BIOLOGY MAJOR (B.S.)

A minimum of 120 credits of coursework is required for the baccalaureate degree with a minimum 2.0 overall GPA, and a minimum 2.0 major GPA. However, more than 120 credits may be required depending upon the major field of study.

Program Requirements

Students must complete 42 credits of General Education requirements (http://catalog.montclair.edu/undergraduate-graduate-degree-requirements/general-ed-ba-bs) and 3-9 credits of World Languages and Cultures Requirements (http://catalog.montclair.edu/undergraduate-graduate-degree-requirements/world-languages-cultures-requirement).

Biology Major Requirements

BIOL 112 Principles of Biology I 4
BIOL 113 Principles of Biology II 4
BIOL 213 Introduction to Ecology 4
BIOL 230 Cell and Molecular Biology 4
BIOL 380 Genetics 4
BIOL 417 Evolutionary Biology 3

Biology Major Electives

Complete the four requirements (see list below) 16

Collateral Chemistry Courses

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

Collateral Physics Courses

Select one of the following sequences: 8

PHYS 191 University Physics I & PHYS 192 and University Physics II
PHYS 193 College Physics I & PHYS 194 and College Physics II

Collateral Mathematics Courses

Select one of the following sequences: 8

MATH 110 Statistics for the Biological Sciences & MATH 116 and Calculus A
MATH 122 Calculus I & MATH 221 and Calculus II

Total Credits 71

Biology Major Electives

Complete the four requirements, including at least one 4-credit course (One course cannot be used in 2 areas)

Cell and Molecular

Select one of the following: 3

BIOL 350 Microbiology
BIOL 410 Toxicology
BIOL 415 Population Genetics
BIOL 433 Developmental Biology
BIOL 434 Molecular Biology
BIOL 435 Experimental Molecular Biology

BIOL 444 Cell Physiology
BIOL 445 Immunology
BIOL 446 Endocrinology
BIOL 457 Virology
BIOL 458 Microbial Genetics
BIOL 468 Neurobiology
BIOL 475 Medical Genetics
BIOL 476 Biology of Cancer
BIOL 482 Research Community I: Molecular Biology
BIOL 483 Research Community II: Molecular Biology
BIOL 487 Statistical Genomics
BIOL 488 Selected Topics in Cell and Molecular Biology
BIOL 493 Molecular Ecology
BIOL 497 Genomics

Ecology

Select one of the following: 3

AQUA 351 Aquatic Biological Processes
BIMS 220 Introduction to Marine Biology
BIOL 300 Environmental Biology and Related Controversial Issues

BIOL 330 Introduction to Animal Behavior
BIOL 370 Principles of Ecology
BIOL 415 Population Genetics
BIOL 420 Economic Botany
BIOL 426 New Jersey Flora
BIOL 429 Herpetology
BIOL 430 Ornithology
BIOL 431 Entomology
BIOL 436 Phylogenetic Zoology
BIOL 451 Comparative Animal Physiology
BIOL 460 Biological Oceanography
BIOL 461 Aquatic Ecology
BIOL 484 Research Community I: Ecology
BIOL 485 Research Community II: Ecology
BIOL 493 Molecular Ecology

Organismal

Select one of the following: 3

BIOL 410 Toxicology
BIOL 425 Elementary Plant Physiology
BIOL 432 Medical Entomology
BIOL 433 Developmental Biology
BIOL 439 Biology of Animal Parasites
BIOL 440 Gross Mammalian Anatomy
BIOL 441 Comparative Anatomy of Vertebrates
BIOL 442 Human Physiology
BIOL 443 Vertebrate Embryology
BIOL 445 Immunology
BIOL 446 Endocrinology
BIOL 447 Fundamentals of Pharmacology
BIOL 448 Mammalian Microanatomy
BIOL 450 Medical Microbiology
BIOL 451 Comparative Animal Physiology
Biology Major (B.S.)

BIOL 457  Virology
BIOL 468  Neurobiology
BIOL 476  Biology of Cancer
BIOL 480  Research Community I: Organism Biology
BIOL 481  Research Community II: Organism Biology
BIOL 489  Selected Topics in Organismal Biology

Additional Elective

Select two of the following:

7

BIMS 220  Introduction to Marine Biology
BIOL 300  Environmental Biology and Related Controversial Issues
BIOL 330  Introduction to Animal Behavior
BIOL 350  Microbiology
BIOL 360  Introduction to Bio-Imaging
BIOL 370  Principles of Ecology
BIOL 404  Plant and Animal Histological Techniques
BIOL 405  Cell Culture
BIOL 406  Scanning Electron Microscopy
BIOL 409  Externship in Biological Research (Co-operative Education)
BIOL 410  Toxicology
BIOL 411  Introduction to Transmission Electron Microscopy
BIOL 415  Population Genetics
BIOL 418  Biology Independent Research
BIOL 420  Economic Botany
BIOL 425  Elementary Plant Physiology
BIOL 426  New Jersey Flora
BIOL 429  Herpetology
BIOL 430  Ornithology
BIOL 431  Entomology
BIOL 432  Medical Entomology
BIOL 433  Developmental Biology
BIOL 434  Molecular Biology
BIOL 435  Experimental Molecular Biology
BIOL 436  Phylogenetic Zoology
BIOL 439  Biology of Animal Parasites
BIOL 440  Gross Mammalian Anatomy
BIOL 441  Comparative Anatomy of Vertebrates
BIOL 442  Human Physiology
BIOL 443  Vertebrate Embryology
BIOL 444  Cell Physiology
BIOL 445  Immunology
BIOL 446  Endocrinology
BIOL 447  Fundamentals of Pharmacology
BIOL 448  Mammalian Microanatomy
BIOL 450  Medical Microbiology
BIOL 451  Comparative Animal Physiology
BIOL 457  Virology
BIOL 458  Microbial Genetics
BIOL 460  Biological Oceanography
BIOL 461  Aquatic Ecology
BIOL 468  Neurobiology
BIOL 475  Medical Genetics
BIOL 476  Biology of Cancer
BIOL 480  Research Community I: Organism Biology
BIOL 481  Research Community II: Organism Biology
BIOL 482  Research Community I: Molecular Biology
BIOL 483  Research Community II: Molecular Biology
BIOL 484  Research Community I: Ecology
BIOL 485  Research Community II: Ecology
BIOL 486  Selected Topics in Biology
BIOL 487  Statistical Genomics
BIOL 488  Selected Topics in Cell and Molecular Biology
BIOL 489  Selected Topics in Organismal Biology
BIOL 490  Senior Seminar in Biology
BIOL 491  Research in Biology Literature
BIOL 492  Senior Colloquium
BIOL 493  Molecular Ecology
BIOL 497  Genomics
CHEM 370  Biochemistry I

Total Credits 16