agriculture & life sciences at cornell

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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
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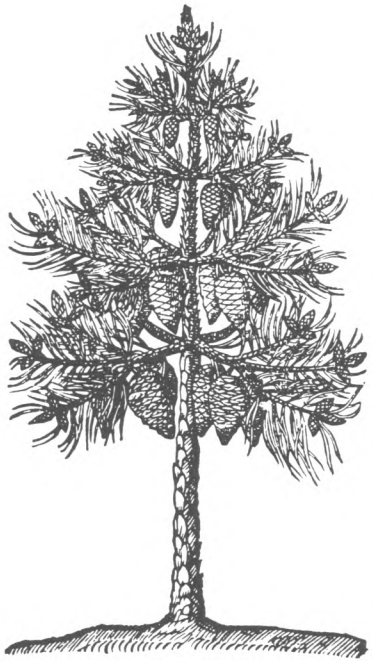
The College



On May 9, 1904, Cornell's School of Agriculture became the New York State College of Agriculture, by vote of the legislature and signature of the governor. This event was celebrated at Cornell with a bonfire and fireworks, and, it is said, with a parade headed by the University band and by six black bulls from the University farm. The State Agricultural College Bill appropriated $250,000 for construction of a college of agriculture on the Cornell campus, but it meant considerably more than a building to the students as well as to the farmers of the state. The establishment of a comprehensive agricultural college was a commitment through which agricultural interests would be nurtured and agricultural knowledge would be generated and disseminated to make New York one of the leading agricultural states of the nation. On May 10, 1979, when the college celebrated this event at its seventy-fifth anniversary gala, it was apparent that the college had in the ensuing seventy-five years of service indeed attained many of those high aims and ideals.

The College of Agriculture and Life Sciences is now one of four statutory colleges at Cornell, receiving major financial support from New York State while retaining access to the academic and cultural resources of a large and well-endowed private university. In

keeping with Cornell's role and mandate as the land-grant institution of New York State, the college provides a first-rate instructional program in agricultural and life sciences, conducts a research program that makes it one of the more famous and well-known institutions of learning in the world, and serves as headquarters for the New York State Cooperative Extension Service.

The faculty of the college was ranked first among distinguished faculties in the area of agriculture in a recent national survey. The Division of Biological Sciences at Cornell, with its faculty composed largely of members of the College of Agriculture and Life Sciences,

represents the growing strength of the biological sciences in the college and the University. The Boyce Thompson Institute for Plant Research on campus gives the college the largest concentration of plant scientists in the world. An active program in international agriculture responds to agricultural and rural development problems in many areas of the world. Students and faculty have access to a stimulating environment of courses, seminars, and public events that keeps them informed about and involved in current issues.

Many students in the college study the traditional plant and animal sciences, focusing on production agriculture, food processing, and marketing. Of equal importance in today's world are environmental and societal problems in rural and urban areas. Many students are learning about conserving natural resources, developing alternative energy sources, enhancing home and community settings, improving methods of farm finance, and upgrading the quality of life for all people.

The curriculum emphasizes the biological and physical sciences. Most students follow one of two general paths. The technology path, with applied courses in areas of specialization, is designed to prepare students for employment related to their training and interests. The science path, with advanced courses in principles and theory, is designed to prepare students for graduate study and research. Basic to both paths is introductory and general course work in the physical, biological, and social sciences.

These diverse programs prepare students for a broad range of careers, including work in government, farming, business, education, and communications. The variety offered by the college is in keeping with its mission "to increase citizens' 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 more efficient means of food production, how the study of homing pigeons may help predict earthquakes, and how the Adirondacks can be protected from acid rain carried by clouds from polluted areas. Incorporating research findings into the instructional program creates a stimulating learning environment.

The student body of the College of Agriculture and Life Sciences has grown from about 2,500 students ten years ago to a maximum at present of 3,000 undergraduates and about 1,000 graduate students. No growth in student numbers is anticipated for the next ten years. About 60 percent of the undergraduates are upper-division students, reflecting an active effort to admit transfer students.

About 45 percent of the students are women. While women have historically been discouraged from studying agriculture and sciences, many academic and career opportunities are available, and women are

encouraged to apply for admission. Women can be found studying in all major program areas of the college. Career opportunities are available for academically and professionally competent women graduates. Alumnae are finding jobs from which they may traditionally have been excluded, including such positions as county agents, dairy herdsmen, salespersons in agribusiness, teachers of agricultural subjects, farm credit managers, and environmentalists.

An active program is provided in the college for recruiting members of minority groups. Black Americans are still greatly underrepresented in many fields, including agriculture and natural resources and the biological sciences, yet the college has been fortunate to have among its undergraduates over the years minority students who have done exceedingly well in these fields. About 175 minority students are enrolled in the present undergraduate student body, studying in most of the major areas.

Students in the college will find a number of special interest groups and clubs. The College of Agriculture and Life Sciences Positive Action Council (AgPAC) is an organization of students representing academic departments, student organizations, student-faculty committees, and students-at-large of the college. They "act positively" to improve student life through a variety of projects.

