinary Medicine at Cornell. This program allows registered students to save one year in pursuit of the bachelor's and D.V.M. degrees. Further information about this program is available from the Health Careers Program office at the Career Center, Cornell University, 203 Barnes Hall, Ithaca, New York 14853-1601.

Interdisciplinary Centers and Programs

Africana Studies and Research Center

For information about the programs and courses offered by the center, see the section "Special Programs and Interdisciplinary Studies" in the course listings for the College of Arts and Sciences.

Faculty Roster

Adams, Anne, Ph.D., U. of Michigan, Ann Arbor. Asst. Prof., Africana Studies and Research Center
 Appiah, Anthony, Ph.D., U. of Cambridge (England). Assoc. Prof., Africana Studies/Philosophy
 Cross, William E., Ph.D., Princeton U. Assoc. Prof., Africana Studies and Research Center
 Edmondson, Locksley G., Ph.D., Queens U. (Canada). Prof., Africana Studies and Research Center
 Fraser, Gertrude, Ph.D. candidate, Johns Hopkins U. Instructor, Africana Studies/Womens' Studies
 Gates, Henry L., Ph.D., Cambridge U. (England). Prof., English/Africana Studies/Comparative Literature
 Harris, Robert L., Ph.D., Northwestern U. Assoc. Prof., Africana Studies and Research Center
 Mbata, J. Congress, U.E.D., U. of South Africa. Assoc. Prof., Africana Studies and Research Center
 Turner, James E., Ph.D., Union Grad. Sch. at Antioch Coll. Assoc. Prof., Africana Studies and Research Center
 Williams, Marvin, M.P.S., M.F.A., Cornell U. Lecturer, Africana Studies and Research Center

Adjunct Faculty

ben-Jochannan, Yosef, Ph.D., Cambridge University. Adjunct Prof., Africana Studies and Research Center
 Branch, William B., M.F.A., Columbia U. Adjunct Prof., Africana Studies and Research Center
 Nanji, Abdul, M.A., SUNY. Adjunct Instructor, Africana Studies and Research Center

Andrew D. White Professors-at-Large

Urie Bronfenbrenner, chairman, G60e Van Rensselaer Hall

The program has its origins in Cornell's early history. Andrew D. White, the first president of Cornell University, inaugurated the position of nonresident professor, to be held by eminent visiting scholars who would periodically visit the university in order to supplement the activities of the permanent university faculty. Professors-at-large, who serve for a six-year term, are full members of the faculty when in residence.

Term Ending in 1988

Baxandall, Michael, art historian. The Warburg Institute
 Borlaug, Norman E., plant scientist. International Maize and Wheat Improvement Center, Mexico
 Derrida, Jacques, philosopher and literary critic. Ecole des Hautes Etudes en Sciences Sociales, Paris
 Garwin, Richard L., physicist. IBM Thomas J. Watson Research Center
 Shaw, Margery W., geneticist, physician, lawyer. University of Texas Health Science Center, Houston

Term Ending in 1989

Cox, David R., statistician. Imperial College of Science and Technology, London
 Dover, Sir Kenneth, classicist. Former president, Corpus Christi College, Oxford
 Szarkowski, John, curator and historian of photography. The Museum of Modern Art, New York
 Woolhouse, Harold W., biologist. John Innes Institute, Norwich, and University of East Anglia

Term Ending in 1990

Heilbron, John L., historian of science. University of California, Berkeley
 Lewis, Bernard, Islamicist. Princeton University
 Welty, Eudora, novelist and short story writer

Term Ending in 1991

Marshall, Geoffrey, political theorist. Queen's College, Oxford
 Rutter, Michael, psychiatrist. Institute of Psychiatry, University of London
 Southwood, Sir Richard, biologist. Linacre Professor of Zoology, Oxford

Term Ending in 1992

Choay, Françoise, historian of architecture and city planning. Institut d'Urbanisme, University of Paris VIII
 Mazrui, Ali A., Africanist, political scientist. University of Michigan and University of Jos, Nigeria
 Thorne, Kip, astrophysicist. California Institute of Technology

Term Ending in 1993

Allegre, Claude J., geological scientist. University of Paris
 Billington, David, civil engineer. Princeton University
 Wehner, Rudinger, zoologist and behavioral neurophysiologist. University of Zurich

Asian American Studies Program

The Asian American Studies Program is a university-wide program to promote teaching, research, and cultural activities related to Americans of Asian heritage. The program functions as a teaching and resource center to serve the educational needs of the general Cornell community as well as those of the Asian American community. It is intercollegiate in nature with links to all the schools and colleges of the university.

Teaching

The teaching program offers a number of broad basic courses dealing with the Asian American experience that are offered in any of the participating colleges, depending on content and faculty affiliation. It encourages the incorporation of more specific Asian American content into the mainstream curriculum of the university by providing financial resources and substantive support to faculty members interested in developing new courses and adding pertinent materials to existing courses. The Course Development Grants Program has been established for this purpose. The staff in the program will work toward establishing one or more academic concentrations in the future.

Research

The research program encourages and stimulates research on Asian American topics by functioning as a resource and activity center for its affiliated members as well as the general Cornell community. It sponsors activities designed to facilitate dialogue and interchange among faculty from a variety of disciplines and strives to promote collaborative research among its members. To this end the Research Grants Program has been instituted to provide seed money to faculty for research on Asian American topics. An annual symposium on an Asian American topic has been instituted to bring together national scholars to examine and evaluate current research and to recommend future directions and an agenda for research on the topic.

Art and Culture

The third dimension of the program is to foster and promote Asian American culture and art. The program functions as a resource center and a place for social interaction among Asian American students and members of the Cornell community. In this capacity the program sponsors events aimed not simply at enhancing Asian American students' sense of identity

but also at developing an appreciation for the creative aspects of the heritage of Asian Americans among all members of the Cornell community.

Affiliated Faculty

Lee C. Lee, director (human development and family studies); M. L. Barnett (rural sociology and Asian studies), T. Chaloeintiarana (Southeast Asia Program), P. Chi (consumer economics and housing), M. C. Chou (Asian studies), B. deBary (Asian studies), J. C. T. Huang (modern languages and linguistics), J. V. Koschman (history), L. C. Lee (human development and family studies), D. R. McCann, (Asian studies), T. L. Mei (Asian studies), V. Nee (sociology), R. E. Ripple (education), P. S. Sangren (anthropology), C. L. Shih (modern languages and linguistics), R. J. Smith (anthropology), M. Thornton (human development and family studies), M. W. Young (history of art)

Courses

Asian American Studies 110 Introduction to the Asian American Experience

Asian American Studies 388 Asian American Literature (also Asian Studies 388)

Asian American Studies 435 Asian Americans: Images and Stereotypes in Film (also Theatre Arts 435)

Cognitive Studies

Frank Keil, Department of Psychology, and Sally McConnell-Ginet, Department of Modern Languages and Linguistics, codirectors
Sue Wurster, cognitive studies coordinator, 225 Uris Hall (telephone: 255-6431)

Cognitive studies is a new and rapidly growing field of study that focuses on the nature and representation of knowledge. It approaches the study of perception, action, language, and thinking from several perspectives—theoretical, experimental, and computational—with the aim of gaining a better understanding of human cognition and the nature of intelligent systems. The comparison between human and artificial intelligence is an important theme, as is the nature of mental representations and their acquisition and use. Cognitive studies has drawn primarily from the disciplines of computer science, linguistics, philosophy, and psychology. In the College of Arts and Sciences the field of cognitive studies is primarily represented by faculty in these departments, as well as in mathematics. It is also represented by faculty in the Department of Human Development and Family Studies (College of Human Ecology), in the Section of Neurobiology and Behavior (Division of Biological Sciences), in the Department of Education (College of Agriculture and Life Sciences), and in the Johnson Graduate School of Management.

Undergraduate Programs

An undergraduate concentration in cognitive studies in the College of Arts and Sciences provides a framework for the design of structured, individualized programs of study in this growing interdisciplinary field. Such programs of study are intended to serve as complements to intensive course work in a single discipline as represented in an individual department. For further information on the undergraduate program, see "Cognitive Studies Concentration" in the College of Arts and Sciences section.

Graduate Programs

At the graduate level Cornell offers a graduate field minor in cognitive studies. Cornell's unique program of graduate training, which seeks to tailor an optimal program of study and research for each student, fosters highly interdisciplinary committees. It is the norm for students interested in cognitive studies to have faculty members from such departments as Philosophy,

Computer Science, Modern Languages and Linguistics, and Psychology on common committees. For further information on the graduate Field of Cognitive Studies, contact Barbara Lust, graduate faculty representative, NG28 Van Rensselaer Hall (telephone: 607/255-0829).

Courses

Courses from across the university that are relevant to the Cognitive Studies program are listed in this catalog under Arts and Sciences in the section "Special Programs and Interdisciplinary Studies."

Common Learning Courses

The objective of Common Learning courses is to enable students to acquire new knowledge about problems of significance to contemporary society and to examine these problems from a variety of intellectual perspectives. This dual objective implies challenging students to learn to define problems, gather relevant evidence, organize and interrelate materials, and present findings and conclusions both orally and in writing. The findings should include a systematic evaluation of alternative solutions, including assessment of their social and ethical implications. At every stage of the inquiry, course activities are expected to adhere to the canons of evidence and reason.

Common Learning courses are open only to juniors and seniors but will include students from a diversity of majors and a range of schools and colleges. Class size normally does not exceed twenty students. The limitation on class size and the diversity of students should encourage undergraduates with different training and interests to exchange knowledge with each other as well as with the professor responsible for the course. Courses are designed and taught by a single member of the faculty, although consultation with, and course participation by, colleagues in other disciplines are expected and encouraged. Titles of courses given to date are listed below. Some of these will be offered again in 1988–89 along with other new courses. For titles and descriptions of courses to be given in 1988–89 consult the office of the vice president for academic programs, 309 Day Hall.

Courses

- The Conflict between Science and Religion (History 448)
- The Course of Science (Astronomy 315)
- The Global City: People, Production, and Planning in Third World Metropolises (City and Regional Planning 377)
- Health and Disease (German Literature 327, Biology and Society 327, and Psychology 387)
- The Herodotean Moment: The Uses and Abuses of "Western Civilization" (History 454 and Government 454)
- Human Development in Postindustrialized Societies (Human Development and Family Studies 485 and Psychology 485)
- Income Distribution and Economic Justice (Economics 303)
- The Power of Nationalism: Expressions of National Feelings in Politics, Music, and Literature (Russian Literature 390)
- Rhythms: Their Significance in Biology, Psychology, Anthropology, Music, and Other Studies (Music 312)
- Science and the Computer (Computer Science 405)
- Science, Risk, and Public Policy (Engineering 400 and Economics 358)
- Science, Technology, and the American Economy (Industrial and Labor Relations 451)
- Signs and Communication (Comparative Literature 408 and Linguistics 408)
- Teaching and Learning: Ideas of Education in the Western Tradition (Comparative Literature 387, Government 405, and Russian Literature 387)
- Telling Lives: Narrative as a Basic Way of Representing Experience (English 475)
- Work, Identity, and the Nature of American Community (Industrial and Labor Relations 683)

Cornell-in-Washington Program

Cornell-in-Washington is a program of instruction, research, and externships in the nation's capital. The program is open to qualified juniors, seniors, and graduate students from all participating colleges, schools, and divisions of the university. Full academic credit can be earned for the semester. Programs are offered in public policy and architecture. Public policy students enroll in Government 500 (Human Development and Family Studies 404/City and Regional Planning 719), which involves a major research study carried out through an externship, and the Workshop in Analytic Methods (Government 400.8). Students may work as externs with congressional committee offices, executive-branch agencies, interest groups, research institutions, and other organizations involved in the political process and public policy. Students also select one or two other seminars from such fields as government, history, economics, human development and family studies, architectural history, city and regional planning, natural resources, and sociology. A description of the architecture program may be found in the College of Architecture, Art, and Planning section. All seminars are taught by Cornell faculty and carry appropriate credit towards fulfillment of major, distribution, and other academic requirements.

A limited number of apartments may be rented at the Cornell Center, 2148 O St., NW, Washington, D.C. 20037. All are fully furnished (except for dishes, linens, and bedding) and reasonably priced by Washington standards.

Further information concerning externships, courses, and other features of the program may be obtained from the Cornell-in-Washington office at 125 McGraw Hall (telephone: 255-4090) or by contacting the Cornell Center in Washington, 2148 O Street, NW, Washington, DC 20037 (telephone: 202/466-2184).

Center for Environmental Research

Simon A. Levin, director, Corson Hall, 255-4617

The Center for Environmental Research is a campuswide center that promotes and coordinates a comprehensive program of interdisciplinary research, teaching, and outreach activities on environmental issues. CER's seven major programs are (1) the Ecosystems Research Center (ERC), an Environmental Protection Agency–designated center of excellence in ecosystems science; (2) the Cornell Laboratory for Environmental Applications of Remote Sensing (CLEARS), which conducts teaching, research, and outreach activities on remote sensing and resource inventory and analysis; (3) the Water Resources Institute, which conducts research and public service activities related to water quality and supply; (4) the Waste Management Institute, designated the New York State Solid Waste Combustion Institute, which conducts research and outreach on waste-management topics; (5) the Environmental Policy Program, which addresses the policy aspects of issues such as biotechnology, hazardous waste management, and regulation of toxic substances; (6) the Global Environment Program, which conducts research on environmental problems at the global scale such as climate change, stratospheric ozone depletion, and trans-boundary air pollution; and (7) the Biological Resources Program, which coordinates and conducts research activities relevant to the conservation, regulation, and management of biological resources.

Courses

Although CER does not engage in teaching, courses relevant to the programs are offered in appropriate departments: (1) ecosystems science through the Section of Ecology and Systematics and the Department of Natural Resources; (2) remote sensing through the Departments of Environmental Engineering and Agronomy; (3) water resources primarily through the Departments of Agricultural Engineering,

Agronomy, and Environmental Engineering; (4) waste management primarily through the Departments of Environmental Engineering, Agricultural Engineering, and Agricultural Economics; (5) environmental policy through several departments; (6) and biological resources through the Division of Biological Sciences.

Material relevant to global environmental issues is covered by courses in several departments, including Environmental Engineering, Mechanical and Aerospace Engineering, Agricultural Engineering, Geology, Natural Resources, Rural Sociology, Agricultural Economics, and the Section of Ecology and Systematics.

Because courses relating to environmental policy are not indexed by that title, representative courses are listed below that should be of interest to those who would like to study environmental policy.

Religion, Ethics, and the Environment (Natural Resources 407)

Seminar in Environmental Values (Natural Resources 611)

Legal Aspects of Land-Use Planning (City and Regional Planning 653)

Land Resources Protection Law (City and Regional Planning 656)

Historic Preservation Law (City and Regional Planning 663)

Public Policy and Preservation Planning (City and Regional Planning 665)

Environmental Politics (City and Regional Planning 480)

Environmental Law, Policy, and Management (City and Regional Planning 686)

Environmental Ethics (Philosophy 246 and Biological Sciences 206)

Economic Analysis of Government (Civil and Environmental Engineering 322 and Economics 308)

Contemporary Issues in Environmental Law and Policy (Civil and Environmental Engineering 524)

Environmental Law I (Civil and Environmental Engineering 525 and Toxicology 625)

Environmental Law II (Civil and Environmental Engineering 526)

Regulation of Toxic Substances (Civil and Environmental Engineering 527)

Hispanic American Studies Program

Vernon M. Briggs, acting director, 292 Caldwell Hall (telephone: 255-3197)

Irma Almirall-Padamsee, associate director

The Hispanic American Studies Program is an interdisciplinary academic program that focuses on the contributions, concerns, and welfare of those persons of Hispanic origin who reside in the United States. It includes support for historical, linguistic, literary, social, economic, and political studies of this diverse group of Americans. To this end the program objectives are (1) to expand the available course curriculum by providing both undergraduate and graduate courses pertaining to Hispanic American subject matters; (2) to enlarge the size of the Hispanic American faculty at Cornell through permanent appointments and visiting appointments; and (3) to enhance the Hispanic American academic environment on campus through support of such activities as lectures, conferences, seminars, exhibits, and research activities.

Program in the History and Philosophy of Science and Technology

L. Pearce Williams, director

The Program in the History and Philosophy of Science and Technology is an interdisciplinary academic unit dedicated to providing links between the sciences, engineering, and the humanities. It offers an undergraduate concentration and a graduate field

program leading to both the M.A. and Ph.D. degrees. Faculty are drawn from diverse departments, disciplines, and colleges.

Undergraduate Concentration

The basic aim of the concentration is to expose science students to the philosophical and historical foundations of their sciences and students of the humanities to the development of the sciences and their effects on the modern world. The history and philosophy of science and technology provide the meeting point of these two aims. Students concentrating in this area must complete the following courses or arrange with their adviser in the program a comparable set of courses.

- 1) History 281–282, Science in Western Civilization (Peter Dear, history), or History 287–288, History of Biology in Relation to Culture (Will Provine, history and biological sciences)
- 2) Philosophy 381, Philosophy of Science (Richard Boyd, philosophy)
- 3) Architecture 561, Building Technology in Western Civilization (Thomas Peters, architecture), or History 380, Social History of Western Technology (John Weiss, history)
- 4) One seminar or other advanced course drawn from the list on file in the program office

Students majoring in the humanities are strongly urged either to deepen their knowledge of science by taking a second course in the science they took to fulfill the science requirement, or to broaden their knowledge by taking a second introductory course in another science.

Graduate Studies

Graduate students in the field are encouraged to work closely with scientists, engineers, and humanists. Although the Field of the History and Philosophy of Science and Technology has no specific course requirements, each student working toward the Ph.D. degree will be expected to show proficiency equivalent to

- 1) four graduate-level semester-long courses in the branch of science or engineering of prime importance to subsequent thesis work,
- 2) four semester-long courses in history, and
- 3) four semester-long courses in philosophy.

History and philosophy courses in various specialties are frequently offered by other departments in addition to those of history and philosophy.

Center for International Studies

The Center for International Studies, 170 Uris Hall, is a university unit dedicated to the support and development of Cornell's international and comparative programs. Serving as an administrative base and clearinghouse for programs, information, and new initiatives in international studies, the center is particularly committed to the development of multidisciplinary, intercollege educational and research activities.

The center sponsors and coordinates international area studies and topical programs as well as international undergraduate educational programs such as Cornell Abroad.

The center also sponsors the Field of International Development, a program leading to a professional master's degree, and an undergraduate concentration in international relations.

CIS Area Programs and Topical Programs

China-Japan Program (140 Uris Hall)
Latin American Studies Program (190 Uris Hall)
South Asia Program (170 Uris Hall)
Southeast Asia Program (120 Uris Hall)
Committee on Soviet Studies (169 Goldwin Smith Hall)
Western Societies Program (130 Uris Hall)
Comparative Economic Development (486 Uris Hall)

International Development and Women (332 Uris Hall)
Program in Competitiveness (170 Uris Hall)
International Agriculture Program (350 Caldwell Hall)
International Legal Studies (309 Myron Taylor Hall)
Program in International Nutrition (127 Savage Hall)
International Political Economy (160 Uris Hall)
International Population Program (372 Uris Hall)
Peace Studies Program (180 Uris Hall)
Rural Development Committee (170 Uris Hall)
International Studies in Planning (209 West Sibley Hall)
Institute for African Development (203 West Sibley Hall)

Current programs coordinated by the Center for International Studies include the following:

Master of Professional Studies in International Development (170 Uris Hall)

A program intended for midcareer practitioners is sponsored by the center and leads to a Master of Professional Studies in International Development. Interested individuals should apply through the Graduate School.

