

THE HONORS PROGRAM IN ECOLOGY AND EVOLUTIONARY BIOLOGY

Graduating with departmental Honors in EBIO requires good grades (a final cumulative GPA of about 3.3 or better), writing an Honors Thesis based on a research project, taking the 1-credit seminar EBIO 4980, and 1-3 credits of independent research (EBIO 4990). Research can involve work in the lab, the field, or the library. Library projects are less common, but can be appropriate and rewarding if a good review or synthesis of some topic is timely and makes a contribution. While students may enter the Honors Program as juniors and conduct their research during the senior year and the preceding summer, they are strongly encouraged to begin their research much earlier. Please make an appointment with Prof. Barbara Demmig-Adams (Barbara.Demmig-Adams@colorado.edu) for more information!

A successfully completed Honors Thesis is a most valuable asset in applications to Graduate Programs, Medical School, and many other programs or agencies. These programs often consider a research experience like this as an indicator of future success that is even more significant than high grades. Getting involved in research provides extremely valuable hands-on experience and enhances critical thinking ability in ways the classroom experience cannot. Furthermore, this research experience will allow a professor to get to know a student better than from a classroom setting, enabling the professor to provide a very personal and insightful letter of recommendation to any future employer or program. Such a letter is often the decisive factor in successful applications.

EBIO Honors Requirements: Students eligible for admission, with a cumulative GPA of about 3.3 or higher, are invited to enter the departmental Honors Program. To facilitate this, a combination of Honors research credits and two Honors seminars are offered (in the spring only).

EBIO 3980 & 3990 (offered only in the spring) are recommended, but optional, and may be taken any time before a student's final year:

- The seminar course EBIO 3980 (1 credit) is an introduction to the EBIO departmental Honors program and to research projects of current Honors students. No paper is required.
- Independent Honors Study EBIO 3990 (1-3 credits) may be taken concurrently with EBIO 3980 and involves individual exploration of potential Honors thesis topics via library research and/or informal meetings with potential faculty sponsors.

EBIO 4980 & 4990 (offered only in the spring) are required for graduation with Honors:

- The seminar EBIO 4980 (1 credit) must be taken during the final academic year prior to graduation. It provides information on honors thesis writing and defense. In addition, each candidate will give a practice defense talk on his/her research.
- Independent Honors Research/Thesis Writing EBIO 4990 (1-3 credits) must be taken during the final academic year prior to graduation.

Students need to contact the EBIO Honors Committee chair prior to their official application to the Honors program. This application is due in early December for graduation in the spring, and mid-April for graduation in the fall (see Honors Department staff in Norlin Library, M400, 492-6617, or visit their website, <http://www.colorado.edu/honors/>, for official registration and more information). The Honors application form includes a brief project description. UROP (Undergraduate Research Opportunities Program) funds are often available for student research support, and if the student has already prepared a UROP proposal, this document can be attached as the project description. This application form is submitted to the Honors office in Norlin library with a copy to the EBIO Honors Committee chair.

Honors Research: The first step is to find a faculty mentor/major thesis advisor with matching research interests. This mentor usually helps the students identify a research project as well as find space and equipment for this project. Research with animals/animal tissues or human subjects must be in compliance with NIH/USDA Guidelines and have approval of the CU Animal Care Committee or the CU Human Research Committee, respectively. The student must check that use of animal/human subjects is either already approved or must submit a proposal for such use. For work with hazardous waste, the guidelines for generation and disposal of such waste must be followed and students may need to take a training course on the disposal of hazardous waste.

Upon completion of the Honors research, the student prepares an Honors Thesis in the form of a scientific paper following the style customary for publications in the respective research field. The

thesis must be in final form at least a month before graduation (for specific deadlines, see Honors Program website listed above). In consultation with the thesis advisor, the student sets up a thesis defense committee at the beginning of the graduation semester and finds a date and time for the defense. The defense committee consists of no less than three members, including the student's project advisor, a member of the departmental Honors Committee, and a faculty member from outside the department. The written thesis should be submitted to all defense committee members 1-2 weeks prior to the oral defense. Performance during the oral defense should demonstrate familiarity with specific and broader aspects of the student's research area, and the ability to think critically and communicate effectively.

