The B.S. Biological Sciences program reflects the Department’s belief that professional biologists, regardless of their ultimate focus in biology, benefit from sound undergraduate training in basic subdisciplines of biology and the supporting sciences of mathematics, chemistry, and physics. After a year of introductory biology (which may be satisfied by AP credit), students choose four core biology courses, and take Biology elective courses as soon as prerequisites are met. The program is highly flexible, allowing students to specialize in plant or animal biology, and in one or several subdisciplines, such as ecology, physiology, evolution, behavior, cell or developmental biology.

Career Options. The B.S. Biological Sciences degree is an ideal major for students contemplating admission to a professional school (medical, dental, veterinary) or to graduate school for further study in the biological sciences and related fields. Students are also well-prepared to embark on a wide range of biology-related careers in education, government, industry, or the private sector.

The Faculty in the Biological Sciences program are actively involved in many areas of research, including the evolution of algal genomes, animal body plans, and genes controlling plant cell wall biosynthesis, the role of mycorrhizal fungi in plant growth, functional morphology and sensory physiology of fishes, physiological adaptations of squids to extreme marine environments, neurobiology of invertebrates, impact of predation on species interactions in terrestrial and marine ecosystems, salt marsh ecology and biogeochemistry, and human impact on evolutionary change in natural populations.

Experiential Learning. Students are encouraged to participate in research or independent study projects with faculty in Biological Sciences and other departments in the College of the Environment and Life Sciences for academic credit (491, 492), participate in internships during the academic year or the summer (e.g., via the Coastal Fellows and EPSCoR Fellows Programs, or the Graduate School of Oceanography’s REU SURFO Program), or study at other universities in national and international exchange programs arranged through URI’s Office of International Education.

Program requirements. Biological Sciences requirements. Majors must complete 35 credits in BIO including 2 semesters of introductory biology (BIO 101/103, 102/104) and one course from each of 4 core areas chosen from the following 6: Cell and Development, BIO 302, 311, 341; Ecology and Evolution, BIO 262, 272; Genetics, BIO 352; Molecular Biology, BIO 437; Organismal Diversity, BIO 321, 323, 354, 365, 366, 404 (304); and Physiology, BIO 201, 242/244, 346. The remaining credits may be chosen from any of the BIO major electives listed for the B.S. Altogether, at least 3 credits must be chosen from each of the plant biology and animal biology elective lists and at least 3 BIO laboratory courses must be completed (excluding BIO 103, 104 and independent study/research). Up to 3 credits of independent study/research (491, 492, 493, 494, 495) may be used as major electives from one of the following programs: AFS, AVS, BCH, BIO, MIC, NRS, PLS, OCG. A minimum GPA of 2.0 in BIO courses used to satisfy the major is required.

Additional requirements. Students must complete 2 semesters of calculus (MTH 131, 132 or MTH 141, 142) or 1 semester each of calculus and statistics (MTH 131 or 141 and STA 308), 2 semesters of general chemistry with lab (CHM 101, 102, 112, 114), 2 semesters of organic chemistry with lab (CHM 227, 228, 226) or 1 semester each of organic chemistry with lab and biochemistry (CHM 124, 126, BCH 311), 2 semesters of physics with lab (PHY 111, 112, 185, 186), and 1 semester of microbiology (MIC 201 or 211). General Education courses in English Communication, Fine Arts and Literature, Foreign Language and Culture, Letters, and Social Science follow the requirements of the College of the Environment and Life Sciences.
## BACHELOR OF SCIENCE
### BIOLOGICAL SCIENCES

