

# 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.

Course	Title	Units
<b>First Semester</b>		
CHEM 115	General Chemistry I: Essential Concepts of Chemistry (Major Lower-Division Core)	5
BIOL 230	Introductory Biology I (Major Lower-Division Core)	5
ENG 114	Writing the First Year: Finding Your Voice (A2) <sup>1</sup>	3
MATH 226	Calculus I (Major Lower-Division Core, B4) <sup>2</sup>	4
Units		17
<b>Second Semester</b>		
BIOL 240	Introductory Biology II (Major Lower-Division Core)	5
CHEM 130	General Organic Chemistry (Major Lower-Division Core)	3
PHYS 111 & PHYS 112	General Physics I and General Physics I Laboratory (Major Lower-Division Core)	4
GE Area E		3
Units		15
<b>Third Semester</b>		
BIOL 355	Genetics (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: Quantitative Applications of Chemistry Concepts	
MATH 227	Calculus II	
PHYS 121 & PHYS 122	General Physics II and General Physics II Laboratory	
GE Area A <sup>3</sup>		3
GE Area D		3
Units		13-14

<b>Fourth Semester</b>		
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: Quantitative Applications of Chemistry Concepts	
MATH 227	Calculus II	
PHYS 121 & PHYS 122	General Physics II and General Physics II Laboratory	
GE Area A		3
GE Area C		3
GE Area D		3
Units		16-17

<b>Fifth Semester</b>		
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

<b>Sixth Semester</b>		
BIOL 337	Evolution (Major Upper-Division Core)	3
Select One (Major Upper-Division Core):		3-5
BIOL 502	Biology of the Algae	
BIOL 504	Biology of the Fungi	

BIOL 514	Plant Taxonomy	
GE Area UD-C: Upper-Division Arts and/or Humanities (Consider SF State Studies Course)		3
GE Area UD-D: Upper-Division Social Sciences (Consider SF State Studies Course)		3
SF State Studies or University Elective		3
	Units	15-17
<b>Seventh Semester</b>		
BIOL 458	Biometry (Major Upper-Division Core)	4
BIOL 500 or BIOL 505	Evolution and Diversity of Plants (Major Upper-Division Core) or Comparative Anatomy of Vascular Plants	4
Major Electives (4-7 units) - Take as many as needed <sup>6</sup>		4-7
SF State Studies or University Elective		3
	Units	15-18
<b>Eighth Semester</b>		
BIOL 526	Plant Molecular Physiology Laboratory (Major Upper-Division Core)	2
SF State Studies or University Elective - Take Four		11
	Units	13
	Total Units	120-127

<sup>1</sup> 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.

<sup>2</sup> 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/>).

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

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

<sup>5</sup> Students are required to take one GVAR course in order to graduate.

<sup>6</sup> **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.