



Environmental Biology Tracks (6)

Ecology & Evolutionary Biology University of Colorado at Boulder

**** Note: Tracks are intended to be advisory only, not required for graduation. Students are encouraged to seek faculty input to formulate a final selection of courses.*

Recommended for students with an interest in the basic sciences of population, community, and ecosystem ecology. Ecology is by nature a broad topic, and all of us are faced with the dilemma of balancing breadth with depth. A student with wide interests would be well served to take a majority of the Principles courses listed below. For students with more focused interests, areas of strength and specialization in EBIO are listed under recommended advanced courses and each would be an appropriate emphasis within the ecology track from which to choose a series of courses. Those marked with an asterisk are from the list of Principles courses.

EBIO Majors Fundamentals Sequence

EBIO 2050-4 Environmental Biology w/lab (or EBIO 1220/1240)
EBIO 2060-4 Cellular and Integrative Physiology w/lab (or EBIO 1210/1230)
EBIO 2070-4 Genetics: Molecules to Population w/recitation
EBIO 2080-4 Evolutionary Biology w/recitation

Area Requirement (at least one course from 2 of the 3 lists)

Environmental Biology: EBIO 3140-3 Plant Ecology, EBIO 3155-3 Population and Community Ecology, EBIO 3240-4 Animal Behavior, EBIO 4040-3 Conservation Biology, EBIO 4170-3 Ecosystem Ecology

Integrative Physiology: EBIO 3430-5 Human Physiology, EBIO 3530-5 Essentials of Plant Physiology, EBIO 3700-5 Comparative Animal Physiology

Evolution/Genetics: EBIO 3500-4 Plant Kingdom, EBIO 3520-4 Plant Systematics, EBIO 3720-5 Comparative Vertebrate Anatomy, EBIO 4650-4 Invertebrate Zoology

Ancillary Sciences and Mathematics

One year of college chemistry. Recommended: CHEM 1111-5 and CHEM 1131-5. Also Acceptable: CHEM 1111-5 and CHEM 1071-4, or CHEM 1151-6 and CHEM 1171-6. CHEM 1211-3 and CHEN 1221-2 can substitute for CHEM 1111.

One year of college physics. Recommended: PHYS 2010-5 and PHYS 2020-5 (non-calculus based). Also acceptable: PHYS 1110-4 and PHYS 1120-4 and PHYS 1140-1 (calculus based).

One semester of college calculus. Recommended: MATH 1310-5 (computer applications). Also acceptable: MATH 1300-5 or APPM 1350-4. Math modules cannot be substituted.

Principles courses

EBIO 3155-3 Population and Community Ecology

EBIO 4170-3 Ecosystem Ecology

And depending on emphasis:

EBIO 3140-3 Plant Ecology, OR

EBIO 3240-4 Animal Behavior

List of Recommended Advanced Courses

Remember that the College of Arts and Sciences will subtract any hours in excess of the 45 allowed in any one department from the 120 that you need to graduate, i.e. if you have 50 hours of courses with an EBIO prefix you will need 125 hours to graduate. (Only 12 credit hours of courses taken from other departments may be applied to the EBIO major.)

Microbial Ecology

Ecosystem Ecology (EBIO 4170-3)

Limnology (EBIO 4030-3)

Introduction Biogeochemistry (EBIO 4160-3)

Microbial Ecology (Critical Thinking Course EBIO 4800-3)

Soils Geography (GEOG 4401-3)

Environmental Microbiology (CVEN 4484-3)

Microbial Diversity and the Biosphere (MCDB 4350-3)

Animal Ecology

- * Population and Community Ecology (EBIO 3155-3)
- * Animal Behavior (EBIO 3240-4)
- Comparative Animal Physiology (EBIO 3700-5)
- Vertebrate Zoology (EBIO 3770-4)
- Invertebrate Zoology (EBIO 4650-4)
- Population Dynamics (Critical Thinking Course EBIO 4800-3 & 4860-1)
- Plant/Animal Interactions (Critical Thinking Course EBIO 4800-3)
- Biology of Special Taxa (Parasitology – EBIO 3630-3; Insect Biology – EBIO 4660-4; Biology of Amphibians and Reptiles – EBIO 4740-3; Ornithology – EBIO 4750-3; Mammalogy – EBIO 4760-4)

Plant Ecology

- * Plant Ecology (EBIO 3140-3)
- Paleoecology (EBIO 3160-3)
- Plant Kingdom (EBIO 3500-4)
- Plant Systematics (EBIO 3520-4)
- Essentials of Plant Physiology (EBIO 3530-5)
- Plants of Colorado (EBIO 4520-3)
- Plant/Animal Interactions (Critical Thinking Course EBIO 4800-3)
- Plant/Soil Interactions (Critical Thinking Course EBIO 4800-3)
- Plant Ecophysiology (Critical Thinking Course EBIO 4800-3)
- Forest Geography (GEOG 4371-3)
- Soils Geography (GEOG 4401-3)

Ecosystem Ecology

- * Ecosystem Ecology (EBIO 4170-3)
- Arctic and Alpine Ecology (EBIO 3170-(3-4))
- Global Ecology (EBIO 3180-3)
- Microbiology (EBIO 3400-4)
- Limnology (EBIO 4030-3)
- Advanced Ecosystem Management (Advanced Ecology EBIO 4100-3)
- Introduction Biogeochemistry (EBIO 4160-3)
- Landscape Ecology (EBIO 4165-3)
- Ecological Perspectives on Global Change (EBIO 4180-3)
- Microbial Ecology (Critical Thinking Course EBIO 4800-3)
- Soils Geography (GEOG 4401-3)

Aquatic & Marine Ecology

- * Population and Community Ecology (EBIO 3155-3)
- * Ecosystem Ecology (EBIO 4170-3)
- Tropical Marine Ecology (EBIO 3190-3)
- Stream Biology (EBIO 4020-3)

Limnology (EBIO 4030-3)
Coral Reef Ecology (EBIO 4090-2)
Freshwater and Marine Ecology (Advanced Ecology EBIO 4110-3)
Stream Biology Field Techniques (EBIO 4150-(1-2))
Fish Ecology (Special Topics EBIO 4460-(1-5))
Invertebrate Zoology (EBIO 4650-4)

Behavioral Ecology

* Animal Behavior (EBIO 3240-4)
Introduction to Neurobiology (EBIO 3090-3)
Advanced Animal Behavior (Critical Thinking Course EBIO 4800-3)
Biology of Special Taxa (Insect Biology – EBIO 4660-4; Biology of Amphibians
and Reptiles – EBIO 4740-3; Ornithology – EBIO 4750-3; Mammalogy
– EBIO 4760-4)
Behavioral Neuroscience (PSYC 4052-4)
Ethology and Comparative Psychology (PSYC 4385-3)
Behavior of Zoo Animals (PSYC 4505-3)

For a total of 38 EBIO hours of which 18 must be upper division and 6 of the upper division must be at the 4000 level.

These 6 hours must be courses with EBIO prefix only and taken on the Boulder campus. Cannot be satisfied with EBIO 4010 or study abroad. No more than three credit hours of independent study/research will count. Up to two Critical Thinking courses in EBIO can be counted.