International Relations Concentration (160 Uris Hall)

Undergraduates interested in an international relations concentration should see Professor Katzenstein.

Center for Applied Mathematics

The Center for Applied Mathematics administers a broadly based interdepartmental graduate program that provides opportunities for study and research over a wide range of the mathematical sciences. This program is based on a solid foundation in analysis, algebra, and methods of applied mathematics. The remainder of the graduate student's program is designed by the student and his or her Special Committee. For detailed information on opportunities for graduate study in applied mathematics, students should contact the director of the Center for Applied Mathematics, Sage Hall.

There is no special undergraduate degree program in applied mathematics. Undergraduate students interested in an application-oriented program in mathematics may select an appropriate program in the Department of Mathematics, the Department of Computer Science, or some department of the College of Engineering.

Graduate students in the center take courses related to their program of study that are offered by various departments. Below are listed selected courses in applied mathematics in the main areas of research interest of the center's members. Detailed descriptions of these courses can be found in the listings of the individual departments. (Abbreviations: Bio S = Biological Sciences, Chem E = Chemical Engineering, CS = Computer Science, EE = Electrical Engineering, M&AE = Mechanical and Aerospace Engineering, OR&IE = Operations Research and Industrial Engineering, and T&AM = Theoretical and Applied Mechanics.)

Selected Applied Mathematics Courses

Basic Graduate Courses in Applied Mathematics (and Analysis)

Math 413–414 Introduction to Analysis
Math 433–434 Introduction to Algebra
Math 511–512 Real and Complex Analysis
Math 521 Measure Theory and Lebesgue Integration
Math 522 Applied Functional Analysis
Math 531–532 Algebra
Math 551 Introductory Algebraic Topology
Math 515–516 Mathematical Methods in Physics
T&AM 613–616 Methods of Applied Mathematics

Analysis (and Differential Equations)

- Math 517-518 (also Math 427) Ordinary Differential Equations
 Math 519-520 (also Math 428) Partial Differential Equations
 Math 552 Differentiable Manifolds
 Math 611-612 Seminar in Analysis
 Math 613 Functional Analysis
 Math 615 Fourier Analysis
 Math 622 Riemann Surfaces
 Math 623 Several Complex Variables
 Math 627-628 Seminar in Partial Differential Equations

Logic and Theory of Computing

- CS 682 Theory of Computing
 CS 715 Seminar in Programming Refinement Logics
 Math 581 Logic
 Math 681-682 Seminar in Logic
 Math 683 Model Theory
 Math 684 Recursion Theory
 Math 685 Metamathematics
 Math 687 Set Theory
 Math 688 Topics in Applied Logic

Discrete and Numerical Mathematics

- CS 621 Matrix Computations
 CS 622 Numerical Optimization and Nonlinear Algebraic Equations
 CS 652 Sparse Matrix Theory: Combinatorial Algorithms and Numerical Computation
 CS 681 Analysis of Algorithms
 CS 721-722 Advanced Topics in Numerical Analysis
 CS 729 Seminar in Numerical Analysis
 Math 425 Numerical Solution of Differential Equations
 Math 627-628 Seminar in Partial Differential Equations
 Math 655 (also CS 655) Mathematical Foundations for Computer Modeling and Simulation
 OR&IE 625 Scheduling Theory
 OR&IE 630-631 Mathematical Programming I and II
 OR&IE 632 Nonlinear Programming
 OR&IE 633 Graph Theory and Network Flows
 OR&IE 634 Combinatorial Optimization
 OR&IE 636 Integer Programming
 OR&IE 637 Dynamic Programming
 OR&IE 639 Convex Analysis

Information Communication and Control Theory

- EE 467 Communication Theory
 EE 521 Linear System Theory
 EE 522 Nonlinear System Theory
 EE 561 Algebraic Coding Theory
 EE 562 Information Theory
 EE 568 Digital Communication
 EE 573 Estimation and Control in Discrete Linear Systems
 EE 574 Optimal Control and Estimation for Continuous Systems

Mathematical Biology

- Bio S 662 Mathematical Ecology

Mathematical Economics

- Econ 519 Econometrics I
 Econ 520 Econometrics II
 Econ 610 Stochastic Economics: Concepts and Techniques
 Econ 617-618 Mathematical Economics
 Econ 619-620 Advanced Topics in Econometrics

Mechanics and Dynamics

- Chem E 751 Mathematical Methods of Chemical Engineering Analysis
 Chem E 753 Analysis of Nonlinear Chemical Engineering Systems: Stability, Bifurcation, and Continuation
 EE 681 (also A&EP 761) Kinetic Theory
 M&AE 601 Foundations of Fluid Dynamics and Aerodynamics
 M&AE 602 Incompressible Aerodynamics
 M&AE 603 Compressible Aerodynamics
 M&AE 704 Viscous Flows

- M&AE 732 Analysis of Turbulent Flows
 M&AE 733 Stability of Fluid Flow
 M&AE 734 Turbulence and Turbulent Flow
 M&AE 736 Computational Aerodynamics
 M&AE 737 Computational Heat Transfer
 T&AM 570 Intermediate Dynamics
 T&AM 651 Continuum Mechanics and Thermodynamics
 T&AM 671 Advanced Dynamics
 T&AM 672 Celestial Mechanics
 T&AM 673 Mechanics of the Solar System
 T&AM 675 Nonlinear Vibrations
 T&AM 765 Nonlinear Elasticity
 T&AM 776 Qualitative Theory of Dynamical Systems

Probability and Statistics

- EE 562 Information Theory
 EE 563 Communication Networks
 EE 564 Decision Making and Estimation
 EE 565 Queuing Networks
 EE 664 Foundations of Inference and Decision Making
 Math 571-572 Probability Theory
 Math 573 Design and Multivariate Analysis
 Math 574 Probability and Statistics
 Math 575 Sequential Analysis
 Math 577 Nonparametric Statistics
 Math 670 Topics in Statistics
 Math 674 Multivariate Analysis
 Math 675 Decision Theory
 Math 677-678 Stochastic Processes
 OR&IE 660 Applied Probability
 OR&IE 661 Applied Stochastic Processes
 OR&IE 670 Applied Statistics
 OR&IE 671 Intermediate Applied Statistics
 OR&IE 674 Design of Experiments
 OR&IE 675 Qualitative Data Analysis
 OR&IE 676 Statistical Analysis of Life Data

Theoretical/Mathematical Physics/Chemistry

- Chem 792 Molecular Collision Theory
 Phys 553-554 (Astro 509-510) General Relativity
 Phys 572 Quantum Mechanics I
 Phys 574 Quantum Mechanics II
 Phys 561 Classical Electrodynamics
 Phys 562 (Chem 796) Statistical Mechanics
 Phys 563 Statistical Physics
 Phys 651 Advanced Quantum Mechanics
 Phys 652 Quantum Field Theory

Program on Science, Technology, and Society

632A Clark Hall, 255-3810

The Program on Science, Technology, and Society (STS) is an academic unit that engages in teaching and research involving the interactions of science and technology with social and political institutions. In collaboration with other university departments and centers, the STS program participates in the development of interdisciplinary courses at both the graduate and undergraduate level. These courses are designed to synthesize the perspectives of several academic disciplines in the analysis of relationships between science and technology on one hand and today's society on the other. Current course and research topics include science, technology, and public policy; biology and society; science and law; arms control and national defense policies; food and agriculture policies; environmental policy and ethics; health and safety regulation; biomedical ethics; science policy; science and technology for development; scientific and technological literacy; and citizen participation in technical decision making. The program draws its students, faculty, and research staff from the various divisions of the university.

Graduate Studies

STS does not enroll students for advanced degrees. Rather, the program cooperates with departments in the various colleges to facilitate curriculum development and research interests in the interrelations

of science, technology, and social policy. Faculty members affiliated with the STS program are also members of graduate fields of study such as city and regional planning, ecology, the various engineering fields, government, philosophy, sociology, and environmental toxicology. It is possible to undertake research and course work in the area of science, technology, and society in one of the aforementioned fields, as well as in others. A minor concentration in science and technology policy is available in the graduate minor field of public policy and in the Master of Professional Studies (International Development) degree. It is also possible to select a public policy concentration in the environmental toxicology minor. Further information about these graduate programs may be obtained by contacting the Graduate School.

Undergraduate Studies

Information concerning the STS program, including a list of STS-related courses offered throughout the university and information concerning individual courses of study, may be obtained from the STS program office, 632 Clark Hall (telephone: 255-3810), or the biology and society office, 275 Clark Hall (telephone: 255-6042).

Agriculture, Food, and Society Concentration

This interdisciplinary arts and sciences concentration provides interchanges within the liberal arts and agriculture. Drawing on courses in the Colleges of Arts and Sciences, Agriculture and Life Sciences, and Human Ecology, it supplies arts and sciences students with a broad background in the biological, socioeconomic, and humanistic dimensions of agriculture and food issues. Information is available in the biology and society office, 275 Clark Hall.

Law and Society Concentration

This arts and sciences program offers an interdisciplinary concentration for arts and sciences undergraduates who are interested in the law from the perspective of the social sciences and the humanities. Interested arts and sciences students should contact the Law and Society director, Sheila Jasanoff, 632 Clark Hall (telephone: 255-6049).

Biology and Society Major

The undergraduate curriculum in biology and society is a major in the College of Arts and Sciences and in the College of Human Ecology. It is also offered as an optional curriculum for undergraduates entering the General Studies Program of the New York State College of Agriculture and Life Sciences. Information and application materials may be obtained from the Biology and Society Office, 275 Clark Hall (255-6042).

Biology and Society Courses**Freshman Writing Seminars**

- In the Company of Animals (Biology and Society 103)
 Ecosystems and Ego Systems (Biology and Society 104)
 Living on the Land (Biology and Society 108)
 Women and Nature (Biology and Society 109 and English 106.5)
 Writing as a Naturalist (Biology and Society 113 and English 113)

Foundation Courses

- Ethics and Medicine (Biology and Society 205, Biological Sciences 205, and Philosophy 245)
 Environmental Ethics (Biology and Society 206, Biological Sciences 206, and Philosophy 246)
 History of Biology (Biology and Society 288, History 288, and Biological Sciences 202)

Core Courses

- Biology and Society I: The Biocultural Perspective (Biology and Society 301, Biological Sciences 301, and Anthropology 301)

Biology and Society: Institutions, Roles, and Accountability (Biology and Society 306 and Human Services Studies 306)

Issues

Recombinant DNA Technology and its Applications (Biology and Society 232 and Biological Sciences 232)
 The Anthropology of Medicine (Biology and Society 312 and Anthropology 312)
 Health and Disease (Biology and Society 327, German Literature 327, and Psychology 387)
 Medical Metaphors and Their Cultural Function (Biology and Society 328 and German Literature 328)
 Human Growth and Development: Biological and Social Psychological Considerations (Biology and Society 347, Human Development and Family Studies 347, and Nutritional Sciences 347)
 Culture and Human Disease (Biology and Society 386 and Anthropology 386)
 Law, Science, and Public Values (Biology and Society 407 and Government 407)
 Institutions and Social Responsibility (Biology and Society 412 and Human Service Studies 412)
 Food, Agriculture, and Society (Biology and Society 469, and Biological Sciences 469)
 Medicine and the Law (Biology and Society 426)
 Undergraduate Seminar in Biology and Society (Biology and Society 400)

Senior Seminars

Human Fertility in Developing Nations (Biology and Society 404 and Sociology 404)
 Issues in Biotechnology, Society, and Law (Biology and Society 406 and Biological Sciences 406)
 Agriculture, Society, and Biotechnology (Biology and Society 408 and Rural Sociology 405)
 The Human and Ecological Consequences of Nuclear War (Biology and Society 411 and Peace Studies 402)
 Population Policies (Biology and Society 414 and Sociology 414)
 The Politics of Technical Decisions I (Biology and Society 415, Sociology 515, City and Regional Planning 541, and Government 628)
 Medical Service Issues in Health Administration (Biology and Society 428, Biological Sciences 628, and Human Service Studies 628)
 Social and Political Studies of Science (Biology and Society 442, Sociology 355, and City and Regional Planning 442)
 Risk Management of Toxic Chemicals (Biology and Society 459 and Toxicology 659)
 Environmental Biology Policy (Biology and Society 461 and Biological Sciences 661)
 Human Development in Postindustrialized Societies (Biology and Society 485 and Human Development and Family Studies 485)

Other Biology and Society Courses

Biology and Society: Preparation for Research (Biology and Society 300)
 Independent Study (Biology and Society 375)
 Honors Project (Biology and Society 499)

Other Courses by STS Faculty

The Politics of Technical Decisions II (Sociology 516, City and Regional Planning 542 and Government 629)
 Regulation of Toxic Substances (Civil and Environmental Engineering 527 and Toxicology 627)
 Ecology, Environment, and Society (Biological Sciences 262)
 Professional Practice (Civil and Environmental Engineering 503)
 Dilemmas for Toxicologists (Toxicology 751 and Biological Sciences 751)

Center for Statistics

The Cornell Center for Statistics coordinates university-wide activities in statistics and probability at the graduate and research level. Students interested in

graduate study in probability and statistics can apply to the Field of Statistics or to one of the other graduate fields of study that offer related course work.

Students in the Field of Statistics plan their graduate program with the assistance of their Special Committee. For detailed information on opportunities for graduate study in statistics and probability, students should contact the director of the Statistics Center, 250A Caldwell Hall.

Graduate students can design many different programs within the Field of Statistics. These can be broadly grouped as follows: biometry, biostatistics, economic and social statistics, operations research, probability theory, sampling theory, statistical computing, statistical design, statistical theory, and stochastic processes and their applications.

Below are listed selected courses in probability and statistics of interest to graduate students in the field.

Economics

519 Econometrics I
 520 Econometrics II
 619 Topics in Econometrics I
 620 Topics in Econometrics II

Electrical Engineering

467 Communication Systems I
 561 Error Control Codes
 562 Fundamental Information Theory
 563 Communication Networks
 564 Decision Making and Estimation
 566 Queuing Networks
 568 Communication Systems II
 663 Advanced Topics in Information Theory
 664 Foundations of Probability

Industrial and Labor Relations

310 Design of Sample Surveys
 312 Applied Regression Methods
 410 Techniques of Multivariate Analysis
 411 Statistical Analysis of Qualitative Data
 510-511 Introductory Statistics for the Social Sciences
 610 Seminar in Modern Data Analysis
 711 Sensitivity Analysis in Linear Regression
 712 Theory of Sampling
 713 Empirical Processes with a Statistical Application

Mathematics

471 Basic Probability
 472 Statistics
 571-572 Probability Theory
 574 Mathematical Statistics
 575 Sequential Analysis, Multiple Decision Problems
 577 Nonparametric Statistics
 670 Topics in Statistics
 674 Multivariate Analysis
 675 Statistical Decision Theory
 677-678 Stochastic Processes

Operations Research

561 Queuing Theory and Its Application
 562 Inventory Theory
 563 Applied Time Series Analysis
 565 Statistics for Manufacturing
 570 Statistical Methods in Quality and Reliability Control
 580 Digital Systems Simulation
 630-631 Mathematical Programming I and II
 632 Nonlinear Programming
 637 Dynamic Programming
 645 Game Theory I
 652 Advanced Inventory Control
 660 Applied Probability
 661 Applied Stochastic Processes
 662 Advanced Stochastic Processes
 663 Time-Series Analysis
 664 Deterministic and Stochastic Control
 665 Advanced Queuing Theory
 670 Applied Statistics
 671 Intermediate Applied Statistics
 672 Statistical Decision Theory

673 Nonparametric Statistical Analysis
 674 Design of Experiments
 675 Statistical Analysis of Qualitative Data
 676 Statistical Analysis of Life Data
 677 Statistical Selection and Ranking Procedures
 680 Simulation

Statistics and Biometry

408 Theory of Probability
 409 Theory of Statistics
 417 Matrix Algebra
 601-603 Statistical Methods I, II, and III
 605 Applied Regression Analysis
 606 Sampling Biological Populations
 607 Nonparametric and Distribution-Free Statistical Methods
 662 Mathematical Ecology
 699 Special Problems in Statistics and Biometry
 701 Advanced Biometry
 717 Linear Models
 718 Variance Components
 797 Statistical Consulting

Program in Comparative and Environmental Toxicology

J. W. Gillett, director, 16 Fernow Hall, 255-8008 or 255-2163

The Cornell Program in Comparative and Environmental Toxicology is coordinated and facilitated by the Institute for Comparative and Environmental Toxicology (ICET). ICET serves as a focal point for all research, teaching, and cooperative extension activities in the broad interdisciplinary area of environmental toxicology at Cornell and encourages the development of collaborative programs between faculty members in many university departments.

Graduate Studies

The major in the graduate Field of Environmental Toxicology promotes training leading to the M.S. or Ph.D. degrees and provides both breadth and depth in environmental toxicology and related disciplines. The program offers a combination of research and didactic training that is designed to prepare students for solving the problems of modern toxicology. Specialization tracks include cellular and biochemical toxicology; ecotoxicology and environmental chemistry; risk assessment, management, and public policy; and nutritional toxicology. Research of the faculty associated with the program is focused on the interactions of drugs, pesticides, and other potentially hazardous environmental agents with a wide variety of living organisms (including humans) and with the ecosystems with which these organisms are associated.

Courses

Courses in environmental toxicology are cosponsored by the university academic departments and are open to all graduate students and to those undergraduates who have permission of the instructor. The titles and numbers of these courses are listed below, and details of course content are provided elsewhere in the catalog under the listings of the cosponsoring department. Further information concerning the program and the development of new courses may be obtained through the graduate faculty representative, 275 Clark Hall (telephone: 255-6047).

