

BIOLOGY (B.A.)

The **BA in Biology** is intended to provide students with knowledge and skills in the field of Biology while also allowing students to minor in another topic area in order to receive marketable training and skills that will offer them pathways into professions as diverse as Medical Technology, Pharmaceuticals, Bio-Technology, Law, Government Service, Community Health, or Science Communication.

Unless otherwise noted, 120 credits of coursework is required for a baccalaureate degree with a minimum 2.0 overall GPA, and a minimum 2.0 major GPA.

Program Requirements Overview

Code	Title	Credits
	General Education Requirements	35
	World Languages and Cultures Requirements	3-9
	Major Requirements	70-74
	Free Electives	12-2
	Total Credits	120

Major Requirements

Code	Title	Credits
Major Core		
BIOL 112	Principles of Biology: Introduction to the Cell	4
BIOL 113	Principles of Biology: Organisms and Diversity	4
BIOL 213	Introduction to Ecology	4
BIOL 230	Cell and Molecular Biology	4
BIOL 315	Science Literacy and Communication	3
BIOL 492	Senior Colloquium	1
Community Engaged Service Learning Requirement		
BIOL 409	Externship in Biological Research (Co-operative Education)	4
Biology Electives		
	Complete 10 credits from the list below.	10
Additional STEM Elective		
	Complete one course:	3-4
CHEM 230	Organic Chemistry I	
CSIT 104	Python Programming I	
PHYS 193	College Physics I	
Collateral Requirements		
CHEM 120	General Chemistry I	4
CHEM 121	General Chemistry II	4
MATH 122	Calculus I	4
STAT 230	Data Science and Statistics	3
Required Minor		
	Choose any minor outside of the College of Science and Mathematics. Excluded minors include the minors in Biology, Chemistry, Computer Science, Data Science, Earth and Environmental Science, Geographic Information Science, Mathematics, Physics, Sustainability Science, or Urban Studies	18-21
	Total Credits	70-74

Electives

Code	Title	Credits
BIOL 300	Environmental Biology and Related Controversial Issues	3
BIOL 319	Genes, Brains, and Behavior	4
BIOL 320	Social Neurobiology	3
BIOL 330	Introduction to Animal Behavior	3
BIOL 350	Microbiology	4
BIOL 351	Introduction to Aquatic Ecology	4
BIOL 360	Introduction to Bio-Imaging	3
BIOL 370	Principles of Ecology	3
BIOL 380	Genetics	4
BIOL 404	Plant and Animal Histological Techniques	3
BIOL 405	Cell Culture	3
BIOL 406	Scanning Electron Microscopy	4
BIOL 410	Toxicology	3
BIOL 411	Introduction to Transmission Electron Microscopy	4
BIOL 415	Population Genetics	3
BIOL 417	Evolutionary Biology	3
BIOL 418	Biology Independent Research	1-4
BIOL 420	Economic Botany	3
BIOL 422	Community Ecology	3
BIOL 425	Elementary Plant Physiology	3
BIOL 426	New Jersey Flora	4
BIOL 429	Herpetology	4
BIOL 430	Ornithology	4
BIOL 431	Entomology	3
BIOL 432	Medical Entomology	3
BIOL 433	Developmental Biology	4
BIOL 434	Molecular Biology	3
BIOL 435	Experimental Molecular Biology	3
BIOL 436	Phylogenetic Zoology	4
BIOL 439	Biology of Animal Parasites	3
BIOL 440	Gross Mammalian Anatomy	4
BIOL 441	Comparative Anatomy of Vertebrates	4
BIOL 442	Human Physiology	4
BIOL 443	Vertebrate Embryology	4
BIOL 444	Cell Physiology	3
BIOL 445	Immunology	3
BIOL 446	Endocrinology	3
BIOL 447	Fundamentals of Pharmacology	3
BIOL 450	Medical Microbiology	3
BIOL 451	Comparative Animal Physiology	3
BIOL 457	Virology	3
BIOL 458	Microbial Genetics	3
BIOL 460	Biological Oceanography	3
BIOL 461	Aquatic Ecology	3
BIOL 467	Biology of the Fishes	4
BIOL 468	Neurobiology	3
BIOL 475	Medical Genetics	3
BIOL 476	Biology of Cancer	3
BIOL 480	Research Community I: Organism Biology	4

