Biology Major Requirements
Catalog Year: 2013-14
Degree: Bachelor of Science
Credit Hours: 65+

“PR” indicates a pre-requisite. “CO” indicates a co-requisite.

Courses within this major may also satisfy general education requirements. Please consult http://registrar.cofc.edu/general-edu for more information.

Required Courses

[ ] BIOL 111 Introduction to Cell and Molecular Biology (3) PR: None; CO: BIOL 111L

OR

[ ] HONS 151 Honors Biology I (3) PR: None; CO: HONS 151L

[ ] BIOL 112 Evolution, Form, and Function of Organisms (3) PR: BIOL 111 and 111L; CO: BIOL 112L

OR

[ ] HONS 152 Honors Biology II (3) PR: HONS 151 and 151L; CO: HONS 152L

[ ] BIOL 211 Biodiversity, Ecology, and Conservation Biology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; CO: BIOL 211D

[ ] BIOL 305 Genetics (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; PR or CO: BIOL 211 and 211D and MATH 250 or instructor permission

[ ] Complete 19 credit hours of 300-level or above BIOL courses including at least four courses with labs from the BIOLOGY 300-LEVEL AND ABOVE ELECTIVES LIST. Note: Independent study, tutorial, Bachelor's Essay, or BIOL 450 and 451 with labs do not fulfill the lab requirement.

BIOLOGY 300-LEVEL AND ABOVE ELECTIVES LIST

BIOL 300 Botany (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 301 Plant Taxonomy (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 302 Plant Anatomy (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 303 Phycology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 304 Plant Physiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of chemistry; PR or CO: BIOL 305 and MATH 250

BIOL 305L Genetics Lab (1) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; PR or CO: BIOL 211 and 211D, BIOL 305 and MATH 250

BIOL 310 General Microbiology (4) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; and BIOL 211 and 211D or CHEM 232 and 232L; PR or CO: MATH 250; BIOL 305 or CHEM 232 and 232L

BIOL 312 Molecular Biology (3) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D and BIOL 305 or CHEM 232 and 232L; PR or CO: MATH 250

BIOL 312L Molecular Biology Laboratory (1) PR or CO: BIOL 312 and MATH 250. Students cannot use both BIOL 412 and BIOL 312L towards their major requirements.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>BIOL 313</td>
<td>Cell Biology (3)</td>
<td>PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; and BIOL 211 and 211D or CHEM 232 and 232L; PR or CO: MATH 250; BIOL 305 or CHEM 232 and 232L</td>
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<tr>
<td>BIOL 313L</td>
<td>Cell Biology Laboratory (1)</td>
<td>PR or CO: BIOL 313 and MATH 250</td>
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<tr>
<td>BIOL 314</td>
<td>Immunology (3)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and one year of Chemistry; PR or CO: MATH 250</td>
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<tr>
<td>BIOL 320</td>
<td>Histology (4)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 321</td>
<td>General and Comparative Physiology</td>
<td>PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 or CHEM 232 and 232L; PR or CO: MATH 250 or equivalent course in statistics or instructor permission</td>
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<tr>
<td>BIOL 322</td>
<td>Developmental Biology (4)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250</td>
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<tr>
<td>BIOL 323</td>
<td>Comparative Anatomy of Vertebrates (4)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 332</td>
<td>Vertebrate Zoology (4)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 333</td>
<td>Ornithology (4)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 334</td>
<td>Herpetology (4)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 335</td>
<td>Biology of Fishes (4)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 336</td>
<td>Parasitology (4)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 337</td>
<td>Invertebrate Zoology (4)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 338</td>
<td>Entomology (4)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 339</td>
<td>Dinosaur Biology (3)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 340</td>
<td>Zoogeography (3)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 341</td>
<td>General Ecology (4)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 342</td>
<td>Oceanography (4)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250; one year of college-level Math and one year of college-level Chemistry</td>
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<tr>
<td>BIOL 343</td>
<td>Animal Behavior (4)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250</td>
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<tr>
<td>BIOL 350</td>
<td>Evolution (3)</td>
<td>PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250</td>
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<tr>
<td>BIOL 351</td>
<td>Principles of Neurobiology (3)</td>
<td>PR: PSYC 103 and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D or PSYC 214; PR or CO: MATH 250</td>
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BIOL 352 Neurobiology and Behavior (3) PR: BIOL 351 or PSYC 351 or PSYC 214; PR or CO: MATH 250

BIOL 353 Hormones and Behavior (3) PR: BIOL 111 and 111L or HONS 151 and 151L or BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 354 Techniques in Neuroscience (4) PR: BIOL 351 or PSYC 351; MATH 250 or PSYC 211 and PSYC 220 or PSYC 250; and instructor permission

BIOL 357 Oceanographic Research (4) PR: BIOL 342 and instructor permission; PR or CO: MATH 250

BIOL 360 Introduction to Biometry (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 396 Biophysical Modeling of Excitable Cells (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and PHYS 111 and 111L and PHYS 112 and 112 L or HONS 158 and 158L or BIOL 211 and 211D and BIOL 305 and PHYS 101 and 101L and PHYS 102 and 102L; PR or CO: MATH 250

