

**agriculture  
& life sciences  
at cornell**

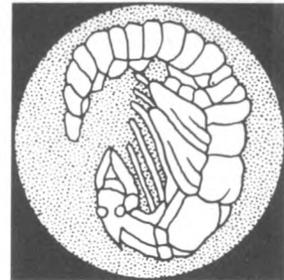
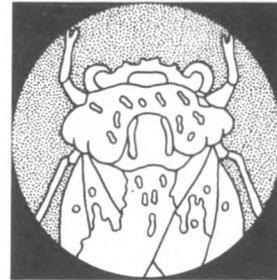


**cornell university  
announcements**

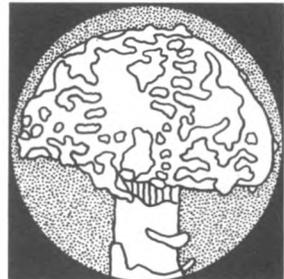




# agriculture & life sciences at cornell



New York State College of Agriculture and Life Sciences  
A Statutory College of the State University at Cornell University  
Ithaca, New York



## Cornell University Announcements

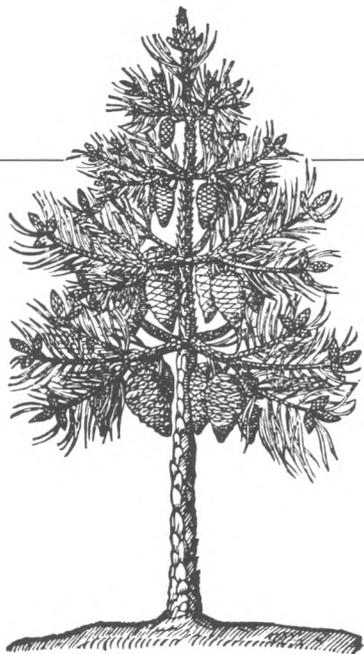
Volume 70 of the Cornell University Announcements consists of sixteen catalogs, of which this is number 6, dated June 22, 1978. Publication dates: sixteen times a year (three times in August and September; twice in January, June, and July; and once in March, May, October, and December). Publisher: Cornell University, Sheldon Court, 420 College Avenue, Ithaca, New York 14853. Second-class postage paid at Ithaca, New York.



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## The College

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The New York State College of Agriculture and Life Sciences at Cornell University, the land-grant university of New York State, is a statutory unit of the State University of New York (SUNY). It prepares students for a wide variety of occupations to meet the complex challenges of the future.

Many students in the College study the traditional plant and animal sciences with a focus on production agriculture, food processing, and marketing. Scientists, food production specialists, and agricultural technicians are needed to cope with a growing world population. Of equal importance in today's rapidly changing world is the involvement in environmental and social problems in both rural and urban areas. Thus, many students in the College study about conserving our natural resources, alternative energy sources, enhancing home and community settings, improved methods of farm finance, and generally upgrading the quality of life. Instruction in all these areas is the fundamental teaching responsibility of the College of Agriculture and Life Sciences.

The curriculum is anchored in the biological and physical sciences. Nine program areas encompass some 50 undergraduate specializations providing more than 500 courses for undergraduates in the College. The depth and diversity of the programs prepare graduates



for a broad range of career options including work in government, farming, business, education, and communications. The variety of programs offered in the College is in keeping with its mission "to increase man's understanding of natural processes in the areas of agricultural sciences, biology and the use of natural resources and the environment; to educate citizens for activity and leadership in these areas; and to translate new knowledge into action for the well-being of the people, their agriculture, their resources, and the development of rural communities."

The College of Agriculture and Life Sciences is also a major research institution investigating everything from how to produce more grain per acre, more milk per cow, and more meat per animal to how the process of photosynthesis can be "translated" to help man develop more efficient means of food production, how the study of homing pigeons may help predict earthquakes, and how the Adirondacks can be protected from the acid rain carried by clouds from polluted metropolitan areas. Incorporating research findings into the instructional program creates a stimulating learning environment.

The nine program areas offered in the College are agricultural and biological engineering, animal sciences, applied economics and business management,

behavioral and social sciences, biological sciences, environmental studies, food science, plant sciences, and general studies. In each one of the nine program areas, students focus on the needs of a growing populace and enjoy the challenge of probing the mysteries of the life sciences.



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## Cornell and Ithaca



Cornell University is a scenic, stimulating, and special place. Gorges, glens, a lake, waterfalls, and winding wooded paths dot the campus which sits high on a hill above Cayuga Lake, in the lovely Finger Lakes Region of New York State.

Cornell has a distinguished faculty with many members who are internationally recognized leaders in their fields. Students come from all 50 states and more than 90 foreign countries. The library system is one of the 10 largest academic libraries in the country. Despite its international fame, however, Cornell is a university of modest size. The undergraduate student body is about 11,500, distributed among the 7 undergraduate colleges and schools. The College of Agriculture and Life Sciences, with 2,900 undergraduates, is the second largest of the University's undergraduate divisions. Many of its buildings are clustered around the Ag Quad, a grassy area where on sunny days one meets familiar faces, enjoys casual conversation, and finds a dog or two in mad pursuit of the occasional frisbees floating by.

Variety spices Cornell's campus life—classical and rock concerts, folk dancing, lectures, dramatic productions, movies, and sports events complement the normal run of daily conversations and interaction among students and faculty.

Ithaca is a city of vitality with 28,000 permanent residents, located down the

hill from Cornell. It is full of bookstores, specialty shops, and movie theaters. An attractive downtown pedestrian mall and several suburban malls provide shopping opportunities. Cornell and nearby Ithaca College make education the major industry in the area.

Within twenty minutes of the Cornell campus are three scenic state parks with facilities for boating, swimming, hiking, and camping. Cayuga Lake is a short drive from campus. In winter there are several nearby ski centers and a number of cross-country skiing trails.

Ithaca is a city with a comfortable blend of cosmopolitan influence and natural beauty, intellectual stimulation and recreational opportunity.

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## Questions and Answers

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The decision about where you will attend college is an important one. It will influence the rest of your life—your intellectual development, your social outlook, the careers you will pursue, and the values you will hold. In selecting a college, it is wise as a prospective student to discover what is really there—the courses and programs, students, faculty, social outlets, libraries, and other resources. In other words, a kind of comparison shopping is in order when making one of the most important decisions of your life.

The following questions are frequently asked by applicants about the College of Agriculture and Life Sciences.

### **What Kind of Facilities are Available?**

Few colleges in the world can provide students with the wealth of physical facilities offered by the College of Agriculture and Life Sciences. There are 14,200 acres of land for research and instruction, 18 major buildings, 46 greenhouses, a forest, experiment stations in Ithaca and Geneva, and numerous farms and facilities across the state. The college laboratories provide “hands-on” opportunities for students to use equipment that is on the front line in research and experimentation.

The eighteen libraries on campus contain more than four and a quarter million volumes and subscribe to fifty-one thousand periodicals. Mann Library houses

one of the largest agricultural collections in the country. The Computer Assisted Searching (COMPAS) system provides on-line communication with large data bases in a number of areas. Students also have access to IBM's large 370/168 computer. Terminals in several locations make the computer service easily available to students and faculty for research and instruction. Cornell is connected to both TELENET and EDUNET worldwide computer networks.

### **What Kind of Instruction is Provided?**

Many faculty members in the College are internationally recognized as leaders in their fields. There is a long tradition of





excellence in teaching. Several of the current faculty have won the SUNY Chancellor's Award for Excellence in Undergraduate Teaching and several have been given awards for innovative teaching. More than 40 percent of the current faculty have taught or conducted research in other countries. A dynamic interplay between classroom instruction and research related to the students' studies gives an exciting vitality to the learning process and enhances the classroom experience.