AgPAC also serves to increase interaction among students, faculty, and administrators. Ho-Nun-De-Kah is the campus-based student honorary association of the college. Membership is by invitation to those who rank in the top 20 percent of the junior class and the top 10 percent of the sophomore class. Its name is an Indian phrase meaning "keepers of the sacred corn council fire" and reflects the economic importance of agriculture.

Chapters of Alpha Gamma Rho and Alpha Zeta, national agricultural fraternities, maintain houses on campus. They sponsor professional activities, service projects, and social events.

The Alfalfa Room in Warren Hall provides a student union facility for the college. AgPAC was instrumental in setting up this service for students. Its student executive board provides administrative control and planning for program development.

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 fifty states and more than ninety foreign countries. The library system is one of the ten 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 seven undergraduate colleges and schools. The College of Agriculture and Life Sciences 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.

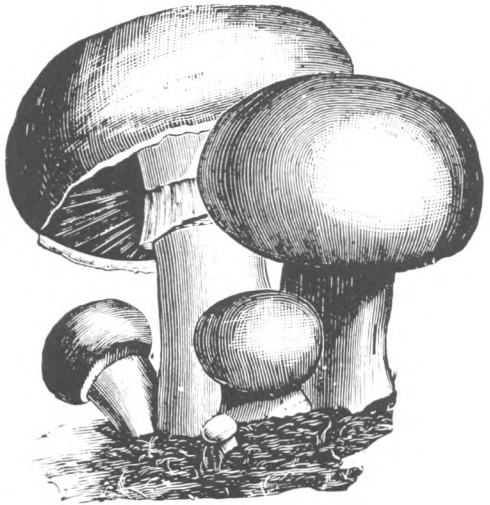
Variety spices Cornell's campus life—classical and rock concerts, folk dancing, lectures, dramatic productions, movies, and sports events complement the normal run of daily conversations and interaction among students and faculty.

Ithaca is a city of vitality with twenty-eight thousand 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.

Questions and Answers



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 activities, 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.

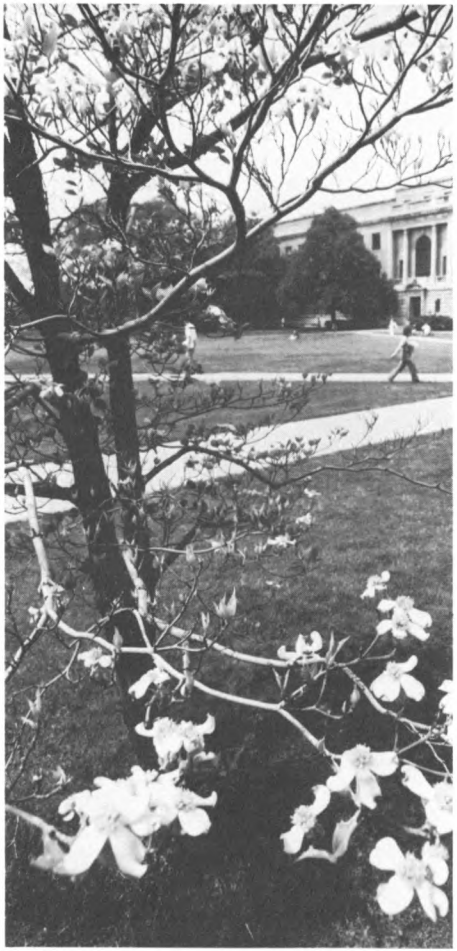
What Kind of Facilities are Available?

The College of Agriculture and Life Sciences has a wealth of physical facilities. Its major buildings are clustered around the Ag Quad on the "upper campus" of the University. The quad is anchored by Mann Library, which houses one of the most extensive collections of agricultural material in existence. The 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 insect collection in Comstock Hall contains more than four million specimens, making it one of the largest university insect collections anywhere.

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 850 head of dairy cattle, 450 beef cattle, and 900 sheep. Nearby about one thousand acres of corn and grasses are planted and harvested each year. The orchard laboratory conducts research on fruit crops; the popular salesroom may be reached by campus bus. Studios for the landscape architecture program are located in East Roberts; greenhouses and a flower garden adjoin the Plant Sciences building. Bradfield Hall houses computers, radar, and other specialized equipment used in making up-to-the-minute weather forecasts. The Department of Food Science operates a full-scale dairy plant, a salesroom, and a cafeteria. These are examples of the wide range of laboratory and teaching facilities in many of the buildings associated with the college programs. Hands-on opportunities are available for students to use equipment that is on the front line in research and experimentation.

What Kind of Instruction is Provided?

There are about 450 faculty members in the college; many are nationally recognized and have a long tradition of excellence in teaching. Several of the current faculty members 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 graduation 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 20 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 select programs of study in the college.

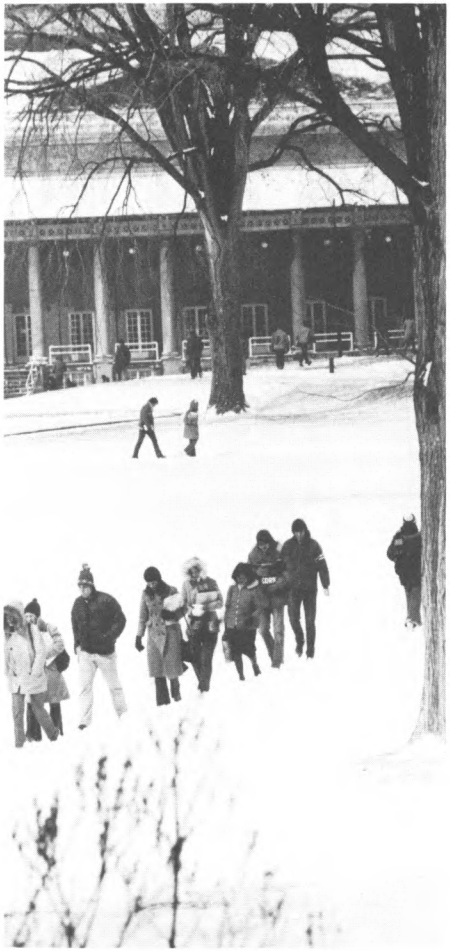
Are College of Agriculture and Life Sciences Students also Cornell University Students?

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 University athletic teams, write for student publications, act in the University's dramatic productions, and enjoy campus social life. Fraternities, sororities, dormitories, and campus organizations are open to all students. Agriculture and life sciences students take many of their required basic science courses in the College of Arts and Sciences. In most programs students may take some elective credits in any college on campus. College of Agriculture and Life Sciences students can take courses in the other colleges of the University and students in other divisions will take courses in this college.

What Kinds of Teaching Programs are Available?

The Department of Education in the College of Agriculture and Life Sciences is the only place in New York State where high school teachers of agricultural subjects are trained. A competency-based teacher education program is available in which students develop both technical and teaching skills. Students may specialize in one of the technical departments for teaching agricultural mechanization, farm production and management, horse management and care, natural resources, ornamental horticulture, and small animal care. Employment opportunities are excellent for teachers of agricultural subjects in the secondary schools, BOCES centers, and community colleges in New York State as well as in other parts of the country.

Agricultural education is the only registered teaching program the college offers. No programs are available for certifying students to teach in elementary schools or secondary school academic subjects. Students interested in preparing for teaching in these areas usually plan a fifth year for professional preparation. Other units of the State University of New York have appropriate programs available in all of these areas. Teaching agricultural subjects or science in colleges and universities generally requires an advanced degree. Students



interested in this career should plan a program of study strong in basic sciences.

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, the 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 and life sciences curriculum. Competition for admission in this area is rigorous.

May I Pursue a Preveterinary Program in the College?

There is no formal preveterinary program in the college. Requirements of the New York State College of Verterinary Medicine at Cornell may be met while specializing in a field of study such as animal or food sciences, biological sciences, agricultural engineering, and microbiology. 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. However, the number of students admitted is very limited. Students who plan to apply for admission to a college of veterinary medicine are assigned to a faculty adviser in one of the specializations offered by the college. Since the typical preveterinary requirement is only about thirty-five specific undergraduate credits, the student must plan these in conjunction with a program of study that allows alternative career plans.

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

Diverse opportunities exist in agriculture, business, communications, education, and industry. Many graduates are prepared to contribute to the solutions of major problems facing mankind, including hunger, environmental quality, and world peace. Since the agriculture and food industry is New York's largest and most important business, opportunities for graduates with specializations in applied economics, agricultural engineering, and food science are most abundant. Job opportunities include agricultural production; agribusiness and food processing and distribution; finance, banking, and insurance; marketing, general business, and manufacturing; education; communications; natural resources and the environment; government social services; and international opportunities. The college's Career Planning and Placement Office lists job opportunities from employers across the country and around the world.

Does the College Provide Help in Career Placement and Planning?

The Office of Career Planning and Placement helps to acquaint recruiters with both the quality and diversity of the college's programs. Employers often make contact with students and graduates through the office. Employment interviews, job files, resume books, a monthly job listing, and other services are provided to help the individual student's job search.

The college provides a number of other programs to help in career planning. An expanding career information library, career planning workshops, program area and department seminars, institutional research on graduates and agricultural career opportunities, in conjunction with internships, summer jobs, a course in basic farm techniques, and cooperative education programs round out the college's career planning efforts.

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 educate New York State's farm-reared youth. Only 15 to 20 percent of our new students are from outside New York State. 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.

Generally students who have scores of 1100 or better on the SAT, rank in the top 15 percent of their class, have been involved in a variety of meaningful activities and work experiences, and who show a clear understanding of the college's programs are encouraged to apply.

Here is a profile of a typical freshman class:

Applied: 2,900
Matriculated: 600 — 300 men and 300 women
Average SAT scores: verbal, 575; mathematics, 635
Average high school grade: 90 percent
In the upper 10 percent of graduating class: 70 percent
From New York State: 85 percent
Of the senior class in the college, about 60 percent 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, over four hundred students are admitted each year to 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.

Admission to the College

Application blanks for fall admission will be available in August. To receive one, write to University Office of Admissions, Cornell University, 410 Thurston Avenue, Ithaca, New York 14850.

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 University Office of Admissions.

The College 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. The committee uses general guidelines to evaluate the academic strengths of each application. Each student's academic record and personal background differs somewhat 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 (SAT) of the College Entrance Examination Board 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. Competition for admission to the college varies among the program areas and specializations.

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, or religion, national or ethnic origin, sex, age, or handicap. The University is committed to the maintenance of affirmative action programs which 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, 217 Day 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 four 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, history, Latin, literature, mathematics, modern foreign languages, music, and physics. Those who want to be considered for advanced placement credit should take the appropriate College Board advanced placement examinations in May.

More information about these plans is available from the University Office of Admissions, 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 Economic Opportunity 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 14850.

Special Students

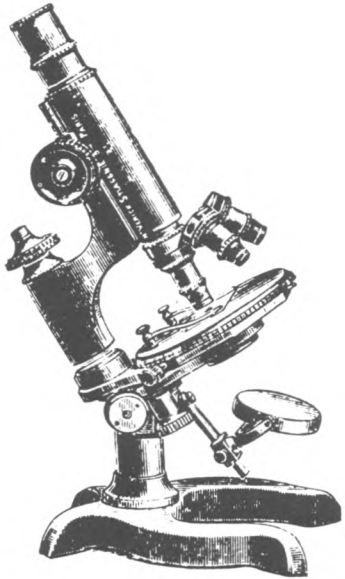
A limited number of candidates who want to take selected courses in the college without pursuing a degree program are admitted each year. Applicants should submit the standard Cornell transfer application, plus a resume of their work experience, and an outline of the courses they wish to take. Special students must take at least 12 credits a semester. Part-time study is available through the Division of Summer Session, Extramural Courses, and Related Programs. 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 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 credits with a cumulative and last term grade average of C– (1.7) or above.

All students in the college must meet a distribution requirement of forty-five credits including a minimum of nine credits in each of the following: physical science (including mathematics), biological sciences, social sciences and the humanities, written and oral expression; another forty-five credits must be taken in the College of Agriculture and Life Sciences, as part of a planned program of study. At least ten of the remaining thirty elective credits must be taken in the statutory colleges.

The degree requirements are normally met in eight semesters of study.

Expenses and Financial Aid

General Costs

The typical annual budget in 1980–81 for students in the College of Agriculture and Life Sciences is shown. Individual costs may vary considerably.

	New York State Residents	*Out-of State Residents*
Tuition and fees	$2,470	$4,090
Room and board	2,500	2,500
Miscellaneous (Books, clothes, laundry, etc.)	890	890
	$5,860	$7,480

The amount, time, and manner of payment of tuition, fees, or other charges may be changed at any time by the University 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, a $100 security deposit is required. Physical education equipment costing approximately $18 must be purchased by freshmen according to the Department of Physical Education's instructions.

Financial Aid

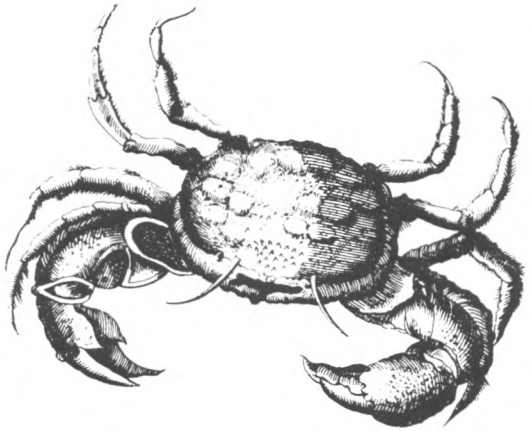
Students should not hesitate to apply for admission because they lack financial resources. Acceptance is not affected by the amount of financial aid needed.

Through the generosity of its alumni and friends, the college is able to award over $200,000 each year in supplemental aid. 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 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 Major Field of Study



The instructional program in the College of Agriculture and Life Sciences is remarkably diversified. Programs of study are planned with considerable flexibility, allowing students to prepare for careers, further graduate work, professional opportunities, and the responsibilities of educated, concerned citizens. Some five hundred courses are offered in the college for undergraduate students by the following departments:

agricultural economics
agricultural engineering
agronomy
animal science
communication arts
education
entomology
floriculture and ornamental horticulture
food science
microbiology
natural resources
plant breeding
plant pathology
pomology
rural sociology
statistics and biometry
vegetable crops

Courses are also offered in the Division of Biological Sciences by the following sections: biochemistry, molecular and cell biology; botany, genetics and development; ecology and systematics; neurobiology and behavior; physiology.

The college curriculum is organized to

enable students to follow a planned program of specialization leading to the Bachelor of Science degree. Some specializations are offered in a single department or section, but many are interdepartmental or interdisciplinary in nature. By pursuing a carefully planned program of study, a student may develop particular interests, increase understanding of subject matter, prepare for advanced study, or qualify for an occupation. Some specializations lead to licensing or certification basic to one's chosen career. The degree programs offered in the College of Agriculture and Life Sciences are registered in the national Higher Education General Information System and are listed with the appropriate HEGIS number on page 32.

To help students choose a major field of study, the college program was reorganized in 1973 into nine broad, relatively homogeneous program areas. A program area is essentially a major field of study — specializations that have common subject matter, similar objectives, and basic skills and concepts or that provide preparation for similar careers are clustered together. When students apply for admission to the college, they are asked to select the program area in which they have their major interest and want to do the major portion of their work. Each application is considered in competition with other applications in that program area. The choice of program area should be made carefully in terms of the student's interests and capabilities and of the offerings available in the college. Some students will be interested in study of the area in the broadest general sense. Others will wish to specialize in an academic discipline or pick a special career option.

Course requirements in each program area are different, but all students in the college must meet minimum distribution requirements. Most of the program areas draw on the same basic subject matter for skills and concepts. In the first year of study students in all program areas usually take introductory courses in biological science, physical science, mathematics, physical education and

freshman humanities. The schedules that typical freshmen might take in the first term are shown on page 28. Transfer students will usually have completed most of the distribution requirements and will concentrate on the student's program area specialization. A Summary of Record form will show how the requirements for graduation are being met.

Each student admitted to the college to study in one of the program areas is assigned to an adviser from that area. Faculty members within a program area who serve as advisers are often from several different departments or sections; some will represent only one specialization while others will advise on the general area of study. An effort is made to match the adviser with the student's interests in the field. The adviser will counsel the student on planning a course of study, selecting courses and scheduling classes, career possibilities, and general academic matters. Students may pick a specialization within the program area at matriculation or at a later date. It is possible to change program areas if, after beginning a program of study, a student's objectives change. Every effort is made to facilitate the change if there is room in the new area and the student has the prerequisites necessary to complete the program successfully.

The nine Program Areas are described in the following pages. For more detailed information about any of them, complete and mail the detachable postcard in the back of this announcement.

Agricultural and Biological Engineering

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 is greater than the supply. In the seventy-five years of agricultural engineering history, there has never been a surplus of graduates entering the job market. Graduates work as designers, consultants, project engineers, and field test engineers. Others may work as technical sales and service representatives, farmers, teachers of agricultural mechanization, cooperative extension agents, or enter graduate school.

Agricultural engineering is for those students interested in the theoretical and fundamental aspects of engineering

required for design and research. Applicants must have a strong aptitude for mathematics and the physical sciences.

The specialization is administered jointly by the College of Agriculture and Life Sciences and the College of Engineering. A freshman enrolls in agriculture and life sciences and completes three years in the college. One year is completed in the College of Engineering. A transfer student will also spend one year enrolled in the College of Engineering. A Bachelor of Science degree is jointly awarded by both colleges upon completion of this specialization. In fulfilling the

requirements, the student will have to pay some excess hour tuition to enroll in the College of Engineering. The specialization provides excellent preparation for a wide variety of jobs in most industries which serve agriculture.

Agricultural engineering technology deals primarily with the application of established scientific and engineering knowledge and normally will not be concerned with the development of new principles or knowledge. The engineering technologist is an implementer and therefore must be well versed in technical skills such as computer programming, graphics, and surveying.

Environmental technology is directed toward students with applied science and mathematical interests who have concern for the quality of the environment and a desire to deal with environmental quality management problems from a technological perspective. The specialization combines basic training in physical and biological sciences, ecology, and environmental quality with a selection of courses oriented toward technical problem solving.

The Department of Agricultural Engineering is one of the leading departments of its kind in the world. Riley-Robb Hall, the home of agricultural engineering at Cornell, houses one of the most complete agricultural engineering facilities in the United States.

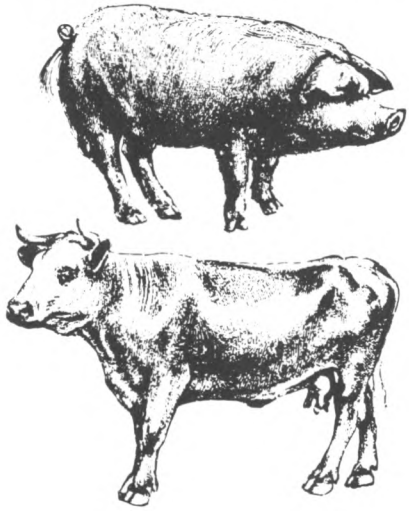
Animal Sciences

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 from animals. Through the combined efforts of the departments of Animal Science and Poultry Science, the students in this program area study breeding, care, and production of dairy and beef cattle, horses, poultry, pigs, and sheep.

Animal sciences graduates enter all areas of 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 technician, and meat or egg inspector.