Tox 370 Pesticides and the Environment (Entomology 370)
 Tox 419 Animal Cytogenetics (Animal Science 419)
 Tox 438 Cell Proliferation and Oncogenic Viruses (Biological Sciences 438)
 Tox 528 Pharmacology (Veterinary Medicine 528)
 Tox 607 Ecotoxicology (Natural Resources 607)
 [Tox 609 Effects of Ecological Perturbations on Fishes (Natural Resources 609) Not offered 1988-89.]
 Tox 610 Introductory Chemical and Environmental Toxicology (Food Science 610)

Tox 611 Molecular Toxicology (Nutritional Sciences 611)
 Tox 621 Clinical Veterinary Toxicology (Veterinary Medicine 621)
 Tox 625 Environmental Law I (Civil and Environmental Engineering 525)
 Tox 627 Regulation of Toxic Substances (Civil and Environmental Engineering 527)
 Tox 640 Principles of Toxicological Pathology (Veterinary Medicine 640)
 Tox 651 Nutrition and the Chemical Environment (Nutritional Sciences 651)
 Tox 659 Risk Management of Toxic Chemicals (Biological Sciences 659 and Biology and Society 459)
 [Tox 660 Safety Evaluation in Public Health (Veterinary Medicine 660) Not offered 1988–89.]
 Tox 690 Insect Toxicology and Insecticidal Chemistry (Entomology 690)
 Tox 698 Current Topics in Environmental Toxicology (Nutritional Sciences 700)
 [Tox 700 Ecotoxicological Methods (Natural Resources 700) Not offered 1988–89.]
 Tox 702 Seminar in Toxicology (Nutritional Sciences 702)
 Tox 751 Professional Responsibilities of Toxicologists (Biological Sciences 751)
 Tox 899 Master's Thesis and Research
 Tox 999 Doctoral Thesis and Research

Introduction to Film Analysis: Meaning and Value (Theatre Arts 374)
 Introduction to Mass Media (Communication 120)
 Introductory Photo I (Art 161–162 and Architecture 251)
 The Japanese Film (Asian Studies 313)
 The Medieval Illuminated Book (History of Art 337)
 Modern Experimental Optics (Physics 330)
 Myth onto Film (Anthropology 653 and Theatre Arts 653)
 Perception (Psychology 205)
 Photo Communication (Communication 234)
 Psychology of Visual Communication (Psychology 347)
 Seminar in Museum Issues (History of Art 407)
 Seminar on Ethnographic Film (Anthropology 430)
 Shakespeare on Film (English 427)
 The Spanish Civil War in Literature and Visual Art (Comparative Literature 329)
 Spanish Film (Spanish 399)
 Theory of Design (Design and Environmental Analysis 111)
 Understanding the Language of Television Images (Linguistics 205)
 Video Communication (Communication 348)
 Vision (Genetics and Development 395)
 Visual Anthropology (Anthropology 453)
 Visual Communication (Communication 230)
 Visual Ideology (German 660 and Theatre Arts 660)
 Visual Perception (Psychology 305)
 Writing about Film (Theatre Arts 108 and English 108)

To ensure that students will enjoy the benefits of small writing classes, no freshman writing seminar may comprise more than seventeen students. Instead of pre-enrolling in their writing courses, students request placement in one of five writing seminars by filling out ballots available from their college registrars. Most students receive one of their highest choices. Students may change their writing seminars at the university course exchange or during the add/drop sessions held at the beginning of each semester.

The colleges and the school served by the program accept freshman writing seminars in fulfillment of their individual graduation requirements in categories referred to variously as "freshman writing," "oral and written expression," and the like. The program does not decide whether students may graduate: it makes courses available. Individual colleges and schools administer their own graduation requirements.

Currently most undergraduate students are required to take two freshman writing seminars. Architecture, art, and planning students, however, need only one. Hotel students fulfill their requirement through Hotel Administration 165, which should be taken with Hotel Administration 265 during the first two semesters at Cornell. Agriculture and life sciences students can take freshman writing seminars or choose from among a variety of other courses to fulfill their requirement.

Although there are no exemptions from college writing requirements, some students may fulfill all or part of their college's writing requirement through transfer credits, writing course substitutions, or advanced placement granted by the Department of English. For work done at other institutions to be accepted as equivalent to freshman writing seminars, students should demonstrate that they have done a reasonably equivalent amount of writing in a formal course. (It is not sufficient to write, for example, one thirty-page term paper.) Students in the College of Engineering and the College of Arts and Sciences must file an "application for transfer evaluation" to request writing credit for such courses; students in other colleges should consult their college registrars.

In unusual situations the program recommends that courses taken at Cornell other than freshman writing seminars fulfill the various freshman writing requirements. Upper-division students may also take a writing course other than a freshman writing seminar and petition to have it satisfy part of the requirement. The program advises students about these courses on request. Students must file the "proposal for course substitution" to request writing credit for such courses.

Although Cornell "summer freshman writing seminars" may fulfill college writing requirements, they do not automatically count toward those requirements. Students who have taken these courses must ask their college registrars to assign the credits in the appropriate categories.

Teaching Writing

Each summer and fall, the program offers instruction in the teaching of writing to new staff members of the freshman writing seminar program and other interested instructors. Teaching Writing I, offered in conjunction with an apprenticeship in the summer school, is primarily a course for graduate students; the same course is offered alone in the fall as Teaching Writing II. The program also sponsors a summer seminar for faculty members interested in the teaching of writing.

The director of the John S. Knight Writing Program is Harry E. Shaw, associate professor of English; the associate director is Katherine K. Gottschalk, senior lecturer in English. The office manager is Mark E. Hamblet. The program's offices are in 159 Goldwin Smith Hall (telephone: 255-4061).

Writing Workshop

The John S. Knight Writing Program offers Workshops in English Composition for freshmen (or transfer students needing writing credit) through the Writing Workshop. These tutorials in English composition are designed for students who have had little training in composition or who have serious difficulty with writing assignments.

Visual Studies

Robert Ascher, Department of Anthropology, and Marilyn Rivchin, Department of Theatre Arts, advisers

Visual Studies as a distinct area of intellectual activity comprehends the analysis of visual forms, especially symbolic visual forms, from a range of historical, scientific, sociological, and aesthetic points of view. Images can be analyzed within a variety of contexts and by means of a variety of methods, and their study is therefore ideally conceived of in transdisciplinary terms. And since the creation of images has an important bearing on their analysis, visual studies concerns itself with practice as well as theory.

In addition to the courses listed below, which represent only a sampling of formal curricular offerings pertinent to visual studies, interested students should be aware of the programs and facilities available in the Herbert F. Johnson Museum of Art and the ETV Center of the College of Human Ecology, as well as the frequent showings by Cornell Cinema and Pentangle II.

Courses

Some of these courses may not be taught in 1988–89. For information about availability consult the appropriate departmental listings.

Cinema to Literature (Italian 399)
 Color, Form, Space (Art 110)
 Computer Graphics (Architecture 334 and Computer Science 417)
 Contemporary American Theater (English 455)
 Design I and II (Design and Environmental Analysis 101–102)
 Documenting the Depression: Film, Literature, and Memory (History 476)
 Ethnographic Film (Anthropology 205)
 Film and Performance (Theatre Arts 311)
 Freshman Seminar in Visual Analysis (History of Art 103)
 Fundamentals of 16-mm Filmmaking (Theatre Arts 377)
 German Film (Comparative Literature 396)
 Historic Design (Design and Environmental Analysis 251)
 History and Theory of Commercial Narrative Film (Theatre Arts 311)
 The History of the Book (English 450)
 How to Look at Works of Art (History of Art 104)
 Image Analysis I (Landforms) and II (Physical Environments) (Civil and Environmental Engineering 613–614)
 Impact of Communication Technologies (Communication 626 [643])

John S. Knight Writing Program

The John S. Knight Writing Program helps to coordinate the teaching of writing for undergraduates in six of the university's schools and colleges (the School of Industrial and Labor Relations and the Colleges of Agriculture and Life Sciences; Architecture, Art, and Planning; Arts and Sciences; Engineering; and Human Ecology). The program administers writing seminars for freshmen and upperclass students, tutorial writing classes, and seminars in the teaching of writing. More than twenty-five academic departments participate in the program.

Advanced Writing Seminars

For upperclass students the program offers two upper-division writing courses, Writing in the Humanities and Writing in the Social Sciences. These courses help students write with more confidence and skill in all disciplines while provoking inquiry about the methods and aims of study common to many of them. They may be taken as electives or to fulfill distribution or certain writing requirements.

Freshman Writing Seminars

For freshmen the program offers the freshman writing seminars—more than 125 different courses in the humanities, social sciences, expressive arts, or sciences. Freshman writing seminars help students write good English prose—prose that, at its best, is characterized by clarity, coherence, intellectual force, and stylistic control. These seminars teach writing within a field while offering freshmen the opportunity to participate in a small seminar. Although they differ widely in content, all seminars adhere to the following guidelines:

- 1) at least thirty pages of assigned writing
- 2) at least eight—and, at most, about fourteen—written assignments
- 3) opportunities for serious revision, not mere editing, of essays (at least some of these revising assignments may satisfy 1 and 2 above)
- 4) ample classroom time spent on work directly related to writing
- 5) reading assignments small enough—about one hundred pages a week at most—to permit regular, concentrated work on writing
- 6) individual conferences

Offerings change from semester to semester. Each term's freshman writing seminars are described in a brochure available from college registrars.

Writing 137 and 138 are graded S-U only, and all students receiving a grade of S are granted credit toward their college writing requirements. Students who think this course might be appropriate, including non-native speakers of English scoring less than 600 on the Test of English as a Foreign Language (TOEFL), should attend the assessment sessions offered by the Writing Workshop during orientation week each fall. The workshop also offers a walk-in service (see "Special Academic Services and Programs") to help students with problems in essay writing. The director is Nancy Kaplan, senior lecturer in English; the workshop offices are in 174 Rockefeller Hall (telephone: 255-6349).

Advanced Placement of Freshmen

The final decision for awarding advanced placement credit at Cornell rests with each individual college. The appropriate department of instruction within the university sets the standards of achievement that must be met for advanced placement and recommends AP credit for those who meet the standards. This recommendation is almost always based on some examination score. For policies governing advanced placement in a specific college, see the academic information section of that college. Students need not accept advanced placement. They may repeat the course, thereby relinquishing the advanced placement credit.

The Advanced Placement (AP) Program of the College Entrance Examination Board (CEEB) is the best known and most generally used of the programs that provide students with an opportunity to document participation in a college-level curriculum at the secondary level.

Advanced placement examinations. Examinations sponsored by the Advanced Placement Program of the College Entrance Examination Board are considered. Entering freshmen should have their scores sent to their college or school office (see the list at the end of this section). Placement and credit on the basis of these examinations will usually be determined during the summer, and students will be notified before course scheduling.

Departmental advanced standing examinations. In certain subjects, students may also qualify for advanced placement or credit, or both, on the basis of departmental examinations given on campus during orientation week. A schedule of these examinations will appear in the orientation booklet that will be mailed to entering students in late summer. The departments that award advanced placement and credit on the basis of CEEB Advanced Placement Examinations or departmental examinations are shown below.

Transfer of credit. Entering freshmen who have completed college courses for which they want to receive credit toward their Cornell degree should send transcripts and course descriptions to their college or school office (see the list at the end of this section). The award of credit or placement for such courses is determined by the appropriate departments according to individual school and college guidelines. Because policy for using advanced placement credit varies according to each college's or school's professional and academic goals, students should consult their college or school office to determine how they may use such credit.

Foreign credentials. Information regarding Cornell's advanced standing policy for foreign credentials may be obtained by contacting the Associate Director of International Admissions, Cornell University, 410 Thurston Avenue, Ithaca, New York 14850-2488, U.S.A. Students holding foreign credentials who feel they may be eligible for advanced standing consideration should contact the International Students and Scholars Office before enrollment for clarification of the advanced standing policy.

Written inquiries. Many department, school, and college offices encourage students to contact them with any questions they may have. Addresses given in the following sections may be completed by adding Ithaca, New York 14853.

Forwarding of scores and transcripts. Entering freshmen should have their advanced placement test scores sent to their school or college office.

College of Agriculture and Life Sciences
M. B. Mullenhoff
192 Roberts Hall

College of Architecture, Art, and Planning
Registrar
B2 West Sibley
College of Arts and Sciences
Michele T. Crane
M46 Goldwin Smith Hall
College of Engineering
Richard K. Mosher
170 Olin Hall
School of Hotel Administration
Mary Milks
138 Statler Hall
College of Human Ecology
Joyce H. McAllister
146 Van Rensselaer Hall
School of Industrial and Labor Relations
Virginia W. Freeman
101 Ives Hall

Biological Sciences

The Division of Biological Sciences grants advanced placement credits and exemption from introductory biology courses based on superior performance on the CEEB Advanced Placement Examination in biology.

Any student who earns a score of 5 on this examination may elect to receive eight credits and be permitted exemption from all introductory biology courses.

Students not majoring in biological sciences who score a 4 or 5 may receive, respectively, six or eight advanced placement credits. This will satisfy the distribution requirement in biological sciences for students in the College of Human Ecology, half of the distribution requirement in biological sciences for students in the College of Arts and Sciences, and a portion of the group B distribution requirement for students in the College of Agriculture and Life Sciences.

Biological sciences majors who receive a score of 5 may receive 8 credits and be exempt from all introductory biology courses or elect to receive 4 credits and select one of the options allowed for majors with a score of 4. The student receiving a score of 4 must fulfill the introductory biology requirement by taking Biological Sciences 101-102, 101-103, 102-104, or 103-104 (Biological Sciences, Lectures and Laboratory). These students should consult information available in the course office (1140 Comstock Hall) and in the Biology Center (G20 Stimson Hall) to determine which semester to take to complete the introductory biology requirement. For students in doubt, Biological Sciences 101-103 is advised. These students will receive a total of eight introductory biology credits (four advanced placement credits plus four course credits).

Chemistry

The Department of Chemistry offers two sequences that satisfy prerequisites for further work in the department: Chemistry 207-208, an eight-credit sequence that includes qualitative analysis, and Chemistry 215-216, a nine-credit sequence that includes qualitative and quantitative analysis.

Freshmen may qualify for advanced placement and advanced standing credits in chemistry by satisfactory performance on the CEEB Advanced Placement Examination in chemistry or by passing an advanced standing examination offered by the department. A score of 5 on the CEEB examination entitles a student to 8 credits. A score of 3 or 4 qualifies a student for 4 credits. A score of 3 indicates minimal understanding of principles, and students with a score of 3 who plan to take further work in chemistry are strongly advised to take Chemistry 207. A student may also earn four or eight credits by suitable performance on the departmental examination. To take the departmental examination students must sign up, on the morning of the day of the examination, with Dr. Stanley Marcus, in 156 Baker Laboratory.

The specific course in which a student will register after having received a certain advanced placement standing will be decided by consultation between the student, his or her adviser, and the professors teaching the courses. Students receiving advanced placement who are interested in a major in chemistry or a related science should consider taking Chemistry 215-216 and should consult the Chemistry 215 instructor.

Classics

For advanced placement and credit in Latin and Greek, students should consult the Department of Classics, Cornell University, 120 Goldwin Smith Hall.

Latin. Credit and placement are determined on the basis of a departmental examination. A student who is permitted to register in a 300-level course will be given six advanced placement credits.

Greek. Credit and placement are determined on the basis of a departmental examination.

Computer Science

Students who receive a score of 4 or 5 on the CEEB Advanced Placement Examination in computer science will receive four advanced placement credits and may take Computer Science 211, 212, or 222 (provided, in the case of Computer Science 222, the mathematics prerequisites are met). These credits may be used to satisfy the requirement in computer programming for students in the College of Engineering or half the distribution requirement in mathematics for students in the College of Arts and Sciences.

Freshmen may also earn four credits by suitable performance on a departmental examination to be given during orientation week. Students who receive a score of 3 on the CEEB Advanced Placement Examination may choose, at their own risk and in consultation with their advisers, to go directly into a 200-level course without receiving credit for Computer Science 100. These students are strongly urged to take the departmental placement test. To take the departmental examination, students must sign up beforehand in the Undergraduate Office, 303 Upson Hall.

Economics

Students with a strong background in introductory economics may, with the consent of the instructor, register for intermediate courses without taking Economics 101-102.

English

The English department will grant 3 credits to students who score 4 or 5 on the CEEB Advanced Placement Examination. The credits are granted automatically; no application to the department is required.

Students who receive scores of 700 or better on the CEEB College Placement Test in English composition, 700 or better on the CEEB College Placement Test in literature, or 4 or 5 on the CEEB Advanced Placement Examination are eligible to enroll, space permitting, in the following English major prerequisite courses: 270, 271, 272, and 276. These courses also count as freshman writing seminars.

Advanced placement credits may not be used to fulfill requirements of the English major or distribution requirements of the College of Arts and Sciences.

German Literature

The Department of German Studies will grant three credits to students with a score of 4 or 5 on the Advanced Placement Examination.

For information about the College Placement Test, see "Modern Languages," below.

History

The Department of History will grant four credits to students who score 4 or 5 on the CEEB Advanced Placement Examination in European history and four credits to those with such scores in the American history examination. Such credits are granted automatically, without application to the department.

These credits may not be used to fulfill requirements of the history major or distribution requirements of the College of Arts and Sciences.

History of Art

The Department of History of Art will grant three credits to students who score 4 or 5 on the CEEB Advanced Placement Examination. Such credits are granted automatically, without application to the department.

These credits may not be used to fulfill requirements of the history of art major or distribution requirements of the College of Arts and Sciences.

Mathematics

The Cornell calculus sequences discussed below are described under "Basic Sequences" in the Department of Mathematics section of this catalog.

The regular freshman calculus courses at Cornell do not differ substantially from calculus courses given in many high schools, and it is best to avoid repeating material that has already been covered at an appropriate level. Secondary school students who have had the equivalent of at least one semester of analytic geometry and calculus should, if possible, take one of the CEEB's two Advanced Placement Examinations (calculus AB or calculus BC) during their senior year.

The following rules do not apply to students being admitted to the College of Engineering. See the college's brochure for a detailed statement.

Students with a grade of 4 or 5 on the BC examination may take the appropriate third-semester course (Mathematics 293, 221, or 213), but students entering Mathematics 293 may have to make up some material on partial differentiation. Students with a 3 on the BC examination or a 4 or 5 on the AB examination may take the appropriate second-semester course (Mathematics 192, 122, or 112). Students with a 2 on the BC examination or a 3 on the AB examination may take one of the second-semester courses (Mathematics 192 or 112). Advanced placement credit will be awarded appropriately; however no credit will be granted for a grade of 1 on the BC or 1 or 2 on the AB examination.

A grade of 3 or higher on the BC examination satisfies the distribution requirement in mathematics for students in the College of Arts and Sciences.

Note, however, that the grade of 3 is not sufficient for a full year of advanced placement credit in mathematics.

The placement examination in mathematics is offered at Cornell only during orientation week and should be taken by students who

- 1) have had at least a semester of calculus but did not take a CEEB Advanced Placement Examination;
- 2) have received a 2 on the BC examination or a 3 on the AB examination and want to enter the upper sequence; or

- 3) believe that the placement assigned on the strength of the CEEB Advanced Placement Examination is not high enough in their case.

Students are strongly urged to take the departmental placement test even if they feel that their grasp of the material is uncertain. The grade on this test does not become part of a student's record. No advance registration for the departmental examination is necessary.

Modern Languages

Language placement tests. Students who have studied a language for two or more years and want to continue study in that language at Cornell must present the results of a College Placement Test (CPT). Language course placement is made using guidelines that match CPT reading scores with various levels of courses. In cases where no CPT exists for a particular language, the Department of Modern Languages and Linguistics designates a professor to handle placement for that language. Students who have had a year of formal study or substantial informal study since they last took a CPT should take the examination again during orientation week if they plan to continue course work.

Advanced standing credit. Advanced standing credit may be entered on a student's record as follows:

- 1) For high school work, three to six credits may be granted for the equivalent of 200-level courses. Credit is based on performance on the CEEB Advanced Placement Examination, Cornell's Advanced Standing Examination (CASE), or a special departmental examination. To be eligible for Cornell's Advanced Standing Examination, students must have earned a score of 650 or above on the reading section of the College Placement Test (CPT). A student who has received three credits by scoring 4 or 5 on the CEEB Advanced Placement Examination in *languages* is advised to take the Cornell Advanced Standing Examination. Outstanding performance on this examination could provide three additional credits.
- 2) For formal language work at an accredited college, credit is considered by the department on submission of a transcript and may be entered on the student's Cornell record.
- 3) Native speakers of languages other than English may, on examination by the appropriate professor, be granted a maximum of six credits if they can demonstrate proficiency equivalent to course work on the 200 level or above at Cornell. Additional credit will be considered only for those who pursue advanced work in their native language.

