

# Ecology and Biodiversity Track

## Requirements for the Major in Biology - Ecology and Biodiversity Track

The major requires successful completion of the following:

| Code                                                                                                                            | Title                                                                                                  | Semester Hours |
|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------|
| <b>Course Requirements <sup>1,2</sup></b>                                                                                       |                                                                                                        |                |
| BIOL 130                                                                                                                        | Field Investigations in Biology                                                                        | 4              |
| BIOL 133                                                                                                                        | Introductory Molecular Biology and Genetics <sup>3</sup>                                               | 4              |
| BIOL 210                                                                                                                        | Ecology (Lab)                                                                                          | 4              |
| BIOL 213                                                                                                                        | Evolutionary Biology                                                                                   | 4              |
| BIOL 223<br>or BIOL 224                                                                                                         | Genetics (Lab)<br>Genetics                                                                             | 4              |
| BIOL 424                                                                                                                        | Senior Seminar                                                                                         | 4              |
| ENST 217<br>or STAT 204<br>or BIOL 217                                                                                          | Fundamentals of GIS<br>Elementary Statistics<br>Experimental Design and Data Analysis in Biology (Lab) | 4              |
| Select four courses from the following two themed categories with at least one from the Human Dimensions category: <sup>4</sup> |                                                                                                        | 16             |
| <b>Human Dimensions (attribute BIOH):</b>                                                                                       |                                                                                                        |                |
| BIOL 209                                                                                                                        | Advanced Conservation Biology                                                                          |                |
| BIOL 220                                                                                                                        | Reading the Landscape (Lab)                                                                            |                |
| BIOL 222                                                                                                                        | Advanced Conservation Biology (Lab)                                                                    |                |
| BIOL 231                                                                                                                        | Environmental Public Health                                                                            |                |
| BIOL 232                                                                                                                        | Human Health and the Environment (Lab)                                                                 |                |
| BIOL 238                                                                                                                        | Coastal Ecology                                                                                        |                |
| BIOL 306                                                                                                                        | Agroecology and Sustainable Food Systems (Lab)                                                         |                |
| BIOL 335                                                                                                                        | Advanced Topics in Evolutionary Biology                                                                |                |
| ENST 235                                                                                                                        | Freshwater Conservation                                                                                |                |
| ENST 305                                                                                                                        | Ecological Integrity in Agriculture                                                                    |                |
| ESCI 215                                                                                                                        | Sound, Soundscapes, and the Environment                                                                |                |
| ESCI 240                                                                                                                        | Island Ecology (Lab)                                                                                   |                |
| <b>Ecology and Biodiversity (attribute BIOE):</b>                                                                               |                                                                                                        |                |
| BIOL 200                                                                                                                        | Entomology                                                                                             |                |
| BIOL 201                                                                                                                        | Ornithology (Lab)                                                                                      |                |
| BIOL 206                                                                                                                        | Plant Ecology (Lab)                                                                                    |                |
| BIOL 211                                                                                                                        | Biodiversity: Pattern and Process (Lab)                                                                |                |
| BIOL 212                                                                                                                        | Entomology (Lab)                                                                                       |                |
| BIOL 217                                                                                                                        | Experimental Design and Data Analysis in Biology (Lab)                                                 |                |
| BIOL 221                                                                                                                        | Environmental Physiology of Plants (Lab)                                                               |                |
| BIOL 237                                                                                                                        | Freshwater Biology (Lab)                                                                               |                |
| BIOL 241                                                                                                                        | Rainforests and Coral Reefs                                                                            |                |
| BIOL 255                                                                                                                        | Herpetology (Lab)                                                                                      |                |
| BIOL 260                                                                                                                        | Cave Biology                                                                                           |                |
| BIOL 310                                                                                                                        | Plant Evolution and Systematics (Lab)                                                                  |                |
| BIOL 311                                                                                                                        | Behavioral Ecology (Lab)                                                                               |                |
| BIOL 315                                                                                                                        | Advanced Topics in Ecology and Biodiversity                                                            |                |
| BIOL 322                                                                                                                        | Genes and Behavior                                                                                     |                |
| BIOL 335                                                                                                                        | Advanced Topics in Evolutionary Biology                                                                |                |

**Total Semester Hours**

**44**

| Code | Title | Semester<br>Hours |
|------|-------|-------------------|
|------|-------|-------------------|

### Additional Requirements

A comprehensive examination

1

Courses numbered below 130 do not count toward the major.

2

At least four of the required and elective biology courses must have a laboratory.

3

The Department of Biology will allow an AP test score of 5 or a higher level IB test score of 6 or 7 to substitute for BIOL 133. Students should be advised that mastery of the material covered in BIOL 133 is important as majors will be tested on it during their comprehensive exams.

4

Students may only receive credit once for courses delivered as both lab and non-lab offerings.

5

Students who have completed and passed the Island Ecology summer program (ESCI 240) may count it as one laboratory course in the major. For purposes of calculating GPA within the major, the grade for ESCI 240 will count as the equivalent of one biology class.

### Student Learning Outcomes

A student majoring in Biology will

1. Discuss and analyze a scientific paper in terms of how the scientific method is applied in experimental design and data analysis.
2. Use oral communication skills effectively to persuade, or debate, a challenging or controversial scientific topic to non-science audience.
3. Demonstrate mastery of core knowledge in biology (from molecules to ecosystems).
4. Demonstrate mastery of specialized knowledge in Ecology and Biodiversity, Molecular Biology and Genetics, or Integrative Biology.