B.S. IN BIOLOGY - ECOLOGY AND CONSERVATION CONCENTRATION

College of the Sciences and Mathematics

Curriculum

General Education Requirements (http://catalog.wcupa.edu/undergraduate/general-education-requirements)

- English Composition requirements: 6
- Mathematics requirement: 3
- Public Speaking requirement: 3
- Science requirements: 6
  - Science requirements are met by CHE 103 and PHY 130

Behavioral & Social Science requirements: 6

Humanities requirements: 6

Arts requirement: 3

Diverse Communities requirement: 3

Interdisciplinary requirement: 3

Student Electives: 9

Writing Emphasis requirements: 9

Major Core Requirements

- BIO 110 General Biology 1
- BIO 220 Cell Physiology 1
- BIO 230 Genetics 1

Select one of the following: 2

- BIO 409 Internship in Biological Sciences
- BIO 490 Biology Seminar
- BIO 491 Special Problems in Biology

CHE 103 General Chemistry I 3
CRL 103 Experimental General Chemistry I (LAB) 1
CHE 104 General Chemistry II 3
CRL 104 Experimental General Chemistry II (LAB) 1
BIO 231 Organic Chemistry I 4
CRL 231 Experimental Organic Chemistry I Lab 2
CHE 232 Organic Chemistry II 3
PHY 130 General Physics I 4
or PHY 170 Physics I
PHY 140 General Physics II 3
or PHY 180 Physics II
MAT 121 Introduction to Statistics I 3

Select one semester of calculus: 3-4

Other Major Requirements

- BIO 215 General Botany 1
- BIO 217 General Zoology 1
- BIO 270 Ecology 1
- BIO 310 Biostatistical Applications 3

Biology Electives

Under advisement, select 15 semester hours from the following: 15

- BIO 275 Field Botany
- BIO 277 Vertebrate Ecology
- BIO 313 Marine Biology
- BIO 315 Terrestrial Ecosystem Ecology
- BIO 377 Entomology
- BIO 387 Invertebrate Zoology
- BIO 412 Organic Evolution

BIO 415 Tropical Ecology and Conservation
BIO 466 Plant Physiology
BIO 470 Population Biology
BIO 471 Wetlands
BIO 473 Conservation Biology
BIO 474 Microbial Ecology
BIO 475 Plant Communities
BIO 476 Freshwater Ecology
BIO 478 Plant Evolution
BIO 485 Systematic Botany

Ecologically Relevant Courses

Select 6-7 semester hours under advisement from the Department of Biology approved list

Total Minimum Credits Required: 120

1. Courses must be passed with a grade of C- (70%) or better.
2. The requirement for BIO 490/499/491 is waived for students in the Accelerated (B.S. + M.S.) program. It is replaced by an additional 3 credits of biology electives. Students not completing a thesis (BIO 608-610) will be required to complete BIO 490/499.
3. The recommended Physics sequence is PHY 130 & PHY 140. Students may substitute the PHY 170 & PHY 180 sequence, but PHY 130 may not be used as a prerequisite for PHY 180 and PHY 170 may not be used as a prerequisite for PHY 140.

Accelerated B.S. in Biology - Ecology and Conservation Concentration to M.S. in Biology Program

To be considered for the accelerated program and enroll in BIO 608 (Thesis Research I), students must have attained (completed) 75 credits with a minimum of 18 biology credits. Students must have a minimum cumulative GPA of 3.00 including a minimum GPA of 3.00 for biology courses. BIO 608 requires departmental permission to enroll; students must arrange a committee meeting prior to enrolling in BIO 608 (e.g., during their third year). The accelerated program in biology is only open to thesis students. Any student wishing to switch out of the thesis option will be required to complete all requirements of the B.S. degree. Once matriculated into the graduate program, graduate policies apply, including minimum GPA (3.00). See the Graduate Catalog for further details.

Students in the M.S. Biology program are required to take 21 credits of electives from the following three categories, 12 credits of which will be used to satisfy the B.S. program. Students may not, under any circumstances, take any additional graduate courses beyond the 12 graduate credits until conferral of their undergraduate degree.

