

BACHELOR OF SCIENCE IN BIOLOGY: CONCENTRATION IN ZOOLOGY - QUANTITATIVE REASONING CATEGORY III/IV AND ENG 114

120 Total Units Required

Minimum Number of Units in the Major: 67

Course	Title	Units
First Semester		
BIOL 230	Introductory Biology I (Major Lower-Division Core)	5
ENG 114	Writing the First Year: Finding Your Voice (A2) ¹	3
MATH 197	Prelude to Calculus I (Prerequisite for MATH 226) ^{2,3}	3
GE Area A ⁴		3
GE Area D		3
	Units	17
Second Semester		
CHEM 115	General Chemistry I: Essential Concepts of Chemistry (Major Lower-Division Core)	5
MATH 198	Prelude to Calculus II (Prerequisite for MATH 226) ^{2,3}	3
PHYS 111 & PHYS 112	General Physics I and General Physics I Laboratory (Major Lower-Division Core, B1, B3)	4
GE Area E		3
	Units	15
Third Semester		
BIOL 240	Introductory Biology II	5
MATH 226	Calculus I (Major Lower-Division Core, B4) ^{2,3}	4
GE Area A		3
GE Area C		3
	Units	15
Fourth Semester		
BIOL 458	Biometry (Major Upper-Division Core)	4

CHEM 130	General Organic Chemistry (Major Lower-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	3-4
MATH 227	Calculus II	
PHYS 121 & PHYS 122	General Physics II and General Physics II Laboratory	
Ecology Course - Select One ⁵		3-4
	Units	14-16
Fifth Semester		
BIOL 355	Genetics (Major Upper-Division Core) ⁶	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 C - Take Two		6
GE Area D		3
	Units	16-17
Sixth Semester		
BIOL 337	Evolution	3
Major Upper-Division Electives (7-11 units) - Take One ⁷		3
Major Upper-Division Core - Select One ⁸		3
GE Area D		3
GE Area UD-C: Upper-Division Arts and/or Humanities (Consider SF State Studies Course)		3
	Units	15
Seventh Semester		
Major Upper-Division Electives (7-11 units) - Take One ⁷		3
Major Upper-Division Taxonomy or Whole Organism Biology of an Invertebrate or Vertebrate ⁹		3-4
GE Area UD-D: Upper-Division Social Sciences (Consider SF State Studies Course)		3

SF State Studies or University Elective - