

Biology

“One Course At A Time allows us to focus our attention on one thing. We not only learn that topic better, we retain it better.”
Barbara Christie-Pope, a biology professor specializing in neuroscience

Biology students don't just study biology at Cornell College; they actually get to be biologists, exploring authentic research questions for which the answers are unknown. While striving to achieve a major or minor in this field of study, students will develop a range of technical and practical skills in the field and in the laboratory.

Students work with biology faculty who represent a wide range of specialties and interests, ranging from molecular genetics and neurobiology to ecology and conservation. More importantly, students do all of this in a supportive learning environment as they explore the breadth of the biological sciences and discover what kind of biologist they want to become. Biology courses are also a core component of two related majors: biochemistry and molecular biology, and environmental studies.

BENEFITS OF ONE COURSE AT A TIME

Learning biology under the One Course calendar means students will be practicing science in “real-time,” not just once a week as they would at a school using the semester calendar. Students have the time to design and perform ecological experiments during frequent field trips to local wetlands, prairies, or forests. Daily labs allow students to analyze the molecular genetics of cells, measure how cells respond to drug treatments, detect enzyme activities in animal tissues, or apply concepts of anatomy and physiology while examining human tissues in the cadaver lab.

The One Course calendar lets the department teach biology during extended off-campus trips. Examples of that include learning ecology at the Wilderness Field Station in northern Minnesota; conservation biology in Costa Rica, the Philippines, or Myanmar;

coral reef biology in Belize or the Bahamas; or plant-insect interactions in South American rain forests.

CURRICULUM HIGHLIGHTS

CAPSTONE

Students' academic experience will culminate in a senior biology capstone in which they develop their own study to investigate a biological problem. This can be a project the student designs, a contribution to an on-going research project, or even part of an off-campus course in the Caribbean. The project includes reviewing literature, collecting and interpreting data, writing a research report, and presenting the work to peers.

RESEARCH

STUDENT-FACULTY RESEARCH

Students have many different opportunities to collaborate with professors and other professional biologists. All of Cornell College's biology faculty are involved in long-term research projects and work collaboratively with students both during the school year and during the summer. Students can even share their work with the broader scientific community by presenting at Cornell's annual Student Symposium or publishing papers in scientific journals.

Our faculty mentor students as part of the Cornell Summer Research Institute. The Summer Research Institute allows participants to become part of a learning community, living on campus, participating in career-development workshops, and helping to decide if a career in scientific research is the right path. Biology faculty currently have active research projects in areas such as the bleaching factors affecting Caribbean fire coral, molecular genetics of a yeast that may be related to human obesity, potential relationships between skin pigmentation and neurodegenerative diseases of the brain, and conservation of threatened species such as ornate box turtles and monarch butterflies.

Faculty Bios & Courses

JEFF CARDON

Professor of Biology and Chemistry

Teaches courses in biology and chemistry, including Cell and Molecular Biology, Biochemistry, Microbiology, and Organic Chemistry. Recent research with students has focused on energy utilization in the yeast *S. cerevisiae*, which may shed light on biological causes of obesity in humans. Ph.D., molecular biology, University of California, Los Angeles.

BARBARA CHRISTIE-POPE

Professor of Biology

Teaches courses in biology, including Neurobiology, Immunology, and Human Anatomy and Physiology. She has research interests in neuropharmacology and degenerative diseases of the brain, and recent studies with students and University of Iowa researchers are examining zebrafish for a potential link between pigment producing melanocytes in the skin and dopaminergic neurons in the brain. Ph.D., pharmacology, University of South Alabama.

MARTY CONDON

Professor of Biology

Teaches courses in biology, including Evolution, Plant Morphology, and Plant Systematics. She collaborates with researchers in various institutions and countries to study the evolution and ecology of plant-animal interactions. She also uses molecular biology and field biology to study species diversity in tropical rain forests and tallgrass prairies. Ph.D., University of Texas.

ANDY MCCOLLUM

Professor of Biology

Teaches courses in biology, including Animal Behavior, Entomology, and Ecology. His research with students focuses on the ecology and conservation of threatened and endangered species, including the ornate box turtle in Iowa and the leatherback sea turtle in Costa Rica. He also contributes to collaborative research projects on the phenotypic plasticity of tadpoles. Ph.D., zoology, Duke University.

OFF-CAMPUS RESEARCH

In addition to work done on campus and during courses, students have the opportunity to take part in research off-campus related to their interests at places like the Emory University Gynecology and Obstetrics Department, the University of Colorado Medical School, the University of Iowa Genetic Laboratory, and other state universities throughout the country.

DIMENSIONS PROGRAM FOR HEALTH

PROFESSIONS

Dimensions is an academic enrichment program for Cornell students of any major who are interested in careers in health care. The program works closely with biology and other science departments to provide research opportunities and internships for students in health-related fields, including physicians offices, public health offices, and research laboratories.