Biology Electives 1

Choose two Research Methods Courses: 6

- BIO 511 Experimental Design and Analysis
- BIO 513 Research Techniques in Bio Sci I
- BIO 514 Research Techniques in Bio Sci II
- BIO 515 Research Techniques in Bio Sci III

Choose two Concentration Courses: 6

- BIO 535 Course Topics in Biology I
- BIO 536 Course Topics in Biology II
- BIO 537 Course Topics in Biology III
- BIO 590 Directed Study in Biology

Choose three other electives selected under advisement: 9

Required Courses 2

- BIO 608 Thesis Research I
- BIO 609 Thesis Research II
- BIO 610 Thesis
If a course is offered at both the 400 and 500 levels, the student must take the 500-level course. No more than 6 credits of 400-level courses may be counted toward the M.S. degree. With prior departmental approval, up to 6 credits of graduate course work from another department or university may be applied toward the M.S. degree. BIO 535, 536, and 537 may be repeated for credit provided the topic is different.

A letter grade must be obtained for BIO 608 before the student can enroll in BIO 609. Likewise, a letter grade must be obtained for BIO 609 before the student can enroll in BIO 610.

Sample Course Plan

To track their individual degree progress, students are advised to access their Degree Progress Report (DPR) via myWCU regularly. For more information, visit wcupa.edu/DegreeProgressReport.

The following is a suggested course sequence for this program; course offerings and availability are not guaranteed. Students should consult their academic advisor with any questions.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>Year One</strong></td>
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<tr>
<td><strong>Semester One</strong></td>
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<tr>
<td>WRT 120</td>
<td>Effective Writing I</td>
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<tr>
<td>BIO 110</td>
<td>General Biology</td>
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<tr>
<td>CHE 103</td>
<td>General Chemistry I</td>
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<tr>
<td>&amp; CRL 103</td>
<td>and Experimental General Chemistry I (LAB)</td>
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<td>Select one of the following:</td>
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<td>3-4</td>
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<tr>
<td>MAT 121</td>
<td>Introduction to Statistics I</td>
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<tr>
<td>MAT 143</td>
<td>Brief Calculus</td>
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<td>MAT 145</td>
<td>Calculus for the Life Sciences</td>
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<tr>
<td>MAT 161</td>
<td>Calculus I</td>
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<td>Gen Ed Distributive</td>
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<td>BIO 215</td>
<td>General Botany</td>
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<td>&amp; BIO 217</td>
<td>and General Zoology</td>
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<tr>
<td>CHE 104</td>
<td>General Chemistry II</td>
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<td>&amp; CRL 104</td>
<td>and Experimental General Chemistry II (LAB)</td>
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<td><strong>Year Two</strong></td>
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<td><strong>Semester Three</strong></td>
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<tr>
<td>BIO 215</td>
<td>General Botany</td>
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<tr>
<td>or BIO 217</td>
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<td>CHE 231</td>
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<td>&amp; CRL 231</td>
<td>and Experimental Organic Chemistry I Lab</td>
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<td>Mathematics (if still needed)</td>
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<td><strong>Total Credits</strong></td>
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| Semester Four | | |
| BIO 220 | Cell Physiology or Genetics | 3 |
| or BIO 230 | | |
| BIO 270 | Ecology | 3 |
| CHE 232 | Organic Chemistry II | 3 |
| SPK 208 | Public Speaking or Business and Professional Speech | 3 |
| or SPK 230 | Communication | |
| Gen Ed Distributive | | 3 |
| **Year Three** | | 15 |
| **Semester Five** | | |
| BIO 220 | Cell Physiology | 3 |
| PHY 130 | General Physics I | 4 |
| Diversity (J) Course | | 3 |
| BIO Ecology Elective | | 3 |
| Directed Elective | | 3 |
| **Credits** | | 16 |

| Semester Six | | |
| BIO 310 | Biostatistical Applications | 3 |
| BIO Ecology Elective | | 3 |
| PHY 140 | General Physics II | 4 |
| Interdisciplinary (I) Course | | 3 |
| Directed Elective | | 3 |
| **Credits** | | 16 |

| Semester Seven | | |
| BIO Ecology Elective | | 3 |
| BIO Ecology Elective | | 3 |
| Ecology Relevant Elective | | 3 |
| Directed Elective | | 3 |
| Gen Ed Distributive | | 3 |
| **Credits** | | 15 |

| Semester Eight | | |
| BIO Ecology Elective | | 3 |
| BIO Ecology Elective | | 3 |
| Ecology Relevant Elective | | 3 |
| Directed Elective | | 3 |
| Select one of the following: | | 3 |
| BIO 490 | Biology Seminar | |
| BIO 409 | Internship in Biological Sciences | |
| BIO 491 | Special Problems in Biology | |
| **Credits** | | 15 |
| **Total Credits** | | 124-126 |