B.S. BIOLOGICAL SCIENCES

OTHER DEGREE REQUIREMENTS:
- Cal Poly, Higher Ed, and Major GPA must all be at least 2.00
All students must complete:
- United States Cultural Pluralism Requirement
- Graduation Writing Requirement
- 60 units Upper Division (any 300-400 level classes)
- Upper Division units in the Major: 27
- Residency Requirements: See Degree Progress Report for details

NOTE: This document can be used as a compact display of courses and other curricular requirements. The Degree Progress Report must be used to track students’ progress in all degree requirements, throughout their Cal Poly career.

<table>
<thead>
<tr>
<th>* = Required in major/support; also satisfies GE. Note: No Major, Support, or Conc. courses may be taken as credit/no credit.</th>
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</thead>
<tbody>
<tr>
<td><strong>MAJOR COURSES (79)</strong></td>
</tr>
<tr>
<td>BIO 160 Diversity &amp; the History of Life</td>
</tr>
<tr>
<td>BIO 161 Cell &amp; Molecular Biology (B2 &amp; B4)*</td>
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<tr>
<td>BIO 162 Introduction to Organism Form &amp; Function</td>
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<tr>
<td>BIO 263 Introductory Ecology &amp; Evolution</td>
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<td>BIO 351 Principles of Genetics</td>
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<td>BIO 414 Evolution</td>
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<tr>
<td>BIO 461 Senior Project Proposal or BIO 462 Sr Project</td>
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<tr>
<td><strong>Biological Diversity</strong></td>
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<tr>
<td>BIO 415; BOT 313, 323, 433, 437; MCRO 224, 402; ZOO 321, 322, 323, 329, 335, 336, 341, 425</td>
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<tr>
<td><strong>Ecology:</strong> BIO 325, 327, 328, 401; BOT 326; MCRO 436</td>
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<tr>
<td><strong>Physiology:</strong> BIO 361, 434, 435</td>
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<tr>
<td><strong>Concentration or General Curriculum in Biology</strong> (see reverse)</td>
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<thead>
<tr>
<th><strong>SUPPORT COURSES (41)</strong></th>
<th>Units</th>
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<tbody>
<tr>
<td>CHEM 127 General Chemistry I (B3)*</td>
<td>4</td>
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<tr>
<td>CHEM 128 General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 129 General Chemistry III</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 312 or CHEM 316</td>
<td>3</td>
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<tr>
<td>MATH 161 Calculus Life Sciences I (B1)*</td>
<td>4</td>
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<tr>
<td>MATH 162 Calculus Life Science II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 121 College Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 122 College Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 123 College Physics III</td>
<td>4</td>
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<tr>
<td>STAT 218 Appl Statistics-Life Sciences (B1)*</td>
<td>4</td>
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<thead>
<tr>
<th><strong>GENERAL EDUCATION (GE)</strong></th>
<th>56</th>
</tr>
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<tbody>
<tr>
<td>72 units required, 16 of which are listed in Major/Support Minimum of 12 units required at the 300-level.</td>
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<tr>
<td><strong>Area A Communication</strong></td>
<td>12</td>
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<tr>
<td>A1 ENGL 133/134</td>
<td>4</td>
</tr>
<tr>
<td>A2 COMS 101/102</td>
<td>4</td>
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<tr>
<td>A3 Reason, Arg &amp; Writing</td>
<td>4</td>
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<tr>
<td>*<em>Area B Science &amp; Mathematics (no add’l units req’d) <em>16 units are listed in Major/Support</em></em></td>
<td>20</td>
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<tr>
<td>C1 Literature</td>
<td>4</td>
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<tr>
<td>C2 Philosophy: PHIL 230/231</td>
<td>4</td>
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<tr>
<td>C3 Fine/Performing Arts</td>
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<tr>
<td>C4 Upper-division elective</td>
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<tr>
<td>C1-C4 elective</td>
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<tr>
<td><strong>Area D/E Society and the Individual</strong></td>
<td>20</td>
</tr>
<tr>
<td>D1 Amer. Exp. (40404)</td>
<td>4</td>
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<tr>
<td>D2 Political Economy</td>
<td>4</td>
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<tr>
<td>D3 Comparative Social Institutions</td>
<td>4</td>
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<tr>
<td>D4 Self Development (CSU Area E)</td>
<td>4</td>
</tr>
<tr>
<td>D5 Upper-division elective</td>
<td>4</td>
</tr>
<tr>
<td><strong>Area F Technology (upper div)</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Add’l GE Units (if needed)</strong></td>
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<tr>
<th><strong>FREE ELECTIVES</strong></th>
<th>4</th>
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</table>

