# Student Checklist for Bachelor of Arts in Biology - 2016

## Core Program

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Needed</th>
<th>In Progress</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. General Biology</strong></td>
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<tr>
<td>Biol 106/L</td>
<td>Biological Principles I and Lab</td>
<td>3+1</td>
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<tr>
<td>Biol 107/L</td>
<td>Biological Principles II and Lab</td>
<td>3+1</td>
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<tr>
<td><strong>II. General Chemistry</strong></td>
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<tr>
<td>Chem 101/L</td>
<td>General Chemistry I and Lab</td>
<td>4+1</td>
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<tr>
<td>Chem 102/L</td>
<td>General Chemistry II and Lab</td>
<td>4+1</td>
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<tr>
<td><strong>III. General Physics</strong></td>
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<tr>
<td>Phys 100A/AL</td>
<td>General Physics I and Lab</td>
<td>3+1</td>
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<tr>
<td>Phys 100B/BL</td>
<td>General Physics II and Lab</td>
<td>3+1</td>
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<tr>
<td><strong>IV. Mathematics</strong></td>
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<tr>
<td>Math 102 + 104</td>
<td>College Algebra and Trigonometry</td>
<td>3+3</td>
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<tr>
<td>OR</td>
<td>Math 105</td>
<td>Pre-calculus</td>
<td>5</td>
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<td><strong>V. Upper Division Core</strong></td>
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<tr>
<td>Biol 322</td>
<td>Evolutionary Biology</td>
<td>3</td>
<td></td>
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<tr>
<td>Biol 360</td>
<td>Genetics</td>
<td>3</td>
<td></td>
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<tr>
<td>Biol 380</td>
<td>Cell Biology</td>
<td>3</td>
<td></td>
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<tr>
<td>Chem 333/L</td>
<td>Principles of Organic Chemistry I and Lab</td>
<td>4+1</td>
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<tr>
<td>Chem 334/L</td>
<td>Principles of Organic Chemistry II and Lab</td>
<td>3+1</td>
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</tbody>
</table>

## Selective Program

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Taken</th>
<th>Total Units</th>
<th>Upper Division Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Molecular, Cellular and Physiological Biology</strong>^</td>
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<tr>
<td><em>CHOOSE AT LEAST TWO COURSES – SEVEN UNITS OR MORE</em></td>
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<tr>
<td><em>AT LEAST ONE COURSE MUST HAVE A LAB “L”</em></td>
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<tr>
<td><em>AT LEAST ONE COURSE MUST BE 400-LEVEL OR ABOVE</em></td>
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<tr>
<td><strong>2. Systematics and Comparative Biology</strong></td>
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<tr>
<td><em>CHOOSE ONE COURSE</em></td>
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<tr>
<td><strong>3. Ecology and Environmental Biology</strong></td>
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<tr>
<td><em>CHOOSE ONE COURSE</em></td>
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<tr>
<td><strong>4. Electives</strong>: Select sufficient additional courses from list on back of this page to bring the total number of units in the Selective Program to 20, at least 17 of them upper-division units.</td>
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</table>

**TOTAL UNITS IN THIS SECTION** | 20 | 17

Biology courses intended to meet the General Education requirement in the Natural Sciences for non-biology majors may not be used for major credit.

^: If you are in a catalog year prior to 2015 you must take Physiology Lab (BIOL 282) in order to use Physiology Lecture (BIOL 281) in this section.

**Selective Program Bench and Field Requirement** - You must take at least one course from Section 1 above with a bench lab as designated with an “L” after the course number. You must take at least one course from Section 2 or Section 3 above with a field studies as designated with an asterisk (*).

- “/L” listed after the course number refers to a corequisite laboratory course.
- Three digit course numbers followed by a letter (ex: Biol 392F) and containing an asterisk refer to a corequisite field studies: These courses require you to participate in one or more field trips in addition to lecture/lab. (Exception: Biol 471A is a lecture course.)
1. Molecular, Cellular, Physiological Biology

Choose at least 7 units
(at least one course with “L” lab and at least one course 400 level and up)

