# Bachelor of Science in Biology: Concentration in Botany - Quantitative Reasoning Category I/II and ENG 114

120 Total Units Required  
Minimum Number of Units in the Major: 67  

This roadmap is a suggested plan of study and does not replace meeting with an advisor. Please note that students may need to adjust the actual sequence of courses based on course availability. Please consult an advisor in your major program for further guidance.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 115</td>
<td>General Chemistry I: Essential Concepts of Chemistry (Major Lower-Division Core)</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 230</td>
<td>Introductory Biology I (Major Lower-Division Core)</td>
<td>5</td>
</tr>
<tr>
<td>ENG 114</td>
<td>Writing the First Year: Finding Your Voice (A2)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 226</td>
<td>Calculus I (Major Lower-Division Core, B4)</td>
<td>4</td>
</tr>
<tr>
<td><strong>Units</strong></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td><strong>Second Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 240</td>
<td>Introductory Biology II (Major Lower-Division Core)</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 130</td>
<td>General Organic Chemistry (Major Lower-Division Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 111 &amp; PHYS 112</td>
<td>General Physics I and General Physics I Laboratory (Major Lower-Division Core)</td>
<td>4</td>
</tr>
<tr>
<td>GE Area E</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Units</strong></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td><strong>Third Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 355</td>
<td>Genetics (Major Upper-Division Core)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Select One (Major Lower-Division Core):</strong></td>
<td></td>
<td>4-5</td>
</tr>
</tbody>
</table>

| **Fourth Semester** |                                                                 |       |
| BIOL 525         | Plant Physiology (Major Upper-Division Core)                        | 3     |
| **Select One (Major Lower-Division Core):** |                                          | 4-5   |
| CHEM 215 & CHEM 216 | General Chemistry II: Quantitative Applications of Chemistry Concepts and General Chemistry II Laboratory |       |
| MATH 227        | Calculus II                                                          |       |
| PHYS 121 & PHYS 122 | General Physics II and General Physics II Laboratory               |       |
| GE Area A        |                                                                        | 3     |
| GE Area D        |                                                                        | 3     |
| **Units**        |                                                                      | 13-14 |

| **Fifth Semester** |                                                                 |       |
| BIOL 529GW or BIOL 534 | Plant Ecology - GWAR (Major Upper-Division Core) or Wetland Ecology | 4     |
| GE Area C - Take Two |                                                                         | 6     |
| GE Area D          |                                                                        | 3     |
| GE Area UD-B: Upper-Division Physical and/or Life Sciences (Consider SF State Studies Course) | 3     |
| **Units**          |                                                                      | 16    |

<p>| <strong>Sixth Semester</strong> |                                                                 |       |
| BIOL 337          | Evolution (Major Upper-Division Core)                             | 3     |
| <strong>Select One (Major Upper-Division Core):</strong> |                                          | 3-5   |
| BIOL 502          | Biology of the Algae                                              |       |
| BIOL 504          | Biology of the Fungi                                               |       |</p>
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 514</td>
<td>Plant Taxonomy</td>
<td>3</td>
</tr>
<tr>
<td>GE Area UD-C: Upper-Division Arts and/or Humanities (Consider SF State Studies Course)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GE Area UD-D: Upper-Division Social Sciences (Consider SF State Studies Course)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SF State Studies or University Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Units</strong></td>
<td><strong>15-17</strong></td>
<td></td>
</tr>
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</table>

**Seventh Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 458</td>
<td>Biometry (Major Upper-Division Core)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 500</td>
<td>Evolution and Diversity of Plants (Major Upper-Division Core)</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 505</td>
<td>or Comparative Anatomy of Vascular Plants</td>
<td>4</td>
</tr>
<tr>
<td>Major Electives (4-7 units) - Take as many as needed</td>
<td>4-7</td>
<td></td>
</tr>
<tr>
<td>SF State Studies or University Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Units</strong></td>
<td><strong>15-18</strong></td>
<td></td>
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</table>

**Eighth Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>BIOL 526</td>
<td>Plant Molecular Physiology Laboratory (Major Upper-Division Core)</td>
<td>2</td>
</tr>
<tr>
<td>SF State Studies or University Elective - Take Four</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td><strong>Units</strong></td>
<td><strong>13</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Units</strong></td>
<td><strong>120-127</strong></td>
<td></td>
</tr>
</tbody>
</table>

1. ENG 114 can only be taken if you complete Directed Self-Placement (DSP) and select ENG 114; if you choose ENG 104/ENG 105 through DSP you will satisfy A2 upon successful completion of ENG 105 in the second semester; multilingual students may be advised into alternative English courses.

2. Depending on courses completed through Early Start, students in Pathway/Category III or IV may be required to enroll in a support course to complement their Quantitative Reasoning/B4 requirement. There are multiple course options for this pathway. Before enrolling in a B4 course, students should verify their MATH Pathway/Category in their Student Center (http://cms.sfsu.edu/content/student-center). Information regarding the courses that correspond with your MATH Pathway/Category can be found on the Developmental Studies Office Website (http://developmentalstudies.sfsu.edu).

3. To avoid taking additional units, it is recommended that you meet SF State Studies requirements (AERM, GP, ES, SJ) within your GE.

4. GE Areas B2: Life Science and B3: Laboratory Science are satisfied upon completion of BIOL 240.

5. Students are required to take one GWAR course in order to graduate.

6. **Electives (4-7 units)**
   Choose 4–7 units upon advisement from the alternates not used in fulfilling the requirements listed above or any other upper division biology courses not specifically excluded for major credit, or any graduate course in biology.