BIOLOGY MAJOR (B.S.)

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

Program Requirements

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 112</td>
<td>Principles of Biology I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 113</td>
<td>Principles of Biology II</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 213</td>
<td>Introduction to Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 230</td>
<td>Cell and Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 380</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 417</td>
<td>Evolutionary Biology</td>
<td>3</td>
</tr>
</tbody>
</table>

Biology Major Electives

Complete the four requirements (see list below) 17-20

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 72-75

Biology Major Electives

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 350</td>
<td>Microbiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 410</td>
<td>Toxicology</td>
<td></td>
</tr>
<tr>
<td>BIOL 415</td>
<td>Population Genetics</td>
<td></td>
</tr>
<tr>
<td>BIOL 433</td>
<td>Developmental Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 434</td>
<td>Molecular Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 435</td>
<td>Experimental Molecular Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 444</td>
<td>Cell Physiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 445</td>
<td>Immunology</td>
<td></td>
</tr>
<tr>
<td>BIOL 446</td>
<td>Endocrinology</td>
<td></td>
</tr>
<tr>
<td>BIOL 457</td>
<td>Virology</td>
<td></td>
</tr>
<tr>
<td>BIOL 458</td>
<td>Microbial Genetics</td>
<td></td>
</tr>
<tr>
<td>BIOL 468</td>
<td>Neurobiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 475</td>
<td>Medical Genetics</td>
<td></td>
</tr>
<tr>
<td>BIOL 476</td>
<td>Biology of Cancer</td>
<td></td>
</tr>
<tr>
<td>BIOL 482</td>
<td>Research Community I: Molecular Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 483</td>
<td>Research Community II: Molecular Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 487</td>
<td>Statistical Genomics</td>
<td></td>
</tr>
<tr>
<td>BIOL 488</td>
<td>Selected Topics in Cell and Molecular Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 493</td>
<td>Molecular Ecology</td>
<td></td>
</tr>
<tr>
<td>BIOL 497</td>
<td>Genomics</td>
<td></td>
</tr>
</tbody>
</table>

Ecology

Select one of the following:
- 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:
- 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 450 Medical Microbiology
- BIOL 451 Comparative Animal Physiology
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 457</td>
<td>Virology</td>
</tr>
<tr>
<td>BIOL 468</td>
<td>Neurobiology</td>
</tr>
<tr>
<td>BIOL 476</td>
<td>Biology of Cancer</td>
</tr>
<tr>
<td>BIOL 480</td>
<td>Research Community I: Organism Biology</td>
</tr>
<tr>
<td>BIOL 481</td>
<td>Research Community II: Organism Biology</td>
</tr>
<tr>
<td>BIOL 489</td>
<td>Selected Topics in Organismal Biology</td>
</tr>
</tbody>
</table>

**Additional Elective**

Select two of the following:

- 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 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

- CHEM 370  Biochemistry I