Student contact with faculty also occurs outside the classroom. Students have a faculty adviser from the time they arrive at the College until they graduate. Faculty advisers help students identify career objectives, develop programs of study, and prepare for graduate school or for a career.

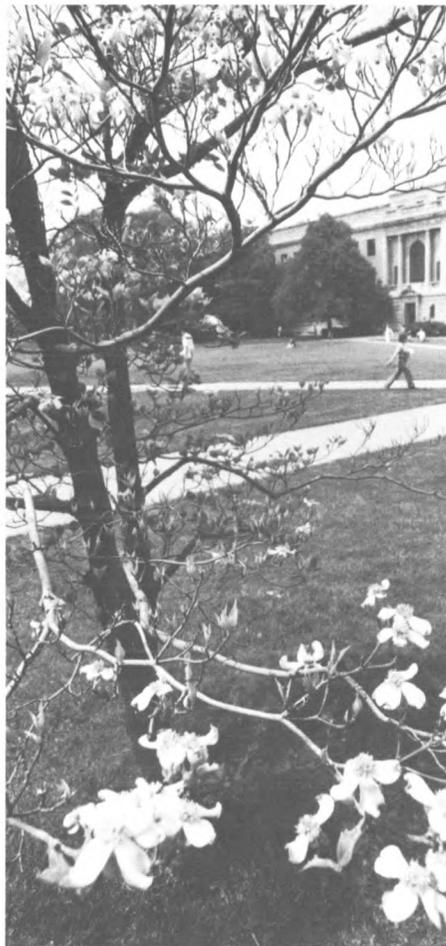
### **What Kind of Students Attend the College?**

The College of Agriculture and Life Sciences students form an academically select group. About 90 percent were in the upper fifth of their high school graduating classes. Most students come from New York State, but about 15 percent come from other parts of the United States. Students from many countries around the world attend the College and there are exchange students from Sweden, Mexico, and England in residence.

Nearly half of the undergraduates are women. Approximately 40 percent of the undergraduate students are transfers who have taken part of their collegiate work at community colleges, agricultural and technical institutes, and other academic institutions. About a thousand graduate students attend classes in this college.

### **Are College of Agriculture and Life Sciences Students also Cornell University Students?**

Yes, College of Agriculture and Life Sciences students *are* Cornell students and are awarded a Cornell University degree. The University is composed of thirteen schools and colleges. Students from all of these divisions play on the University athletic teams, write for the student publications, act in the University's dramatic productions, and enjoy the campus social life. Fraternities, sororities, dormitories, and campus organizations are open to all students. While living in the University dormitories, for example, a student could have roommates attending the College of Arts and Sciences or the School of Hotel Administration while also getting to know men and women from all the University's schools and colleges. College of Agriculture and Life Sciences students can take courses in the other schools and colleges of the University and students in other divisions will take courses in this college.



### **What Kinds of Programs are Available?**

The curriculum is arranged into 9 program areas. About 500 undergraduate courses are offered by 18 academic departments. If, in preparing for a career, you want to pursue a program of study outside the normal path it is possible to select unusual options and create unique course combinations because of the College's depth and diversity. If your objectives change after you have begun your studies, there are varied choices from which to select a new area of study. The College offers what one might refer to as a "delicious smorgasbord" of options and opportunities.

### **May I Pursue a Premedical Program in the College of Agriculture and Life Sciences?**

Premedical students typically enroll in the College of Arts and Sciences where they have broad access to the natural sciences, humanities, and social studies recommended by most medical colleges. The College of Agriculture and Life Sciences will, however, accept a limited number of students with health-related interests that can logically be met in an agricultural curriculum.

## May I Pursue a Preveterinary Program in the College?

There is no formal preveterinary program in the College. Requirements of the College of Veterinary Medicine at Cornell may be met while specializing in a field of study such as animal sciences, biological sciences, agricultural engineering, or even general agriculture, but the number of students admitted to the College of Veterinary Medicine is very limited. The student who completes preveterinary work in the College and is accepted by the College of Veterinary Medicine may qualify for degrees from both Colleges in seven years.

## What are the Career Possibilities for Graduates of the College of Agriculture and Life Sciences?

The food and agriculture industry is New York's largest and most important industry. However, remember that the food and agriculture industry is no longer simply synonymous with farming. Job opportunities include agricultural production; agribusiness; food industries; finance; banking and insurance; general business and manufacturing; education; communications; natural resources and environment; government social services; and international opportunities. The College's Career Planning and Placement Center catalogs employment opportunities from

employers across the country and around the world.

## Does the College Provide Help in Career Placement and Planning?

The College employs a full-time coordinator in its Career Planning and Placement Center. The coordinator works to acquaint recruiters with both the quality of the College's program and its graduates. Employers often make contact with students and graduates through the center. The center also helps students organize job searches.

The College provides other programs to help in career planning. The Student-Alumni Contact Program places students with professionals in the student's area of interest for a week or more during a student vacation period. In the Cooperative Career Development Program students work for a semester in a job related to their professional interest.

## What are My Chances of Getting into the College of Agriculture and Life Sciences at Cornell?

Each application is considered in competition with other applications *in a particular program area*. Competition for admission into some of the program areas is more intense than in others; currently it is especially keen in the biological sciences and animal sciences programs. The College has a commitment to edu-



cate New York State's farm-reared youth. The College also subscribes to the equal opportunity policy for minority groups.

A limited number of "risk candidates" are admitted who may not meet the College's normal academic standards for admission but who have the potential to contribute to the objectives of the College and its programs. For example, students with substantial work experience in their desired area of study may be given special consideration.

With these factors in mind, here is a statistical profile of a recent freshman class of the College:

Applied: 3150

Matriculated: 580—300 men and 280 women

Average SAT scores: verbal, 580; math, 640

Average high school grade: 89%

In the upper 20% of graduating class: 92%

From New York State: 85%

Of the senior class in the College, about 60% started as freshmen and the remainder transferred from other institutions or from other colleges at Cornell.

### **May I Enter the College of Agriculture and Life Sciences if I Have Studied at Another Institution?**

Yes, many students now enter the College as transfer students. They come primarily from the agricultural and technical colleges of the State University of New York (SUNY) and the community colleges of New York State. A limited number of transfer students are also accepted from other four-year SUNY colleges as well as from other colleges and universities within and outside New York State. Preference is given to New York State residents seeking a field of study not available in their current college. Students best suited for transfer are those who are well prepared in the physical, biological, and social sciences. Since competition for admission is keen, transfer applicants should have a better-than-average college record. Current policy precludes the admission of any person with a baccalaureate degree.



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## Admission to the College

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Application blanks for fall admission will be available in August. To receive one, write to Office of Admissions, Cornell University, 410 Thurston Avenue, Ithaca, New York 14853.

Applicants for all Cornell schools and colleges fill out the same Cornell University application form. On it you may request admission to only one school or college. The completed application must be returned to the Office of Admissions.

The Admissions Committee selects those students who are academically well prepared and appear most likely to profit from the various programs offered in the College of Agriculture and Life Sciences. The committee examines each applicant's educational goals, college entrance test scores, high school record, work experience, and recommendations by counselors, alumni, and others. Although the committee uses general guidelines to evaluate the academic strengths of each application, there are no absolute standards for admission. Each year the committee admits students whose academic records and personal backgrounds differ from the "average" student in the College.

An applicant must (1) be at least sixteen years old; (2) have completed high school with a minimum of sixteen units, including four units of English and three units of mathematics, with three units of science (biology, chemistry, and physics)

recommended; and (3) have taken the Scholastic Aptitude Test of the College Entrance Examination Board (SAT) or the American College Testing Program (ACT).