Students who want 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 agricultural 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 prepare to teach agriculture, work in environmental or science education centers, and study the educational processes. 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 preparation for teaching agricultural subjects in high schools and vocational education centers.

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

At Cornell the study of biology is concentrated in the Division of Biological Sciences. Students may be 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 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; neurobiology and behavior; or general biology. Programs can be planned for

qualified students with particular interest in areas such as nutrition or biophysics.

Foundation courses prerequisite for higher-level courses and essential for understanding biology today include introductory biology, general chemistry, college mathematics (including calculus), and organic chemistry. Other requirements include a year of physics, a semester of genetics, and a semester of biochemistry.

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.

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 acquire knowledge in some of the many applications of microbiology. The program provides training for technical positions in applied aspects of microbiology such as food, medicine, ecology, industry, and agriculture or preparation for graduate work.

The program is designed to meet the requirements for accreditation of individuals by the American Academy of Microbiology. A clinical microbiology specialization allows a few selected students to spend a year at the Cornell Medical School and the New York Hospital receiving practical training.

Microbiology is the only specialization in the Biological Sciences Program Area that is offered outside of the division. Students interested in this specialization enroll directly in the Department of Microbiology in the College of Agriculture and Life Sciences.

Environmental Studies

Environmental studies includes the natural processess in air, land, water, energy, and life, and their interactions with each other and with man.

Study in this area should lead to ecological awareness — concern for the total environment; economic awareness — how costs relate to environmental problems; political awareness — understanding how individual roles relate to collective responsibility; problem awareness — ability to define problems and to view the facts of the situation; and awareness that humans are part of, and not apart from, nature.

The number and complexity of environmental problems exceed the capability of available manpower to attack them effectively. Manpower requirements in the environmental area increase the need for 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: students who want to qualify for beginning positions with government agencies, private industry, and research organizations; students who plan to continue with graduate training in one of the specialties; and students who want to prepare themselves to be citizens whose special training helps them appreciate and understand their environment and their impact on it.

Departments cooperating in the program area are 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.

In the first phase of this program students take courses in biology, chemistry, physics, biochemistry, nutrition, and microbiology. This basic knowledge is then supplemented by courses that deal with the application of science and technology to the processing, preservation, distribution, and utilization of foods.

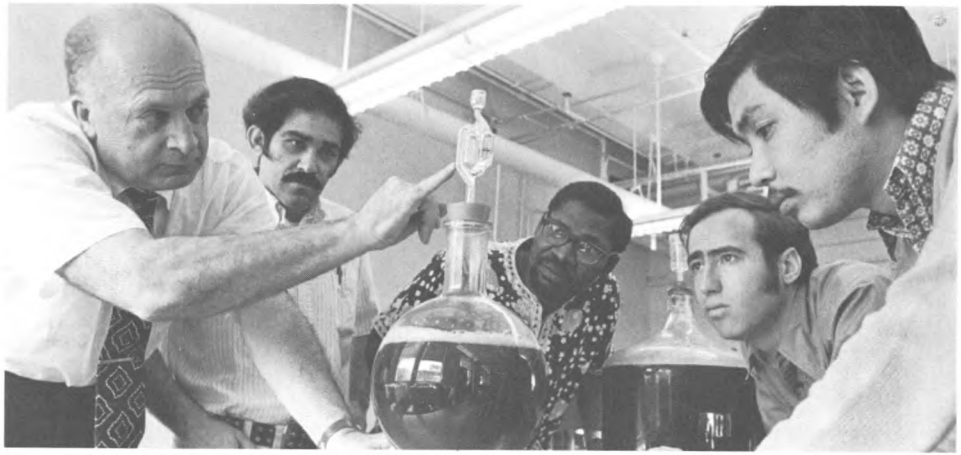
Because of the increasing demand for food scientists with bachelor's degrees, there are more job opportunities than qualified applicants. Salaries are also higher than for most jobs open to new college graduates. The flexibility of the food science program at Cornell allows students to prepare for a 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 Department 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 two-year colleges have food science programs and offer excellent opportunities for teaching in classrooms and laboratories. The New York State Cooperative Extension Service also has openings for graduates.

The Food Science Department in the College of Agriculture and Life Sciences works cooperatively with the Division of Nutritional Sciences, so that students may take courses in the area of human nutrition, and internships dealing with food, nutrition, and health. Most undergraduates who want to major in nutrition are admitted through the College of Human Ecology.



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 demand 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 managment 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.

