# Accelerated B.A. in Biology/ D.M.D., O.D

(120 credits minimum)

## First Year

### 1st Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 200</td>
<td>Concepts in Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 125</td>
<td>General Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>or CHEM 121</td>
<td>or Fundamentals of Chemical Principles I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 125A</td>
<td>General Chemistry Lab I</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 102</td>
<td>General Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 102A</td>
<td>General Physics Lab</td>
<td>1</td>
</tr>
<tr>
<td>MATH 138</td>
<td>General Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>HUM 101</td>
<td>English Composition: Writing, Speaking, Thinking</td>
<td>3</td>
</tr>
<tr>
<td>FRSH SEM</td>
<td>First-Year Seminar</td>
<td>0</td>
</tr>
</tbody>
</table>

**Term Credits**

18

### 2nd Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 205</td>
<td>Foundations of Biology: Ecology and Evolution Lecture</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 206</td>
<td>Foundations of Biology: Ecology and Evolution Lab</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 126</td>
<td>General Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>or CHEM 122</td>
<td>or Fundamentals of Chemical Principles II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 126A</td>
<td>General Chemistry Lab II</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 103</td>
<td>General Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 103A</td>
<td>General Physics Lab</td>
<td>1</td>
</tr>
<tr>
<td>MATH 238</td>
<td>General Calculus II</td>
<td>3</td>
</tr>
<tr>
<td>HUM 102</td>
<td>English Composition: Writing, Speaking, Thinking II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Term Credits**

18

## Second Year

### 1st Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 201</td>
<td>Found of Biol: Cell &amp; Molecula</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>Found of Biol: Cell &amp; Molecula</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 243</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>BNFO 135</td>
<td>Programming for Bioinformatics</td>
<td>3</td>
</tr>
<tr>
<td>or CS 101</td>
<td>or Computer Programming and Problem Solving</td>
<td>3</td>
</tr>
<tr>
<td>MATH 105</td>
<td>Elementary Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>History and Humanities GER 200 level [1]</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Free Elective [2]</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Term Credits**

19

### 2nd Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology Functional Laboratory Cluster Elective</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Biology Cluster A or C Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHEM 244</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 244A</td>
<td>Organic Chemistry II Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>Social Science GER [3]</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>History and Humanities GER 300+ level [4]</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Term Credits**

18

## Third Year

### 1st Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology Laboratory Elective [4]</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Biology Cluster A or C Elective</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>


[3] Social Science GER

[4] Biology Laboratory Elective
Accelerated B.A. in Biology/ D.M.D., O.D

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Biology Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>History and Humanities GER 300+ level</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(<a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/</a>)</td>
<td></td>
</tr>
<tr>
<td>BIOL 310</td>
<td>Work Experience I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or Technical Elective 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Term Credits</td>
<td>16</td>
</tr>
</tbody>
</table>

2nd Semester

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Biology Laboratory Elective 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Biology Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Biology Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Humanities and Social Science Senior Seminar GER (<a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/hss-capstone/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/hss-capstone/</a>)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Technical Elective 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Free Elective 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Term Credits</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>107</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Technical Elective</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Technical Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Field Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Free Elective 1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>13</td>
</tr>
</tbody>
</table>

1 CHEM 121 and CHEM 122 require permission from the academic adviser
2 Free Elective- Any course in any subject at any level.
3 Technical Elective- Any STEAM course. Optometry students must take Co-op, BIOL 310
4 Laboratory Elective- 3 or 4 credit laboratory

