

BIOLOGY - PRE-MEDICAL PROFESSIONS CONCENTRATION (B.S.)

The BS in Biology Pre-Medical Professions Concentration is for students who are interested in the Medical Health Professions. Students must have a 2.5 overall GPA at the end of their first year and they must have passed either BIOL 112 or BIOL 113, and either CHEM 106 or CHEM 120, and either MATH 122 or MATH 111. In order to be allowed to continue in the Pre-Medical Professions track, students must have completed all freshman and sophomore courses required in the major and have a minimum major GPA of 3.2.

Degree Requirements Overview

Code	Title	Credits
New Student Seminar		1
SEEDS General Education Requirements		24-27
Major Requirements		75
Free Electives		20-17
Total Credits		120

Major Requirements

Code	Title	Credits
Biology 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 380	Genetics	4
Collateral Requirements		
<i>Chemistry</i>		
CHEM 120	General Chemistry I	4
CHEM 121	General Chemistry II	4
CHEM 230	Organic Chemistry I	3
CHEM 231	Organic Chemistry II	3
CHEM 232	Experimental Organic Chemistry I	2
<i>Mathematics</i>		
MATH 122	Calculus I	4
STAT 230	Data Science and Statistics	3
<i>Physics</i>		
PHYS 193	College Physics I	4
PHYS 194	College Physics II	4
Electives or Concentration Requirements		
Complete 24 credits from the concentration or electives list below:		24
Total Credits		75

Pre-Medical Professions Concentration

Code	Title	Credits
Concentration Requirements		
BIOL 340	Advanced Human Anatomy and Physiology I	4
BIOL 341	Advanced Human Anatomy and Physiology II	4

BIOL 350	Microbiology	4
CHEM 370	Biochemistry I	3
PSYC 101	Introduction to Psychology	3
Major Electives		
Complete 6 credits from the list below.		6
Total Credits		24

Biology Major Electives

Code	Title	Credits
BIOL 300	Environmental Biology and Related Controversial Issues	3
BIOL 315	Science Literacy and Communication	3
BIOL 319	Genes, Brains, and Behavior	4
BIOL 320	Social Neurobiology	3
BIOL 330	Introduction to Animal Behavior	3
BIOL 340	Advanced Human Anatomy and Physiology I	4
BIOL 341	Advanced Human Anatomy and Physiology II	4
BIOL 350	Microbiology	4
BIOL 351	Introduction to Aquatic Ecology	4
BIOL 360	Introduction to Bio-Imaging	3
BIOL 405	Cell Culture	3
BIOL 409	Externship in Biological Research (Co-operative Education)	1-4
BIOL 410	Toxicology	3
BIOL 415	Population Genetics	3
BIOL 417	Evolutionary Biology	3
BIOL 418	Biology Independent Research	1-4
BIOL 422	Community Ecology	3
BIOL 425	Elementary Plant Physiology	3
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 440	Gross Mammalian Anatomy	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 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 482	Research Community I: Molecular Biology	4
BIOL 484	Research Community I: Ecology	4
BIOL 486	Special Topics in Biology	3-4
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 495	Special Topics in Ecology	3-4
BIOL 497	Genomics	3

New Student Seminar

Code	Title	Credits
Students in the Adult Learner program must take GNED 100.		
Complete one course from the following. Some courses may be restricted by major. Consult with an academic advisor.		1
ADVS 198	Pathways to Success	
CHEM 190	Freshman Seminar in Chemistry	
FYS 100	First Year Seminar	
GNED 100	Adult Academic Success Seminar	
GNED 199	New Student Seminar	
HPEM 199	Freshman Seminar in Health and Physical Education	
IDS 155	Pathways to Adult Learning	
JUST 199	New Student Seminar	
MATH 102	New Student Experience for Mathematical Sciences	
MUGN 199	Freshman Seminar for Music Majors	
NURS 199	Introduction to Nursing	
POLS 199	Freshman Seminar in Political Science and Law	

SEEDS General Education Requirements

Click here for a list of courses that fulfill the SEEDS requirements. (<http://catalog.montclair.edu/programs/seeds-general-education-requirements/>)

Code	Title	Credits
Foundations		
<i>Effective Writing I</i>		
Complete one Effective Writing I course.		3
<i>Effective Writing II</i>		
Complete one Effective Writing II course.		3
<i>Interactive Communication</i>		
Complete one Interactive Communication course.		3
<i>Quantitative Reasoning</i>		
Fulfilled by MATH 122 in the major.		
<i>Political and Civic Life</i>		
Complete one Political and Civic Life course.		3
<i>World Language</i>		
Complete two sequential classes in one World Language when starting at the Beginner I or Beginner II level. Complete one class when starting at the Intermediate/Advanced Level.		3-6
Exploration		
Complete one course from four different Exploration categories:		9

<i>Analyzing Cultures and Societies</i>	
<i>Creative Expression</i>	
<i>Ethical Inquiry</i>	
<i>Historical Thinking</i>	
<i>Literary and Artistic Analysis</i>	
<i>Scientific Reasoning</i>	
Fulfilled by BIOL 112 in the major.	
Total Credits	24-27

Recommended Roadmap to Program of Study Completion

This recommended degree plan is provided as an outline for students to follow in order to complete their program of study requirements within **four years** and 120 credits. This plan is a recommendation and must be used in consultation with their academic advisor. Important note: Students should be aware this plan assumes no pre-requisite coursework is required. If pre-requisite coursework is needed, students may have additional requirements to fulfill which do not appear on the plan.

First Year

Fall	Credits Spring	Credits
BIOL 112 (Fulfills SEEDS: Exploration 1 -Scientific Reasoning)	4 BIOL 113	4
MATH 122 (Fulfills SEEDS: Quantitative Reasoning)	4 STAT 230	3
SEEDS: Effective Writing I	3 SEEDS: Effective Writing II	3
New Student Seminar	1 SEEDS: Interactive Communication	3
SEEDS: Exploration 2	3 SEEDS: Political and Civic Life	3
	15	16

Second Year

Fall	Credits Spring	Credits
BIOL 230	4 BIOL 213	4
CHEM 120	4 CHEM 121	4
PHYS 193	4 PHYS 194	4
SEEDS: Exploration 3	3 SEEDS: Exploration 4	3
	15	15

Third Year

Fall	Credits Spring	Credits
CHEM 230	3 CHEM 231	3
CHEM 232	2 BIOL 380	4
BIOL 340	4 BIOL 341	4
PSYC 101	3 BIOL 350	4
BIOL 417	3	
	15	15

Fourth Year

Fall	Credits Spring	Credits
CHEM 370	3 Major Elective	3
SEEDS: World Language 1	3 SEEDS: World Language 2 or Free Elective	3

Major Elective	3 Free Elective	3
Free Elective	3 Free Elective	3
Free Elective	2 Free Elective	3
14		15
Total Credits 120		