Information about times and places to take placement tests is available in the orientation booklet, from Academic and Career Counseling Services, and from the Department of Modern Languages and Linguistics. Students must register for the CPT examination at Academic and Career Counseling Services, 203 Barnes Hall, and pay a fee. For more information, see the College of Arts and Sciences section on language course placement, or contact the Department of Modern Languages and Linguistics, Cornell University, 203 Morrill Hall.

Music

Advanced placement and credit are awarded only in music theory and only on the basis of a comprehensive examination administered by the Department of Music, normally during orientation week. If special arrangements are made, the examination may be administered at other times during the academic year. All students interested in taking this examination should consult Professor S. Stucky, 218 Lincoln Hall (telephone: 607/255-3423). Inquiries may be directed to the Department of Music, Cornell University, 125 Lincoln Hall (telephone: 607/255-4097).

Advanced Placement Program (CEEB) Examinations Summary of Credit and Placement

Subject	Score	Advanced Placement Credit	Placement
Arabic	Department of Near Eastern Studies determines credit and placement based on departmental examination.		
Biology‡	5 (majors)*	8 credits or	Placement out of all introductory courses. Students may select one of the options allowed for majors with a score of 4.
		4 credits	
	4 (majors)*	4 credits	4 AP credits awarded after completion of 101–102, 101–103, 102–104, or 103–104. Consult department to determine which semester to take to complete introductory biology.
	5 (nonmajors)	8 credits	Placement out of all introductory courses.
	4 (nonmajors)	6 credits	Placement out of 109–110. Does not always satisfy the prerequisite for second- and third-level courses in biology.
Chemistry‡	5	8 credits	Department determines placement.
	3,4	4 credits	Department determines placement.
Computer science	4,5	4 credits	Department determines placement.
Economics	Department determines credit and placement.		
English	4,5	3 credits	
French language	4,5	3 credits	Department of Modern Languages and Linguistics determines placement. Students may earn additional credit by taking CASE examination. †
French literature	4,5	3 credits (and proficiency)	Department of Romance Studies determines placement.
German language	4,5	3 credits	Department of Modern Languages and Linguistics determines placement. Students may earn additional credit by taking CASE examination. †
German literature	4,5	3 credits (and proficiency)	Department of German Studies determines placement.
Greek	Department of Classics determines credit and placement based on departmental examination.		
Hebrew	Department of Near Eastern Studies determines credit and placement based on departmental examination.		
American history	4,5	4 credits	
European history	4,5	4 credits	
History of art	4,5	3 credits	
Italian literature	4,5	3 credits (and proficiency)	Department of Romance Studies determines placement.
Latin	4,5	Department of Classics determines credit and placement based on departmental examination.	
Mathematics BC (excluding engineering students)	4,5	8 credits	Placement out of 111, 112. Permission to take 221, 293, or 213.
	3	4 credits	Placement out of 111. Permission to take 112, 122, or 192.
	2	4 credits	Placement out of 111. No advanced placement credit for students who take 111. Permission to take 112 or 192.
Mathematics AB (excluding engineering students)	4,5	4 credits	Placement out of 111. Permission to take 112, 122, or 192.
	3	4 credits	Placement out of 111. Permission to take 112 or 192.
	2	none	Students are strongly urged to take the mathematics placement examination.
Music	Department determines credit and placement based on departmental examination.		
Physics B‡	4,5	8 credits	Placement out of Physics 101–102.
	3	4 credits	Placement out of Physics 101.
Physics B, and Mathematics BC‡	5		
	4,5	4 credits in physics	Student may choose placement out of Physics 112 or 207 instead of Physics 101–102.
or Mathematics AB‡	5	4 credits in physics	Student may choose placement out of Physics 112 or 207 instead of Physics 101–102.
Physics C—Mechanics‡	4,5	4 credits	Placement out of Physics 112 or 207.
Physics C—Electricity and Magnetism‡	5	Student may choose 4 credits for Physics 208 (or 213) or placement into Physics 217 with no AP credit. For more information, contact department representative.	
	4	Student may choose 4 credits for Physics 208 or placement into Physics 217 with no AP credit. For more information, contact department representative.	
Psychology	4,5	3 credits	
Sociology	Department determines credit and placement.		
Spanish language	4,5	3 credits	Department of Modern Languages and Linguistics determines placement. Students may earn additional credit by taking CASE examination. †
Spanish literature	4,5	3 credits (and proficiency)	Department of Romance Studies determines placement.

*Biological sciences majors and other students who expect to take advanced biology courses. These students will receive a total of 8 introductory biology credits (4 advanced placement credits and 4 course credits).

†Cornell Advanced Standing Examination. Contact the Department of Modern Languages and Linguistics, 203 Morrill Hall.

‡In the College of Arts and Sciences, AP credit may be used to satisfy half the distribution requirement in science.

Near Eastern Studies

For advanced placement and credit in Arabic and Hebrew, students should consult the Department of Near Eastern Studies, 360 Rockefeller Hall. Advanced placement and credit are determined by departmental examination.

Physics

Advanced placement and credit are awarded on the basis of the CEEB Advanced Placement Examination in physics (physics B or physics C), certain international examinations, or the departmental examination (which may be taken during orientation week or at other times as arranged). For information about the departmental examination, students should consult Professor R. Cotts, 522 Clark Hall.

Physics B. Students earning a score of 4 or 5 may receive eight credits for Physics 101 or 102. Those earning a score of 5 in physics B with a score of 4 or 5 in calculus BC or a score of 5 in calculus AB may choose to accept four credits in Physics 112 or 207 instead of eight credits in Physics 101 and 102. Those earning a score of 3 will receive four credits in Physics 101.

Physics C.

- 1) *C—Mechanics* Students earning a score of 4 or 5 may receive four credits for Physics 112 or 207.
- 2) *C—Electricity and Magnetism* Students earning a score of 5 will be eligible for four credits for Physics 208 or 213, or for placement into Physics 217 with no AP credit. Students earning a score of 4 will be eligible for four credits for Physics 208 or placement into Physics 217 with no AP credit. Students with scores of 4 or 5 and who have questions may first meet with the department representative, Professor R. Cotts, 522 Clark Hall, for advice on making a selection.

Advanced placement into a next-in-sequence course depends on the completion of the appropriate mathematics prerequisites before enrolling. To qualify for advanced placement credit, it is not necessary to continue the study of physics.

General information and advice may be obtained from Professor R. Cotts, 522 Clark Hall, or from the Department of Physics, Cornell University, 109 Clark Hall.

Psychology

Students who scored 4 or 5 on the CEEB College-Level Examination Program psychology test may receive three advanced placement credits in psychology. Those interested in taking further courses in psychology should consult a faculty member in the Department of Psychology, Cornell University, 232 Uris Hall.

Advanced placement based on the CEEB test may not be used to satisfy the distribution requirement in the College of Arts and Sciences. Credit toward the requirements of a major in psychology will depend on the recommendation of the student's major adviser.

Romance Studies (French, Italian, and Spanish Literature)

The Department of Romance Studies grants three credits to students with a score of 4 or 5 on the Advanced Placement Examination in French, Italian, or Spanish literature or in French or Spanish language.

For information about the College Placement Test, see "Modern Languages," above.

Special Academic Services and Programs

The Learning Skills Center

The Learning Skills Center (LSC) is a central academic support service at Cornell University. Its purpose is to assist students in the development of learning strategies, skills, and insights that lead to academic success. The Learning Skills Center serves any student who needs its program but places particular emphasis on special programs students, including students in HEOP, EOP, COSEP, or the Division of Unclassified Students. The LSC provides supplemental instruction in core courses (biology, chemistry, mathematics, physics) and tutorial and study sessions. A pre-freshman summer program is available to COSEP students, which provides an opportunity to develop academic skills before fall enrollment. The LSC has study-hall accommodations and provides students access to microcomputers, a reserve library, an examination file, audio study-tapes, and xeroxing.

Reading and Study Skills Program. This program offers courses in speed reading and a variety of study skills. Special emphasis is placed on how to read texts, budget time, and prepare for examinations. A credit course is offered on reading and learning strategies through the College of Human Ecology. In addition, audio cassettes on these topics are maintained at the LSC, the Media Room of Uris Library, the reserve desk of Mann Library, and the three student unions. The Reading and Study Skills Program is located in the Learning Skills Center, 375 Olin Hall.

The Macintosh Center

The Macintosh Center, housing twenty microcomputers, is a facility supported by the John S. Knight Writing Program for students enrolled in writing courses. The center offers introductory classes on the Macintosh and works closely with many writing instructors to help students learn how to use word processing as an effective writing tool. The coordinator is William Fleischmann; the center is in 340 Goldwin Smith Hall (telephone: 255-8453).

Walk-In Service

At any time during the academic year, students who need help with writing problems may consult with tutors in the Walk-In Service, a unit of the Writing Workshop. Branches of the Walk-In Service may be found in 174 Rockefeller Hall and 340 Goldwin Smith Hall, and in the North and West Campus dormitories. The director is Joseph Martin. For more information about the Walk-In Service, contact the Writing Workshop in 174 Rockefeller Hall (telephone: 255-6349).

Tutoring Services

The Interfraternity Council provides tutors without fee to any student who needs help with a course. Tutors are available in virtually every field. For more information, students should call 255-5183 or stop at the IFC office, 210 Willard Straight Hall.

Cornell Abroad

Study abroad is considered an integral part of students' formal education in Ithaca, complementing their Cornell program of study. Qualified students may study abroad by choosing one of three alternatives: by attending one of the programs sponsored directly by Cornell, by

participating in a program sponsored by another American institution, or by enrolling directly in a foreign university. All students studying abroad register at Cornell under the Study Abroad course number. In absentia study may not be used by undergraduate students who are pursuing credit towards the Cornell degree. Students who are eligible for financial aid in Ithaca remain eligible for financial aid when enrolled in a study abroad program. All applications for study abroad are administered by the Cornell Abroad office.

Cornell Abroad Programs

Cornell Abroad is committed to offering undergraduates a wide variety of academic programs that are intellectually rigorous, academically and socially diverse, and culturally enriching. The aim of these programs is to enable Cornell students to enroll in foreign institutions with which Cornell has established an academic partnership, making it possible for Cornell undergraduates to pursue academic work that is equivalent to academic work in Ithaca. In addition to a challenging course of study at a foreign university, the programs offer the experience of immersion in the foreign life and culture.

Cornell Abroad has formal affiliations with the following institutions:

Denmark

International Study Program in Copenhagen (DIS)

Egypt

American University in Cairo

France

University of Paris VII and Paris IV

Institut d'Etudes Politiques de Paris (Sciences Po)
Ecole du Louvre

Germany

University of Hamburg

Technical University of Darmstadt

Indonesia

Institut Keguruan dan Ilmu Pendidikan (Institute of Teacher Training and Education) in Malang

Israel

Ben Gurion University

Haifa University

Hebrew University of Jerusalem

Technion (Israel Institute of Technology)

Tel Aviv University

Italy

Art, Architecture, and Italian Studies at the Palazzo
Massimo in Rome

Japan

University of Kyoto

Spain

The University of Seville

Sweden

The University of Stockholm

Switzerland

The Graduate Institute of International Studies in
Geneva

United Kingdom

University of Bristol

University of Cambridge

University of Edinburgh

University of Manchester

University of Oxford

University of Sussex

University of London

Imperial College of Science and Technology

Kings' College

London School of Economics and Political Science

Queen Mary College

School of Oriental and African Studies

School of Slavonic and East European Studies

University College

For students of agriculture and life sciences:

University of Reading

Trinity College, Dublin

Externally Sponsored Programs

Undergraduates may also apply to a wide variety of study abroad programs sponsored by other American colleges and universities. Past experience has shown that some programs are very good and some have serious flaws; they also vary considerably in scope. For information on suitable programs, consult the library in the Cornell Abroad office, your faculty adviser, and your college study abroad adviser. Students attending external programs approved by their college also remain registered at Cornell, receive credit for approved course work, and are eligible for financial aid. Applications for external programs may be obtained directly from the program sponsor; some are available at the Cornell Abroad office.

Direct Enrollment Abroad

Students interested in applying directly to a foreign institution are urged to discuss their plans with their faculty and college advisers as well as the Cornell Abroad office. Some foreign institutions are reluctant to admit students from other countries or provide access to academic and support services without special institutional affiliations.

Foreign Language Preparation

Preparation in a foreign language is essential to a successful academic experience abroad. Even in programs where classes are held in English, the lack of adequate foreign language skills can isolate the American student, frustrating the important aim of cultural learning. Plans for foreign language study should be made early in the freshman year.

Academic Year or Semester Abroad

Where programs allow for a choice, we strongly encourage interested students to go abroad for a full academic year rather than a semester. Many foreign universities do not offer a wide selection of one-semester courses as do American universities. Moreover, it takes time to successfully adjust to a different educational system, language, and culture.

Transcripts and Credit

Official transcripts from foreign universities and special programs must be forwarded to the Cornell Abroad office. A record of the courses taken abroad, including the title of the courses in a correct English translation and the foreign grades, will be placed on the Cornell transcript. Foreign grades are not calculated as part of the regular Cornell grade point average. A copy of the foreign transcript will be kept on file in the Cornell Abroad office.

Undergraduates normally earn a maximum of thirty credits for the academic year abroad or fifteen credits per semester. (Additional credits are granted in specially approved orientation programs). Prior to departure and on their return students should consult their college registrar and study abroad adviser for assistance in the determination of the precise number and kind of credits (major or elective) obtained for academic work completed abroad. For information on courses taught abroad, consult the Cornell Abroad office.

Expenses and Financial Aid

All students studying abroad are charged the tuition and living costs of attending the foreign universities or programs, plus an administrative fee to Cornell. Students attending Cornell programs that include special services are charged an additional fee for those services. All students eligible for financial aid in Ithaca are eligible for financial aid abroad. Detailed information on costs and financial aid is available at the Cornell Abroad office.

Application Procedure and Deadlines

Applications for admission to study abroad programs are available at the Cornell Abroad office. The normal deadline for students planning to study abroad in the fall semester or the academic year is mid-February.

However, some programs have different deadlines, such as Oxford and Cambridge, where the deadline is late November or early December. Students planning to study abroad in the spring term must apply no later than mid-October. Some universities in the United Kingdom review applications for study in the spring term during the spring term of the previous year. A faculty selection committee reviews all applications for programs sponsored directly by Cornell. Applications for external programs must have the approval of the faculty and the college advisers.

For additional information, consult the Cornell Abroad office, 474 Uris Hall (telephone: 255-6224).

Cornell Abroad Contacts

Urbain J. DeWinter, director
Lucy Barcelo, assistant director

Agriculture and life sciences
Donald Burgett, 17 Roberts Hall

Architecture, art, and planning
Professor John P. Shaw, 140 Sibley Dome

Arts and sciences
Assistant dean Beatrice Rosenberg, 55 Goldwin Smith Hall

Engineering
Associate dean Richard Lance, 219 Kimball Hall

Hotel administration
Professor William Kaven, 300 Statler Hall

Human ecology
Professor Florence McCarthy, 170 Martha Van Rensselaer Hall

Industrial and labor relations
Laura Lewis, 101 Ives Hall

Counseling and Academic Advising Services

Students who receive degrees without ever needing or wanting advice are rare. The university encourages students to ask for assistance and advice whenever they need it, and numerous advising services exist on campus.

Many students are specifically assigned a faculty adviser for all or part of their undergraduate career. Faculty members can provide a wide range of advice, from suggestions about courses to take, books to read, or facilities to use, to specific information about college or departmental regulations.

Most schools and colleges have advising programs, which are described in their sections. Offices that offer specific kinds of counseling, available to any student at Cornell, are briefly described below.

Career Center and College Career Offices

The Career Center, an academic support service, and the college career offices work together to help students explore, discover, and choose a career. The Career Center provides assistance in six major areas: academic and career counseling, career information, health careers, job hunting, special programs for minorities, and professional and graduate schools. Professional advisers and counselors as well as student advisers are available. Career Center offices are located in Sage Hall and Barnes Hall and are open Monday through Friday from 8:00 a.m. to 4:30 p.m.

The Sage Hall office, at 14 East Avenue (telephone: 255-5221), houses an extensive career library with up-to-date resources on careers and career decision making, employment, graduate and professional schools, study-abroad programs, health careers, and a variety of audio- and videotapes for each area. It also offers seminars on applying to graduate and professional schools, assists students in job hunting through on-campus interviews with employers and the Cornell Connection, and provides special programs and advice for minority students.

The office in 203 Barnes Hall (telephone: 255-5044) provides academic and career counseling to individuals and groups, conducts academic and vocational testing, and administers language placement tests for students enrolling in foreign language courses. It maintains a credential service for letters of recommendation, transcripts, and other personal documents retained and distributed by request to employers and graduate and professional schools. It also provides special information resources and advice for students interested in careers or professional schools in the health fields.

College career offices, located in each of the undergraduate colleges, provide services tailored to the curricula and career goals of each college's students. Services vary from office to office but generally include career libraries, job listings, summer job and internship programs, job-preparation workshops, on-campus recruiting, and individual counseling. Special services provided by the college offices include computer-assisted career guidance, career days, and alumni programs. Students may take advantage of services offered by both their college offices and those of the Career Center. Most college offices are open Monday through Friday from 8:00 a.m. to 5:00 p.m.

Services for the Disabled

As a university committed to the principle of equal opportunity, Cornell must make its academic and social resources fully available to all who are qualified, including persons with disabilities such as loss of sight, hearing impairments, neurological limitations, limited mobility, or learning disabilities.

Cornell desires to provide access in as integrated and natural a setting as possible; the emphasis is on bringing the student to the class rather than on bringing the class to the student. A campus-wide program to provide ramps, curb cuts, and remodeled rest-room facilities has been completed. Special parking permits for the disabled can be obtained from the Traffic Bureau, and arrangements for accessible accommodations in residence hall facilities are available for individual students.

The campus coordinator for the disabled is located in the Office of Equal Opportunity, 234 Day Hall (telephone: 255-5298; voice/TTY). Those who have any questions are urged to contact the coordinator for assistance and, where appropriate, referral to the proper resource person. Anyone who will need special accommodations, either in his or her living situation or with classes, should contact the coordinator as soon as possible.

Each school within Cornell University has designated a representative to assist disabled students with such matters of academic concern as course scheduling, classroom changes, and special provisions for taking examinations. Their names may be obtained from the Office of Equal Opportunity.

Minority and Special Opportunity Programs

Cornell University administers a variety of programs designed to provide academic and personal support to minority and low-income students who meet program guidelines.

In 1963 President James A. Perkins founded the Committee on Special Educational Projects (COSEP) in accordance with Cornell's mission as a land-grant institution and its founding philosophy: "I would found an institution where any person can find instruction in any study." Cornell seeks to recruit and admit minority students with outstanding credentials as well as those with strong promise for academic success but whose secondary school profiles are not as competitive because of disadvantaged educational and economic backgrounds. COSEP provides a comprehensive support program for minority students who have been admitted to one of Cornell's undergraduate schools or colleges.