1 Students in Molecular & Cellular Biology concentration should take MCRO 224 to fulfill this requirement.
2 Students in the Anatomy & Physiology or Biology Teaching concentrations should take BIO 361 to fulfill this requirement.
1 Note that courses in concentrations or the general curriculum may not double-count in the major core.
4 Maximum of 6 units from any combination of the following courses: BIO 400†, 450, 462, 463.
5 Students in Molecular & Cellular Biology concentration should take CHEM 316 to fulfill this requirement.
6 To meet credentialing requirements, it is recommended that teaching students take KINE 250 to fulfill GE D4, and SCM 330 to fulfill GE Area F.
GENERAL CURRICULUM or CONCENTRATION (select one)

GENERAL CURRICULUM in biology
CHEM 313 or CHEM 371 ............................................................... 5
Anatomy/Physiology (select at least one course) ....................... 4-5
BIO 361, 432, 433, 434, 435; MICRO 424; ZOO 422
Botany (select at least one course) ........................................... 4
BOT 311, 313, 323, 324, 335, 431, 433, 437
Ecology (select at least one course) .......................................... 3-4
BIO 325, 327, 328, 401, 415, 419, 427, 438, 439, 443, 444;
BOT 326; MICRO 436; ZOO 437
Microbiology (select at least one course) .................................... 3-5
MCRO 224, 225, 301, 320, 342, 421, 423, 433; ZOO 425
Molecular/Cellular Bio (select at least one course) .................. 3-4
BIO 405, 426, 452; BIO/CHM 375, 441, 476;
BOT/HCS 450; MICRO 402; ZOO 428
Zooiology (select at least one course) ........................................ 4
ZOO 321, 322, 323, 329, 335, 336, 341
Research, Project and Seminars ........................................... 0-6
1, 2Approved electives ................................................................. 16
BOT 200, 330, 400*, 450, 462, 463, 470, 471, 472; SCM 302
1, 2Approved electives ................................................................. 8
(Select additional courses in any of the areas listed or
request faculty advisor approval for other courses with a
max of 8 units of coursework allowed outside of the Dept)

Anatomy & Physiology Concentration
BIO 432 Vertebrate/Human Anat & Phys I .................................. 5
BIO 433 Vertebrate/Human Anat & Phys II ................................ 5
BIO 452 Cell Biology ................................................................. 4
CHEM 371 or CHEM 313 ............................................................ 5
1, 2Approved electives ................................................................. 20
Select 20 units from the following:
Eight (8) units minimum from:
- BIO/CHM 375; BIO 405, 426, 434, 435;
- MCRO 225, 320, 342, 402, 423, 424; ZOO 422, 425, 428
Eleven (11) units maximum from:
- CHEM 317, 318, 372
Eight (8) units maximum from:
- ASCI 351, 406; BIO 400*, 462, 463; FSN 310, 429;
- KINE 406, 445, 446; PHIL 339; PSY 340, SCM 451

Biology Teaching Concentration
BIO 432 Vertebrate/Human Anat & Phys I ............................... 5
BIO 433 Vertebrate/Human Anat & Phys II ............................... 5
BIO 452 Cell Biology ................................................................. 4
BIO/PS 424 Organizing/Teaching Sci .......................................... 4
MCRO 320 Emerging Infectious Diseases ............................... 3
SCM 300 Early Field Exp, Sci/Math ......................................... 4
SCM 451 Ethics in the Sciences ................................................... 3
1, 2Approved electives ................................................................. 11
Select eleven (11) units from the following:
BIO 328, 330, 375, 400*, 401, 415, 434, 435, 450, 462, 463, 472;
BOT 311, 313, 323, 326, 335, 433, 437; MCRO 225, 421, 424, 433;
ZOO 321, 322, 323, 329, 335, 336, 341, 437