**BIOLOGY ELECTIVES MUST BE CHOSEN AS OUTLINED BELOW:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Concept Cluster Ecology and Evolution</strong></td>
<td></td>
</tr>
<tr>
<td>BIOL 222</td>
<td>Evolution</td>
<td>3</td>
</tr>
<tr>
<td>or R120 222</td>
<td>Evolution</td>
<td></td>
</tr>
<tr>
<td>R120 280</td>
<td>Ecology</td>
<td>3</td>
</tr>
<tr>
<td>R120 370</td>
<td>Plant Ecology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 382</td>
<td>Animal Behavior</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Concept Cluster Functional Organism</strong></td>
<td></td>
</tr>
<tr>
<td>R120 211</td>
<td>Plant Kingdom</td>
<td>4</td>
</tr>
<tr>
<td>R120 230</td>
<td>Biology Of Seed Plants</td>
<td>4</td>
</tr>
<tr>
<td>R120 330</td>
<td>Plant Physiology</td>
<td>4</td>
</tr>
<tr>
<td>R120 335</td>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 340</td>
<td>Mammalian Physiology</td>
<td>4</td>
</tr>
<tr>
<td>or R120 340</td>
<td>Mammalian Physiology</td>
<td></td>
</tr>
<tr>
<td>R120 342</td>
<td>Developmental Biology</td>
<td>4</td>
</tr>
<tr>
<td>&amp; R120 343</td>
<td>Developmental Biology Lab</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Concept Cluster Molecular and Cellular</strong></td>
<td></td>
</tr>
<tr>
<td>BIOL 352</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>R120 355</td>
<td>Cell Biology</td>
<td>3</td>
</tr>
<tr>
<td>R120 356</td>
<td>Molecular Biology</td>
<td>3</td>
</tr>
<tr>
<td>R120 360</td>
<td>Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Biology Electives</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any concept cluster or lab course or any of the following</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>BIOL 315</td>
<td>Principles of Neurobiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 320</td>
<td>Discovering Biological Research</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 337</td>
<td>Collective Intel in Biol Syst</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 338</td>
<td>Ecology of the Dining Hall</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 341</td>
<td>Introduction to Neurophysiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 344</td>
<td>Physiological Mechanisms</td>
<td>3</td>
</tr>
<tr>
<td>R120 346</td>
<td>Neurobiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 345</td>
<td>Comparative Physiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 350</td>
<td>Immunology</td>
<td>3</td>
</tr>
<tr>
<td>R120 365</td>
<td>Evolutions of Humans</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 368</td>
<td>The Ecology and Evolution of Disease</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 375</td>
<td>Conservation Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 383</td>
<td>Neural Basis of Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 400</td>
<td>Biology in Science Fiction</td>
<td>3</td>
</tr>
<tr>
<td>R120 402</td>
<td>Biology of Cancer</td>
<td>3</td>
</tr>
<tr>
<td>R120 422</td>
<td>Biological Invasions</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 440</td>
<td>Cell Biology of Disease: Cells gone Bad!</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 432</td>
<td>Intro to Comp Neuroscience</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 436</td>
<td>Advanced Neuroscience Modeling</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 445</td>
<td>Endocrinology</td>
<td>3</td>
</tr>
<tr>
<td>or R120 445</td>
<td>Endocrinology</td>
<td></td>
</tr>
<tr>
<td>BIOL 447</td>
<td>Systems Neurobiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 447</td>
<td>Systems Neurobiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 448</td>
<td>Neuropathophysiology: Nervous System Gone Bad!</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 453</td>
<td>Applied Genetics &amp; Genomics</td>
<td>3</td>
</tr>
<tr>
<td>R120 455</td>
<td>Molec Cell Biology</td>
<td>3</td>
</tr>
<tr>
<td>R120 456</td>
<td>Virology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 462</td>
<td>Comparative Biomechanics</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 470</td>
<td>Dynamic Princ in Systems BIOL</td>
<td>3</td>
</tr>
<tr>
<td>R120 472</td>
<td>Environmental Assessment</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 491</td>
<td>Research and Independent Study</td>
<td>3</td>
</tr>
<tr>
<td>or BIOL 492</td>
<td>Research and Independent Study</td>
<td></td>
</tr>
<tr>
<td>R120 493</td>
<td>Seminar In Biology</td>
<td>1</td>
</tr>
<tr>
<td>or R120 494</td>
<td>Seminar In Biol</td>
<td></td>
</tr>
<tr>
<td>BIOL 495</td>
<td>Honors Seminar in Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 498</td>
<td>Special Topics in Biology</td>
<td>3</td>
</tr>
</tbody>
</table>

Laboratory/ Field Experience

(7 Credits, at least one 4-credit lab)

Four Credit Laboratories

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>R120 211</td>
<td>Plant Kingdom</td>
<td>4</td>
</tr>
<tr>
<td>R120 227</td>
<td>Biol Invertebrates</td>
<td>4</td>
</tr>
<tr>
<td>R120 230</td>
<td>Biology Of Seed Plants</td>
<td>4</td>
</tr>
<tr>
<td>R120 311</td>
<td>Flora of New Jersey</td>
<td>4</td>
</tr>
<tr>
<td>R120 313</td>
<td>Mycology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 321</td>
<td>Comp Vertebrate Anatomy</td>
<td>4</td>
</tr>
<tr>
<td>R120 325</td>
<td>Animal Parasites</td>
<td>1-3</td>
</tr>
<tr>
<td>or R120 326</td>
<td>Parasitology Lab</td>
<td></td>
</tr>
<tr>
<td>R120 330</td>
<td>Plant Physiology</td>
<td>4</td>
</tr>
<tr>
<td>R120 335</td>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 340</td>
<td>Mammalian Physiology</td>
<td>4</td>
</tr>
<tr>
<td>or R120 340</td>
<td>Mammalian Physiology</td>
<td></td>
</tr>
<tr>
<td>R120 342</td>
<td>Developmental Biology</td>
<td>1-3</td>
</tr>
</tbody>
</table>
### Accelerated B.A. in Biology/ D.M.D., O.D.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>R120 343</td>
<td>Developmental Biology Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 347</td>
<td>Lab Approaches in Neuroscience</td>
<td>4</td>
</tr>
<tr>
<td>R120 404</td>
<td>Intro to Neuroanatomy</td>
<td>4</td>
</tr>
<tr>
<td>R120 405</td>
<td>Microanatomy of Cells</td>
<td>4</td>
</tr>
<tr>
<td>R120 430</td>
<td>Plant Growth &amp; Development</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 451</td>
<td>Cell Physiology and Imaging</td>
<td>4</td>
</tr>
</tbody>
</table>

**Three Credit Laboratories**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>R120 328</td>
<td>Ornithology</td>
<td>3</td>
</tr>
<tr>
<td>R120 371</td>
<td>Field Study Plant Ecology</td>
<td>3</td>
</tr>
<tr>
<td>R120 380</td>
<td>Field Ecology</td>
<td>3</td>
</tr>
<tr>
<td>R120 381</td>
<td>Ecological History of North Am</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 385</td>
<td>Evolution of Animal Behavior Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 475</td>
<td>Ecological Field Methods and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>R120 485</td>
<td>Tropical field Biology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Optometry Transfer Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BVS 121</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>BVS 106</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>BVS 131</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>BVS 181</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**Dental Transfer Courses (13 Credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 7109</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEUR 7109</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Other courses may be substituted as necessary.*