BACHELOR OF SCIENCE IN BIOLOGY: CONCENTRATION IN BOTANY ROADMAP

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

Course Title Units

First Semester
CHEM 115 General Chemistry I: Essential Concepts of Chemistry 5
GE Area A: Oral Communication (A1) or Critical Thinking (A3) 3
GE Area A: Written English Communication (A2) 3
GE Area B: Quantitative Reasoning (B4) 3
Units 14

Second Semester
BIOL 230 Introductory Biology I 5
Select Major Lower Division Requirement (16-17 Units Total) 4-5
GE Area A: Oral Communication (A1) or Critical Thinking (A3) 3
GE Area A: Written English Communication II (A4) 3
or Written English Communication (A2) Stretch II 3
Units 15-16

Third Semester
CHEM 130 General Organic Chemistry 5
or CHEM 233 or Organic Chemistry I 3
Select Major Lower Division Requirement (16-17 Units Total) 4-5
GE Area A: Written English Communication II (A4) if not already satisfied
or SF State Studies or University Elective 3
GE Area D: U.S. History (D2) or U.S. and California Government (D3) 3
Units 15-16

Fourth Semester
BIOL 240 Introductory Biology II 5
Select Major Lower Division Requirement (16-17 Units Total) 4-5
GE Area C: Arts (C1) 3
GE Area D: U.S. History (D2) or U.S. and California Government (D3) 3
Units 15-16

Fifth Semester
BIOL 355 Genetics 7 3
BIOL 458 Biometry 4
GE Area C: Arts (C1) or Humanities (C2) 3
GE Area C: Humanities: Literature (C3) 3
GE Area D: Social Sciences (D1) 3
Units 16

Sixth Semester
BIOL 337 Evolution 3
Select One:
BIOL 502 Biology of the Algae
BIOL 504 Biology of the Fungi
BIOL 514 Plant Taxonomy
Select Major Lower Division Requirement (16-17 Units Total) 4-5
GE Area UD–D: Upper Division Social Sciences (Consider SF State Studies Course) 3
SF State Studies or University Elective 3
Units 17-19

Seventh Semester
BIOL 500 or BIOL 505 Evolution and Diversity of Plants or Comparative Anatomy of Vascular Plants 4
BIOL 529GW or BIOL 534 Plant Ecology - GWAR or Wetland Ecology 4
Major Upper Division Major Electives 4-7 units in consultation with advisor 4
GE Area UD–C: Upper Division Arts and/or Humanities (Consider SF State Studies Course) 3
Units 15

Eighth Semester
BIOL 525 & BIOL 526 Plant Physiology and Plant Molecular Physiology Laboratory 5
Major Upper Division Major Electives 4-7 units in consultation with advisor 3-4
SF State Studies or University Elective 6
Units 14-15
Total Units 120-125

1 To avoid taking additional units, it is recommended that you meet LLD and SF State Studies requirements (AERM, GP, ES, SJ) within your GE.
2 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.
3 Depending on courses completed through Early Start, students in Pathway/Category 3 or 4 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).
4 **Major Lower Division Requirement**
CHEM 215 General Chemistry II: Quantitative Applications of Chemistry Concepts (3 units)
& CHEM 216 General Chemistry II Laboratory: Quantitative Applications of Chemistry Concepts (2 units)
MATH 226 Calculus I (4 units)
MATH 227 Calculus II (4 units)
PHYS 111 General Physics I (3 units)
& PHYS 112 General Physics I Laboratory (1 units)
PHYS 121 General Physics II (3 units)
& PHYS 122 General Physics II Laboratory (1 units)

5 Area B1: Physical Science is satisfied upon completion of CHEM 130 or CHEM 233.

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

7 GE Area UD–B: Upper Division Physical and/or Life Sciences is satisfied upon completion of BIOL 355.