Dimensions also supports a wide range of opportunities, including professional workshops and seminars, assistance with admission test preparation (MCAT, GRE, PCAT, DAT), and navigating graduate admission processes. If students decide to apply to a health care program, Dimensions staff will help set up the application materials through a Health Professions Committee that serves in an advisory capacity and is responsible for the preparation of a letter of recommendation to support Cornell student applications to professional schools.

INTERNSHIPS/FELLOWSHIPS

The One Course calendar enables students to participate in month-long internships working alongside professionals and getting a first-hand look at potential career paths, giving students the chance to take part in off-campus experiences tailored to specific interests and earn credit toward graduation. Cornell students have held internships at places such as the Mote Marine Lab and Big Cat Rescue in Sarasota, Florida; Turpentine Creek Wildlife Refuge in Eureka Springs, Arkansas; the Iowa State Hygienic Lab in Coralville, Iowa; Child Family Health International in New Dehli, India, and Oaxaca, Mexico; the Mayo Clinic in Rochester, Minnesota; Baylor College of Medicine in Houston, Texas; the Children's Hospital in Aurora, Colorado; and the University of Maryland School of Medicine in Baltimore, Maryland.

AFTER CORNELL

Career options include research, health fields, biotechnology, forensic science, bioinformatics, and science and medical writing.

ALUMNI CAREERS

Safari summer instructor, Blank Park Zoo, Des Moines, Iowa (Class of 2018)

Laboratory technician assistant intern, Red Star Yeast, Cedar Rapids, Iowa (Class of 2018)

Physical therapy technician, HCA Healthcare, Overland Park, Kansas (Class of 2018)

Fullbright English teaching assistant, Bogota, Colombia (Class of 2017)

Youth development coordinator, Peace Corps, Katsi, Costa Rica (Class of 2017)

Microbiologist, Kraft Heinz Company, Massillon, Ohio (Class of 2017)

Intern, Tiger Creek Wildlife Refuge, Dubuque, Iowa (Class of 2017)

Adventure guide and educator, Fresno Chaffee Zoo, Fresno, California (Class of 2015)

Volunteer coordinator, Crane Trust, Wood River, Nebraska (Class of 2015)

Shorebird beach warden, National Audubon Society, Charleston, South Carolina (Class of 2015)

Pathology technical and clerical aide, Southeast Health, Cape Girardeau, Missouri (Class of 2015)

Lab technician, Heska Corporation, Des Moines, Iowa (Class of 2014)

Medical scribe, ScribeAmerica, Hoboken, New Jersey (Class of 2015)

Naturalist, Arrowhead Outdoor Science School, Lake Arrowhead, California (Class of 2015)

Advanced naturalist intern, Audubon Center of the North Woods, Sandstone, Minnesota (Class of 2014)

Teacher-naturalist, Utah Division of Wildlife Resources, Hyrum, Utah (Class of 2014)

GRADUATE SCHOOLS ATTENDED

Doctor of veterinary medicine, Midwestern University, Glendale, Arizona (Class of 2016)

Ph.D. pharmacy, University of Minnesota, Minneapolis, Minnesota (Class of 2013)

M.S., biology, University of Western Illinois, Macomb, Illinois (Class of 2013)

M.A., biology, Miami University, Oxford, Ohio (Class of 2013)

M.S., biology, University of Minnesota, Minneapolis, Minnesota (Class of 2012)

M.S., physician assistant studies, University of Iowa, Iowa City, Iowa (Class of 2011)

TAMMY MILDENSTEIN

Assistant Professor of Biology

Teaches courses in biology, including Ecology, Environmental Biology, Conservation Biology, and Organismal Biology. She studies threatened flying foxes in Southeast Asia and Oceania. Most recently, she has taken students to Myanmar to study flying fox conservation. Her local research with students focuses on monarch butterfly conservation and involves prairie restoration projects. Ph.D., wildlife biology, University of Montana, Missoula.

BRIAN

NOWAK-THOMPSON

Associate Professor of

Biology and Chemistry

Teaches courses in biology and chemistry, including Chemical Ecology, Cellular Biology, and Biochemistry. Students in his lab study the production of bacterial metabolites that inhibit plant pathogens. The bacteria producing these metabolites are sometimes used in place of agricultural pesticides to manage plant disease. Ph.D., biochemistry and biophysics, Oregon State University.

CRAIG TEPPER

Professor of Biology

Teaches courses in biology, including Cell and Molecular Biology, Genetics, and Developmental Biology. His research with students focuses on molecular genetics and marine symbionts, and includes collaborations on coral bleaching and the loss of reef habitat in the Caribbean. Ph.D., molecular plant pathology, Utah State University.