Twin Cities Campus

Ecology, Evolution and Behavior Ph.D.

Ecology, Evolution & Behavior

College of Biological Sciences

Link to a list of faculty for this program.

Contact Information:
Ecology, Evolution, and Behavior Graduate Program, 140 Gortner Laboratory, 1479 Gortner Avenue, St. Paul, MN 55108 (612-624-6770, fax: 612-624-6777)
Email: eebgrad@umn.edu
Website: http://www.cbs.umn.edu/explore/departments/eeb/graduate/about-program

- Program Type: Doctorate
- Requirements for this program are current for Fall 2017
- Length of program in credits: 48
- This program does not require summer semesters for timely completion.
- Degree: Doctor of Philosophy

Along with the program-specific requirements listed below, please read the General Information section of the catalog website for requirements that apply to all major fields.

The graduate program in ecology, evolution, and behavior (EEB) links faculty and students interested in the biology of organisms from molecules to ecosystems. Studies address questions from molecular mechanisms of evolution, the interactions of organisms in social groups and populations, the distributions and abundances of species in communities and ecosystems, to global biogeochemical processes. The program provides broad training in the general areas of ecology, evolution, and animal behavior, and specialized courses and research in vertebrate and invertebrate zoology; behavior and ethology; evolution; population genetics; molecular evolution; systematics; population, community, and ecosystem ecology; global ecology; limnology; ecology of vegetation; and theoretical ecology. Opportunities for field research are available in Africa, Central America, and other parts of the world, as well as in local ecosystems, including the Cedar Creek Ecosystem Science Reserve and Itasca Biological Station. Seminars and individually designed tutorials are an important part of student programs and provide an exciting intellectual environment.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Prerequisites for Admission

Other requirements to be completed before admission:
Courses in inorganic chemistry, organic chemistry, biochemistry, general physics, one year of college calculus, animal biology, genetics, physiology, and plant biology are strongly recommended and provide an important background to pursue graduate work in EEB. Proficiency in a foreign language is not required but is strongly recommended for students who expect to pursue field work in a country where English is not the native language. Deficiencies must be made up early in the graduate program.

Special Application Requirements:
Students are admitted only in fall semester. Deadline for application is December 1. Refer to the EEB website for more details.

International applicants must submit score(s) from one of the following tests:

- TOEFL
  - Internet Based - Total Score: 79
  - Internet Based - Writing Score: 21
  - Internet Based - Reading Score: 19
  - Paper Based - Total Score: 550
- IELTS
  - Total Score: 6.5
- MELAB
  - Final score: 80

Key to test abbreviations(TOEFL, IELTS, MELAB).

For an online application or for more information about graduate education admissions, see the General Information section of the catalog website.

Program Requirements

24 credits are required in the major.
24 thesis credits are required.

This program may be completed with a minor.

Use of 4xxx courses towards program requirements is not permitted.

A minimum GPA of 3.00 is required for students to remain in good standing.

At least 2 semesters must be completed before filing a Degree Program Form.

Significant field or laboratory experience, proficiency in using computers in research, and competence in advanced statistics are required. Students are expected to gain some appreciation of history or philosophy of science and are required to teach a minimum of two semesters at 50 percent time. Course plans are discussed and agreed upon by the student and an advisory committee of three to five faculty members.

Required EEB Coursework

Take the following courses for a total of 13 credits:
EEB 8150 - EEB Lab Tours (1.0 cr)
EEB 8151 - EEB Lab Tours (1.0 cr)
EEB 8201 - Graduate Foundations in Ecology, Evolution and Behavior Semester 1 (4.0 cr)
EEB 8202 - Graduate Foundations in Ecology, Evolution and Behavior - Semester 2 (4.0 cr)
EEB 8301 - Prelim Proposal Writing Seminar (1.0 cr)
EEB 8302 - EEB Written Prelim Workshop (1.0 cr)
EEB 8500 - NSF GRF Graduate Research Fellowship Proposal Writing Seminar (1.0 cr)