The main goals of the program are to:

- 1) assist in the university's effort to increase the enrollment of minority students who have traditionally been underrepresented in higher education
- 2) provide supportive services after admission for academic, personal, and social adjustment
- 3) assist the schools and colleges in raising the retention and graduation rates for minority students
- 4) encourage institutional change to ensure an excellent education for minority students

State Programs (HEOP and EOP)

In 1969 COSEP was expanded by the addition of the New York State Educational Opportunity Program (Colleges of Agriculture and Life Sciences, and Human Ecology, and the School of Industrial and Labor Relations) and the Higher Educational Opportunity Program (Colleges of Architecture, Art, and Planning; Arts and Sciences; and Engineering, and the School of Hotel Administration). These programs are called EOP and HEOP respectively.

HEOP and EOP give students who would not be admitted through regular admission selection an opportunity to attend Cornell. The programs provide students with academic supportive services, counseling, and financial aid. Regardless of their ethnic background, New York State residents who are both academically and economically disadvantaged are eligible.

Student Services

Services include student activities, work-study jobs, leadership training, and assistance in development of organizational skills and implementation of programs. A general counseling-referral service is also provided by the office. COSEP has associate staff members in the Office of Financial Aid, the Career Center, and Gannett Psychological Service to assist students in these areas.

Office of Minority Educational Affairs

Over the years Cornell has made considerable strides in enriching the academic, cultural, and social experience of minority students through the Office of Minority Affairs. This office, which is the center of activity for minority students, ensures that a variety of support services are available to assist students in making a more positive academic and social transition to the university. The Office of Minority Affairs represents many things to many people. For some it serves as a forum for political, social, and educational expression. For others it is a home-away-from-home, a place where student organizations evolve, helping to enhance cultural awareness. There are over four hundred organized clubs on campus, and minority student clubs are among the most active. Listed below are many of the organizations of special interest to minority students.

Alpha Kappa Alpha	Mexican American Student Association (MASA)
Alpha Phi Alpha	Minority Industrial and Labor Relations Student Organization (M.I.L.R.S.O.)
American Indian Science and Engineering Society	Minority Undergraduate Law Society
Asian American Coalition	Minority Undergraduate Veterinary Association
La Asociación Latina	National Society of Black Engineers, C.U. chapter (N.S.B.E.C.U.)
Black Bio-Medical Technical Association	North American Indians at Cornell (N.A.I.S.A.C.)
Black Graduate Business Student Association	Omega Psi Phi fraternity, Delta Mu chapter
Black Graduate Student Association	Pamoja-Ni Gospel Choir
Black Greek Council	Phi Beta Sigma fraternity
Black Students United	Society of Hispanic Professional Engineers
Chinese Cultural Society	The South African Divestment Coalition
Le Club Haitien	Sphinx Literary Society
Cornell Afrikan Students Association (CASA)	State of Black America Coordinating Committee
Cornell Chinese Dance Company	Third World Student Programming Board
Cornell Chinese Students Association	La Unidad Latina/Lambda Upsilon Lambda
Cornell Korean Society	West Indian Students Association
Cornell Prison Project	Zeta Phi Beta Sorority
Delta Sigma Theta	
<i>Ethos Yearbook</i>	
Hong Kong Student Association	
Human Ecology Minority Student Association	
The Ithaca Ethiopian Drought Committee	
Kappa Alpha Psi	

International Students and Scholars Office

The International Students and Scholars Office, 200 Barnes Hall (telephone 607/255-5243), serves as an information center and provides arrival assistance, housing information, personal and academic advising and counseling, immigration advising, and financial planning assistance.

Financial Aid

Eligibility and Availability

Financial aid resources for undergraduate nonimmigrant foreign students are severely limited at Cornell. Consequently, the competition for these awards is keen, and only a small percentage of each entering class receives assistance. Students who receive financial aid are likely to be those with exceptional academic records, high test scores, strong potential for positive contributions to the Cornell community, and demonstrated financial need. Awards are a combination of scholarship, loan, and on-campus work.

Because of limited funding students not receiving aid from Cornell on matriculation will not be considered for aid in subsequent years. Financial plans should be made accordingly.

Nonimmigrant students who receive financial aid from the university must reapply for aid each year. Application forms are available from the International Student Office.

Loans and Employment

Short-term emergency loans are available through the International Students and Scholars Office for students who face unexpected financial crises. Nonimmigrant foreign students are not eligible for the federal work-study program that is administered by the Student Employment Office. Foreign students holding F-1 visas may accept non-work-study employment on campus for up to twenty hours a week. Because of visa restrictions, foreign students may not accept any off-campus employment without permission of the United States Immigration and Naturalization Service. Questions regarding permission to work should be referred to the International Students and Scholars Office.

Note: Foreign students in the School of Hotel Administration who want to fulfill their practice credit requirement by working in the United States during summer vacation should contact the International Students and Scholars Office.

Health Requirement

Foreign students and their dependents must present a chest X ray taken within twelve months of registration at Cornell or undergo an X ray upon arrival. X-ray service is available at the Gannett Health Center. Residents of the following areas are exempt from this chest X-ray requirement: Europe, Japan, Australia, New Zealand, and Canada.

Before registration at the university all students must present proof of adequate immunization against diphtheria, tetanus, rubella, measles, and poliomyelitis.

Registration

All entering nonimmigrant foreign students (including Canadians) must secure clearance from the International Students and Scholars Office before registration will be permitted.

Leaves of Absence, Withdrawals, Transfers, Credit-Hour Reductions

Any nonimmigrant foreign student planning to take a leave of absence should check first with the International Students and Scholars Office. Students taking a leave or withdrawing from the university normally cannot legally remain in the United States. Students graduating or leaving the university should file a Notice of Departure with the International Students and Scholars Office. Students intending to transfer to other universities in the United States should check the immigration regulations regarding transfer in the International Students and Scholars Office.

Visa regulations also stipulate that students must carry at least twelve credits each term. Foreign students who are petitioning to drop their course load below twelve credits should contact the International Students and Scholars Office to determine how such a decision will affect their visa status and financial aid.

Personal Counseling Services

University Health Services. Counseling services are provided in the health center and the Psychological Service. For an appointment at the Psychological Service, students may call 255-5208 or go to the center. Workshops are also offered on a variety of health-related and personal-growth issues. More information may be obtained by calling Health Education at 255-4782.

Cornell United Religious Work (CURW). Diverse religious staff and denominational advisers provide general, religious, premarriage, couples, or crisis counseling and are available day or night by contacting the office, 118 Anabel Taylor Hall (telephone: 255-4214).

Empathy, Assistance, and Referral Service (EARS). Trained volunteers staff a walk-in and telephone peer counseling service for individual counseling and referral. EARS counselors are also available to present workshops on a variety of topics, including communication and listening skills, stress management, sexual harassment, and rape. Students can walk in to 211 Willard Straight Hall or call 255-EARS.

The Dean of Students Office provides crisis intervention, short-term counseling, and referral for students with adjustment, personal, relationship, and off-campus housing concerns; faculty and staff consultation; communication skills training; and coordination of EARS and personal-growth workshops on various topics. The office is located in 103 Barnes Hall (telephone: 255-2310 or 255-3608).

Suicide Prevention and Crisis Service is a twenty-four-hour hot-line and referral service for the entire community. In addition to crisis counseling, it provides hot-line and referral services for raped or battered women (telephone: 272-1616).

Student Life and Activities

Dean of Students Office

The primary aim of the Dean of Students Office (DOS) is the personal, social, and intellectual development of students and the enhancement of the quality of the educational environment for the benefit of the entire community.

Specific responsibilities of the office include training and development of peer counseling groups such as EARS (Empathy, Assistance, and Referral Service); personal-growth groups that address student concerns in a supportive environment; new-student programs; fraternity and sorority advising; and off-campus life and housing. The office assists individuals who need to know which university department is best equipped to answer any particular question that may arise during the course of the year. Staff serve as advocates for, and as consultants to, campus groups serving to resolve problems or improve programs.

Various publications are prepared by the DOS, including the *Cornell Calendar*; *Policies and Procedures for Students, Faculty and Staff*; *Off-Campus Housing in the Ithaca Area*; and *Life at Cornell*.

Students and staff are always welcome to drop in at the office in Barnes Hall or call (telephone: 255-6839) if they have any questions or concerns.

Housing

Students choose to live on campus for many different reasons. Some appreciate the convenience of being close to classrooms, libraries, laboratories, and other campus facilities. Others enjoy the opportunities to meet new people and to develop a sense of community with other students. Although new students are not required to live on campus, many find that such a community environment helps to ease the adjustment to university life.

To further enrich the college experience, the Department of Residence Life staffs its residences with trained students and professionals who, in addition to administering the halls and working to create a desirable community in them, assist students with personal and academic problems. The staff members know the community's resources and are committed to helping each student benefit to the fullest extent from the college experience.

Department staff members also work with students in developing quality programs, projects, and social activities in the residence halls. Through a variety of programs, students explore personal and social issues, make new friends, and discover new opportunities for personal growth. In addition, some halls have been designated residential program houses, which concentrate their programming on specific themes, while others have faculty-in-residence and faculty fellow programs that promote informal faculty-student interaction.

There is sufficient variety among university residences to meet the desires and needs of most students. The living-arrangement options include twenty-one residence halls and one town-house community for undergraduates; eight residential program houses, where activities and programs center around a theme; nine cooperative residences, where the students share in the work and management of the house; and two residence halls and three small residences for graduate students.

New students. Each year more students than can be accommodated want to live on campus. Consequently, admission to Cornell guarantees a room assignment for freshmen but not for transfer or graduate students.

Continuing students. Because the demand for on-campus housing exceeds the amount of space available for continuing students, rooms in the traditional residence halls are allocated through a lottery system. Residential program houses and the cooperative residences select their new members from the students who apply for membership. Many undergraduates who want to live on campus are accommodated through the room allocation process. A limited amount of space is available for graduate students.

Personal property. Personal property is not insured by the university, nor is the university liable for loss of, or damage to, any article of personal property. Students are encouraged to take out personal property insurance on their belongings. Information on personal property insurance is available at the Dean of Students Office in 103 Barnes Hall.

Refund policies. The Department of Residence Life refund policies are listed in the section "Terms of Conditions for Single Student Housing" of the residence hall contract.

Further information. Information concerning university housing is available from the Department of Residence Life, Cornell University, 1142 North Balch Hall, Ithaca, New York 14853-1401 (telephone: 607/255-5368). The Off-Campus Housing Office lists information on off-campus accommodations—rooms, apartments, houses, and mobile homes—that has been voluntarily submitted by owners of local rental properties. Because the lists are constantly changing, it is not possible to mail them to prospective tenants. The Off-Campus Housing Office is unable to make arrangements or negotiate contracts on behalf of students. If you have further questions or would like a copy of the booklet *Guide to Off-Campus Housing*, contact the Off-Campus Housing Office, Cornell University, 103 Barnes Hall, Ithaca, New York 14853-1601 (telephone: 607/255-5373).

Dining Services

Cornell Dining provides a variety of food-service programs for the entire Cornell community.

Co-op Dining

Co-op dining is a completely voluntary dining plan serving Cornell's undergraduates, graduate students, and other members of the Cornell community. Any student may join.

Co-op dining offers twelve flexible meal-plan options. These options provide a variety of time and meal periods on a five- or seven-day basis. Members are not penalized for switching meal plans to better meet their individual academic routines. Maximum flexibility is included with a two-meal-a-day plan that offers a choice of breakfast or lunch, and dinner daily. Another plan offered is Seven-Saver. Basically a declining-balance point system, Seven-Saver has all the advantages of cash à la carte without the 7 percent state sales tax.

Members eat in convenient dining rooms, located in the residential areas or on the central campus, and are free to select the dining rooms of their choice for each meal. All dining rooms serve a variety of entrées (including one vegetarian entrée at both lunch and dinner) each day. In addition, "steak nights" and specials highlight the Co-op dining program. Specials may include outdoor barbecues, midnight breakfasts, ice cream spears, or the Cross-Country Gourmet dinner series, which has won national acclaim. Menus are posted weekly.

The cost of each meal-plan option is set at the beginning of each academic year and is automatically billed on a semester basis. Members do not pay New York State sales tax, which is 7 percent.

The Co-op plans include meals during university recess periods, including fall semester break, Thanksgiving, Christmas intersession, spring recess, and summer. However a point system called Break

Dining is offered during recess periods when dining facilities are open. Please inquire at 233 Day Hall before each recess.

The Co-op dining program is administered by Cornell Dining, 233 Day Hall (telephone: 255-8581). Each year, all new and transfer students receive a program description and contract. All terms and conditions of the Co-op dining program are given in the contract, which all prospective members should read carefully before completing and mailing the application.

Other Dining Services

Cash à la carte service is available at four Cornell Dining locations each day: the Ivy Room at Willard Straight Hall, Sage House, Entrepot, Upper Level at Noyes Lodge, and Martha's in Martha Van Rensselaer Hall. All cash dining units accept cash, Cornellcard, MasterCard, VISA, American Express, and Diner's Club cards. Dining service at each unit follows the posted hours of operation but may be limited during the summer session and university recesses such as Thanksgiving, Christmas, intersession, and spring break.

Entrepot offers a variety of grocery items, beverages, magazines, and personal items. A convenient sundry shop and a campus store are also provided. Entrepot is located on the lower level of Noyes Lodge (telephone: 255-5314).

Vending operations provide food, beverage, and snack items in many campus buildings (telephone: 255-5385).

Catering

Cornell Catering serves the entire Cornell community, either in its private dining rooms, located on the third floor of Robert Purcell Union, or at functions held in many campus locations. Cornell Catering offers food service for a variety of occasions or needs (telephone: 255-5555).

Kosher Dining

Kosher meals are offered under the auspices of Young Israel of Cornell. Meals are served seven days a week under a wide variety of meal-plan options. Further information is available by writing to the Steward, Young Israel of Cornell, 106 West Avenue, Ithaca, New York 14850.

University Health Services

The University Health Services provides comprehensive medical care for all full-time undergraduate and graduate students enrolled at Cornell University in Ithaca. Gannett Health Center, located at 10 Central Avenue, adjacent to Willard Straight Hall, is open twenty-four hours a day during the school year and is available for overnight care and emergency outpatient service outside normal working hours. Normal hours are Monday through Friday from 8:30 to 11:30 a.m. and from 1:00 to 4:30 p.m. and Saturday from 8:30 a.m. to 12:30 p.m.

The center's medical staff, under the supervision of the medical director, consists of attending physicians and health associates from the university staff, and consulting physicians and surgeons from the Ithaca area. All medical records are strictly confidential.

For a medical appointment, a student should call 255-4082 or go to the center. For an appointment at the Psychological Service, a student should call 255-5208 or go to the offices at the center. A doctor is available for emergencies twenty-four hours a day (telephone: 255-5155).

The following services are usually offered on-site:

- 1) unlimited visits to Gannett Health Center
- 2) overnight care
- 3) routine diagnostic and X-ray examinations as ordered by Health Services clinicians and performed by Health Services staff

- 4) physical therapy service
- 5) counseling services at the center and in the Psychological Service
- 6) allergy injections
- 7) immunizations, vaccinations, and inoculations for travel abroad
- 8) contraceptive care
- 9) health education
- 10) athletic medicine
- 11) physical examinations

Generally, the University Health Services' clinicians will coordinate off-site care. Referrals for specialty care may be made to private physicians or private health-care facilities for hospitalization, consultation, surgical procedures, eye examinations for glasses, or prenatal or obstetrical care.

There are fees for some of the services provided on-site and all of the services provided off-site. The student is also responsible for expenses connected with illness or injury occurring (a) outside of Ithaca while in transit to and from college, on weekend trips, and on vacations away from Ithaca during the academic year and (b) during the summer, unless the student is enrolled as a summer student.

To cover many of the services not provided free of charge by University Health Services, all full-time registered students and students studying in absentia are automatically enrolled in an accident and sickness insurance plan, underwritten by a private insurance company, that includes a \$50,000 major-medical provision. The plan covers hospital care, charges for surgical procedures, consultations with a private physician or specialist if referral is by a Health Services physician, expenses connected with illness or injury outside of Ithaca, and limited reimbursement for allergy injections, on-site laboratory and X-ray charges, prescription drugs, and most outpatient services. *Preexisting conditions are not covered.* The extent of the reimbursement is controlled by the provisions of the insurance policy. Students are covered by this plan for the entire twelve months. Only by returning a yearly waiver form, which is mailed with the first bursar's bill or available at Gannett Health Center, the bursar's office at 260 Day Hall, and at university registration, will students *not* be covered and *not* charged for this plan. The cost of this plan for 1987-88 will be approximately \$220 for the entire twelve months, and the charge will appear on each student's fall tuition bill. Unless students have other health insurance to supplement medical services provided by the University Health Services, they are *strongly urged* to take advantage of this plan. After the waiver process has been completed, a student may be reinstated if the parents' insurance plan drops the student at a certain age or if the student's marital status changes. Application must be made within thirty days of discontinuation of other coverage.

Students who are enrolled in the accident and sickness insurance plan may also enroll their spouses and children for an annual premium. Information concerning this insurance may be obtained at Gannett Health Center or by telephoning 255-6363.

Students' spouses are eligible for benefits identical to those of the student health-care program on a prepaid or fee-for-service basis. These services are not to be confused with the supplementary accident and sickness insurance plan. Information and forms for the spouse program may be obtained by writing or visiting the University Health Services, Gannett Health Center, Cornell University, 10 Central Avenue, Ithaca, New York 14853-3101.

Cornell United Religious Work

Cornell United Religious Work (CURW) coordinates religious affairs at Cornell. Participants in CURW may be involved in denominational, interreligious, or nondenominational activities. The denominational programs include daily or weekly opportunities for worship, study, and interaction. CURW member groups share in support and leadership of interreligious programs such as the Sage Chapel services, CIVITAS

(Cornell-Ithaca-Volunteers-in-Training-and-Service), noncredit courses, lectures, conferences, and involvement in varied services to the university community. A diverse staff of pastoral counselors and advisers, available day or night for consultation, may be reached through the office, 118 Anabel Taylor Hall (telephone: 255-4214). This office also has information concerning weekly religious services in Sage Chapel and worship opportunities in the local churches and synagogue. Anabel Taylor Hall houses the Commons, a coffeehouse providing a place for informal communication between faculty, staff, and students. Closely associated with CURW, and independent of it, is the Center for Religion, Ethics, and Social Policy (CRESP), the nondenominational research and action component of religious affairs at Cornell.

Campus Government

The system of campus government at Cornell consists of four deliberative bodies representing not only the university population as a whole but also its major subdivisions. The deliberative bodies are supported by committees composed of community members. The system recognizes both the diversity and the unity so basic to the life of an academic community.

The University Assembly focuses on matters concerning the entire campus in common, including such day-to-day essentials as transportation, the campus store, and health services. Its delegates are drawn from the Student Assembly, the Employee Assembly, and the Faculty Council of Representatives. Each of these groups also has its own separate deliberative body.

