B.S. IN BIOLOGY - MICROBIOLOGY CONCENTRATION

Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>MAT 121</td>
<td>Introduction to Statistics I</td>
</tr>
<tr>
<td>or MAT 125</td>
<td>Introduction to Statistics and Probability</td>
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</tbody>
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Other Required Courses

- Select one semester of calculus
- PHY 140
- PHY 130
- CHE 232
- CRL 104
- CHE 104
- CRL 103
- CHE 103
- BIO 214
- BIO 270
- BIO 464
- BIO 465

Microbiology Electives

Select 11 semester hours under advisement from the following:

- BIO 314 Pathogenic Microbiology
- BIO 333 Molecular Biology Techniques
- BIO 334 Microbial Genetics
- BIO 414 Applied and Industrial Microbiology
- BIO 452 Parasitology
- BIO 454 Mycology
- BIO 456 Virology
- BIO 474 Microbial Ecology
- BIO 480 Light Microscopy and the Living Cell
- BIO 484 Epidemiology

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 (http://wcupa.edu/degreeprogressreport/).

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

<table>
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<tbody>
<tr>
<td>BIO 110</td>
<td>General Biology I</td>
</tr>
<tr>
<td>BIO 111</td>
<td>General Biology II</td>
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<tr>
<td>BIO 210</td>
<td>Genetics</td>
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<tr>
<td>BIO 210L</td>
<td>Genetics Lab</td>
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<tr>
<td>BIO 211</td>
<td>Cell Biology</td>
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<tr>
<td>CHE 103</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>CRL 103</td>
<td>General Chemistry I Lab</td>
</tr>
<tr>
<td>CHE 104</td>
<td>General Chemistry II</td>
</tr>
<tr>
<td>CRL 104</td>
<td>General Chemistry II Lab</td>
</tr>
<tr>
<td>CHE 231</td>
<td>Organic Chemistry I</td>
</tr>
<tr>
<td>CRL 231</td>
<td>Organic Chemistry I Lab</td>
</tr>
<tr>
<td>CHE 232</td>
<td>Organic Chemistry II</td>
</tr>
<tr>
<td>PHY 130</td>
<td>General Physics I</td>
</tr>
<tr>
<td>or PHY 170</td>
<td>Physics I</td>
</tr>
<tr>
<td>PHY 140</td>
<td>General Physics II</td>
</tr>
<tr>
<td>or PHY 180</td>
<td>Physics II</td>
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Credits

Year One

Semester One

- BIO 110 General Biology I
- CHE 103 General Chemistry I
- CRL 103 and General Chemistry I Lab
- WRT 120 Effective Writing I
- FYE 100X First Year Experience

Credits: 15

Semester Two

- BIO 111 General Biology II
- CHE 104 General Chemistry II
- CRL 104 and General Chemistry II Lab
- MAT 121 Introduction to Statistics I
- MAT 125 Introduction to Statistics and Probability
- WRT 2XX 200-Level WRT Course

Credits: 3

1. Courses must be passed with a grade of C- (70%) or better.
2. 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.
3. This course fulfills the Capstone requirement.
### Behavioral/Social Science Gen Ed
- Credits: 3

### Year Two
#### Semester Three
- BIO 210 Genetics: 4
- BIO 210L and Genetics Lab: 2
- CHE 231 Organic Chemistry I: 6
- CHE 231L and Organic Chemistry I Lab: 3
- Arts Gen Ed: 3
- Humanities & Ethics Gen Ed: 3
- **Credits: 17**

### Semester Four
- BIO 211 Cell Biology: 2
- BIO 214 General Microbiology: 2
- CHE 232 Organic Chemistry II: 3
- MAT 145 Calculus for the Life Sciences: 3
- MAT 143 or Brief Calculus: 3
- MAT 161 or Calculus I: 3
- Behavioral & Social Science Gen Ed: 3
- **Credits: 16**

### Year Three
#### Semester Five
- BIO 270 Ecology: 2
- PHY 130 General Physics I: 4
- Directed Elective: 3
- Directed Elective: 3
- **Credits: 16**

#### Semester Six
- PHY 140 General Physics II: 4
- BIO XXX Biology Elective: 3
- Interdisciplinary Gen Ed: 3
- Speaking Emphasis Gen Ed: 3
- **Credits: 13**

### Year Four
#### Semester Seven
- BIO 465 Immunology: 4
- BIO XXX Biology Elective: 3
- Humanities Gen Ed: 3
- Upper-Level Directed Elective: 3
- **Credits: 13**

#### Semester Eight
- BIO 464 Microbial Physiology: 4
- BIO 490 or Capstone: Seminar in Biology: 3
- BIO 491 or Capstone: Independent Research in Biology: 3
- BIO 492 or Capstone: Professional Development in Biology: 3
- BIO XXX Biology Elective: 3
- Directed Elective: 3
- **Credits: 13**

### Total Credits
- **120-121**

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1. Students should take Statistics (MAT 121 or MAT 125) in the first year.

2. All required 200-level biology courses should be completed by the end of Semester #5.