Elective Coursework

Select at least 11 elective credits, in consultation with the advisor. Electives may include courses in statistics or history of science if additional background is needed.
Take 0 - 24 course(s) totaling 11 - 24 credit(s) including 0 - 24 sub-requirements(s) from the following:
•EEB 5068 - Plant Physiological Ecology (3.0 cr)
•EEB 5221 *{Inactive}*(3.0 cr)
•EEB 5322 *{Inactive}*(3.0 cr)
•EEB 5327 *{Inactive}*(3.0 cr)
•EEB 5371 - Principles of Systematics (3.0 cr)
•EEB 5407 - Ecology (3.0 cr)
•EEB 5409 - Evolution (3.0 cr)
•EEB 5601 - Limnology (3.0 cr)
•EEB 5605 *{Inactive}*(2.0 cr)
•EEB 5609 - Ecosystem Ecology (3.0 cr)
•EEB 8100 - EEB Department Seminar (1.0 cr)
•EEB 8200 - Sustainability Science Distributed Graduate Seminar (3.0 cr)
•EEB 8360 - Behavioral Biology Seminar (1.0 cr)
•EEB 8601 - Introduction to Stream Restoration (3.0 cr)
•EEB 8602 - Stream Restoration Practice (2.0 cr)
•EEB 8641 - Spatial Ecology (3.0 cr)
•EEB 8980 - Seminar on Current Topics (1.0 - 3.0 cr)
•EEB 8990 - Graduate Seminar (1.0 - 3.0 cr)
•BIOL 8100 - Improvisation for Scientists (1.0 cr)
•EEB 8991 - Independent Study: Ecology, Evolution, and Behavior (1.0 - 10.0 cr)
•EEB 8994 - Directed Research (1.0 - 5.0 cr)
•**Courses outside of EEB**

Courses from the following, or other coursework selected in consultation withe the advisor, may be used to fulfill the 24-credit minimum requirement.
Take 0 - 24 course(s) totaling 0 - 24 credit(s) including exactly 0 sub-requirements(s) from the following:
•AGRO 5121 - Applied Experimental Design (4.0 cr)
•BIOL 8100 - Improvisation for Scientists (1.0 cr)
•DSSC 8111 - Approaches to Knowledge and Truth: Ways of Knowing in Development Studies and Social Change (3.0 cr)
•EPSY 5262 - Intermediate Statistical Methods (3.0 cr)
•FW 8051 - Statistical Modeling of Ecological Data using R and WinBugs/JAGS (4.0 cr)
•HSCI 5211 - Biology and Culture in the 19th and 20th Centuries [CIV] (3.0 cr)
•HSCI 5242 - Navigating a Darwinian World (3.0 cr)
•HSCI 5244 - Nature's History: Science, Humans, and the Environment (3.0 cr)

- HSCI 8920 - Seminar: History of Biological Sciences (3.0 cr)
- PA 5701 *{Inactive}*(3.0 cr)
- PA 5721 - Energy Systems and Policy (3.0 cr)
- PHIL 5602 *{Inactive}*(3.0 cr)
- PHIL 8620 - Seminar: Philosophy of the Biological Sciences (3.0 cr)
- PUBH 6450 - Biostatistics I (4.0 cr)
- STAT 5101 - Theory of Statistics I (4.0 cr)
- STAT 5201 - Sampling Methodology in Finite Populations (3.0 cr)
- STAT 5302 - Applied Regression Analysis (4.0 cr)
- STAT 5303 - Designing Experiments (4.0 cr)
- STAT 5601 - Nonparametric Methods (3.0 cr)
- FNRM 5262 - Remote Sensing and Geospatial Analysis of Natural Resources and Environment (3.0 cr)
- BIOL 5272 - Applied Biostatistics (4.0 cr)
- HSCI 5401 - Ethics in Science and Technology (3.0 cr)
- HSCI 8112 - Historiography of Science, Technology, and Medicine (3.0 cr)
- TH 5950 - Topics in Theatre (1.0 - 4.0 cr)

Ethics requirement

A four-session ethics seminar offered during the Friday Noon Seminar series. Required areas of ethics include: Academic and Research Community; Authorship; Peer Review and Research Conduct.

Thesis Credits

Take 24 doctoral thesis credits.
EEB 8888 - Thesis Credit: Doctoral (1.0 - 24.0 cr)

Joint- or Dual-degree Coursework:JD/PhD-Ecology, Evolution, and BehaviorStudent may take a total of 12 credits in common among the academic programs.