Twin Cities Campus

Ecology, Evolution, and Behavior B.S.

Ecology, Evolution & Behavior

College of Biological Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Spring 2019
- Required credits to graduate with this degree: 120
- Required credits within the major: 75 to 84
- Degree: Bachelor of Science

Students majoring in ecology, evolution, and behavior (EEB) focus on three related areas of biology. Ecology examines the growth and maintenance of populations and their interactions in communities, and relationships among organisms and physical events in terrestrial and aquatic ecosystems. Evolution investigates the origin and change of biological diversity by studying evolutionary patterns and processes at various temporal and spatial scales. Behavioral biology explores behavioral adaptations to the environment, mechanisms of behavior, and the evolution of social systems.

A BS in EEB prepares students for graduate study in integrative biology and related biological sciences, careers in teaching, and entry-level scientist positions in industry, government agencies, nonprofit agencies, and universities.

Program Delivery

This program is available:

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

Admission Requirements

A GPA above 2.0 is preferred for the following:

- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements.Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Foundational Courses

Nature of Life/Nature of Science and Research

BIOL 1805 - Nature of Life: Introducing New Students to the Biological Sciences (0.5 cr)
BIOL 1806 - Nature of Life, Part Two (0.5 cr)
BIOL 2905 - Nature of Life, Part III (0.5 cr)
BIOL 2906 - Nature of Life, Part IV (0.5 cr)
or BIOL 3001 - Nature of Science and Research (1.0 cr)

Foundations of Biology

BIOL 1951 - Foundations of Biology Lecture I for Biological Sciences Majors [BIOL] (4.0 cr)
BIOL 1961 - Foundations of Biology Lab I for Biological Sciences Majors [BIOL] (2.0 cr)
or BIOL 1951H - Foundations of Biology Lecture I for Biological Sciences Majors [BIOL] (4.0 cr)
BIOL 1961H *{Inactive}*[BIOL] (2.0 cr)
BIOL 2003 - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)
BIOL 3004 - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)
or BIOL 2003H - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)
BIOL 3004H *{Inactive}*(3.0 cr)

Quantitative Requirements

MATH 1241 - Calculus and Dynamical Systems in Biology [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
Take 1 or more course(s) from the following:

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•CSCI 1133 - Introduction to Computing and Programming Concepts (4.0 cr)
•CSCI 1133H - Honors Introduction to Computing and Programming Concepts (4.0 cr)
•CSCI 3003 - Introduction to Computing in Biology (3.0 cr)
•MATH 1272 - Calculus II (4.0 cr)
•MATH 1572H - Honors Calculus II (4.0 cr)
•MATH 2241 - Mathematical Modeling of Biological Systems (3.0 cr)
•STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
•BIOL 3272 - Applied Biostatistics (4.0 cr)
or BIOL 3272H - Applied Biostatistics (4.0 cr)
or BIOL 5272 - Applied Biostatistics (4.0 cr)

Chemistry

Track 1: Preferred CBS Chemistry Sequence

CHEM 1081 - Chemistry for the Life Sciences I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
CHEM 1082 - Chemistry for the Life Sciences II (3.0 cr)
CHEM 1086 - Chemistry for the Life Sciences II Laboratory (1.0 cr)
CHEM 2081 - Chemistry for the Life Sciences III (3.0 cr)
CHEM 2085 - Chemistry for the Life Sciences III Laboratory (2.0 cr)

or **Track 2**

This track is allowable for students entering CBS with previous chemistry credit or for whom space is not available in the preferred track. Students should speak with a CBS academic advisor to determine eligibility for this track.

CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 2302 - Organic Chemistry II (3.0 cr)
or EEB 4611 - Biogeochemical Processes (3.0 cr)

or **Track 2 (Honors Option)**

This track is allowable for CBS honors students.

CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)
CHEM 2331H - Honors Elementary Organic Chemistry I (3.0 cr)
CHEM 2332H - Honors Elementary Organic Chemistry II (3.0 cr)

Physics

PHYS 1201W *{Inactive}*[PHYS, WI] (5.0 cr)
or PHYS 1221 - Introductory Physics for Life Science Majors I [PHYS] (4.0 cr)
or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
or PHYS 1501V *{Inactive}*[PHYS, WI] (4.0 cr)
PHYS 1202W *{Inactive}*[PHYS, WI] (5.0 cr)
or PHYS 1222 - Introductory Physics for Life Science Majors II [PHYS] (4.0 cr)
or PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)
or PHYS 1502V *{Inactive}*[PHYS, WI] (4.0 cr)

Molecular and Cellular Biology

BIOL 3025 - Molecular Biology and Society [TS] (3.0 cr)
BIOC 3022 - Biochemistry for Life Scientists (3.0 cr)
or BIOC 4331 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)
BIOL 4003 - Genetics (3.0 cr)

Ecology, Evolution, and Biodiversity

Ecology, Evolution, and Behavior

Take 2 or more course(s) from the following:

Evolution

•EEB 3409 - Evolution (3.0 cr)
or EEB 5409 - Evolution (3.0 cr)

•**Ecology**

•EEB 3407 - Ecology (3.0 cr)
or EEB 3408W - Ecology [WI] (4.0 cr)
or EEB 3807 - Ecology (4.0 cr)

•**Animal Behavior**

•EEB 3411 - Introduction to Animal Behavior (3.0 cr)

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or EEB 3412W - Introduction to Animal Behavior, Writing Intensive [WI] (4.0 cr)
or EEB 3811W - Animal Behavior in the Field [WI] (4.0 cr)

Organismal Biology

Courses, or course pairs, must be from two different groups.
Take 2 or more course(s) from the following:

Animal Biology

BIOL 3211 - Physiology of Humans and Other Animals (3.0 cr)
BIOL 2005 - Animal Diversity Laboratory (2.0 cr)

•Plant Biology

•PMB 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
or PMB 3002 - Plant Biology: Function (2.0 cr)
PMB 3005W - Plant Function Laboratory [WI] (2.0 cr)

•Microbiology

•MICB 3301 - Biology of Microorganisms (5.0 cr)

EEB Major Electives

The 10 credits include at least one lab and and one upper division EEB course. A minimum of 2 credits of directed research (4994/4794W) must be completed to satisfy the lab/field experience. A maximum of 7 credits of directed research may be used toward a CBS degree.

Take 10 or more credit(s) from the following:

Field/Lab Experience

Take 2 or more credit(s) from the following:
•EEB 3807 - Ecology (4.0 cr)
•EEB 3811W - Animal Behavior in the Field [WI] (4.0 cr)
•EEB 4794W - Directed Research: Writing Intensive [WI] (3.0 - 5.0 cr)
•EEB 4839 - Field Studies in Mammalogy (4.0 cr)
•EEB 4844 - Field Ornithology (3.0 cr)
•EEB 4994 - Directed Research (1.0 - 6.0 cr)
•EEB 5605 *{Inactive}*(2.0 cr)
•PMB 4321 - Minnesota Flora (3.0 cr)
•PMB 4511 - Flowering Plant Diversity (3.0 cr)