The four assemblies together provide a variety of settings in which issues can be effectively discussed and policies considered by those people most directly affected. The Student Assembly consists of twenty-three students elected by the student population, all of whom are voting members, and has legislative authority over the policies of the departments of Dining, Residence Life, Unions and Activities, and the Dean of Students Office. It also has authority to review the budgets and actions of these departments. The Employee Assembly is composed of members elected by and representing the exempt and nonexempt employees. It has the authority to examine all university policies affecting the employment environment, including such matters as education and training opportunities, recreation, and special employee needs in the areas of transportation and health services. The Faculty Council of Representatives is the legislative assembly of the University Faculty, which exercises the faculty's responsibility to regulate academic matters (including the calendar) that affect more than one college, school, or other academic division of the university.

Further information may be obtained in the Office of the Assemblies, 165 Day Hall.

Ombudsman

The Office of the University Ombudsman, 116 Stimson Hall, assists all members of the Cornell community seeking solutions to a wide range of problems. The main purpose of the office is the just and equitable resolution of conflicts in the university. The office is independent of the university bureaucracy and all other groups on campus. That independence, combined with impartiality, immediate access to information, and total confidentiality, enables the office to deal with a wide variety of problems, separate from any factions within the university. The office can provide information on university policies and practices, find proper authorities to resolve a situation, or otherwise seek a resolution to a problem. The office will make requests for reconsideration or changes in decisions and will advocate an equitable solution when a complaint has merit. The office may also investigate problems on its

own initiative and report its findings and recommendations to appropriate people in the university.

Judicial System

The judicial administrator's office receives and investigates complaints brought by students, other members of the university, and offices on campus involving alleged violations of the Campus Code of Conduct by individuals acting outside the course of university employment. The judicial administrator may also initiate investigations.

If there is reasonable cause to believe that a violation has occurred, the judicial administrator files charges and informs the defendant of the services of the judicial advisor. Personal details of complaints and judicial actions are considered private information.

Many judicial cases are resolved by summary decision. In such decisions the judicial administrator proposes a penalty or a remedy, or both, that the parties to the case choose to accept. Either the defendant or the judicial administrator may decide to take the case to a formal hearing instead. A complainant who is dissatisfied with the judicial administrator's action in a complaint may appeal that action to the University Hearing Board, which then decides whether or not to refer the case to an adjudicatory hearing.

Questions about the judicial system should be directed to the Office of the Judicial Administrator, 431 Day Hall (255-4680); hours are 9:00 a.m. to 4:30 p.m. Monday through Thursday and 9:00 a.m. to 4:00 p.m. Friday. The Campus Code of Conduct, available from the university counsel's office, the Dean of Students Office and the Office of the Judicial Administrator, details the principles and policies governing campus conduct.

A judicial advisor is available, without charge, to provide legal counseling and legal assistance to those accused of violating university rules and regulations, including academic integrity violations. The Office of the Judicial Advisor is not associated with the Cornell Legal Aid Clinic and is not equipped to handle legal problems arising outside the university context. The Office of the Judicial Advisor is located in 323 Sage Graduate Center (255-6492). The hours of this office change each semester and are posted on the office door, along with telephone numbers where an advisor can be reached when the office is not open. Further information about the Office of the Judicial Advisor can be obtained by calling that office.

Unions and Activities

The Department of Unions and Activities oversees the three university union buildings, which serve as campus community centers and offer a wide variety of services and facilities: Willard Straight Hall, Noyes Center, and Robert Purcell Union. A partial list of facilities includes dining areas, browsing libraries, a theater, billiard and game rooms, study lounges, meeting rooms, a pottery shop, a copy center, darkrooms, and a unisex hair-styling salon. Among the many special services available to students are a central ticket office; a central reservations office for campus facilities; a rental service for audiovisual equipment and phonograph records; service desks where newspapers, magazines, and sundries are sold; an art-lending library; and a check-cashing service.

Unions and Activities programming organizations include programming and policy boards that govern each of the three union facilities, as well as the following: the Alfalfa Room, a lounge area in Warren Hall where sundries and snacks are sold; Cornell Cinema, the campus film program; the Cornell Concert Commission, which produces popular concerts; the Campus Unions Program Board, which presents major lectures, touring theatrical productions, and major social events, including Mardi Gras and Springfest; Wilderness Reflections, which presents summer orientation programs for new students in an outdoor

setting; and the Third World Student Programming Board, which presents events to highlight minority and ethnic cultures. These services and activities support the educational objectives of Cornell, provide opportunities for personal relationships among members of the community, and fulfill Willard Straight's objective: "the enrichment of the human contacts of student life."

Union Hours

Willard Straight Hall
7:00 a.m.—11:00 p.m., 7 days a week

Noyes Center
8:00 a.m.—1:30 a.m., Monday–Friday
10:00 a.m.—1:30 a.m., Saturday and Sunday
(Dining opens at 7:00 a.m. Monday–Friday.)

Robert Purcell Union
7:00 a.m.—1:00 a.m., 7 days a week
(Hungry Bear Diner: 10:00 p.m.—2:00 a.m.,
Sunday–Thursday; 10:00 p.m.—3:00 a.m. Friday
and Saturday)

Fraternities and Sororities (Greek Life)

For approximately forty-five hundred students Greek life is an integral part of the Cornell experience. There are currently forty-seven fraternities at the university, with over twenty-seven hundred students, or 38 percent of the male undergraduate students as members. There are sixteen sororities, with over seventeen hundred students, or 30 percent of the female undergraduates, as members. Greek letter organizations provide an educational experience by fostering the intellectual, moral, and social development of their members.

As one of the largest Greek systems in the country, its diversity is the key to its continuing growth. Fraternities and sororities provide opportunities for friendship, self-realization, leadership, and personal development. Three student-run governing boards oversee the many programs associated with fraternities and sororities. These boards are the Interfraternity Council, the Panhellenic Council, and the Black Greek Council. The Greek life section of the Dean of Students Office assist fraternities and sororities with their educational development and ensures that they contribute positively to the mission of the university.

Athletics

At Cornell, athletics are designed to encourage the participation of every interested student in varsity sports or the extensive intramural program. Cornell supports one of the largest intercollegiate athletics programs for men and women in the country and belongs to the Ivy League, ECAC, and NCAA. Both men and women compete in basketball, cross-country, fencing, gymnastics, ice hockey, lacrosse, soccer, swimming, tennis, indoor and outdoor track, crew, and polo; men in baseball, varsity football, golf, squash, wrestling, and lightweight football; and women in field hockey, volleyball, and skiing.

Information Services

The official university information source is the Information and Referral Center. The center helps students, faculty, staff, and visitors find out what they want to know about the university as well as the surrounding community. The center responds to questions received over the telephone, in the mail, and on a walk-in basis. If the staff members do not have the answer to the question at hand, or cannot immediately refer the client to another source, they will do the necessary research. The center's aim is to minimize confusion and to help people avoid the necessity of contacting several offices with their questions. The

center is in Day Hall near the East Avenue entrance and is open Monday through Saturday from 9:00 a.m. to 5:00 p.m. The telephone number is 607/255-6200.

CUINFO is a computerized information system offered by Cornell Computer Services. It provides schedules and details on university facilities and events, counseling, student employment, housing, examinations, bus schedules, and weather forecasts. CUINFO may be accessed at the Information and Referral Center in the main lobby of Day Hall, where a complete listing of locations of CUINFO terminals is also available.

Campus tours. Walking tours led by student guides provide a survey of Cornell's academic offerings, history, and facilities while showing the beauty of the campus. The tours leave the Information and Referral Center, inside the main entrance of Day Hall, daily throughout most of the year. It is advisable to call the center to confirm the schedule, especially during holidays, intersession, and vacation periods.

Transportation Services

Traffic and Parking

To provide a safe walking environment for pedestrians on campus and to reduce the impact of motor vehicles on the limited campus parking facilities, Cornell has restricted vehicle access to the central campus. Cornell University encourages ride sharing and the use of alternative modes of transportation such as public transit, bicycling, and walking.

All on-campus parking (except in certain metered and time-zone areas) is by permit only and is subject to posted restrictions; vehicular access to the interior campus is restricted Monday through Friday from 7:30 a.m. to 5:00 p.m. Special parking restrictions are posted where applicable. Parking regulations are in effect throughout the year.

New York State motor vehicle and traffic laws are enforced on the Cornell campus.

All members of the campus community (students, faculty, staff, and employees of non-university agencies located on university grounds) are required to register annually with the Traffic Bureau any motor vehicles (including motorcycles and mopeds) in their possession which may at any time be parked on Cornell property. This registration information ensures that the owner or operator may be rapidly identified and contacted if necessary; for example, if a parked vehicle is involved in an accident, must be moved immediately, or has been left with its lights on. There is no charge for vehicle registration; however, a registration sticker is not in itself a parking permit.

Information on traffic and parking regulations, and parking permits, is available at the traffic and information booths on campus and at the Traffic Bureau on Maple Avenue. The bureau will be glad to assist any individual with general inquiries or special problems and requests (telephone: 255-PARK).

Bus Service

The Cornell campus is served by a number of public transit routes during the day and evening. CU Transit provides on-campus service as well as commuter services to outlying communities. Several community bus routes connect the university with other surrounding residential and commercial areas.

Information about CU Transit and other transit services may be obtained by calling the Office of Transportation Services at 255-PARK or CU Transit at 255-RIDE. Schedules for on-campus and off-campus service are available from the Traffic Bureau, the Information and Referral Center in the Day Hall lobby, Robert Purcell Union, and the Willard Straight Hall information desk.

Public Safety Services

Emergencies

Accidents, crimes, fires, and all other emergencies on campus should be reported immediately to the Department of Public Safety (telephone: 255-1111). The Department of Public Safety is located in G2 Barton Hall and is open twenty-four hours a day. Public telephones to report emergencies, seek information, or report suspicious activity are located throughout the campus and can be readily recognized by blue lights above them.

Lost and Found

The central Lost and Found Office, operated by the Department of Public Safety, is located in G18 Barton Hall and is open from 9:00 a.m. to 4:00 p.m., Monday through Friday (telephone: 255-7197). Lost articles are often turned in to the information desks in Day Hall and Willard Straight Hall and other central offices, but all such items are eventually turned over to this central lost and found.

Auxiliary Patrol Services Section

The Auxiliary Patrol Services Section is responsible for scheduling and staffing extra university functions that require public safety personnel for traffic direction or crowd control. The manager may be contacted at 255-8948.

Crime Prevention Section

The Crime Prevention Section provides lectures and orientation to various university groups on topics ranging from general public safety services to drug abuse, crime prevention, and rape and assault prevention. Persons interested in these free programs should contact the manager of the Crime Prevention Section at 255-7404.

University Registration

University registration is the process by which the university registrar and colleges certify the eligibility of students to enroll in courses and purchase or use a variety of services available at the university, such as Cornellcard, Co-op dining, libraries, special bus passes, and housing. University registration includes the issue and validation of the student identification card and the collection of information needed for the student directory and state and federal reports. University registration is based on the student's clearing past and current financial obligations by the date posted on the bursar's bill. ID validation and college registration are held on the dates stated in the university calendar at a time and place announced well in advance of the beginning of each semester.

Required Immunization

Before registration at the university all students must be prepared to present proof of adequate immunization against diphtheria, tetanus, rubella, measles, and poliomyelitis.

Late Registration

A student clearing his or her financial obligations after the stated date on the bursar's bill is considered late. Late registrants are assessed a finance charge on the bursar's bill.

The university does not permit after-the-fact registration in which persons attend classes and pass courses before seeking to register and receive official course credit.

The university reserves the right to require unauthorized unregistered persons who attend classes or in other ways seek to exercise student privileges to leave the university premises. The university registrar will notify the appropriate college or school about such cases and ask that office to contact the person concerned.

Course Enrollment

Course enrollment for each semester at Cornell takes place partway through the preceding semester. Dates are announced in advance and are usually posted in the school and college offices. Course enrollment generally runs for two weeks. Each college or school notifies students about special procedures. Students are often expected to meet with their advisers during this two-week period to check that the courses they plan to take will ensure satisfactory progress toward a degree. Students complete an optical-mark course enrollment form, then return the form to their college office. Each student is sent a course confirmation statement listing the courses processed from the enrollment form. Class schedules are distributed later by the college offices, often during the same days as university registration.

New students and transfer students are sent course enrollment instructions by their college offices before they arrive on campus. Procedures vary from college to college.

Students who fail to submit a course enrollment form during the designated period may be charged a late fee. The fees are listed in the chart in the following section.

Course Drop/Add/Change Period

Students may adjust their schedules during drop/add/change periods. The length of the periods varies according to colleges. A form is completed by the student and signed by both the student's adviser and an appropriate representative of the department offering the course (an instructor, department staff member, or college registrar, depending on the college). The completed and signed form must be returned to the student's college office to be processed. See the chart below for the course drop/add/change fee.

Late Course Enrollment and Late Drop/Add/Change Fees

Academic Unit	Late Course Enrollment Fee	Late Course Drop/Add/Change Fee
College of Agriculture and Life Sciences	No fee	No fee
College of Architecture, Art, and Planning	\$10	\$10*
College of Arts and Sciences	\$10*	\$10*
College of Engineering	\$10	\$10
Graduate School	\$10	\$10
School of Hotel Administration	No fee	No fee
College of Human Ecology	\$10	\$10*
School of Industrial and Labor Relations	No fee	No fee
Johnson Graduate School of Management	\$10	\$10
Athletics and physical education	\$25	\$25
Summer session and extramural courses	†	†
Division of Unclassified Students	No fee	No fee
Veterinary medicine	No fee	No fee

*Consult the college office for special considerations and requirements.

†Consult the Summer Session catalog and the Division of Extramural Study brochure for fees.

Class Schedules and Attendance

Class Attendance and Absences

Students are expected to be present throughout each term at all meetings of courses for which they are registered.

The right to excuse a student from class rests at all times with the faculty member in charge of that class.

All lectures, recitations, and similar exercises start at 8:00 a.m., 9:05 a.m., 10:10 a.m., 11:15 a.m., 12:20 p.m., 1:25 p.m., 2:30 p.m., or 3:35 p.m. and last fifty minutes, except that on Tuesday and Thursday the first and second, the third and fourth, the fifth and sixth, and the seventh and eighth periods may be combined to allow for longer meeting times.

All laboratories and similar exercises that continue for 1 hour and 55 minutes, 2 hours and 25 minutes, or 3 hours are scheduled as shown below.

Schedule for Classes Longer than Fifty Minutes

1 hour and 55 minutes

8:00 a.m.—9:55 a.m.
10:10 a.m.—12:05 p.m.
12:20 p.m.—2:15 p.m.
2:30 p.m.—4:25 p.m.
7:30 p.m.—9:25 p.m.

2 hours and 25 minutes

7:30 a.m.—9:55 a.m.
10:10 a.m.—12:35 p.m.
2:00 p.m.—4:25 p.m.
7:30 p.m.—9:55 p.m.

3 hours

8:00 a.m.—11:00 a.m.
10:10 a.m.—1:10 p.m.
1:25 p.m.—4:25 p.m.
7:30 p.m.—10:30 p.m.

On Monday, Tuesday, Wednesday, and Thursday the hours of 4:25 to 7:30 p.m.; on Friday the hours after 4:25 p.m.; on Saturday the hours after 12:05 p.m.; and all day Sunday are free from all formal undergraduate class or laboratory exercises.

Evening classes are held only on Monday and Wednesday and only when regularly scheduled and included in written college announcements or when recommended by the Committee on Academic Records and Instruction. Evening lectures, recitations, and similar exercises start at 7:30 and 8:35 p.m.; evening laboratories and similar exercises start at 7:30 p.m.

Evening preliminary examinations that will be given outside of normal class hours may be scheduled on Tuesday and Thursday evenings only, beginning at 7:30 p.m. All such examinations must be scheduled with the Examination and Room Coordinator in the Office of the University registrar. The dates and times of these examinations are listed in the *Course and Room Roster* for each term.

Any exception to the above regulations, other than those for evening preliminary examinations, will require permission of the dean or director of the college or school offering the course. Exceptions to the regulations on evening preliminary examinations require approval of the dean of the University Faculty. All such exceptions must include provision of special arrangements for the students for whom conflicts are generated by such an exception.

Final Examinations

Final examinations for undergraduate courses are scheduled by the Office of the University Registrar. Examinations may be one, two, or two and one-half hours in length at the discretion of the department

concerned. Examinations not listed in the registrar's examination schedule will be arranged by the professor in charge and must fall within the announced examination period, except by the express permission of the dean of the faculty in accordance with existing faculty legislation.

Evening Examinations

Evening examinations, including makeup examinations, may be scheduled only on Tuesday and Thursday evenings and only after 7:30 p.m. *without prior permission* from the Office of the University Faculty. Such prior permission is not, however, required for examinations or makeup examinations involving small numbers of students (generally thirty or less), provided that the scheduled time is acceptable to the students involved and that an alternative time to take the examination is provided for those students who have academic, athletic, or employment conflicts at the time scheduled.

Permission from the Office of the University Faculty to schedule on evenings other than Tuesdays or Thursdays or at a time prior to 7:30 p.m. will be granted only on the following conditions: (a) conditions such as the nature of the examination, room availability, a large number of conflicts, etc., justify such scheduling; and (b) an alternative time to take the examination *must* be provided for those students who have academic, athletic, or employment conflicts at the time scheduled.

If there is a conflict between an examination listed on the schedule developed at the annual evening prelim scheduling meeting and an examination not on the schedule, the examination on the schedule has priority, and the course not on the schedule *must* provide an alternative time for those students with a conflict. If there is a conflict between examinations, both of which are on the schedule developed at the annual evening prelim scheduling meeting or both of which are not on the schedule, the instructors of the courses involved *must* consult and agree on how to resolve the conflict. Both instructors *must* approach this resolution process with a willingness to provide an alternative or early examination.

Note that instructors holding evening examinations are strongly urged to indicate this in the course descriptions listed in *Courses of Study* and *must* notify students of the dates of such examinations as early as possible in the semester, preferably when the course outline is distributed.

Auditing Courses

Summer school and extramural students may officially register as visitors (auditors) in courses and have this entered on their permanent records if their attendance is reported as satisfactory. Graduate students may register for courses as auditors but will not have the courses listed on their transcripts. Undergraduates may not register to audit courses.

Leaves and Withdrawals

A leave of absence must be requested from the college in which the student is enrolled. A leave of absence is granted for a specified time, after which the student is expected to return to resume course work. The student should inform the college of enrollment of his or her intent to return.

A student may withdraw from the university at the student's discretion. However, a college may withdraw a student who fails to return at the end of a period of authorized leave.

Medical leaves are granted and processed through University Health Services.

Internal Transfers

Transfer from one undergraduate unit to another is not guaranteed. A student in good standing may apply to transfer from one college to another within the university. It is necessary for an internal transfer to inform the admitting college of the acceptance of admission within seven days of the offer of admission. Students interested in transfer within the university should consult with the appropriate school or college office.

Privacy of Records

According to federal law, grades are restricted information and may be released only to the student or at the student's written request. Thus grades earned on examinations or in courses may not be posted by name. Posting by student ID number is, however, permissible. Although there is no federal or state legislation that pertains to the manner in which graded work is to be returned to students, the returning of such materials should be handled in such a manner as will preserve the student's privacy.