BIOL 481	Research Community II: Organism Biology	4
BIOL 482	Research Community I: Molecular Biology	4
BIOL 483	Research Community II: Molecular Biology	4
BIOL 484	Research Community I: Ecology	4
BIOL 485	Research Community II: Ecology	4
BIOL 486	Special Topics in Biology	3-4
BIOL 487	Statistical Genomics	3
BIOL 488	Special Topics in Cell and Molecular Biology	3-4
BIOL 489	Special Topics in Organismal Biology	3-4
BIOL 490	Senior Seminar in Biology	3
BIOL 491	Research in Biology Literature	1
BIOL 492	Senior Colloquium	1
BIOL 493	Molecular Ecology	3
BIOL 495	Special Topics in Ecology	3
BIOL 497	Genomics	3

General Education Requirements

Click here for a list of courses that fulfill General Education categories. (<http://catalog.montclair.edu/programs/general-education-requirements-ba-bs/>)

Code	Title	Credits
A. New Student Seminar		
Complete a 1 credit New Student Seminar course.		1
C. Communication		
1. <i>Writing</i>		3
2. <i>Literature</i>		3
3. <i>Communication</i>		3
D. Fine and Performing Arts		
Complete a 3 credit Fine and Performing Arts course.		3
F. Humanities		
1. <i>Great Works and Their Influences</i>		3
2. <i>Philosophical and Religious Perspectives</i>		3
G. Computer Science		
Complete a 3 credit Computer Science course.		3
H. Mathematics		
MATH 122	Calculus I (Fulfilled in the major.)	
I. Natural Science Laboratory		
BIOL 112	Principles of Biology: Introduction to the Cell (Fulfilled in the major.)	
J. Physical Education		
Complete a 1 credit Physical Education course.		1
K. Social Science		
1. <i>American and European History</i>		3
2. <i>Global Cultural Perspectives</i>		3
3. <i>Social Science Perspectives</i>		3
L. Interdisciplinary Studies		
Complete a 3 credit Interdisciplinary Studies course.		3
Total Credits		35

World Languages and Cultures Requirements

Click here for a list of courses that fulfill World Languages and Cultures categories. (<http://catalog.montclair.edu/programs/world-languages-and-cultures-requirements/>)

Code	Title	Credits
World Languages		
Based on language placement exam, complete one or two sequential courses in the same language. Requirement is automatically fulfilled by language major courses.		
World Cultures		
Requirement may be fulfilled by course selected in General Education 0-3 - Social Science: Global Cultural Perspectives. Requirement may also be fulfilled by major coursework. See list of courses.		
Total Credits		3-9

Recommended Roadmap to Degree Completion

This four-year plan is provided as an outline for students to follow in order to complete their degree requirements within four years. This plan is a recommendation and students should only use it in consultation with their academic advisor.

First Year

Fall	Credits	Spring	Credits
GENERAL EDUCATION (A) New Student Seminar		1 GENERAL EDUCATION (C2) Literature	3
GENERAL EDUCATION (C1) Writing	3	GENERAL EDUCATION (C3) Communication	3
GENERAL EDUCATION (G) Computer Science	3	GENERAL EDUCATION (D) Fine and Performing Arts	3
BIOL 112	4	BIOL 113	4
MATH 122	4	STAT 230	3
		15	16

Second Year

Fall	Credits	Spring	Credits
GENERAL EDUCATION (J) Physical Education		1 GENERAL EDUCATION (K1) Social Science – American and European History	3
World Language 1	3	World Language 2 or Free Elective	3
BIOL 213	4	BIOL 230	4
CHEM 120	4	CHEM 121	4
Minor Requirement	3		
		15	14

Third Year

Fall	Credits	Spring	Credits
BIOL 315		3 GENERAL EDUCATION (K2) Social Science – Global Cultural Perspectives	3

Biology Elective	3 GENERAL EDUCATION (K3) Social Science – Social Science Perspectives	3
Additional STEM Collateral	4 GENERAL EDUCATION (L) Interdisciplinary Studies	3
Minor Requirement	3 Biology Elective	3
Minor Requirement	3 Minor Requirement	3
	16	15

Fourth Year

Fall	Credits	Spring	Credits
GENERAL EDUCATION (F1) Humanities – Great Works and Their Influences	3	GENERAL EDUCATION (F2) Humanities – Philosophical and Religious Perspectives	3
BIOL 409	4	World Cultures	3
Biology Elective	4	BIOL 492	1
Minor Requirement	3	Minor Requirement	3
		Free Electives	5
	14		15

Total Credits 120