•Upper Division EEB

Take 1 or more course(s) from the following:
•EEB 3500 - Special Topics in Ecology, Evolution and Behavior (1.0 - 3.0 cr)
•EEB 3603 - Science, Protection, and Management of Aquatic Environments (3.0 cr)
•EEB 4068 - Plant Physiological Ecology (3.0 cr)
•EEB 4129 - Mammalogy (4.0 cr)
•EEB 4134 - Introduction to Ornithology (4.0 cr)
•EEB 4330W - Animal Communication [WI] (3.0 cr)
•EEB 4611 - Biogeochemical Processes (3.0 cr)
•EEB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
•EEB 4794W - Directed Research: Writing Intensive [WI] (3.0 - 5.0 cr)
•EEB 4839 - Field Studies in Mammalogy (4.0 cr)
•EEB 4844 - Field Ornithology (3.0 cr)
•EEB 4993 - Directed Studies (1.0 - 7.0 cr)
•EEB 4994 - Directed Research (1.0 - 6.0 cr)
•EEB 5042 - Quantitative Genetics (3.0 cr)
•EEB 5053 - Ecology: Theory and Concepts (4.0 cr)
•EEB 5068 - Plant Physiological Ecology (3.0 cr)
•EEB 5221 *{Inactive}*(3.0 cr)
•EEB 5371 - Principles of Systematics (3.0 cr)
•EEB 5601 - Limnology (3.0 cr)
•EEB 5605 *{Inactive}*(2.0 cr)
•PMB 4321 - Minnesota Flora (3.0 cr)
•PMB 4511 - Flowering Plant Diversity (3.0 cr)
•EEB 3002 - Sex, Evolution, and Behavior: Examining Human Evolutionary Biology (4.0 cr)
or ANTH 3002 - Sex, Evolution, and Behavior: Examining Human Evolutionary Biology (4.0 cr)
•EEB 3534 - Biodiversity Science: The origins, maintenance, consequences, detection & assessment of biodiversity [ENV] (3.0 cr)
or EEB 5534 - Biodiversity Sci: The origins, maintenance, consequences, detection and assessment of biodiversity [ENV] (3.0 cr)
•ANTH 4329 - Primate Ecology and Social Behavior (3.0 cr)
or EEB 4329 - Primate Ecology and Social Behavior (3.0 cr)
•EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
or EEB 5609 - Ecosystem Ecology (3.0 cr)

•Grand Challenge Curriculum Courses

Take 0 - 1 course(s) from the following:
•GCC 3xxx

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•GCC 5xxx

Upper Division Writing Intensive within the Major

Students are required to take one upper division writing intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:

•BIOC 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
•BIOC 4794W - Directed Research: Writing Intensive [WI] (3.0 - 5.0 cr)
•PMB 3005W - Plant Function Laboratory [WI] (2.0 cr)
•PMB 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
•BIOL 4321W - Deconstructing Research: Writing about Biological Research for Non-scientists [WI] (2.0 cr)
•BIOL 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
•BIOL 4794W - Directed Research: Writing Intensive [WI] (3.0 - 5.0 cr)
•EEB 3408W - Ecology [WI] (4.0 cr)
•EEB 3412W - Introduction to Animal Behavior, Writing Intensive [WI] (4.0 cr)
•EEB 4330W - Animal Communication [WI] (3.0 cr)
•EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
•EEB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
•EEB 4794W - Directed Research: Writing Intensive [WI] (3.0 - 5.0 cr)
•GCD 4005W - Cell Biology-Writing Intensive [WI] (4.0 cr)
•GCD 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
•GCD 4794W - Directed Research: Writing Intensive [WI] (3.0 - 5.0 cr)
•MICB 4161W - Eukaryotic Microbiology [WI] (3.0 cr)
•MICB 4225W - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
•MICB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
•MICB 4794W - Directed Research: Writing Intensive [WI] (3.0 - 5.0 cr)
•NSCI 3001W - Neuroscience and Society [CIV, WI] (4.0 cr)
•NSCI 3102W - Neurobiology II: Perception and Behavior [WI] (3.0 cr)
•NSCI 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
•NSCI 4794W - Directed Research: Writing Intensive [WI] (3.0 - 5.0 cr)
•PMB 4516W - Plant Cell Biology: Writing Intensive [WI] (3.0 cr)
•PMB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
•PMB 4794W - Directed Research: Writing Intensive [WI] (3.0 - 5.0 cr)
•BIOC 4025W - Laboratory in Biochemistry [WI] (2.0 cr)

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