Course Numbering System

The course levels have been assigned as follows:

- 100-level course—introductory course, no prerequisites, open to all qualified students
- 200-level course—lower-division course, open to freshmen and sophomores, may have prerequisites
- 300-level course—upper-division course, open to juniors and seniors, prerequisites
- 400-level course—upper-division course, open to seniors and graduate students, 200- and 300-level course prerequisites or equivalent
- 500-level course—professional level (e.g., management, law, veterinary medicine)
- 600-level course—graduate-level course, open to upper-division students
- 700-level course—graduate-level course
- 800-level course—master's level, thesis, research
- 900-level course—doctoral level, thesis, research

Guide to Course Listings

The list of courses that follows is arranged in two broad groups.

Group 1: Divisions that offer both undergraduate- and graduate-level courses

Agriculture and Life Sciences
Architecture, Art, and Planning
Arts and Sciences
Biological Sciences
Engineering
Hotel Administration
Human Ecology
Industrial and Labor Relations
Nutritional Sciences
Officer Education

Group 2: Graduate professional divisions

Law
Management
Veterinary Medicine

There are no courses offered by the Graduate School as a unit; graduate-level courses are contained in the various departments that offer the instruction.

Within each division, courses are generally arranged in alphabetical order by department and in numerical order within the departments. All courses, 0-999, are briefly described for those divisions (group 1) offering instruction to both undergraduate and graduate students. Courses in the graduate professional divisions (group 2) are designated by number and title only.

It is not possible to keep this single-volume course list completely up-to-date. The most current information regarding course schedules, sections, rooms, credits, and registration procedures may be found in the *Course and Time Roster* and the *Course and Room Roster*, each issued twice a year by the Office of the University Registrar. Students are also advised to consult the individual college and department offices for up-to-date course information.

Grading Guidelines

The official university grading system uses letter grades with pluses and minuses. Passing grades range from A+ to D-; F is failing. INC denotes a grade of incomplete, and R is the grade given at the end of the first semester of a year-long course. The grades of INC and R do not have quality-point equivalents attached. These are the quality-point equivalents:

A+ = 4.3	B+ = 3.3	C+ = 2.3	D+ = 1.3
A = 4.0	B = 3.0	C = 2.0	D = 1.0
A- = 3.7	B- = 2.7	C- = 1.7	D- = 0.7
			F = 0.0

This is how a term average is computed:

Course	Grade	Quality Points	Credits	Product
Chemistry 103	B+	3.3	3	9.9
English 151	C-	1.7	3	5.1
DEA 145	B	3.0	4	12.0
CEH 100	B	3.0	3	9.0
DEA 111	C	2.0	3	6.0
Total			16	42.0

To arrive at the term average, add the products (credits \times quality points) and divide by the number of credits taken. Here, 42 divided by 16 equals 2.63.

The cumulative average (an average of grades from two or more terms) equals the sum of the products of all the grades at Cornell divided by the total number of credits taken.

S-U Grades

On September 6, 1972, the University Faculty Council of Representatives passed the following legislation:

"Resolved, that:

- the S/U system have symbol equivalents which are uniform within the University: "S" means C- or above; "U" means D+, D, D-, or failure.
- S/U options be chosen by the student during the first three weeks of the term.
- the Announcements and/or supplementary course registration material describing each course include a description of the course grading options, particularly if the course is graded with an exclusive S/U. Any change in grading options must be announced by the instructor within the first two weeks of the term.
- course requirements (required reading, term paper, etc.) be the same for students electing S/U grades as for those electing letter grades.

The rules for the S/U option are further defined by each of the Academic Units. They are as follows:

Agriculture and Life Sciences. (a) Must have 100 credit hours with A, B, C, D grades. (b) The S/U option is available only in those courses so designated in the course catalog after approval by the Educational Policy Committee. (c) Freshmen may not exercise the S/U option.

Architecture, Art and Planning. (a) All courses specifically required for a degree excluded. Various departments may designate specific required courses where S/U will be permitted. (b) In a course designed as S or U, the entire class is so graded. The instructor must announce this decision within the first two weeks of class. (c) Where the option for S or U exists, both student and instructor must agree on the option. This agreement must be made by the end of the third week of classes on the appropriate form in the College Office. Once agreed upon, this grade option will be used for the final grade.

Arts and Sciences. (a) Courses that count toward satisfaction of major requirements should not be taken for an S or U grade unless the department grants permission. (b) Permission of instructor. (c) A minimum

of 80 of the 120 hrs. required for the A.B. degree must be in courses for which the student has received letter grades.

Engineering. (a) May take one Humanities and Social Sciences, Approved, or Free Elective per term after completing first semester. (b) This option may be elected during Pre-Course Enrollment or with the written permission of the instructor and advisor on an add/drop form in the first 3 weeks of classes. (c) Decision irrevocable after first 3 weeks of term.

Graduate School. (a) Seminars and Thesis Research courses are usually graded S/U, and should be registered accordingly or a grade error results at semester's end. Other courses may be registered as S/U only if offered as S/U option.

Hotel. (a) Maximum of four free-elective credit hours per term. (b) Exceptions are required hotel courses or elective hotel courses offered only on S/U basis.

Human Ecology. (a) Not part of student's major. (b) May be used in the 15 hours required outside the major in Human Ecology courses. (c) Not part of 39 hours required in humanities, natural sciences and social science. (d) A department may approve S/U grading in specific courses if approved by Educational Policies Committee. (e) Permission of the instructor. (f) Available each of last four terms with a total of 4 S/U courses during student's college career.

Industrial and Labor Relations. (a) This option may be elected, if available in I&LR electives, or in out-of-college electives but not including directed studies. (b) Degree requirements include a minimum of 105 lettergrade (A+ to D-) credits. (c) Student must also be in good academic standing. (d) A "U" is considered the equivalent of an "F" in determining a student's academic status. (e) Limited to two courses per term, not to exceed four hours in any one course.

Unclassified. (a) S/U grades permitted only when it is the only option or (b) when specifically approved by an admissions officer in the school or college to which the student plans to transfer.

Veterinary Medicine. (a) There are seven courses in the Veterinary core curriculum that are offered on an S/U basis only. All other required core courses must be taken for a letter grade. (b) Elective courses for Veterinary students may be offered on a S/U basis at the option of the professor."

Incomplete

The grade of incomplete is appropriate only when two basic conditions are met:

- the student has a substantial equity at a passing level in the course with respect to work completed, and
- the student has been prevented by circumstances beyond the student's control, such as illness or family emergency, from completing all of the course requirements on time.

A grade of incomplete may not be given merely because a student fails to complete all course requirements on time. It is not an option that may be elected at the student's own discretion.

While it is the student's responsibility to initiate a request for a grade of incomplete, reasons for requesting one must be acceptable to the instructor, who establishes specific make-up requirements. The instructor has the option of setting a shorter time limit than that allowed by the student's college for completing the course work. Several colleges require that a statement signed by the instructor be on file indicating the reason for the grade of incomplete and the restriction, if any.

It is the responsibility of the student to see that all grades of incomplete are made up within the deadline and that the grade has been properly recorded with the student's college registrar.

Changes in Grades

Changes in a grade may be made only if the instructor made an error in assigning the original grade.

Official Transcripts

An official transcript is one that bears the official seal of the university and the signature of the university registrar, sent in a sealed envelope directly from the Office of the University Registrar to another institution or agency as directed by the student. Transcripts can be obtained through the Office of the University Registrar, 222 Day Hall.

University Requirements for Graduation

For degree requirements such as residency, number of credits, distribution of credits, and grade averages, see the individual requirements listed by each college or school or contact the college offices.

Physical Education

All undergraduate students must complete two terms of work in physical education unless exempted from this requirement for medical or other special reasons or by virtue of advanced standing on admission. For transfer students the requirement is reduced by the number of terms satisfactorily completed, not necessarily including physical education, in a college of recognized standing before entering Cornell.

Credit in physical education may be earned by participating in courses offered by the Department of Athletics and Physical Education, participating on an intercollegiate athletic team as a competitor or manager, or performing in the marching band.

Physical education is a requirement of the first two terms at Cornell. Students must register for it in each term, except those in which postponements are granted, until the requirement is satisfied.

Temporary postponements may be granted on the basis of physical disability, schedule conflicts, or excessive work load (employment exceeding twenty hours a week). The Gannett Health Center can provide certifications based on health, and the Financial Aid Office can provide certifications of employment. Students should see the Department of Athletics and Physical Education to establish postponements or waiver of the requirement. Questionable or unusual cases may be resolved by petition to the Faculty Advisory Committee on Athletics and Physical Education.

Swim test. All new students who do not pass a basic seventy-five-yard swim test are required to include swimming in their program of physical education unless they are excused by Gannett Health Center. All nonswimmers are required to register in beginning swim classes.

Student Responsibilities

Students are responsible for meeting all requirements for the courses in which they are enrolled, as laid down by the faculty members teaching the courses. It is also the student's responsibility to be aware of the specific major, degree, distribution, college, and graduation requirements for completing his or her chosen program of studies. Students should know how far they have progressed in meeting those requirements at every stage of their academic career.

Student Records

The university policy on access to and release of student records conforms to the Family Educational Rights and Privacy Act of 1974. See *Policies and Procedures for Students, Faculty and Staff* for details of university policy.

Bursar Information

Tuition, Fees, and Expenses

Tuition for Academic Year 1988-89

Endowed Divisions

Undergraduate

Architecture, Art, and Planning	
Arts and Sciences	
Engineering	
Hotel Administration	
Unclassified division	\$13,100

Graduate

Graduate School (with major chairman in an endowed division)	13,100
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Professional

Law School	13,800
Management	13,800

Statutory Divisions

Undergraduate

Agriculture and Life Sciences	
Human Ecology	
Industrial and Labor Relations	
New York resident*	5,200
Nonresident*	9,300

Graduate

Graduate School (with major chairman in agriculture, human ecology, or industrial and labor relations)	6,040
Graduate School—Veterinary Medicine	8,000

Professional

Veterinary Medicine	
New York resident*	8,450
Nonresident*	10,200

Summer Session (1988)

Per credit	\$275
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Extramural Division

Per credit	\$315
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Other Tuition and Fees

In absentia fees	
Graduate	\$200 per term
Undergraduate	\$15 per term
Law and Management	\$75 per term

Excess hours tuition rate for students in statutory units taking extra endowed credits	
Per credit hour	\$312.06

The amount, time, and manner of payment of tuition, fees, or other charges may be changed at any time without notice.

*Residency status is determined at the time of admission by the college. Change in residency status is determined by the bursar.

Fees and Expenses

Undergraduate applicants to Cornell pay a non-refundable \$45 application fee when submitting an application for admission. The graduate application fee is \$40.

Acceptance Deposit

An acceptance deposit of \$200 is required of all entering undergraduate students. If a student does not enter in the semester for which the deposit is paid, or does not formally withdraw before July 1 for the fall semester or December 1 for the spring semester, the deposit is forfeited. Acceptance deposits paid for students entering in fall 1988 and after will be refunded during the student's first semester at Cornell. The refund will take the form of a credit to the student's bursar account. Deposits paid for students who entered prior to fall 1988 will be refunded after the students' final semester at Cornell. Students who withdraw or take a leave of absence from the university will forfeit their deposit if they do not formally initiate the action before July 1 for the fall semester or December 1 for the spring semester.

Tuition Refund Policy

Amounts personally paid for tuition may be refunded if the student requests a leave of absence or withdrawal from the office of the dean of his or her college of enrollment. The date of this request will determine the tuition liability for the semester. Students who terminate their registration with the university during a fall or spring semester in this manner will be charged tuition from the university registration day through the date of their request as follows: first six days of the semester (including university registration day), no charge; seventh day of the semester, 10 percent; second week, 20 percent; third week, 30 percent; fourth week, 40 percent; fifth week, 60 percent; sixth week, 80 percent; seventh week to the end of the semester, 100 percent.

Repayment policy. Students receiving financial aid from the university who withdraw during a term will have their aid reevaluated, possibly necessitating repayment of a portion of aid received. Repayment to aid accounts depends on the type of aid received, government regulations, and the period of time in attendance. A partial semester will generally count as one of the eight semesters of financial aid eligibility normally allowed a student.

Billing and Payment

Billing

Tuition and room and board charges will be billed in July and December and must be paid prior to registration. The due date for these semester bills will normally be five to ten working days prior to registration day. All other charges, credits, and payments will appear on monthly statements mailed before the twenty-fifth of every month.

It is possible that some charges will not be listed on the first bill and will appear on a subsequent monthly bill. *A student must be prepared to pay any charges appearing on a subsequent bill even though the student receives a financial aid stipend before the charges are billed.*

All bills are due by the date stated on the bill; all payments must be received by that date to avoid finance charges. Payments are not processed by postmark.

Please inform the Office of the Bursar of any change in billing address. *Address changes made at other offices will not change the billing address.* The address initially used on billing statements will be the home address as listed on each student's application for admission.

Payments

An individual who has outstanding indebtedness to the university will not be allowed to register or reregister in the university, receive a transcript of record, have academic credits certified, be granted a leave of absence, or have a degree conferred. If students' bills show a previous unpaid balance, they must arrange for payment by August 12 if they plan to register for the fall semester. University policy precludes the use of any current financial aid for payment of past-due charges.

The Office of the Bursar acts as a clearinghouse for student charges and credits that are placed directly on a student's bill by several departments and offices of the university. *Since the Office of the Bursar does not have detailed records concerning many items that appear on a bill, students should contact the office involved if they have questions.*

For further information, students should contact the Office of the Bursar, Cornell University, 260 Day Hall, Ithaca, New York 14853-2801 (telephone: 607/255-2336).

Cornell Installment Plan (CIP)

Cornell offers to all students a monthly installment plan for payment of university expenses. Information about this plan is mailed to parents of continuing students in April of each year and to parents of incoming freshmen and transfers in May of each year.

Multiple-Year Tuition Prepayment Plan

This plan is available to the parents of students who are not financial aid recipients. Two, three, or four years' tuition may be paid at the tuition rate in effect for the next full school year. Future tuition increases do not affect participants for the duration of their prepayment plan. For further information, interested persons should contact the Office of the Bursar, Cornell University, 260 Day Hall, Ithaca, New York 14853-2801 (telephone: 607/255-2336).

Accident and Sickness Insurance

The accident and sickness insurance charge on the July billing statement is for insurance for hospitalization, surgical fees, and major medical coverage for the period of August 23, 1988, through August 21, 1989. The cost of this insurance is lower than the average cost of comparable coverage under other group accident and health insurance policies. A brochure is included with the August bill.

For those who do not want medical insurance coverage, a medical insurance waiver form (included with the bursar's statement mailed in mid-July) must be completed and returned no later than September 26, 1988. Waivers cannot be processed after this date. If a waiver form is lost or destroyed, a replacement can be obtained by contacting the Gannett Health Center (telephone: 607/255-6363).

Tuition Refund Insurance

To provide a more comprehensive refund program, Cornell makes available the Tuition Refund Plan. This plan provides refunds of tuition in the event of absence or withdrawal for medical or emotional reasons. Students should contact the Office of the Bursar for further information.

Cornellcard

Cornellcard is a university charge card that can be used for making purchases on campus. Any registered, full-time, matriculated student may apply for a Cornellcard by filling out an agreement form. A \$5 annual nonrefundable fee is assessed the first time a charge is made. The replacement fee for a lost card is \$15. Itemized monthly statements, which are mailed to students, must be paid by the due date on the statement, or finance charges of 1¼ percent per month (15 percent annual rate) will be assessed. All accounts must be paid in full before each registration period. Accounts with unpaid balances at the close of a semester (other than for the current monthly charges) may not be renewed, and university registration will not be permitted, nor transcripts issued or degrees conferred, until the past-due balance has been paid. The Cornellcard is nontransferable. Loss, theft, or possible unauthorized use should be reported

immediately to the Cornellcard Office, 260 Day Hall (telephone: 607/255-6324). The maximum permissible account balance at any one time is \$500. Credit privileges will be suspended without notice on any account in excess of the credit ceiling. A brochure is available on request from the Office of the Bursar.

Bad-Check Policy

Any check not honored by a bank will be charged to a student's bursar account, along with a fine for the returned check, according to the following schedule:

Returned Check Amount	Fine
up to \$50	\$10
\$50.01-\$200	15
over \$200	25

These charges will be subject to a finance charge at the rate of 1¼ percent per month (15 percent annual rate).

Check-cashing privileges will be suspended for at least one semester for anyone who writes two or more bad checks during the semester. In addition, Cornellcard charging privileges will be suspended. Students who issue four bad checks are subject to disciplinary action through the university judicial system and will have their check-cashing privileges permanently suspended along with Cornellcard charging privileges.

Programs of Financial Assistance

Cornell University offers a variety of scholarships, grants, employment opportunities, and loans to students who demonstrate financial need. Since requirements and application procedures may differ among programs, students are encouraged to contact the appropriate office for specific information. Application deadlines, program information, and job listings are available through CUINFO, the university's computerized information system. In addition, financial aid and student employment issues are discussed in regular newsletters distributed by the Office of Financial Aid and Student Employment.

For information concerning financial aid programs, consult the following offices:

Undergraduate students: Office of Financial Aid, Cornell University, 203 Day Hall, Ithaca, New York 14853-2801 (607/255-5145).

International students: International Students and Scholars Office, Cornell University, 200 Barnes Hall, Ithaca, New York 14853-1601 (607/255-5243).

Student employment: Student Employment Office, Cornell University, 203A Day Hall, Ithaca, New York 14853-2801 (607/255-5145).

Graduate School: Graduate Financial Aid Office, Cornell University, 116 Sage Graduate Center, Ithaca, New York 14853-6201 (607/255-4884).

Law School: Law School, Office of Admissions and Financial Aid, Cornell University, Myron Taylor Hall, Ithaca, New York 14853-4901 (607/255-6292).

Graduate School of Management: S. C. Johnson Graduate School of Management, Office of Admissions and Student Affairs, Cornell University, 312 Malott Hall, Ithaca, New York 14853-4201 (607/255-7248).

College of Veterinary Medicine: New York State College of Veterinary Medicine, Cornell University, C106 Schurman Hall, Ithaca, New York 14853-6401 (607/253-3765).

Eligibility

To be eligible for assistance a student must be enrolled full-time in a degree program at Cornell or be eligible to register in a college or division, and not owe a refund from any grant or loan or be in default on any loan received to attend any postsecondary institution. Students on leaves of absence and undergraduates registered in absentia are not eligible to receive Cornell assistance.

New students and continuing-aid recipients who have met application deadlines have top priority for receiving undergraduate aid. Continuing undergraduates applying for aid for the first time are considered on the basis of remaining funds.

To determine eligibility for the need-based assistance at the undergraduate level the university follows closely, but does not strictly adhere to, the need analysis procedures used by the College Scholarship Service. In addition, the composition of the financial aid package (proportion of self-help/scholarship) is influenced by the ratings of the college or school admissions selection committees. Financial aid packages will not change because of less-than-expected academic performance for at least two years from the date of the initial award. However, as in the past, aid packages may vary in subsequent years on the basis of changes in family financial circumstances, increased costs, and the availability of federal funds.

