University of Colorado **Boulder**

EBIO Major Requirements

EBIO Courses

First-Year EBIO Sequence

There are several options students can do (choose one):

EBIO 1210 & EBIO 1230 - 4 **AND** EBIO 1220 & EBIO 1240 - 4	EBIO 1210 & EBIO 1230 - 4 **AND** EBIO 1100 & EBIO 1110 - 4	EBIO 1100 & EBIO 1110 - 4 **AND** EBIO 1220 & EBIO 1240 - 4
EBIO 1250 - 4 **AND** EBIO 1220 & EBIO 1240 - 4	EBIO 1250 - 4 **AND** EBIO 1100 & EBIO 1110 - 4	EBIO 1250 - 4 **AND** EBIO 1210 & EBIO 1230 - 4

EBIO Foundation Courses

EBIO 2040 - 4

EBIO 2070* - 4

→ **Statistics:** EBIO 1010 (preferred), EBIO 4410, MATH 2510, IPHY 3280, OR PSYC 2111 → EBIO 3080-4

*Student can take MCDB 2150.

Students should complete Genetics & Stats before Evolution.

Additional Requirements

Can be taken in any order

EBIO Upper Division Lab (see degree audit for options)

<u>EBIO 4000-level Course</u>:
minimum of 6 credits (minimum of 3 credits need to be taken at CU Boulder)

<u>EBIO Elective:</u>
Additional EBIO courses or approved out-of-department electives (see additional pages) are needed to reach 38 credits of EBIO)

Ancillaries

Students are required to complete 3 ancillaries (and the associated labs, if applicable. See additional pages for options).

Ancillary selection should depend on student interests, academic goals, and/or career goals.

Talk with your advisor about your selections/options

Updated December 2024

EBIO Ancillaries

EBIO students are required to take 3 ancillaries from the approved list below (and associated labs, if applicable). Ancillaries allow students to explore a broad range of courses in other scientific disciplines, technology, engineering, and math. These courses are understood as being useful to understand biological concepts but they are not biology in nature. Some courses are equivalents and will only count once.

Atmospheric Science:

- ATOC 1060: Our Changing Environment
- ATOC/GEOL 3070: Introduction to Oceanography
- ATOC 3500: Air Chemistry and Pollution
- ATOC 4200: Biogeochemical Oceanography

Chemistry:

- CHEM 1021: Introduction to Chemistry
- CHEM 1011: Environmental Chemistry 1
- CHEM 1031: Environmental Chemistry 2
- CHEM 1113 & 1114: General Chemistry 1 & lab
- CHEM 1133 & 1134: General Chemistry 2 & lab
- CHEM 1400 & 1401: Foundations of Chemistry & lab
- CHEM 3151: Air Chemistry and Pollution
- CHEM 4141: Water and Soil Chemistry

Computer Science:

- CSCI 1200: Intro Computational Thinking
- CSCI 1300: CS 1: Starting Computing

Geography:

- GEOG 1101 & 1106 lab (formerly 1001): Climate & Vegetation
- GEOG 1111 & 1116 lab (formerly 1011): Landscapes & Water
- GEOG 2271: Arctic Environment
- GEOG 3153 & 3156 lab(formerly 3053): GIS: Mapping
- GEOG 4123 & 4126 (formerly 4103): GIS: Spa. Analytics
- GEOG 4203: GIS: Spatial Modeling
- GEOG 4303: GIS: Spatial Programming
- GEOG 4603: GIS: Social & Natural Sciences

Earth Science (formerly Geology):

- ERTH 1010 OR 1012, & 1030:
  - 1010: Exploring Earth
  - 1012: Exploring Earth for Scientists
  - 1030: Intro to Geology Lab 1
- ERTH 1020: History of a Habitable Planet
- ERTH 1060: Global Change: An Earth Science Perspective
- ERTH 1150: Water, Energy, and Environment
- ERTH 1170: Our Deadly Planet
- ERTH 1180: Our Microbial Planet
- ERTH/ATOC 3070: Introduction to Oceanography

Mathematics:

- MATH 1212: Data and Models
- MATH 1150: Precalculus Mathematics
- Calculus 1 (MATH 1300, MATH 1310, OR APPM 1350)
- Calculus 2 (MATH 2300 OR APPM 1360)
- MATH 2380: Mathematics for the Environment

Physics:

- PHYS 1010: Physics Everyday Life 1
- PHYS 2010: Algebra-Based Physics 1
- PHYS 2020: Algebra-Based Physics 2
- PHYS 1110: Calculus-based Physics 1
- PHYS 1120 & 1140: Calculus-based Physics 2 & lab
- PHYS/ENVS 3070: Energy & the Environment

EBIO Outside of Department Electives:

A maximum of 12 credits hours may be applied to the major in addition to the above degree requirements in order to reach 38 EBIO credits.
Any courses taken from this list will count towards your EBIO GPA.
Please check to make sure you have the necessary prerequisites needed to be successful in the course.
This is list subject to change; please always check with your Academic Advisor.

