

REQUIREMENTS FOR B.S. IN BIOLOGY (2024-2025 or future catalogs ONLY)

Major Requirements:

- Total of 46 total credit hours approved by the Biology Faculty must be completed in the BIO prefix
- C- or better must be earned for any BIO course to apply to your major requirements.
- 27 upper division credit hours in BIO courses must be completed
- Non-biology courses in math, chemistry and other STEM disciplines are required

Start Smart! Have you met with a Biology Academic Advisor at least once a semester to ensure timely progression toward your degree and to avoid taking unnecessary courses.

Required Introductory Courses:

- BIO 1080 & 1090: General Biology I w/ Lab
- BIO 1081 & 1091: General Biology II w/ Lab

Choose one of the following chemistry sequences:

- CHE 1800 & 1801: General Chemistry I w/ Lab
- CHE 1810 & 1811: General Chemistry II w/ Lab

*** **OR** ***

Two semesters of math:

- MTH 1109/ 1110: College Algebra, or higher
- Another semester of Math > MTH 1110

- CHE 1110 & 1150: Principles of Chemistry w/ Lab
- CHE 2100 & 2150: Into to Organic & Biol Chem w/ Lab

Pro Tip! Biology students do not need additional General Studies coursework for Natural & Physical Sciences or Quantitative Literacy. Your required Biology, Chemistry, and Math courses will fulfill these.

Additional Required Biology courses:

Choose one of the following:

- BIO 2100: General Botany (5cr.)
- BIO 2310: Human Anatomy & Physiology I (4cr.)
- BIO 2400: General Microbiology (5cr.)
- BIO 3200: Invertebrate Zoology (4cr.)
- BIO 3260: Vertebrate Zoology (4cr.)

Take General Ecology and a Genetics course:

- BIO 3520: General Ecology (3cr.)

Choose one of the following:

- BIO 3600: General Genetics (4cr.)
- BIO 3610: Genetics: Principles & Analysis (4cr.)

Professionalize! Have you met with a Faculty Advisor to personalize your path and ensure you select courses and extracurricular experiences that will best serve you?

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Biology Elective Course Requirement:

- At least 46 total credit hours must be completed in BIO courses.
- At least 27 total credit hours must be upper division BIO courses (3000/4000 level).
 - Includes any upper division Zoology, General Ecology, Genetics, and BIO Senior Experience

Lower Division BIO Courses (1000/2000 level)	Credit Hours	Upper Division BIO Courses (3000/4000 level)	Credit Hours
<input type="checkbox"/> BIO 1080/1090 – General Biology I w/Lab	4	<input type="checkbox"/> BIO 3520: General Ecology	3
<input type="checkbox"/> BIO 1081/1091 – General Biology II w/Lab	4	<input type="checkbox"/> BIO 36XX: Genetics	4
<input type="checkbox"/>		<input type="checkbox"/>	
<input type="checkbox"/>		<input type="checkbox"/>	
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<input type="checkbox"/>		<input type="checkbox"/>	
<input type="checkbox"/>		<input type="checkbox"/> BIO Senior Experience (recommended)	
Total lower division BIO credit hours:		Total upper division BIO credit hours: <i>AT LEAST 27 UPPER DIVISION BIO CREDIT HOURS REQUIRED</i>	
Total BIO prefix credit hours: <i>LOWER DIVISION + UPPER DIVISION (AT LEAST 46 TOTAL BIO CREDIT HOURS REQUIRED)</i>			

Required Non-Biology Science Electives:

- 9 credits total, at least 6 of which must be upper division (3000 /4000 level).
- Any Math course selected would be in addition to the two semesters required above.

Non-Biology Science Elective Courses	Credit Hours
<input type="checkbox"/>	
<input type="checkbox"/>	(upper division)
<input type="checkbox"/>	(upper division)
Total Non-Biology Science Elective credit hours: <i>At least 6 credit hours must be upper division (3000/4000 level)</i>	

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Senior Experience Requirement:

- A capstone course is required to graduate.
- A Biology Senior Experience is recommended.
- Courses outside Biology marked (SE) fulfill the Senior Experience requirement but would **not** count toward your BIO hours.