### B.S. in Biological Sciences – Program Requirements

<table>
<thead>
<tr>
<th>Core Requirements (8 credits)</th>
<th>Required (8 credits): Principles of Biology I and II (BIO 101/103, BIO 102/104)</th>
</tr>
</thead>
</table>
| Additional Core Courses and Major Electives (27 credits) (must include 1 plant course 1 animal course 3 laboratory courses) | Choose one course from 4 of the following 6 core areas:  
|                              | Cell and Development: BIO 302, 311, 341  
|                              | Ecology and Evolution: BIO 262, 272  
|                              | Genetics: BIO 352  
|                              | Molecular Biology: BIO 437  
|                              | Organismal Diversity: BIO, 321, 323, 354, 365 (465), 366, 404 (304)  
|                              | Physiology: BIO 201, 242/244, 346 |
| Plant Courses (at least 3 credits): BIO 311, 321, 323, 332, 346, 348, 365 (465), 418 | |
| Animal Courses (at least 3 credits): BIO 121, 201, 242, 244, 302, 327, 329, 334, 335, 354, 355, 366, 385, 386, 404 (304), 412, 417, 441, 445, 467*, 469*, 475* | |
*taught at Bermuda Institute of Ocean Sciences  |
| Integrative Biology Courses: BIO 262, 272, 341, 345, 352, 353, 360, 396, 437, 451, 455, 457, 472, 480, 485, 491, 492 | |
| Mathematics | Applied Calculus I and II (MTH 131, 132)  
|                              | OR Calculus with Analytic Geometry (MTH 141, 142)  
|                              | OR One semester of calculus & one of statistics (MTH 131 or 141 & STA 308 or STA 409) |
| Chemistry | General Chemistry I and II with laboratories (CHM 101, 102; 112, 114) AND  
|                              | Organic Chemistry I and II with laboratory (CHM 226, 227, 228)  
|                              | OR General Chemistry I and II with laboratories (CHM 101, 102; 112, 114) AND  
|                              | Introduction to Organic Chemistry with laboratory (CHM 124, 126) and Biochemistry(BCH 311) |
| Physics | General Physics I and II with laboratories (PHY 111,185; 112, 186) |
| Microbiology | Introductory Microbiology (MIC 211) or Introductory Medical Microbiology (MIC 201) |
| Additional General Education Requirements | English communications, including WRT 104, 105 or 106, 6 cr; Social Sciences, 6 cr; 15 credits from Fine Arts and Literature (3-6 cr), Letters (3-6 cr); and Foreign language and culture (3-6 cr). Mathematics and Natural Sciences requirements are met by the B.S. Biological Sciences program requirements. |
| Remarks | Students must take 3 biology laboratory courses in addition to BIO 103, 104, excluding independent study/research. Up to 3 credits of Independent Study/Research/Special Problems (491, 492, 493, 494, or 495) in one of the following programs, AFS, AVS, BCH, BIO, MIC, NRS, PLS, or OCG, may be used as a BIO elective. Any BIO course in the latest catalog can be counted as a Major Elective unless stated that it is excluded from the major. 120 credits are required for graduation. Students must maintain a 2.00 grade point average in BIO courses used to meet graduation requirements. |
# B.S. Biological Sciences Academic Worksheet

## Biology Requirements

### Introductory Biology (8 credits)
- BIO 101/103: ________(4 credits)
- BIO 102/104: ________(4 credits)

### Other BIO courses (27 credits, minimum)

#### Core BIO courses (4 courses required)

<table>
<thead>
<tr>
<th>Core Area</th>
<th>Core Courses</th>
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These requirements can be fulfilled by courses listed in the left column of this section.

Note: 103, 104, 491-495 cannot be used.

- Plant biology course: ________
- Animal biology course: ________
- Lab courses (3): ________

### BIO Electives* (balance of 27 credits)

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*Up to 3 credits of 491, 492, 493, 494, or 495 from one of the following programs may be used for a BIO elective: AFS, AVS, BCH, BIO, MIC, NRS, PLS, or OCG. These may not be used to fulfill the lab requirement.

Additional research credits count as free electives.

*Note: A course can be used to satisfy more than one requirement, e.g., a core & a lab, or a core, a plant, & a lab.

## Additional Science Requirements

### Microbiology (4 credits)
- MIC 211 or MIC 201: ________

### Chemistry (15 or 16 credits)
- CHM 101, 102: ________, ________
- CHM 112, 114: ________, ________
- CHM 226, 227 and 228: ________, ________, ________ OR CHM 124, 126 and BCH 311: ________, ________, ________

### Mathematics (6, 7 or 8 credits)
- MTH 131 or MTH 141: ________
- MTH 132 or MTH 142 or STA 308: ________

### Physics (8 credits)
- PHY 111, 185: ________, ________
- PHY 112, 186: ________, ________

## General Education Requirements

### English Communication (1) ________ (____ credits)

*Fine Arts/Literature (1 or 2) ________, ________, ________ (____ credits)

*Letters (1 or 2) ________, ________, ________ (____ credits)

*Language/Culture (1 or 2) ________, ________, ________ (____ credits)

Social Science (2) ________, ________, ________, ________ (____ credits)

Natural Sciences (2) (CHM 101), (PHY 111) Courses from “Additional science requirements”

Math (1) ________ Course from “Additional science requirements”

*A total of 15 credits in these three areas is required.