Anthropology:

- ANTH 3000: Primate Behavior
- ANTH 3010: The Human Animal
- ANTH 4020: Ecology & Adapt. Yellowstone
- ANTH 4060: Nutrition and Anthropology
- ANTH 4070: Methods in Biological Anthropology
- ANTH 4110: Human Evolutionary Biology
- ANTH 4120: Advanced Physical Anthropology
- ANTH 4150: Human Ecology: Biological Aspects
- ANTH 4170: Primate Evolutionary Biology

Biochemistry:

- BCHM 4400: Biochemical Physical Chemistry
- BCHM 4611: Principles of Biochemistry
- BCHM 2700: Foundations of Biochemistry
- BCHM 4720: Biochemistry - Metabolism
- BCHM 4761: Biochemistry Laboratory

Engineering:

- CVEN 3434: Intro to Applied Ecology
- CVEN 4484: Environmental Microbiology

Economics:

- ECON 3535: Natural Resource Economics
- ECON 3545: Environmental Economics
- ECON 4535: Natural Resource Economics
- ECON 4545: Environmental Economics

Education:

- EDUC 5315: Secondary Science Education

Environmental Studies

- ENVS 2100: Permaculture Design
- ENVS 3600: Principles of Climate
- ENVS 4100: Special Topics in ENVS -Ecology & Adapt. Yellowstone
- ENVS 4135: Dogs, Wolves, and Humans
- ENVS 4160: Intro to Biogeochemistry
- ENVS 4185: Geomicrobiology
- ENVS 4201: Biometeorology
- ENVS 4795: Field Methods in Zoology & Botany

Geography:

- GEOG 3351: Biogeography
- GEOG 3412: Conservation Practice
- GEOG 3611 & 3616 lab (formerly 3511): Intro to Hydrology/ The Water Cycle
- GEOG 3601: Principles of Climate
- GEOG 4093: Remote Sensing-Environment
- GEOG 4201: Biometeorology
- GEOG 4203: GIS: Spatial Modeling
- GEOG 4311: Watershed Biogeochemistry
- GEOG 4371: Forest Geography
- GEOG 4401: Soils Geography
- GEOG 4411: Methods of Soil Analysis
- GEOG 4501: Water Resource Manage. in the West

Earth Science (formerly Geology):

- ERTH 3040: Global Change
- ERTH 3410: Paleobiology
- ERTH 3720: Evolution of Life: The Geological Record
- ERTH 4160: Introduction to Biogeochemistry
- ERTH 4185: Geomicrobiology
- ERTH 4474: Vertebrate Paleontology

Integrative Physiology:

- IPHY 2420: Nutrition, Health and Performance
- IPHY 3010: Teaching in Integrative Physiology
- IPHY 3440: Clinical Nutrition
- IPHY 3060: Cell Physiology
- IPHY 3410: Intro to Human Anatomy
- IPHY 3415: Human Anatomy Lab
- IPHY 3430: Intro to Human Physiology
- IPHY 3435: Physiology Lab
- IPHY 3490: Epidemiology
- IPHY 4060: Cell Physiology
- IPHY 4200: Physiological Genetics
- IPHY 4420: Nutrition for Human Performance
- IPHY 4440: Endocrinology
- IPHY 4470: Biology of Human Reproduction
- IPHY 4480: Comparative Reproduction
- IPHY 4600: Immunology
- IPHY 4720: Neurophysiology

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Landscape Architecture:

- LAND 3103- Planting Design and Ecology

Molecular, Cellular, and Developmental Biology:

- MCDB 1150: Intro to MCDB
- MCDB 1152: Problem-Solving Co-Seminar
- MCDB 2150: Principles of Genetics
- MCDB 2161: Phage Genomics Lab II
- MCDB 2171: Drug Discovery II
- MCDB 2350: Understanding Cancer
- MCDB 3135: Molecular Biology
- MCDB 3140: Cell Biology Lab
- MCDB 3145: Cellular Biology
- MCDB 3150: Biology of the Cancer Cell
- MCDB 3160: Emerging Infectious Diseases
- MCDB 3330: Evolution and Creationism.
- MCDB 3350: Fert/Ster/Mammal Devel.
- MCDB 3501: Structural Methods for Biological Macromolecules
- MCDB 3650: The Brain from Molecules to Behaviors
- MCDB 3651: Brain: Dysfunction to Disease
- MCDB 3990: Intro to Systems Biology
- MCDB 4100: Special Topics
- MCDB 4111: Experimental Design and Research
- MCDB 4185: Geomicrobiology
- MCDB 4234: Research Methods
- MCDB 4300: Immunology
- MCDB 4310: Microbial Genetics & Physiology
- MCDB 4314: Algorithms for Molecular Biology
- MCDB 4330: Bacterial Disease Mechanisms
- MCDB 4350: Microbial Diversity & the Biosphere
- MCDB 4361: Evolution and Development
- MCDB 4410: Human Molecular Genetics
- MCDB 4425: Cell Stress Resp. & Human Diseases
- MCDB 4426: Cell Signaling & Develop. Reg.
- MCDB 4444: Cellular Basis of Disease
- MCDB 4471: Mech. of Gene Reg. in Eukaryotes
- MCDB 4520: Bioinformatics & Genomics
- MCDB 4550: Cells, Molecules, and Tissues
- MCDB/PHYS 4560: Introduction to Biophysics
- MCDB 4615: Biology of Stem Cells
- MCDB 4650: Developmental Biology
- MCDB 4680: Mechanisms of Aging
- MCDB 4750: Animal Virology
- MCDB 4777: Molecular Neurobiology
- MCDB 4790: Experimental Embryology
- MCDB 4810: The Biology & Biophysics of the Membrane
- MCDB 4811: Teaching and Learning Biology

Museum Studies:

- MUSM 4473: Museum Field Methods in Botany
- MUSM 4795: Field Methods in Zoology & Botany
- MUSM 4915: Museum Practicum in Zoology
- MUSM 5061: Intro to Scientific Illustration

Neuroscience:

- NRSC 4032: Neurobiology of Learning and Memory
- NRSC 4062: Neurobiology of Stress
- NRSC 4092: Behavioral Neuroendocrinology
- NRSC 4132: Neuropharmacology

Philosophy:

- PHIL 3160: Bioethics
- PHIL 3140: Environmental Ethics

Physics:

- PHYS/MCDB 4560: Introduction to Biophysics

Psychology:

- PSYC 3102: Behavioral Genetics