Typical Freshman Schedules

Course Number and Title	*Credits*	*Class Schedule*
Susan		
Bio S 101 Biological Sciences, Lectures	2	Lec 01, M W F 9:05
Bio S 103 Biological Sciences, Laboratory	2	Lab 05, M 1:25–4:25
Chem 207 General Chemistry	4	Lec 02, T Th 10:10
		Lab 05, W 1:25–4:25
Math 112 Calculus	3	Lec 01, T Th 11:15
		Sec 03, M W 10:10
Thetr 120 Modern Drama Modern Productions	3	Sec 01, T Th 12:20–1:35
P Ed 550 Equitation	1	Hours to be arranged.
P Ed 550 Gymnastics	0	Hours to be arranged.
	15	
Lynn		
An Sc 100 Introductory Animal Science	3	Lec 01, W F 10:10
		Lab 01, T 2:00–4:25
Bio S 101 Biological Sciences, Lectures	2	Lec 01, M W F 9:05
Bio S 103 Biological Sciences, Laboratory	2	Lab 32, Th 8:00–11:00
Chem 103 Introductory Chemistry	3	Lec 02, M W 12:20
		Lab 02, T 8:00–11:00
Medvl 101 Medieval Literature and Culture	3	Sec 02, M W F 8:00
P Ed 030 Band	1	Hours to be arranged.
	14	
John		
ALS 115 Introductory College Mathematics	4	Lec 01, M W F 8:00
		Sec 01, T 12:20
Ag Ec 150 Economics of Agricultural Geography	3	Lec 01, M W F 11:15
Bio S 109 Biology for Nonmajors	3	Lec 01, M W F 9:05
Engl 135 Writing from Experience	3	Sec 05, M W F 9:05
P Ed 610 Hockey	1	Hours to be arranged.
	14	

Special Programs

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. Such students may 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.

Cooperative Extension

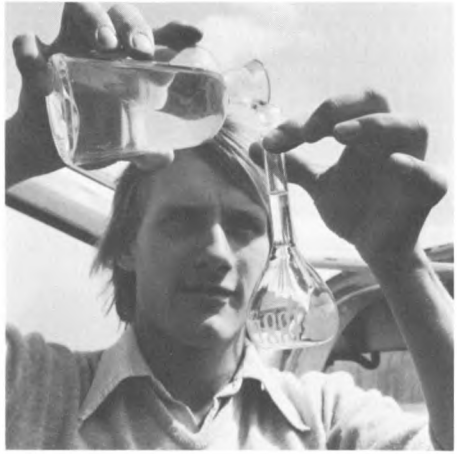
Students may prepare for cooperative extension careers in agricultural production, 4-H youth development, community development, and homes and grounds education. With the help of designated advisers, courses selected will meet the requirements for (1) preparation in agricultural technology in a department of the college and (2) preparation in social sciences, communications, and program methodology. Technical specializations may be planned in animal science, farm business management, field crops, ornamental horticulture, pomology, and vegetable crops. A limited number of cooperative extension agent positions are filled from each year's graduating class.

General Agriculture

General agriculture and agricultural science students, with help from their adviser, may select a program of 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 and 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.

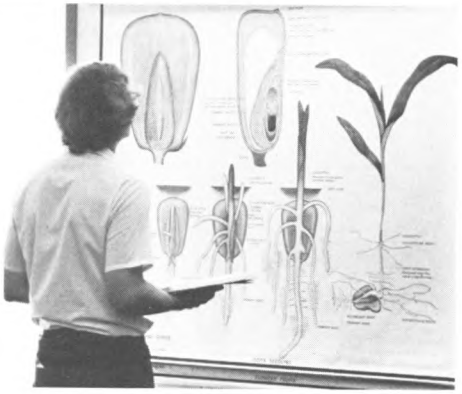


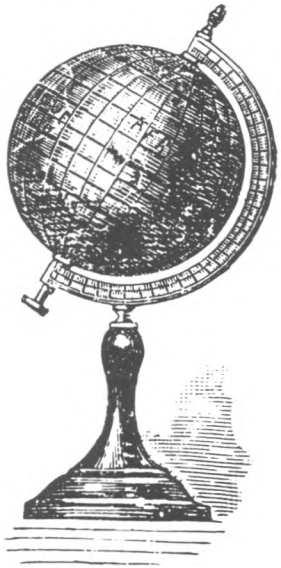
Statistics and Biometry

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 the 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 of Agriculture and Life Sciences student is competitively selected in the freshman year to go to the Instituto Tecnologico 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 Progam 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

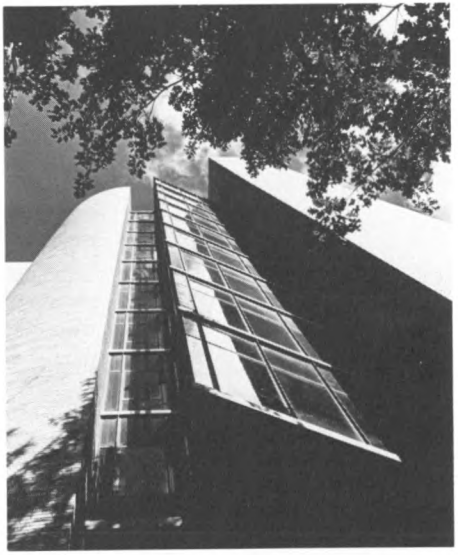
The college has an arrangement with the University of Reading whereby a few students are recommended to the faculty for admission for one year as occasional students. Students go in their junior year. All expenses are paid by the student, but total costs including transportation are less than at Cornell.