Application

Applications for undergraduates for the 1989-90 academic year will be available from the Office of Financial Aid in December 1987. Undergraduates are required to reapply for financial aid annually and must submit applications by April 15, 1989.

Non-University Financial Aid

State loan proceeds are usually disbursed by a check made payable jointly to the student and Cornell University. Guaranteed Student Loan (GSL) checks are sent to the bursar's office and are credited to the student's account after the student endorses the check. *Finance charges on state loan amounts are not waived unless Cornell is responsible for late processing of the loan application.*

National Merit Scholarships are paid in the form of a check from the National Merit Scholarship Corporation that is sent to the Office of Financial Aid. Because those checks are received after tuition payments are due, the Office of Financial Aid authorizes a deferred credit each semester in the amount of these scholarships prior to receipt of the check.

Other scholarships from sources outside the university are considered part of the financial aid award. With the exception of state and federal grants, the first \$500 of any outside scholarship will be used to reduce expected self-help (loan or work). Fifty percent of the remaining amount will also be used to reduce self-help until the self-help minimum is reached, while the remaining fifty percent will reduce university scholarship aid. Once the self-help minimum is reached, all scholarships in this category will reduce university grants.

Scholarships from sources outside the university are credited to the student's initial bill from the bursar if checks are received prior to the date the bill is prepared. Checks received after the initial billing will be applied toward unpaid charges. *Any finance charges caused by the late receipt of checks for outside scholarships will be the student's responsibility.* It is important, therefore, that the student arrange with any outside scholarship donors to have checks mailed to the university Office of Financial Aid as promptly as possible. If all university charges have been paid at the time the outside scholarship is deposited, a refund check will be issued to the student. These checks may be picked up in 260 Day Hall.

Undergraduate students receiving aid from the university are required to report receipt of any outside scholarship resources to the Office of Financial Aid.

The New York State Tuition Assistance Program (TAP) is for students who are New York State residents and whose New York State net taxable income for 1987 was \$34,250 or less. Students from families with higher incomes may qualify for an award if more than one child is in college. TAP awards range from \$175 to \$1,425 per semester. Students must apply annually for awards by completing a TAP application and mailing it to the New York State Higher Education Services Corporation (NYHESC). An award certificate is sent by NYHESC to inform applicants of their award eligibility. A copy of the award certificate must be submitted by the student to the Office of the Bursar before credit can be claimed. In disbursing awards to students' accounts, the university is responsible for certifying the amount of tuition due and that each recipient is enrolled full-time in an approved program and is in good academic standing. The definitions of each of these terms are as follows:

Enrolled full-time: registered for 12 credits or more per semester.

Good academic standing:

- 1) *Pursuit of program:* Freshmen are required to complete a minimum of 6 credits per semester; sophomores, 9 credits per semester; and juniors

and seniors, 12 credits per semester. Standards for graduate students are determined by each recipient's Special Committee.

- 2) *Satisfactory academic progress:* Each recipient must maintain eligibility to reregister each semester.

Any New York State resident receiving a tuition benefit administered by Cornell is required to apply for a TAP award. (Graduate students receiving aid from Cornell for their tuition who are eligible for TAP and choose not to apply will be billed \$600 per semester.)

The TAP program is administered by the Office of the Bursar, 260 Day Hall (telephone: 607/255-6414).

The Cornell Tradition

The Cornell Tradition is a unique program of financial assistance for undergraduates. The program is made possible through the generosity and support of alumni and friends of the university. It seeks to reward those undergraduate men and women who demonstrate a commitment to the work ethic by funding a portion of their education expenses.

The Cornell Tradition offers fellowships and a summer job program. Fellowship programs are restricted to students receiving need-based financial aid from the university. The Summer Job Network is available to any undergraduate regardless of financial need.

Freshman and Transfer Fellowships. Students are nominated for fellowships during the admission process on the basis of work experience, leadership, and scholarship achievements. Fellows may receive up to \$2,500 to replace the recommended loan during their first year of study at Cornell.

Academic Year Fellowship. Students must apply during the spring semester. Fellows are chosen on the basis of work experience, community service, and scholarship achievements and may receive up to \$2,500 to replace the recommended loan in the next year's financial aid package.

Summer Fellowship. This is available only to Cornell Tradition fellows and students placed through the Summer Job Network. Students may receive up to \$1,550 to replace unmet summer savings expectations if they accepted a summer job away from their hometown. Applications are due early in the fall semester.

Summer Job Network. Students must apply by the end of the fall semester. Accepted candidates are referred to career-related summer job opportunities developed by a nationwide network of alumni volunteers.

More information regarding the Cornell Tradition can be obtained from the Student Employment Office, 203A Day Hall.

Financial Aid Services

Counseling on individual financial aid problems and questions is available from trained counselors in the Office of Financial Aid. Appointments may be made at the reception desk at the Office of Financial Aid, located in 203 Day Hall. Parents are welcome, though it is suggested that appointments be verified before visiting the campus. Peer advisers are also available to answer routine questions regarding application procedures and sources of aid.

Orientation Sessions

Although attendance at orientation sessions is not required, the Office of Financial Aid strongly recommends that all new undergraduate financial aid recipients and their parents attend one of the financial

aid orientation sessions listed in the Cornell orientation program. A schedule of orientation events is available from the Dean of Students Office.

Student Employment Services

The Student Employment Office (SEO), at 203A Day Hall, has counselors available to assist students in locating part-time employment during the academic year and full-time employment for the summer. A variety of programs and services are administered and available through the Student Employment Office, including the College Work-Study Program, non-work-study job opportunities, the Cornell Tradition, resolution of employee-employer conflicts, information regarding the student employee job-classification and wage-scale system, and off-campus job opportunities.

Information regarding job postings is available through the SEO, CUIINFO, *Scoop Sheet* (a monthly newsletter for students who work) and "Student Employment Notes" (a column in the *Cornell Daily Sun*).

Statement of Student Rights and Responsibilities

- 1) Students have the right to be informed of, and to apply for, all financial aid programs for which they are eligible and have the responsibility to apply by program deadlines and to acquaint themselves with the application procedure.
- 2) Students have the right to know how financial need and award packages will be determined and to request a review of the financial aid package should circumstances change to negatively affect the family's ability to meet costs of attendance, and have the responsibility to notify the university should new resources become available to the student that were not originally considered.
- 3) Students who borrow from the university have a right to full disclosure of the terms and provisions of loan programs, including typical repayment schedules, and have the responsibility to attend preloan and exit interviews before borrowing and leaving the university. They must repay loans on a timely basis and keep the university informed of their current address.
- 4) Students have the right to be informed of financial aid policies and have the responsibility to be aware of all published financial aid policies and to comply with these policies.
- 5) Students have the responsibility to submit accurate information on all university documents relating to the financial aid application process.

Code of Academic Integrity¹

"Principle

Absolute integrity is expected of every Cornell student in all academic undertakings. Integrity entails a firm adherence to a set of values, and the values most essential to an academic community are grounded on the concept of honesty with respect to the intellectual efforts of oneself and others. While both students and faculty of Cornell assume the responsibility of maintaining and furthering these values, this document is concerned specifically with the conduct of students.

A Cornell student's submission of work for academic credit indicates that the work is the student's own. All outside assistance should be acknowledged, and the student's academic position truthfully reported at all times. In addition, Cornell students have a right to expect academic integrity from each of their peers.

I. Guidelines for Students

A. General Responsibilities

1. A student shall in no way misrepresent his or her work.
2. A student shall in no way fraudulently or unfairly advance his or her academic position.
3. A student shall refuse to be a party to another student's failure to maintain academic integrity.
4. A student shall not in any other manner violate the principle of academic integrity.

B. Examples of Violations

The following actions are examples of activities that violate the Code of Academic Integrity and subject their actors to proceedings under the Code. This is not a definitive list.

1. Knowingly representing the work of others as one's own.
2. Using, obtaining or providing unauthorized assistance on examinations, papers, or any other academic work.
3. Fabricating data in support of laboratory or field work.
4. Forging a signature to certify completion of a course assignment or a recommendation to graduate school.
5. Unfairly advancing one's academic position by hoarding library materials.
6. Misrepresenting one's academic accomplishments.

C. Specific Guidelines for Courses

1. Examinations. During in-class examinations no student may use, give or receive any assistance or information not given in the examination or by the proctor. No student may take an examination for another student. Between the time a take-home examination is distributed and the time it is submitted by the student for grading, the student may not consult with any persons other than the course professor and teaching assistants regarding the examination. The student is responsible for understanding the conditions under which the examination will be taken.
2. Course Assignments. Students are encouraged to discuss the content of a course among themselves and to help each other to master it, but no student should

receive help in doing a course assignment that is meant to test what he or she can do without help from others. Representing another's work as one's own is plagiarism and a violation of this Code. If materials are taken from published sources the student must clearly and completely cite the source of such materials. Work submitted by a student and used by a faculty member in the determination of a grade in a course may not be submitted by the student in a second course, unless such submission is approved in advance by the faculty member in the second course. If a student is submitting all or part of the same work simultaneously for the determination of a grade in two or more different courses, all faculty members in the courses involved must approve such submissions.

3. Academic Misconduct. A faculty member may impose a grade penalty for any misconduct in the classroom or examination room. Examples of academic misconduct include, but are not limited to, talking during an exam, bringing unauthorized materials into the exam room, and disruptive behavior in the classroom.
 - a. The faculty member must promptly notify the student of the reason for the imposition of a penalty for academic misconduct and the degree to which his or her grade will be affected.
 - b. Academic misconduct is not a violation of academic integrity. The student may, however, seek review by the Academic Integrity Hearing Board on the basis either that the finding of guilt is arbitrary and capricious or that the penalty for academic misconduct is excessive or inappropriate to the circumstances involved.²

D. Variances

A faculty member is responsible for informing his or her students and teaching assistants of variances from this Code that apply to work in his or her course. These variances should be clearly stated in writing at the beginning of the course or activity to which they apply.

E. Jurisdiction

The authority to determine whether a specific action shall be treated as a violation of academic integrity lies with the Academic Integrity Hearing Board.

II. Organization and Procedures

- A. Students and staff members discovering an apparent violation should report the matter to the faculty member in charge of the course or to the chairperson of the appropriate Hearing Board. The chairperson is responsible for ensuring that all members of the school or college know to whom the report should be made.

B. Primary Hearing

1. Primary hearings are to be held by the faculty member unless the penalties available to him or her are inadequate, in which case, he or she may refer the case directly to the Hearing Board.
2. Notification. If, after investigation, possibly including a discussion with the student, a faculty member believes that a student has violated the Code of Academic Integrity, the charge shall include notification of a primary hearing to be held as soon as practical after the alleged infraction has come to the

¹Adopted by the Faculty Council of Representatives, May 24, 1976, Records, pp. 4525-27C, Appendix A; March 11, 1981, Records, pp. 5298-5303C; May 12, 1982, Records, pp. 5505-06C; April 10, 1985, Records, pp. 5991-6002C and May 15, 1985, Records, pp. 6073-84C.

²"Arbitrary and capricious" describes actions which have no sound basis in law, fact, or reason or are grounded solely in bad faith or personal desires. A determination is arbitrary and capricious only if it is one no reasonable mind could reach.

attention of the faculty member, but with at least one week's notice to the student. This notification period may be shortened by the agreement of both parties. The charge shall include notice of the availability of the Judicial Advisor.

3. Composition. At the primary hearing the following shall be present: the faculty member concerned, the student in question, and a third party independent witness. The independent witness shall be a faculty member or a student appointed by the Hearing Board Chairperson or the chairperson of the faculty member's department. The student may bring to the hearing an advisor and additional witnesses to testify to his or her innocence.

4. Procedure.

- a. At the primary hearing, the faculty member shall present evidence in support of the charge against the student. The student shall be given the opportunity to respond and, if he or she wishes, to present evidence refuting the charge.
- b. The function of the independent witness is to observe the proceedings impartially, and in the event of an appeal from the judgment of the faculty member, be prepared to testify as to the procedures followed.
- c. After hearing the student, the faculty member may either dismiss the charge or, if there is clear and convincing evidence that the student has violated this Code, find the student guilty. If the student is found guilty, the faculty member may impose any suitable grade punishment including failure in the course.³
- d. A student wishing to seek review of the decision may bring the case before the Academic Integrity Hearing Board of the faculty member's college.
- e. A faculty member who gives a penalty for a violation of academic integrity shall immediately report this action and the nature of the violation in writing to the student and to the record-keeper of the faculty member's Academic Integrity Hearing Board. This record-keeper shall then be responsible for its communication to the record-keeper in the student's college.
- f. If the student fails to attend the primary hearing without a compelling excuse, the hearing may proceed in his or her absence.

C. College Academic Integrity Hearing Boards

1. Composition. Each college and school in the University, including the Graduate School and the Division of Summer Session, Extramural Study and Related Programs, shall establish its own Academic Integrity Hearing Board. A model Hearing Board consists of the following:

- a. A chairperson who is a member of the faculty, and, preferably, an experienced Board member, appointed by the dean of the college for a two-year term.
- b. Three faculty members elected for three-year terms by the faculty of the college, except that in the case of the Division of

Summer Session, Extramural Study, and Related Programs the faculty members shall be appointed by the dean.

- c. Three students elected by the student body of the college or appointed by the dean of the college for at least one year, and preferably two-year terms. When possible, student terms should be staggered.
- d. A non-voting record-keeper responsible for keeping clear and complete records of the proceedings.

2. Jurisdiction

- a. The student may seek review of the decision of the primary hearing if:
 - 1) He or she believes the procedure was improper or unfair.
 - 2) He or she contests the finding of the faculty member.
 - 3) He or she believes the penalty was too strict considering the offense.
- b. After holding a primary hearing, the faculty member may bring the case to the Hearing Board if he or she believes a failing grade is too lenient considering the offense.
- c. A student found guilty of more than one violation of the Code may be summoned before the college Hearing Board by the dean of his or her college. The Hearing Board may impose an additional penalty for such repeated offenses.
- d. The dean of student's college who receives a report that a student has committed a violation of academic integrity while attending another academic institution or while enrolled in a Cornell sponsored off-campus program may, if he or she feels the situation warrants, summon the student to appear before the College Hearing Board.

The Hearing Board may impose any penalty, including an additional penalty, it feels appropriate for the violation involved.

- e. The Academic Integrity Hearing Board shall hear all cases that come before it de novo.

While the hearing board may recommend an increase in any penalty imposed at the primary hearing, it should consider raising the penalty, if it is the student seeking review, only in the exceptional case.

- f. The individual seeking review shall notify the chairperson of the Hearing Board of the faculty member's college within ten working days of the primary hearing. An exception to this deadline may be granted at the discretion of the Chairperson of the Hearing Board on a showing of good cause.

3. Procedures

- a. Each Board shall conform to procedures established by the Faculty Council of Representatives. Any college or school wishing to adopt a Board or procedures varying from this model must receive prior approval from the Dean of Faculty.
- b. The Academic Integrity Hearing Board shall convene as soon as practical after notification of a request for review, although seven days notice should be given to all parties if possible. If a grade for the student in the course must be submitted before a case can be decided, the faculty member shall record a grade of incomplete, pending a decision by the Hearing Board.

c. Those present at the Hearing shall be:

- 1) The student, who has the right to be accompanied by an advisor and/or relevant witnesses,
- 2) The faculty member, who has the right to bring relevant witnesses,
- 3) The third party independent witness, if a primary hearing was held,
- 4) Any other person called by the chairperson.

- d. Should the student or faculty member fail to appear before the Hearing Board, the Board shall have full authority to proceed in his or her absence.

- e. The Board members shall hear all available parties to the dispute and examine all the evidence presented. The Board may solicit outside advice at the discretion of the chairperson. The chairperson shall preside over the Hearing to ensure that no party threatens, intimidates, or coerces any of the participants.

- f. The student shall have the right to present his or her case and to challenge the charges or the evidence. The student's advisor may assist the student in the presentation and questioning.

- g. At least two-thirds of the voting Board members shall be present at every Hearing, including two students and two faculty members. Both parties may agree in writing to waive this quorum. Of those present, a simple majority shall decide the issue. The chairperson shall vote only in the case of a tie vote. The Board shall find the student guilty only if there is clear and convincing evidence indicating that the student has violated this Code.⁴

- h. The chairperson shall notify each party to the dispute, in writing, of the Board's decision and, if appropriate, the penalty imposed. If the judgment of the faculty member is affirmed by the Board, or if the Board decides a different penalty is warranted, the dean of the faculty member's college and the dean of the student's college shall also receive the report.

- i. If the student's college is different from the faculty member's, the chairperson shall alter the composition of the Board hearing the case by substituting or adding one faculty member and one student from the Hearing Board of the student's college.

4. The Board may act in one or more of the following ways:

- a. Find the student innocent of the charge.
- b. Find the student guilty of the charge and
 - 1) Recommend to the faculty member that he or she reduce the penalty * given.
 - 2) Affirm the faculty member's decision.
 - 3) Recommend that the faculty member record a failing grade for the course, or for some portion of it.
 - 4) Recommend to the dean of the student's college that the student be placed on probation (or the college's equivalent).
 - 5) Recommend to the dean of the student's college that the student be suspended from the University for a period of time.

⁴See the definition at section II.B.4.c.

³"Clear and convincing" as a standard of proof refers to a quantum of evidence beyond a mere preponderance but below that characterized as "beyond a reasonable doubt" and such that it will produce in the mind of the trier of fact a firm belief as to the facts sought to be established.

- 6) Recommend to the dean of the student's college that the words "declared guilty of violation of the Code of Academic Integrity" be recorded on the student's transcript. The Hearing Board may set a date after which the student may petition the Board to have these words deleted from the transcript.
 - 7) Recommend to the dean of the student's college that the student be expelled from the University.
 - 8) Recommend to the dean of the student's college any other suitable action, including counseling, community service, or reprimand.
5. The student may seek review of the decision of the Hearing Board to the dean of the student's college within four weeks of the Board's decision. Exceptions to this deadline may be granted by the dean of a showing of good cause. The dean may not increase the penalty recommended by the Hearing Board unless the Hearing Board had original jurisdiction in the case. The dean of the student's college should ensure that the recommendation of the Hearing Board is carried out or should give the Hearing Board and the parties a written explanation of why the recommendation was disregarded.
 6. Annual Reports. Each college Academic Integrity Hearing Board shall submit a summary report of its proceedings (without identifying any particular student) to the Dean of the Faculty at the end of the academic year. The names of the members of the Board and any significant departures in procedures should be reported as well.
 7. The existing school honor codes (as in the College of Veterinary Medicine and the Law School) are not governed by the foregoing legislation, but current versions of these honor codes must be kept on file with the Office of the Dean of Faculty.

In the case of allegations against a student enrolled in a course subject to a school honor code but registered in another college, all actions beyond the primary hearing revert to the Hearing Board of the student's college.

8. Records of Action.
 - a. If the student is found guilty, a record of the outcome of the case and the nature of the violation shall be kept by the Hearing Board, and copies shall be sent to the record-keeper in the student's college, if different. Unless the decision provides for notation on the student's transcript, this record shall be disclosed only to deans of colleges or Hearing Boards considering other charges against the same student. A student may waive this right to confidentiality.
 - b. If the student is found not guilty by the Hearing Board, all records of the case, including the report of the primary hearing, shall be expunged from the files of the record-keeper."