Decision Regarding Honors: Immediately following the oral defense, the defense committee discusses the quality of the student's performance and thesis as well as the GPA. The committee then makes a written recommendation to the CU Honors Council that is not made available to the student. The Honors Council examines the student's record and the department's recommendation and makes the final decision as to whether or not Honors will be awarded and at what level (*cum Laude*, *Magna cum Laude*, or *Summa cum Laude*). Despite the existence of different award levels, any level of Honors is truly an honor, since only a small fraction of students graduates with Honors. The student will be notified of the final decision of the Honors Council through the Honors office.

List of Advisors and Types of Thesis Projects: Students should feel free to contact any of the EBIO faculty listed below and talk to them about possible research. In addition, it is also possible to work with a faculty advisor from another department or unit. All that is expected from students at this point is enthusiasm and motivation. Some faculty may already have filled available slots in their labs, others may recommend that a student work most closely with one of their graduate or postdoctoral students. This is entirely appropriate and can be highly rewarding. With permission of the EBIO Honors chair, it is also possible to work with an Honors advisor from a department or unit outside of EBIO.

Dr. William Adams: Plant ecophysiology; photosynthesis; environmental stress; phloem structure & function
Dr. Nichole Barger: Biogeochemistry, forest ecology, management & restoration of aridland ecosystems
Dr. Deane Bowers: Insect ecology and evolution, plant-animal interactions, chemical ecology
Dr. William Bowman: Plant ecology; alpine ecosystem science; plant-soil and plant-plant interactions
Dr. Michael Breed: Behavior and ecology of social insects (ants, bees, wasps)
Dr. Sharon Collinge: Habitat loss & fragmentation; patterns of landscape change; restoration ecology
Dr. Alexander Cruz: Behavioral, ecological, and evolutionary studies of birds and fishes
Dr. Kendi Davies: Community & population dynamics; invasion / extinction; grasslands; microcosms
Dr. Barbara Demmig-Adams: Plant ecophysiology & stress adaptation, antioxidants; diet-gene interaction
Dr. Pamela Diggle: Development, evolution, and ecology of plant reproductive systems
Dr. Noah Fierer: Soil ecology, microbial ecology, role of microorganisms in terrestrial ecosystems
Dr. William Friedman: Evolution of plants; plant reproductive biology; history of evolutionism before Darwin
Dr. Robert Guralnick: Evolution of invertebrates; morphology, genes, and biodiversity informatics
Dr. Pieter Johnson: Invasive species & emerging diseases; aquatic ecology & evolution; conservation
Dr. Carol Kearns: Biology of pollination & conservation of pollinators; other topics in ecology and behavior
Dr. William Lewis: Water quality, lakes, streams, wetlands; aquatic food webs; biogeochemistry
Dr. Patrick Kocielek: Freshwater Ecology; taxonomy, systematics and biogeography of diatoms
Dr. Andrew Martin: Evolutionary & conservation biology; microbial diversity; biogeography
Dr. Christy McCain: Community ecology; biodiversity & biogeography of vertebrates; montane conservation
Dr. Valerie McKenzie: Parasitology, disease ecology, amphibians, wildlife conservation
Dr. Daniel Medeiros: Genetic and developmental changes driving early vertebrate evolution
Dr. Brett Melbourne: Ecological modeling, extinction, endangered and invasive species, conservation
Dr. Jeffrey Mitton: Evolutionary dynamics of mitochondrial and chloroplast DNA
Dr. Russell Monson: Subalpine forest ecosystem function; forest carbon and water cycles
Dr. Rebecca Safran: Sexual selection, vertebrate social behavior, genetics & behavior of speciation, avian ecology
Dr. Steven Schmidt: Microbial ecology; plant/microbe interactions; biogeochemistry; mycorrhizae
Dr. Tim Seastedt: Terrestrial ecosystems; soil biology; ecology of invasive species
Dr. David Stock: Developmental genetic mechanisms of the evolution of teeth in fishes
Dr. Alan Townsend: Terrestrial ecosystem ecology and biogeochemistry; global environmental change
Dr. Carol Wessman: Landscape & regional ecology; disturbance; land-use/land-cover change; remote sensing/GIS