Applicants submitting SAT results are encouraged to take achievement tests in two of the following: English composition, mathematics, and science. Students who wish to major in the biological sciences should have a strong foreign language background.

Competition among applicants for admission to the College is intense. Potential applicants, however, should not be deterred from applying simply because they do not have an academic record equal to the average scores of students entering the College. Average means that probably half of those entering the College had grade and test scores at or below the average. It is also important to remember that the competition for admission to the College varies in the nine program areas.

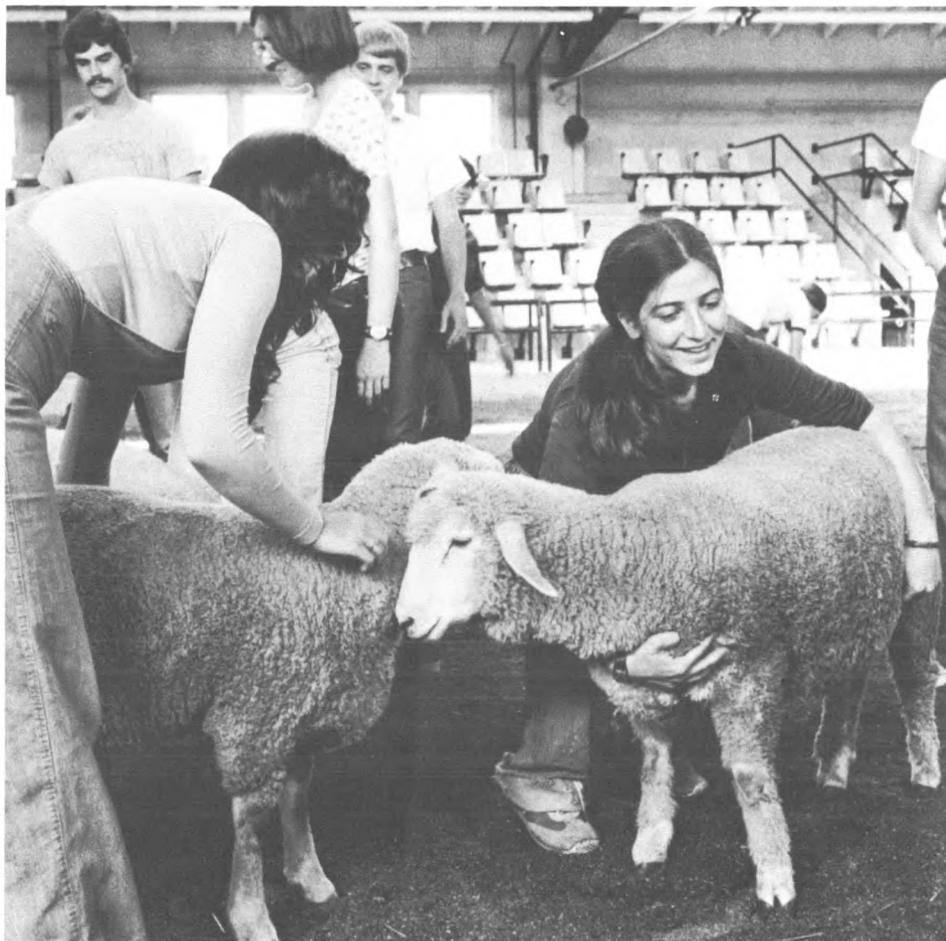
It is the policy of Cornell University actively to support equality of educational opportunity. No student shall be denied admission to the University or be discriminated against otherwise because of race, color, creed, religion, national or ethnic origin, or sex.

Cornell University is committed to assisting those handicapped students who have special needs. The University



does not discriminate on the basis of handicap against qualified persons applying for admission to, or participating in, any of its programs or activities.

A brochure describing services for the handicapped student may be obtained by writing to the Office of the Dean of Students, Cornell University, 103 Barnes Hall, Ithaca, New York 14853. Other questions or requests for special assistance may also be directed to that office.



## Special Admission Options

Students who are one or two units short of completing a high school program after three years will be considered for admission to the College on an individual basis under the *Early Admission Plan*. It is essential, however, that they have met the basic requirements, including 4 units of English.

Qualified high school students who designate the College as their first choice may apply through the College's *Early Decision Plan*. Applications are due by November 1 and students are notified in mid-December.

Prospective freshmen who have taken college-level courses in secondary school may qualify for *advanced placement* credit in biology, chemistry, English, Latin, literature, mathematics, modern foreign languages, music, and physics. Those who wish to be considered for advanced placement credit should take the appropriate College Entrance Examination Board advanced placement examinations in May.

More information about these plans is available from the University Admissions Office, 410 Thurston Avenue.

### Special Opportunity Programs

Cornell University administers a variety of special opportunity programs designed to provide financial assistance and other

forms of assistance to (1) minority students and (2) low-income students meeting program guidelines. The emphasis of these special programs is to aid in increasing representation of students from minority groups present in New York State who historically have been underrepresented in higher education. However, participation is also available to those residing outside New York State. For details, prospective students should consult the *Information for Applicants* which accompanies each undergraduate application or will be sent upon request by the Office of Admissions, 410 Thurston Avenue, Ithaca, New York 14853.

### Special Students

A limited number of nondegree candidates who want to take selected courses in the College are admitted each year. Applicants should submit the standard Cornell application plus a resume of their work experience with an outline of the courses they wish to take. For more information, contact the College Admissions Office, 195 Roberts Hall.

### Transfer Students

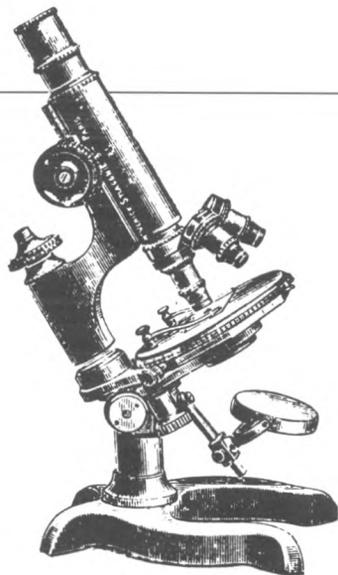
Many students enter the College as transfer students. For students who do not qualify for admission immediately after high school, the transfer program provides an opportunity to improve their scholastic record and enter at the junior

level. Two-year college program costs are also less than freshman and sophomore expenses at Cornell. Students planning to attend a two-year college can apply to Cornell while in high school and be accepted for their junior year under the Guarantee Transfer Program.

Students attending a two-year college normally complete their associate degree prior to transfer. No more than sixty credits may be transferred from any combination of colleges, including summer courses. For more information, request the *Guide For Transfer Applicants* from the College Admissions Office, 195 Roberts Hall.

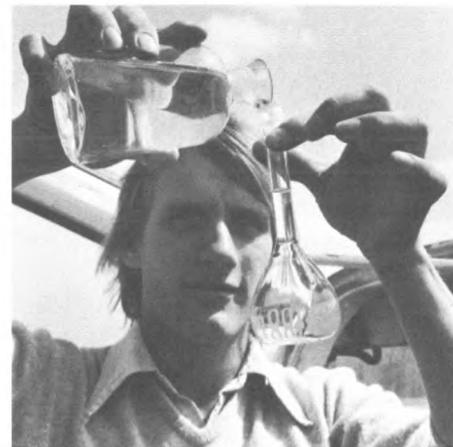


## Degree Requirements



Candidates for the degree of Bachelor of Science must earn 120 credit hours with a cumulative and last term grade average of C- (1.7) or above.

Degree requirements include 45 credits in the basic physical and biological sciences, social sciences, humanities, and written and oral expression; 55 credits in the statutory colleges at Cornell, including 45 in the College of Agriculture and Life Sciences; 20 credits from any school or college at Cornell; and 2 semesters of physical education.