BIOL 399 Tutorial (1-3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and 3.00 GPA or higher in BIOL; junior standing and tutor and department chair permission; PR or CO: MATH 250

BIOL 406 Conservation Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 or permission of instructor; PR or CO: MATH 250

BIOL 410 Applied and Environmental Microbiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; BIOL 310 and one year of Chemistry; PR or CO: BIOL 305 and MATH 250

BIOL 411 Microtechnique and Cytochemistry (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of Chemistry; PR or CO: MATH 250

BIOL 412 Capstone in Molecular Biology (3) PR: BIOL 111/111L or HONS 151/151L or BIOL 112/112L or HONS 152/152L or BIOL 211/211D, BIOL 305, BIOL 312, MATH 111 PR or CO: CHEM 351, MATH 250. Students cannot use both BIOL 412 and BIOL 312L towards their major requirements.

BIOL 414 Environmental Immunology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of Chemistry; PR or CO: BIOL 305 and BIOL 312 or BIOL 312L or BIOL 313 or CHEM 351 and MATH 250

BIOL 420 General and Comparative Endocrinology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250 and a course in physiology or instructor permission

BIOL 421 Topics in Physiology, Cell, and Molecular Biology of Marine Organisms (3) PR: BIOL 312 or 313; BIOL 321 and instructor permission; PR or CO: MATH 250

BIOL 444 Plant Ecology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 341 or instructor permission; PR or CO: BIOL 305 and MATH 250

BIOL 445 Systematic Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; junior standing and at least one upper division course in organismal Biology; PR or CO: MATH 250

BIOL 446 Special Topics in Neuroscience (3) PR: Junior or senior standing and instructor permission; PR or CO: MATH 250

BIOL 447 Seminar in Neuroscience (3) PR: BIOL 351 or PSYC 351 and BIOL 352 or PSYC 352; CO: BIOL 448 or PSYC 448; PR or CO: MATH 250

BIOL 448 Bachelor's Essay in Neuroscience (6) PR: BIOL 351 or PSYC 351 and BIOL 352 or PSYC 352 and permission of student's major department and the neuroscience program director; PR or CO: MATH 250

BIOL 449 Biology of Coral Reefs (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and 341; 3.00 GPA or higher in BIOL; junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

BIOL 450 Problems in Biology (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in science courses; junior standing and instructor and department chair permission; PR or CO: MATH 250
Chemistry Requirement

- **CHEM 111**: Principles of Chemistry (3) PR or CO: unless students exempt MATH 111 (via diagnostic testing) or have completed this course as a prerequisite, they are required to take MATH 111 as a co-requisite; CO: CHEM 111L
- **CHEM 111L**: Principles of Chemistry Lab (1) CO: CHEM 111
- **CHEM 112**: Principles of Chemistry (3) PR: CHEM 111 and 111L or HONS 153 and 153L; CO: CHEM 112L (MATH 120 strongly recommended)
- **CHEM 112L**: Principles of Chemistry Lab (1) CO: CHEM 112
- **CHEM 231**: Organic Chemistry (3) PR: CHEM 112 and CHEM 112L or HONS 154 and HONS 154L; CO: CHEM 231L
- **CHEM 231L**: Introduction to Organic Chemistry Laboratory Techniques (1) CO: CHEM 231
- **CHEM 232**: Organic Chemistry (3) PR: CHEM 231 and CHEM 231L; CO: CHEM 232L
- **CHEM 232L**: Organic Synthesis and Analysis (1) CO: CHEM 232

Physics Requirement

- **PHYS 101**: Introductory Physics (3) PR: None; CO or PR: PHYS 101L
- **PHYS 101L**: Introductory Physics Lab (1) CO: PHYS 101

AND

- **PHYS 102**: Introductory Physics II (3) PR: PHYS 101 or PHYS 111 or HONS 157; CO or PR: PHYS 102L
- **PHYS 102L**: Introductory Physics Lab (1) CO: PHYS 102

OR

- **PHYS 111**: General Physics I (3) PR or CO: MATH 120 or equivalent or instructor permission; CO: PHYS 111L
- **PHYS 111L**: General Physics I Lab (1) CO: PHYS 111

AND

- **PHYS 112**: General Physics II (3) PR: PHYS 111 or HONS 157; CO or PR: MATH 220 or equivalent or instructor permission; CO: PHYS 112L
- **PHYS 112L**: General Physics II Lab (1) CO: PHYS 112
Mathematics Requirement

☐ MATH 120 Introductory Calculus (4) PR: Placement or C. or better in MATH 111
☐ MATH 250 Statistical Methods I (3) PR: Either MATH 111, 120 or instructor permission

Notes:

- MATH 250 is a prerequisite for all 300-level BIOL courses.
- CHEM 221 is a recommended course.
- Honors students can take the alternative sequence of HONS191/HONS191L, HONS 192/HONS192L, HONS293/HONS293L, and HONS294/HONS294L in lieu of CHEM 111/111L, CHEM 112/112L, CHEM 231/231L, and CHEM 232/CHEM 232L
- Honors students can take the alternative sequence of HONS 157/HONS 157L and HONS 158/HONS 158L in lieu of PHYS 111/111L and PHYS 112/112L