Year Abroad in Ireland

For College of Agriculture and Life Sciences 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 Office of Student Affairs, 17 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

Students are admitted to the College of Agriculture and Life Sciences in:

1. Agricultural and Biological Engineering
2. Animal Sciences
3. Applied Economics and Business Management
4. Behavioral and Social Sciences
5. Biological Sciences
6. Environmental Studies
7. Food Science
8. Plant Sciences
9. Special Programs

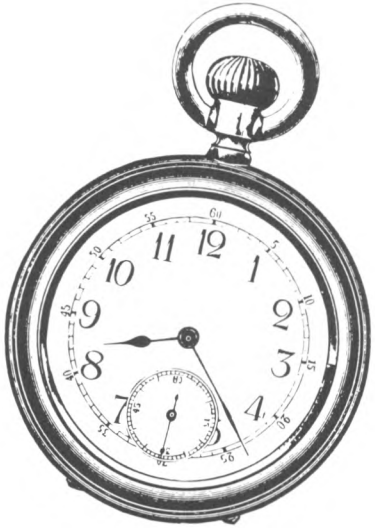
Degree Programs

Degree programs offered by the college are registered in the Higher Education General Information System. The chart shows the program area with which each is associated.

	Degree	*HEGIS Code*	*Program Area*
Agricultural Business Management and Marketing	B.S.	0112	3
Agricultural Economics	B.S.	0111	3
Agricultural Education	B.S.	0899	4
Agricultural Engineering	B.S.	0903	1
Animal Physiology and Anatomy	B.S.	0410	5
Animal Science	B.S.	0104	2
Aquatic Science	B.S.	0107	7
Atmospheric Sciences	B.S.	1913	6
Biochemistry	B.S.	0414	5
Biological Sciences	B.S.	0401	5

	Degree	HEGIS Code	Program Area
Botany	B.S.	0402	5
Communication Arts	B.S.	0601	4
Ecology and Evolution	B.S.	0420	5
Education	B.S.	0801	4
Entomology	B.S.	0421	6
Environmental Horticulture	B.S.	0108	6
Environmental Technology	B.S.	0199	1
Farm Business Management and Finance	B.S.	0110	3
Field Crops	B.S.	0102	8
Floriculture and Ornamental Horticulture	B.S.	0109	8
Food Industry Management	B.S.	0112	3
Food Science	B.S.	0113	7
General Environmental Studies	B.S.	0420	6
General Plant Sciences	B.S.	0402	8
General Studies in Agriculture	B.S.	0101	9
Genetics and Development	B.S.	0422	5
International Agriculture	B.S.	0101	9
Landscape Architecture	B.S.	0204	6
Microbiology	B.S.	0411	5
Natural Resources	B.S.	0115	6
Neurobiology and Behavior	B.S.	0425	5
Plant Breeding	B.S.	0116	8
Plant Pathology	B.S.	0404	8
Pomology	B.S.	0108	8
Resource Economics	B.S.	0111	3
Rural Sociology	B.S.	2208	4
Soils Science	B.S.	0103	6
Statistics and Biometry	B.S.	0419	9
Vegetable Crops	B.S.	0108	8

Admissions and Financial Aid Deadlines for Freshmen and Transfers



Freshmen

August: Application blanks are available for students who want 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 ten a.m. to noon and from two to four p.m. through January 15. Group conferences are held every Monday and Friday afternoon at two p.m. Write or telephone 607/256-2036 or 256-2057 for an appointment.

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

January 15: Deadline for applications for admission and financial aid for entrance in September. This is also the deadline for filing the Financial Aid Form (FAF) with College Scholarship Service, Princeton, N.J. 08540.

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–May 15: Applicants informed about decisions on fall semester applications.

Cornell Academic Calendar 1980–81

Registration	Thursday and Friday, August 28 and 29
Fall term instruction begins	Tuesday, September 2
Fall recess:	
Instruction suspended, 1:10 p.m.	Saturday, October 11
Instruction resumed	Wednesday, October 15
Thanksgiving recess:	
Instruction suspended, 1:10 p.m.	Wednesday, November 26
Instruction resumed	Monday, December 1
Fall term instruction ends, 5:00 p.m.	Wednesday, December 10
Final examinations begin	Saturday, December 13
Final examinations end	Monday, December 22
Registration	Thursday and Friday, January 29 and 30
Spring term instruction begins	Monday, February 2
Spring recess:	
Instruction suspended, 1:10 p.m.	Saturday, March 28
Instruction resumed	Monday, April 6
Spring term instruction ends, 1:10 p.m.	Saturday, May 16
Final examinations begin	Tuesday, May 19
Final examinations end	Thursday, May 28
Commencement Day	Sunday, May 31

The dates shown in the academic calendar are subject to change at any time by official action of Cornell 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.

In enacting 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 Science
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*, and a handbook for enrolled students, *Academic Information*.

Requests for the publications listed above should be addressed to

Cornell University Announcements
Building 7, Research Park
Ithaca, New York 14850.
(The writer should include a zip code.)

Office of University Publications
580 50M CL