### Free Electives (see reverse)

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### Total – 120 required for graduation

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05/12
Free Electives (Please list courses and credits below)

______________________________ (___ credits)

______________________________ (___ credits)

______________________________ (___ credits)

______________________________ (___ credits)

______________________________ (___ credits)

______________________________ (___ credits)

______________________________ (___ credits)

______________________________ (___ credits)

______________________________ (___ credits)

______________________________ (___ credits)

______________________________ (___ credits)

______________________________ (___ credits)

______________________________ (___ credits)

Free Elective credits (transfer to other side) (____ credits)
### B.S. BIOLOGICAL SCIENCES

#### FIRST YEAR FALL
- BIO 101/103 (4)
- CHM 101/102 or Gen Ed (3-4)
- MTH 111 or MTH 131 (3)
- Gen Ed (3-4)
- URI 101 (1)
- 15-16 credits

#### FIRST YEAR SPRING
- BIO 102/104 (4)
- CHM 112/114 or 101/102 (4)
- MTH 131, 132 or STA 308 (3)
- Gen Ed (3-4)
- 14-15 credits

#### SECOND YEAR FALL
- BIO core course (3-4)
- CHM 124/126 or 112/114 (4)
- Elective or MTH 132 or STA 308 (3-4)
- Gen Ed (3-4)
- Optional: Gen Ed or elective (3-4)*
- 14-17 credits

#### SECOND YEAR SPRING
- BIO core course (3-4)
- CHM 124/126 or 227 or 112/114 (4)
- Elective or MTH 132 or STA 308 (3-4)
- Gen Ed (3-4)
- Optional: Gen Ed or elective (3-4)*
- 14-17 credits

#### THIRD YEAR FALL
- BIO core course* (3-4)
- PHY 111/185 (4)
- CHM 228/226 or BCH 311 or elective (3-5)
- Gen Ed or elective (3-4)
- Optional: elective (3-4)*
- 14-17 credits

#### THIRD YEAR SPRING
- BIO core course* (3-4)
- PHY 112/186 (4)
- CHM 228/226 or BCH 311 or elective (3-5)
- Gen Ed or elective (3-4)
- Optional: elective (3-4)*
- 14-17 credits

#### FOURTH YEAR FALL
- BIO elective (3-4)
- BIO elective (3-4)
- Gen Ed (3-4)
- Elective (3-4)
- Optional: elective (3-4)*
- 14-17 credits

#### FOURTH YEAR SPRING
- BIO elective (3-4)
- BIO elective (3-4)
- Gen Ed (3-4)
- Elective (3-4)
- Optional: elective (3-4)*
- 14-17 credits

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*Consider including when fewer than 15 credits total for other courses.

**Study abroad /full-time internship, substitute required courses for electives in other semesters.

### B.S. BIOLOGICAL SCIENCES—TRANSFER

#### SECOND YEAR FALL
- BIO 101/103 (4)
- CHM 101/102 (4)
- MTH 111 or MTH 131 (3)
- Gen Ed or elective (3-4)
- 14-15 credits

#### SECOND YEAR SPRING
- BIO 102/104 (4)
- CHM 112/114 (4)
- MTH 131, 132 or STA 308 (3)
- Gen Ed or elective (3-4)
- 14-15 credits

#### THIRD YEAR FALL
- BIO core course* (3-4)
- CHM 124/126 or 227 (3-4)
- MTH 132 or STA 308 or elective (3-4)
- BIO elective*, Gen Ed or elective (3-4)
- Optional: BIO elective*, Gen Ed or elective (3-4)**
- 14-17 credits

#### THIRD YEAR SPRING
- BIO core course* (3-4)
- CHM 228/226 or BCH 311 (3-5)
- MTH 132 or STA 308 or elective (3-4)
- BIO elective*, Gen Ed or elective (3-4)
- Optional: BIO elective*, Gen Ed or elective (3-4)**
- 14-17 credits

#### FOURTH YEAR FALL
- BIO core course* (3-4)
- PHY 111/185 (4)
- BIO elective* (3-5)
- BIO elective*, Gen Ed or elective (3-4)
- Optional: BIO elective*, Gen Ed or elective (3-4)**
- 14-17 credits

#### FOURTH YEAR SPRING
- BIO core course* (3-4)
- PHY 112/186 (4)
- BIO elective* (3-4)
- BIO elective*, Gen Ed or elective (3-4)
- Optional: BIO elective*, Gen Ed or elective (3-4)**
- 14-17 credits

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**Consider including when fewer than 15 credits total for other courses.

*A total of 27 credits of BIO core + electives is required (i.e. 9 X 3-credit courses, 7 X 4-credit courses, or a combination of 3 and 4 credit courses).