Ecology Concentration
Ecology of the Individual (select one course) ............................. 4/5
BIO 434, 435; MICRO 424; ZOO 437
Population Ecology (select one course) ................................... 3/4
BIO 327, 401, 439, 444
Community Ecology (select one course) ................................. 4
BIO 325, 328; BOT 326, 433; MICRO 436
Global Ecology (select one course) .......................................... 4
BIO 415; GEOG 250, 333; UNIV 350
Methodology (select 3 courses) ................................................ 10-12
BIO/CHM 375; BIO 419, 443; LA/NR 318; STAT 313, 419
1, 2Approved electives ................................................................. 10-14
Select any other course in this concentration, or from the major core
Biological Diversity list, or from the following:
BIO 330, 400*, 441, 462, 463, 472; BOT 311, 313, 323, 437;
MCRO 224, 402; NR 307, 418; SS 321, 322;
ZOO 321, 322, 323, 329, 335, 336, 341, 425

Field and Wildlife Biology Concentration
BOT 313 Taxonomy of Vascular Plants .................................... 4
BIO 433 Field Botany ............................................................... 4
ZOO 321 Mammalogy ............................................................. 4
ZOO 323 Ornithology .............................................................. 4
ZOO 341 Herpetology ............................................................ 4
Emphasis Area (select Field or Wildlife) .................................... 19
Field Biology Emphasis
ZOO 335 General Entomology (4)
ZOO 437 Animal Behavior (4)
BIO 439 or ZOO 322 (4)
1, 2Approved electives (select 7 units from):
BIO 325, 327, 328, 330, 400*, 401, 415, 419, 427, 439, 443, 444, 462, 463;
BOT 326, 437;
LA/NR 318; NR 141, 142, 203, 307, 404, 416;
MCRO 402; SS 121, 321, 322; STAT 313, 324, 330, 416, 419, 421; ZOO 322, 329, 335, 336, 425, 437
1, 2Approved electives. (Select 7-8 units from the Field Biology
Emphasis approved electives list)

Marine Biology & Fisheries Concentration
BIO 328 Marine Ecology ......................................................... 4
BIO/CHM 375 Molecular Biology Laboratory .......................... 4
BIO 437 Phycology ................................................................. 4
STAT 313 App Exp Design & Regression Models ..................... 4
ZOO 322 Ichthyology ............................................................ 4
ZOO 336 Invertebrate Zoology ................................................. 4
1, 2Approved electives ................................................................. 16
Select a minimum of 8 units from the following:
BIO 409*, 401, 405, 419, 434, 435, 438, 439, 443, 444,
452, 462, 463; MICRO 436; ZOO 321, 323, 425, 437
Select a maximum of 8 units from the following:
CHEM 317, 315, 371, 341, 474, PSC 201

Molecular & Cellular Biology Concentration
BIO/CHM 375 Molecular Biology Laboratory ......................... 3
BIO 452 Cell Biology ............................................................. 4
CHEM 317 Organic Chemistry II ............................................ 4
CHEM 371 Biochemistry Principles ........................................ 4
CHEM 372 Metabolism .......................................................... 4
CHEM 474 or BIO/CHM 476 ................................................ 2
Choose 8 units from the following: ......................................... 8
BIO/CHM 441, 476; BIO 405, 426; BOT 450; CHEM 474;
MCRO 402, 433; SCM 201
1, 2Approved electives ................................................................. 8
Select 8 units from the following, with a max. of one course from List B:
List A
BIO 400*, 405, 426, 432, 433, 435, 462, 463;
BIO/CHM 441, 476;
BOT 323, 450;
CHEM 474;
MCRO 402, 433;
SCM 201, 451

1 Maximum of 6 units may be applied toward the major from any
combination of the following: BIO 400*, 450, 462, 463.
2 Consultation with advisor is recommended prior to selecting
approved electives. Bear in mind that your selections may
impact pursuit of post-baccalaureate studies and/or goals.
3 Students seeking Wildlife Biologist Certification should see
faculty advisor for assistance.
† Total credit limited to 4 units.