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## Expenses and Financial Aid

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### General Costs

The typical annual budget in 1978-79 for students in the College of Agriculture and Life Sciences is:

	<i>New York State Residents</i>	<i>Out-of- State Residents</i>
Tuition and fees	\$ 2025	\$ 3350
Room and board	2090	2090
Miscellaneous (Books, clothes, laundry, etc.)	760	760
	<u>\$ 4925</u>	<u>\$ 6250</u>

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

### Fees

An application fee of \$25 must be paid at the time an application for admission is submitted.

Accepted candidates who plan to enroll are required to pay a \$50 registration fee by a date specified on the registration fee coupons that accompany the letter of acceptance. This fee is not applied to tuition charges and is not refundable after the stated due date.

If you plan to live in a University dormitory, you will pay a \$100 security deposit to be returned to cover room

damage. Gymnasium equipment amounting to approximately \$18 must be purchased by freshmen according to the Physical Education Department's instructions.

### Financial Aid

Students should not hesitate to apply for admission because they lack financial resources. Acceptance is not affected by the amount of financial aid needed.

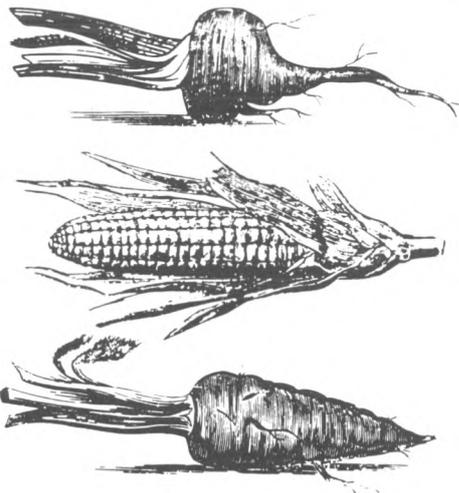
Through the generosity of its alumni and friends, the College is able to award over \$190,000 each year in scholarships to its students. Students in the College are also eligible for University scholarships, loans, and part-time jobs.

Students needing financial aid should complete and return the Financial Aid Form included in the application packet they receive. Awards are based on financial need and most awards include a combination of scholarship, loan, and part-time job.

For additional information about financial aid write to Office of Financial Aid, Cornell University, 203 Day Hall, Ithaca, New York 14853.



## Selecting a Program Area



Students apply for admission to one of nine program areas in the College. Each application is considered in competition with other applications in the program area. The course requirements in each program area are different but all students must meet minimum distribution requirements of the College.

Freshmen usually take introductory courses in biological science, physical science, mathematics, physical education, and freshman humanities as well as core courses in the program area and one or two elective courses.

Specific courses are selected in consultation with an adviser. Student interest, previous level of training, and program area requirements are important considerations. Transfer students will usually have completed the distribution requirements and will concentrate on the program area requirements. A Summary of Record form is maintained for each student by the college registrar.

A student may change program areas if there is room in the new area, if prerequisites are completed, and if the student has demonstrated interest and capability in the area. Requirements in each program are different and a change may lengthen the time required to graduate.

The nine program areas offered by the College are described in the following pages. For more detailed information about any of the program areas, complete

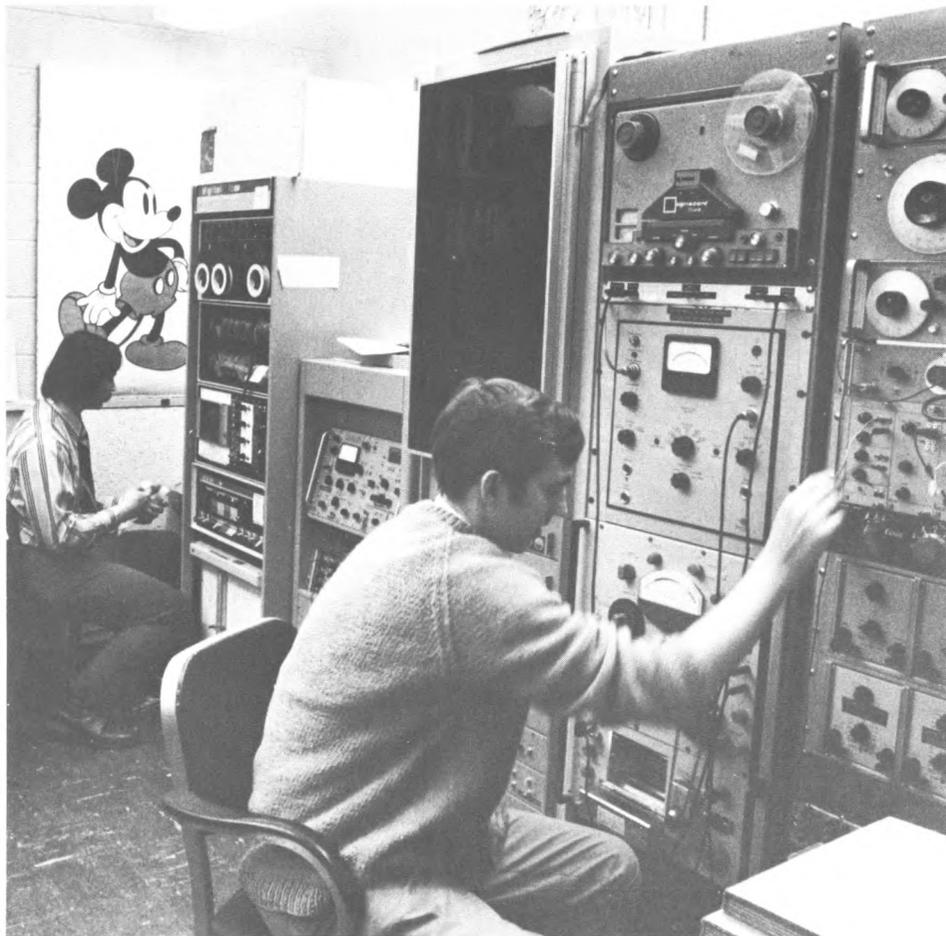
the detachable postcard in the back of the catalog and mail it to the College Admissions Office, 195 Roberts Hall.

## Agricultural and Biological Engineering

Agricultural and biological engineering links the traditional engineering disciplines with the biological, social, and agricultural sciences. Graduates of agricultural and biological engineering are involved in meeting the challenge to provide food and fiber for growing populations around the world while at the same time conserving diminishing natural resources and improving a deteriorating natural environment.

More than one thousand organizations in the United States—from small businesses to multinational corporations—employ agricultural engineers. The need for agricultural engineers is greater than the supply, especially for those with advanced degrees. In the seventy years of agricultural engineering history, there has never been a surplus of graduates entering the job market.

In agricultural and biological engineering students choose either an engineering or technology specialization. Graduates of the engineering specialization work, for example, as designers, consultants, project engineers, and field test engineers, or pursue graduate study. Stu-



dents who complete the technology specialization may work as technical sales and service representatives, farmers, teachers of agricultural mechanization, Cooperative Extension Agents, or enter graduate school.

The engineering specialization is jointly administered by the New York State College of Agriculture and Life Sciences and the College of Engineering. The student enrolls in the College of Engineering for the fourth year and, after completing 126 credit hours, receives a Bachelor of Science degree from the College of Engineering.

Students in the engineering specialization generally have an interest in the theoretical and fundamental aspects of engineering and demonstrate a strong aptitude for mathematics and physical sciences. Biological, social, and agricultural sciences are integral parts of the specialization. In taking the required engineering courses, students will probably have to pay some excess hour tuition.