Biol. 315/L Principles of Microbiology (2+2)
Biol. 316/L Plant Biology (3+1)
Biol. 381 Cell Biology Lab (1) (this course does not count towards “L” lab requirement)
Biol. 382/L Human Anatomy & Physio I (3+1)
Biol. 383/L Human Anatomy & Physio II (3+1)
Biol. 408/L Applied Microbiology (2+2)
Biol. 411/L Animal Histology (2+2)
Biol. 417/L Microbial Physiology (2+2)
Biol. 441/L Embryology (2+2)
Biol. 442/L Developmental Biology (3+1)
Biol. 444/L Viruses (3)
Biol. 461 Molecular Genetics of Microorganisms (3)
Biol. 462 Molecular Genetics of Eukaryotic Organisms
Biol. 464 Human Biochemical Genetics (3)
Biol. 466 Genetics of Bacteria and their Viruses (3)
Biol. 468 Human Genetics (3)
Biol. 469 Medical Genetics (3)
Biol. 470 Biotechnology (3)
Biol. 471A Molecular Diagnostics (3)
Biol. 472/L Recombinant DNA Techniques (2+2)
Biol. 473 Clinical Cytogenetics & Cancer Genetics (3)
Biol. 475/L Biological Imaging (2+2)
Biol. 477/L Cell and Tissue Culture (2+2)
Biol. 476 Topics in Stem Cell Biology (3) #
Biol. 479 Endocrinology (3)
Biol. 480/L Cellular Physiology (2+2)
Biol. 481/L Plant Physiology (2+2)
Biol. 482/L Animal Physiology (2+2)
Biol. 483/L Principles of Neurophysiology (3+1)
Biol. 485/L Immunology and Serology (2+2)
Biol. 487/L Hematology (2+2)
Biol. 489 Cellular Immunology (3)
Biol. 493 Mechanisms of Bacterial Pathogenesis (3)
Biol. 536 Medical Mycology (3)
Biol. 551/L Computer Modeling (2+2)
Organisms (3)
Biol. 563/L Cytogenetics (2+2)

# Avail only to students in Bridges to Stem Cell Research Program. See
http://www.csun.edu/science-mathematics/biology/stem-cell

2. Systematics and Comparative Biology

Choose 1 course from this section

Biol. 312/L +392F Vertebrate Biology (2+1+1)*
Biol. 313/L +392B Invertebrate Zoology (2+1+1)*
Biol. 403/L Plant Morphology (2+2)
Biol. 404/L + 492Y Phycology (2+1+1)*
Biol. 406/L + 492K Flowering Plant Systematics (2+1+1)*
Biol. 409/L + 492J Non-Flowering Plants (2+1+1)*
Biol. 410/L Medical Microbiology (2+2)
Biol. 412/L + 492E Herpetology (2+1+1)*
Biol. 413/L + 492AA Entomology (2+1+1)*
Biol. 415/L + 492M Mammalogy (2+1+1)*
Biol. 418/L Bacterial Diversity (2+2)
Biol. 430/L + 492BB Ichthyology (2+1+1)*
Biol. 432/L Comparative Anatomy (2+2)
Biol. 433/L Biology of Marine Tetrapsods (2+2)
Biol. 435/L Parasitology (2+2)
Biol. 437/L+492V Fungi (2+1+1)*
Biol. 438/L + 492R Tropical Botany (2+1+2)*
Biol. 446/L + 492T Biology of Tropical Vertebrates (2+1+2)*
Biol. 448/L + 492U Tropical Biodiversity & Field Studies (2+1)*
Biol. 452/L Molecular Markers in Evolutionary Studies (2+2)

3. Ecology and Environmental Biology

Choose 1 course from this section

Biol. 407/L + 492N Plant Ecology (2+1+1)*
Biol. 414/L + 492A Avian Ecology (2+1+1)*
Biol. 419/L + 492C Microbial Ecology (2+1+1)*
Biol. 421/L + 492B Marine Biology (2+1+1)*
Biol. 422/L Physiological Ecology (2+2)
Biol. 423 + 492F Field Ecology (2+2)*
Biol. 424/L + 492G Ecological Modeling (2+1+1)*
Biol. 425 + 492D Animal Behavior with Field Studies (3+1)*
Biol. 426/L + 492P Biology of Deserts (2+1+1)*
Biol. 427/L + 492H Principles of Ecology (2+1+1)*
Biol. 427A/AL + 492L Biology of Pelagic Organisms (2+1+1)*
Biol. 428/L + 492W Wildlife Ecology & Management (2+1+1)*
Biol. 429/L + 492I Marine Ecology (2+1+1)*
Biol. 434/L + 492Q Ecology of Marine Fishes (2+1+1)*
Biol. 439/L + 492S Tropical Ecology & Conservation (3+1+1)*
Biol. 451 + 326 Tropical Biology & Regional Excursions (3+1)*
Biol. 453/L+492Z Behavioral Ecology (2+1+1)*
Biol. 456 + 492O Conservation Biology (3+1)*

4. Elective Requirements

Math 255A Calculus for Life Sciences I (3)
Chem. 461 Biochemistry I (4)
Chem. 464 Principles of Biochemistry (3)
Chem. 464L Principles of Biochemistry Lab (1)
Biol. 330/L Design & Analysis of Experiments (2+1)
Biol. 431/L Food Micro (2+2)
Biol. 447/L Full Immersion Research Experience (FIRE) (2+2)
Biol. 449 Seminar Tropical Biol. (3)
Biol. 490, 495, 499, 526 (1 to 3)
Biol. 502/L Biometry (2+2)
Biol. 503/L Bioinformatics (2+2)
Biol. 560 Advanced Topics Evolution (3)
Geol. 322/L Introductory Oceanography and lab (2+2)
Geol. 351/L Fundamentals of Paleontology(2+2)

No more than 3 units of Biol 490, 495, 499 and 526 combined may be used.

Courses in italics available only to students participating in Tropical Semester (spring semester of even years)