BIO 4050: Advanced Cell & Molecular Biology

BIO 4230: Issues in Conservation Biology

BIO 4271: Parasitology

BIO 4300: Neurobiology

BIO 4510: Microbial Ecology

BIO 4540: Animal Ecology

BIO 4820: Developmental Biology

BIO 4850: Evolution

Are you ready for graduation?

→ Please see your Degree Progress Report for General Studies and MSU Denver graduation requirements. ←

- Have you completed a total of 46 credit hours of BIO courses approved by the Biology Department?
- Have you completed at least 27 upper division BIO coursework (3000/ 4000 level)?
- Have you completed at least 39 total upper division credit hours?
- Have you completed a Senior Experience course?
- Have you had a final advising appointment?
- Have you submitted an application for graduation?

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Non-BIO Science Electives

Anthropology

ANT 1010: Introduction to Biological Anthropology
ANT 3100: Human Evolution
ANT 3170: Primate Adaptation and Evolution
ANT 3790: Human Osteology
ANT 3860: Paleopathology
ANT 4100: Biological Anthropology Research Design (SE)

Brewing Science

BVG 4220: Brewing Fermentation
BVG 4350: Brewing Science and Technology

Civil Engineering Technology

CET 3320: Environmental Impact Statements

Chemistry

CHE 3100: Organic Chemistry I
CHE 3110: Organic Chemistry II
CHE 3120: Organic Chemistry I Lab
CHE 3130: Organic Chemistry II Lab
CHE 4310: Biochemistry I
CHE 4350: Biochemistry Lab

Computer Science

CS 1050: Computer Science I
CS 2050: Computer Science 2
CS 3120: Machine Learning
CS 3150: Digital Image Processing & Computer Vision

Environmental Science

ENV 1200: Introduction to Environmental Science
ENV 2100: Environmental Sampling & Analysis
ENV 3400: Water Resources
ENV 3700: Mountain Environments
ENV 3740: Environmental Health
ENV 4400: Landscape Ecology
ENV 4420: Wetlands
ENV 4440: Limnology
ENV 4450: Stream Ecology
ENV 4460: Advanced Water Quality Analysis
ENV 4970: Environmental Field Studies (SE)

Exercise Science

ESS 3300: Anatomical Kinesiology
ESS 3340: Physiology of Exercise

Geography

GEG 1100: Introduction to Physical Geography
GEG 1700: Principles of Sustainability
GEG 3410: Biogeography
GEG 4700: Sustainability in Resource Management

Geology

GEL 1010: Physical Geology
GEL 3420: Soil Resources
GEL 3422: Methods of Soil Analysis & Sampling

Geographic Information Systems

GIS 2250: Geographic Information Systems
GIS 3250: Cartography
GIS 4840: Remote Sensing
GIS 4850: Spatial Modeling in Raster
GIS 4860: GIS Applications

Integrative Therapeutic Practices

ITP 4300: Botanical Pharmacology
ITP 4600: Clinical Pathophysiology

Mathematics

MTH 1120: College Trigonometry
MTH 1210: Introduction to Statistics
MTH 1410: Calculus I
MTH 2140: Computational Matrix Algebra
MTH 2410: Calculus II
MTH 2520: R Programming
MTH 3130: Applied Methods in Linear Algebra
MTH 3140: Linear Algebra
MTH 3210: Probability & Statistics
MTH 3220: Statistical Methods
MTH 3240: Environmental Statistics
MTH 3270: Data Science
MTH 3420: Differential Equations
MTH 3430: Mathematical Modeling
MTH 3470: Introduction to Discrete Math & Modeling

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Non-BIO Science Electives (cont.)

Meteorology

MTR 1400: Weather and Climate

MTR 3330: Climatology

Nutrition

NUT 2040: Introduction to Nutrition

NUT 3150: Advanced Nutrition - Macronutrients

NUT 3160: Advanced Nutrition - Micronutrients

NUT 3500: Food Safety

Physics

PHY 2010: College Physics I

PHY 2020: College Physics II

PHY 2030: College Physics I Lab

PHY 2040: College Physics II Lab

PHY 2311: General Physics I

PHY 2321: General Physics I Lab

PHY 2331: General Physics II

PHY 2341: General Physics II Lab

PHY 2711: Vibrations, Waves & Math Methods

PHY 3211: Analytical Mechanics

Psychology

PSY 3560: Psychopharmacology

PSY 4520: Sensation and Perception

PSY 4540: Behavioral Neuroscience