Students who complete the technology specialization receive a Bachelor of Science degree from the College of Agriculture and Life Sciences after completing 120 credit hours. The student concentrates on such biological and agricultural sciences as agronomy, agricultural economics, natural resources, animal sciences, plant physiology, food science,



genetics, and microbiology which are related to the engineering aspects of the production and processing of food and fiber.

Students in both the engineering and technology specializations study a variety of subjects. Program course topics include agricultural waste management, bioengineering, community development, food engineering, livestock engineering, machinery, materials handling and processing, mechanization teaching, power and energy, soil and water management, and secondary roads.

The Department of Agricultural Engineering at Cornell is one of the leading departments of its kind in the world. There are twenty-eight faculty members involved in teaching, extension, and research. Riley-Robb Hall, the home of agricultural engineering at Cornell, houses one of the most complete agricultural engineering facilities in the United States.

## **Animal Sciences**

In the animal sciences program the basic and biological sciences are applied to the animal industries to increase the supply of food and other products by animals. Through the combined efforts of the departments of Animal Sciences and Poultry Science, the students in this pro-

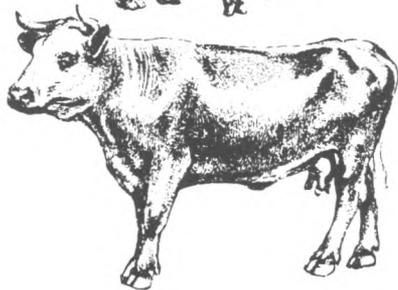
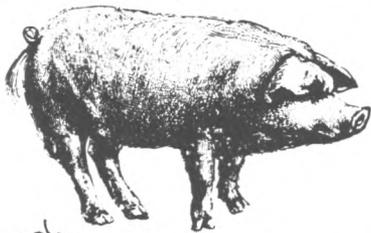


gram area study the breeding, care, and production of dairy and beef cattle, horses, poultry, pigs, and sheep.

Animal sciences graduates enter all areas of the animal industry including farm and feedlot management, feed sales, zoo keeping, insurance, banking, wildlife biology, and animal programs in foreign countries. Some graduates continue study in animal physiology, animal nutrition, animal genetics, production management, veterinary medicine, and education.

In animal sciences students study both basic and applied courses and with their advisers develop a curriculum program that may include courses in animal nutrition, animal breeding and genetics, animal physiology, meat science, dairy cattle, and livestock and poultry production.

Students preparing for farming, livestock production, overseas work, and the Peace Corps take a production-oriented program which includes courses in agronomy, farm management, agricultural engineering, and either dairy, sheep, poultry, beef, or swine production. Other students prepare themselves for jobs such as meat technologist, hatchery manager, artificial breeding technician, feed salesman, meat marketing specialist, laboratory or animal marketing technician, and meat or egg inspector.



Students wanting to enter a veterinary college or a graduate school take a science-oriented program with courses in chemistry, physics, biochemistry, microbiology, and mathematics in addition to the courses offered in the animal sciences program area.

The animal sciences program provides excellent facilities for housing animals and modern, well-equipped laboratories and classrooms. Many species of animals are used for study and research including dairy and beef cattle, horses, sheep, swine, chickens, turkeys, ducks, mink, dogs, rabbits, rats, hamsters, guinea pigs, and turtles.



## Applied Economics and Business Management

Agriculture, the food industry, and natural resources development can significantly influence the national economy. Rapid changes in these areas often create economic problems. For example, new techniques may develop in producing and marketing farm output; consumer preferences may shift; economic development may threaten the environment. Persons trained in applied economics and business management in the Department of Agricultural Economics are equipped to help solve these problems.

The applied economist is trained to deal with problems in business, agriculture, government, communities, and international affairs. A graduate of the program helps many people including the meat packer who must estimate the impact of altered prices on sales; the retailer who must develop a personnel policy; community leaders who must legislate land-use regulations; the food processor who wants to develop an effective advertising campaign; and government officials who must gauge the effects of raising local property taxes.

Graduates prepare for careers in farm business management and finance, business management, marketing, food distribution, resource economics, government and public policy, and international agri-

cultural development. They become advertising account executives, manufacturing sales representatives, market analysts, farm operators, farm loan managers, Cooperative Extension agents, and food chain budget analysts.

In applied economics and business management six specializations are open to the student: (1) business management and marketing, (2) farm business management and finance, (3) food industry management, (4) public affairs management, (5) resource economics, and (6) agricultural economics.

Students in applied economics and business management usually specialize in a course of study in their final two years after most college-required courses have been completed. Students with well-defined objectives select specializations in the first year; others have the option to choose their specialization after two years when they become sure of their interests and abilities.

The principles of economics and management are central to all studies in the different specializations. The department's course offerings are supplemented with others in related areas at Cornell such as economics, rural sociology, animal science, government, industrial and labor relations, hotel administration, consumer economics, vegetable crops, natural resources, mathematics, and statistics.



Students with outstanding academic records may apply to register in both the College of Agriculture and Life Sciences and the Graduate School of Business and Public Administration in their senior year in order to receive a master's degree at the end of the fifth academic year.

## Behavioral and Social Sciences

The behavioral and social sciences (BASS) program area focuses on people: how they behave, how they communicate, and how they learn and change. Knowledge about people can be used to help increase food production in a developing country, to encourage natural resource conservation, to show an advertiser how to reach an audience effectively, to help an adult learn to read, or to develop more effective community governments.

BASS graduates work as newspaper and magazine writers, broadcasters, publicists, teachers, Cooperative Extension agents, community planners, youth group workers, organizational planners, and Peace Corps workers.

The three departments in the BASS program are Communication Arts, Education, and Rural Sociology. In communication arts students learn to communicate effectively by studying communication theory, broadcasting, advertising, mass media, and writing. In education students pre-



pare to teach agriculture, work in environmental or science education centers, or study the educational process. In rural sociology students study the social forces affecting national and international development, and how groups work in rural societies.

A fourth option available in the program is the general BASS specialization for students wanting a strong multidisciplinary background. For example, a student preparing for rural community development work might emphasize both organizational and educational processes.

Most BASS students take a common core of three courses: introductory psychology, introduction to sociology, and





the theory of human communication. Students can then develop their own programs with course work from the three BASS departments and from other University departments including Sociology, Psychology, and Human Development and Family Studies.

On-campus facilities include computer centers, a curriculum laboratory, newspapers, journals, a radio station, and a photo laboratory. Students work on individual projects with professors or other professional staff members. Students also participate in community organizations and agencies such as 4-H, Youth Bureau, and YMCA. Around the state, environmental centers, government agencies,

and selected schools cooperate in providing additional work-study opportunities.

## Biological Sciences

Biology has become an extremely popular subject at many universities for a variety of reasons: it is a science that is in an explosive phase of exciting development; it prepares students for careers in challenging and appealing areas such as human and veterinary medicine and environmental sciences; and it deals with the inherently interesting questions of understanding ourselves and the living world around us. Many of the decisions we face today deal with the opportunities and problems that biology has put before us.

At Cornell the program of study in biology is offered by the Division of Biological Sciences to the students enrolled in either the College of Agriculture and Life Sciences or the College of Arts and Sciences.

Study in the biological sciences is academically demanding but unusually flexible. Undergraduates may choose from a large and varied curriculum and plan programs of study to match their particular interests and goals.

The biology program is designed to enable students to acquire necessary scientific foundations, to become familiar





with different aspects of modern biology, and to then concentrate in a specific area of biology: animal physiology and anatomy; biochemistry; botany; cell biology; ecology, systematics, and evolution; genetics and development; or neurobiology and behavior. Special programs are available for qualified students with particular interest in areas such as marine biology, nutrition, or biophysics.

By the end of the sophomore year students complete introductory or foundation courses that are prerequisites for higher-level courses and essential for understanding biology today. These courses include introductory biology, general chemistry, college mathematics (includ-

ing calculus), and organic chemistry. Foundation courses required for the specialization in biological sciences but not necessarily to be completed in the first two years include a year of physics, a semester of genetics, and a semester of biochemistry.

Selection of upper-level courses is subject to certain limitations that ensure that the student achieves both depth of knowledge through advanced study in one area of biology and breadth of knowledge through exposure to aspects of biology outside the area of concentration. A faculty adviser associated with the chosen area of concentration will help the student plan his or her program of study.

All students in the biology program must fulfill a language requirement which can be met by three or more years of a foreign language in high school.

An important aspect of Cornell's biology program is the opportunity to undertake research in the laboratory under the direction of a faculty member.

### **Microbiology**

Microbiology is a specialization for students who are interested in the basic nature of microorganisms or who may want to use their knowledge in some of the many applications of microbiology. The microbiology program provides training for technical positions in microbiol-

ogy or preparation for graduate work in theoretical and applied aspects of the science such as food, medicine, ecology, industry, and agriculture.

During the freshman and sophomore years students develop foundations in related biological sciences, chemistry, physics, and mathematics. During the junior and senior years students may prepare for more specific areas such as food, industrial or clinical microbiology, and premedical or preveterinary training. A minimum of three advanced microbiology courses (one of which must be accompanied by a laboratory) are required, although most students take a number of additional courses.

The program is designed to assist in meeting requirements for the accreditation of individuals by the American Academy of Microbiology. It is based in the Department of Microbiology.

For a limited number of students who are selected for the Clinical Microbiology specialization, the senior year may be spent at Cornell Medical School and the New York Hospital or at another affiliate.



## Environmental Studies

The study of the environment and man's interaction with it is a vigorous and challenging area. Environmental studies includes the natural processes in air, land, water, energy, and life, and their interactions with each other and with man. The strategy for developing reasonable solutions to environmental problems requires a strong base of scientific, ecological, and technical knowledge, the ability to understand the natural environment, and the ability to estimate the effect of man's interaction with the environment. New tools and techniques, borrowed from all science and technology, are being applied to the solution of environmental problems.

Study in this area should lead to :

An ecological awareness—concern for the total environment

An economic awareness—how costs relate to environmental problems

A political awareness—understanding how individual roles relate to collective responsibility

A problem analysis awareness—ability to define problems and to view the facts of the situation

An awareness that man is a part of, and not apart from, nature

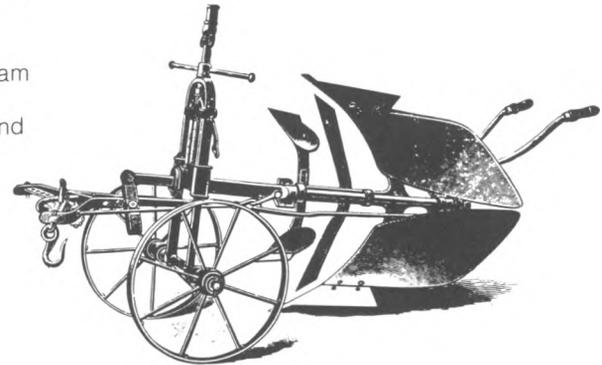
The number and complexity of environmental problems exceed the capability of available manpower to attack them effec-

tively. Manpower needs related to the environmental area are not confined to scientists, engineers, technicians, and others who contribute to scientific and technical progress. There will be an increasing need for staff and administrators in local, state, and federal organizations.

Curricula in the environmental studies area serve the needs of three groups:

1. They offer specialized programs for those students who wish to qualify for beginning positions with government agencies, private industry, and research organizations;
2. They provide a foundation for those students who decide to continue with graduate training in one of the specialties;
3. They prepare students to be citizens with special training to appreciate and understand their environment and man's impact on it.

Departments cooperating in the program area are Agricultural Engineering, Agronomy, Entomology, Floriculture and Ornamental Horticulture, and Natural Resources.



## Food Science

Interest in food science is expanding because of the increasing awareness of the vital role of food in the health, welfare, and economic status of individuals and nations. It is the professional responsibility of the food scientist to ensure the availability of an acceptable, nutritious, and safe selection of foods and to increase the supply of nutrients urgently required to provide an adequate diet for a burgeoning world population.

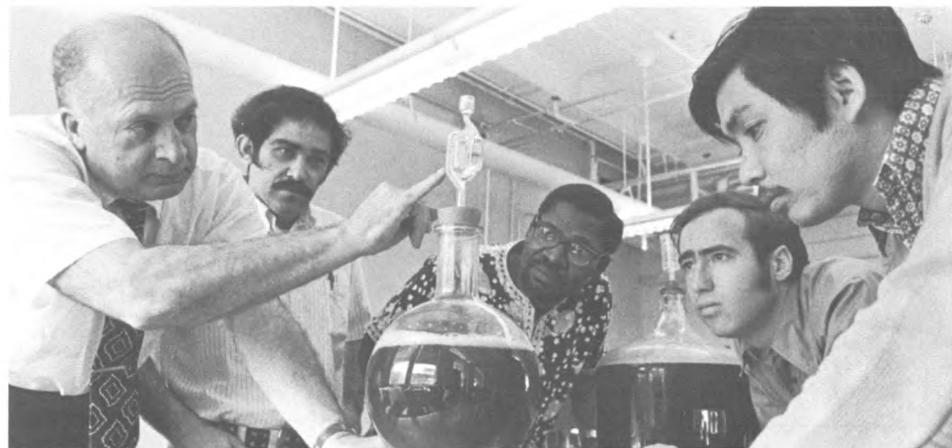
The food science program area is designed to provide students with basic skills and the knowledge necessary to ensure an adequate food supply. In the first phase of this program students take courses in biology, chemistry, physics, biochemistry, nutrition, and microbiology. This basic knowledge is supplemented by courses that deal with the application of science and technology to the processing, preservation, distribution, and utilization of foods.

Students in the food science program may select from the following three specializations: general food science, food analysis, and food technology and management.

The general food science curriculum is designed for those wishing to obtain a broad background in basic sciences plus specialized training in food science. The food analysis curriculum provides train-

ing in basic analytical methods and in specialized techniques for determining the nutritive, microbiological, chemical, and physical properties of foods. The food technology and management curriculum is intended for those interested in the technological and management aspects of food processing. This curriculum includes introductory science courses and specialized training in processing, management, and economics.

Because of the increasing demand for food scientists with a bachelor's degree, there are more job opportunities than qualified applicants. Salaries are also higher than for most jobs open to new college graduates. The flexibility of the food



science program at Cornell allows students to prepare for a variety of positions in industry, teaching, and research.

In industry food scientists are needed in various areas such as food production, manufacturing, analysis, product development, and marketing. Suppliers of food ingredients and chemicals, processing equipment, packaging materials, and services related to institutional feeding are employing increasing numbers of food scientists.

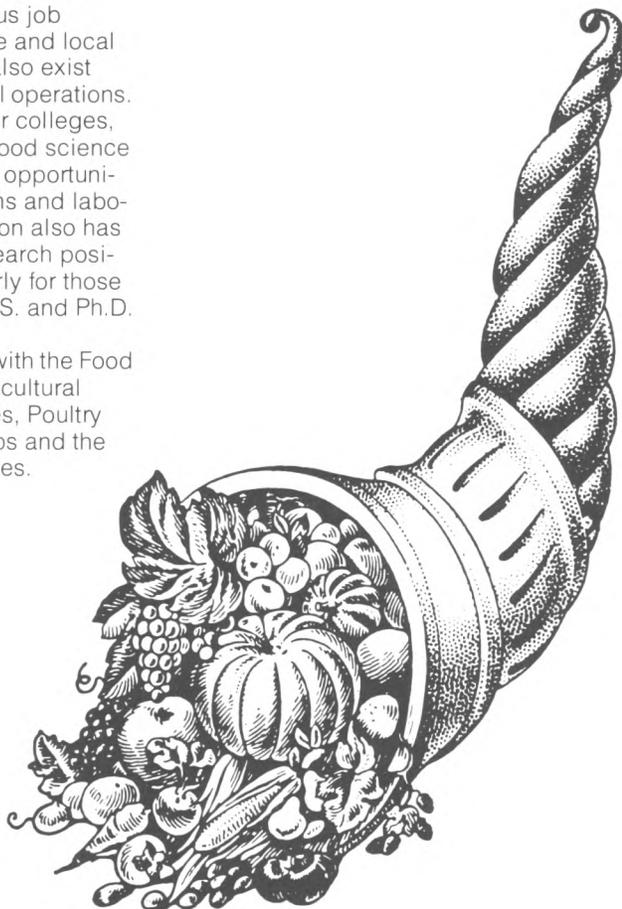
In government food scientists fill positions in research concerned with food safety, nutrition, composition standards, pollution control, and economic development in the United States and overseas.



The departments of Agriculture, Health, Education and Welfare; Defense; State; and Commerce offer numerous job opportunities as do their state and local counterparts. Opportunities also exist with firms having international operations.

Many universities, four-year colleges, and two-year colleges have food science programs and offer excellent opportunities for teaching in classrooms and laboratories. Cooperative Extension also has openings for graduates. Research positions are available, particularly for those who have completed their M.S. and Ph.D. degrees in the food field.

Departments cooperating with the Food Science Department are Agricultural Engineering, Animal Sciences, Poultry Science, and Vegetable Crops and the Division of Nutritional Sciences.



## Plant Sciences

Plants supply both man and animals with food. They provide raw material for many industries, beautify the environment, and combat pollution. While the land available for plant production is relatively constant, the demands for plants and plant products increases as the world population grows. Consequently, the efficient production, processing, and marketing of plants is essential.

People trained in plant sciences are needed in all phases of producing the plant products we eat and wear. Plant sciences graduates are needed in service industries that process and market plant

products and supply fertilizers, agricultural chemicals, and crop production machinery. Scientists, technicians, teachers, and extension personnel are needed in industry, state and federal programs, colleges and universities, in the Peace Corps and, if they have advanced degrees, in international research institutes.

Plant science students may specialize in general plant science, plant breeding, plant pathology, plant protection, field crops, floriculture and horticulture, pomology, and vegetable crops. Students with well-defined interests may specialize when they enter the College. Others can start in the general plant sciences



curriculum and, if desired, specialize after the second year.

The specializations have considerable flexibility. Students who want to continue their studies in graduate schools are advised to take chemistry, physics, mathematics, biology, plant physiology, and genetics in addition to plant science courses. Students who desire a technical job in some area of plant science, such as research technician, florist, nursery landscaper, or plant inspector generally have a study program which includes physical, biological, and social sciences with a special emphasis on courses in one or more of the plant science specializations. Students interested in a production management career complete the basic College requirements in the physical, biological, and social sciences and then choose from a variety of technical and applied courses in the several plant science specializations.



## General Studies in Agriculture and Life Sciences

Some students are interested in pursuing a broad general education in Agriculture and the Life Sciences. Others are interested in developing a specialized interest, while still others are uncertain about their career objectives. General studies permits such students to plan a course of study suited to their individual interests, abilities, and objectives under faculty advisement. Also, independent study of specialized curricula not covered by any existing program area can be planned in consultation with a faculty adviser.

### General Agriculture

General agriculture and agricultural science students, with help from their adviser, will select a diversity of agricultural elective courses to provide a broad background of agricultural experience. Minimum course and distribution requirements for general agriculture are those required of all students in the College. General agriculture students ordinarily concentrate on production and technical courses or may choose from advanced courses in the basic sciences.

### International Agriculture

The specialization in international agriculture is intended to provide students

with an understanding of the special problems of applying basic knowledge to the processes of agricultural modernization in low-income countries. The student will typically specialize in a subject matter field and work with an adviser to plan a program oriented toward international agriculture. The courses for secondary specialization in international agriculture are designed to acquaint students with the socioeconomic factors in agricultural development, with the physical and biological nature of tropical agriculture, with a foreign language, and with various world areas for which study programs exist.

### Nutritional Sciences

The Division of Nutritional Sciences is an intercollege unit, administered jointly by the College of Human Ecology and the College of Agriculture and Life Sciences. The division coordinates and unifies undergraduate teaching, graduate training, research, and extension activities related to nutritional sciences. Students in the College of Agriculture and Life Sciences may develop a nutritional science concentration through the general studies program.

Nutritional sciences deals with the interrelationships of food, nutrition, and health. World and national problems in the field range from hunger and malnutrition to overnutrition. The study of nutrition involves understanding everything from



basic biochemical processes of cellular metabolism to the societal significance of food. Students wishing to develop a concentration in nutritional science take courses in the physical and biological sciences, in human nutrition and food, and in social and behavioral sciences.

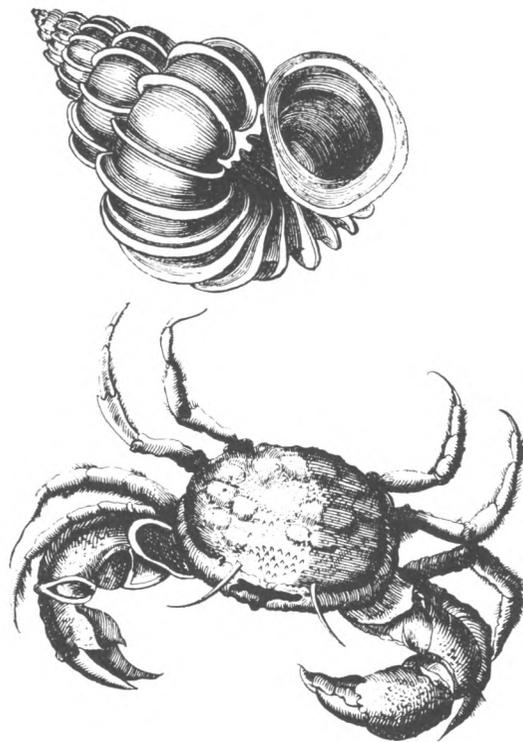


## Statistics and Biometry

Statistics is concerned with the study, development, and application of design and measurement aspects of an investigation, with the summarization of facts from the data obtained and with inferences made from the facts. Biometry is concerned with the application of techniques of the mathematical sciences to biological phenomena and problems. Students with competence and interest in mathematics, with ability in high-speed computer programming, and who have a certain amount of creativeness and ingenuity, will find this a challenging specialization.

Statisticians and biometricians may do mathematical research, teach, consult in academic and industrial research, do statistical computing with high-speed computers, or engage in operations research, quality control, and systems analysis. Data collection and summarization is an increasingly important function of state and national government bureaus such as the Census Bureau and the Bureau of Labor Statistics.

Graduate study and job opportunities are abundant in this area, salaries are excellent, and many opportunities for self-employment are available.



## Overseas Academic Programs

Several opportunities for study abroad are coordinated with the College of Agriculture and Life Sciences. These opportunities offer students a broadened educational program, a multicultural perspective, and possible new avenues of career development. Among the available study-abroad programs are two student exchange programs with universities in Mexico and Sweden. Cooperative arrangements with the University of Reading in England and the University of Dublin in Ireland have enabled the College to endorse several students for a year of study under a tutor in those schools. Credit received for academic work at any of these schools may be transferred to meet graduation requirements at Cornell in the normal time period.

### Mexican Exchange Program

A College student is competitively selected in the freshman year to go to the Instituto Tecnológico y de Estudios Superiores de Monterrey during the junior year. The sophomore year is used to attain proficiency in the Spanish language. Scholarship assistance from Monterrey and Cornell provides a substantial portion of the costs of the program. A student from Monterrey attends Cornell University under similar arrangements each year.

### Swedish Exchange Program

The student selected to participate in the Swedish Exchange Program applies for it in the sophomore year and spends the junior year at the Agricultural College of Sweden at Uppsala. All essential expenses in Sweden, including a living allowance, are provided by a student group there. Round-trip air transportation must be paid by the exchange student. A student from the Agricultural College in Uppsala spends a year at Cornell University with support from the College and student groups here.



### Year Abroad in England

The College has an arrangement with the University of Reading whereby a few students are recommended to the faculty for admission for one year as occasional students. Students go in their junior year. All expenses are paid by the student, but total costs including transportation are less than at Cornell.

### Year Abroad in Ireland

For College students with majors in the biological sciences, a special year-abroad program has been established with the University of Dublin (Trinity College) in Ireland. A small number of Cornell students in genetics, microbiology, and biochemistry participate in the program each year. The program is similar to the Reading program with respect to finances.

Students interested in these or other year-abroad programs may obtain additional information from the Program in International Agriculture, 252 Roberts Hall. Applications are submitted to that office for presentation to the Exchange Committee which makes the final awards during the spring semester.

## **Program Areas and Fields of Specialization**

### **Agricultural and Biological Engineering**

Engineering  
Technology

### **Animal Sciences**

Animal Breeding and Genetics  
Animal Nutrition  
Animal Physiology  
Beef, Sheep, and Swine Production  
Dairy Cattle Production  
Horse Production  
Meat Science  
Poultry Production

### **Applied Economics and Business Management**

Agricultural Economics  
Business Management and Marketing  
Farm Business Management and Finance  
Food Industry Management  
Public Affairs Management  
Resource Economics

### **Behavioral and Social Sciences**

Communication Arts  
Education  
General Behavioral and Social Sciences  
Rural Sociology  
Teaching of Agriculture

### **Biological Sciences**

Animal Physiology and Anatomy  
Biochemistry  
Botany  
Cell Biology  
Ecology, Systematics, and Evolution  
Genetics and Development  
Microbiology  
Neurobiology and Behavior

### **Environmental Studies**

Atmospheric Science  
Entomology  
Environmental Technology  
Fishery and Aquatic Science  
General Environmental Studies  
Landscape Architecture  
Natural Resources Conservation  
Soil Science  
Wildlife and Terrestrial Science

### **Food Science**

Food Analysis  
Food Technology and Management  
General Food Science

### **Plant Sciences**

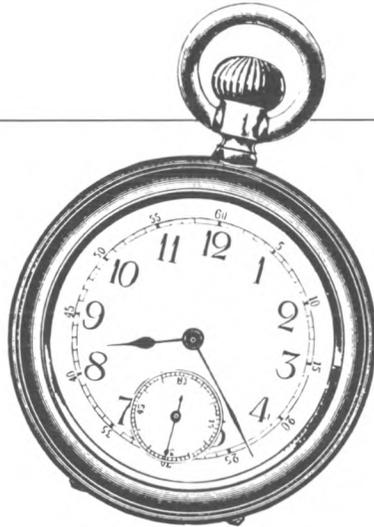
Field Crops  
Floriculture and Ornamental Horticulture  
General Plant Sciences  
Plant Breeding  
Plant Pathology  
Plant Protection  
Pomology  
Vegetable Crops

### **General Studies in Agriculture and Life Sciences**

General Agriculture  
International Agriculture  
Nutritional Sciences  
Statistics and Biometry



## Admissions and Financial Aid Deadlines for Freshmen and Transfers



### Freshmen

**August:** Application blanks available for students wishing to enter in September of the following year. Conferences with admissions personnel for the College of Agriculture and Life Sciences may be scheduled Monday through Friday from 10:00 a.m. to noon and from 2:00 p.m. to 4:00 p.m. through January 15. Write or telephone 607-256-2036 for an appointment.

**October thru December:** Students applying for September admission should take the Scholastic Aptitude Test of the College Board or ACT (American College Testing Program) by December.

**January 1:** Deadline for filing the Financial Aid Form (FAF) with College Scholarship Service.

**January 15:** Deadline for filing applications for admission and financial aid for entrance in September.

**March 1:** Notification of decisions on applications begins and continues through mid-April.

**April 15:** Notification of financial aid and awards.

### Transfers

**August:** Applications available for January or September admission for the following year.

**November 1:** Deadline for spring semester admission and financial aid application.

**December 1 - January 15:** Applicants informed about decisions on spring applications.

**March 15:** Deadline for fall semester admission and financial aid application.

**April 1 - June 1:** Applicants informed about decisions on fall semester applications.

# Cornell Academic Calendar

## 1978-79

Thursday, August 31  
Friday, September 1  
Monday, September 4  
  
Wednesday, November 22  
Monday, November 27  
Saturday, December 9  
Friday, December 15  
Saturday, December 23  
Thursday, January 18  
Friday, January 19  
Monday, January 22  
  
Saturday, March 17  
Monday, March 26  
Saturday, May 5  
Monday, May 14  
Tuesday, May 22  
Monday, May 28

The dates shown in the Academic Calendar are subject to change at any time by official action of Cornell University.

## 1979-80

Thursday, August 30  
Friday, August 31  
Monday, September 3  
  
Wednesday, November 21  
Monday, November 26  
Saturday, December 8  
Friday, December 14  
Saturday, December 22  
Thursday, January 17  
Friday, January 18  
Monday, January 21  
  
Saturday, March 15  
Monday, March 24  
Saturday, May 3  
Monday, May 12  
Tuesday, May 20  
Monday, May 26

In this calendar, the University has scheduled classes on religious holidays. It is the intent of the University that students missing classes due to the observance of religious holidays be given ample opportunity to make up work.

## List of Announcements

Following is a list of *Announcements* published by Cornell University to provide information on programs, faculty, facilities, curricula, and courses of the various academic units.

Agriculture and Life Sciences at Cornell  
 College of Architecture, Art, and Planning  
 College of Arts and Sciences  
 Graduate School of Business and Public Administration  
 Engineering at Cornell  
 Graduate Study in Engineering and Applied Sciences  
 General Information\*  
 Graduate School  
 School of Hotel Administration  
 College of Human Ecology  
 School of Industrial and Labor Relations:  
 ILR at Cornell  
 Graduate Study at ILR  
 Law School  
 Medical College (New York City)  
 Graduate School of Medical Sciences (New York City)  
 Officer Education (ROTC)  
 Summer Session  
 New York State College of Veterinary Medicine



\*The *Announcement of General Information* is designed to give prospective students pertinent information about all aspects and academic units of the University.

In addition to the *Announcements* listed above, the University publishes a master catalog of University courses, *Cornell University: Description of Courses*.

Request for the publications listed above should be addressed to Cornell University Announcements Building 7, Research Park Ithaca, New York 14853. (The writer should include a zip code.)

All academic courses of the University are open to students of all races, religions, ethnic origins, ages, sexes, and political persuasions. No requirement, prerequisite, device, rule, or other means shall be used by any employee of the University to encourage, establish, or maintain segregation on the basis of race, religion, ethnic origin, age, sex, or political persuasion in any academic course of the University.

The courses and curricula described in this *Announcement*, and the teaching personnel listed herein, are subject to change at any time by official action of Cornell University.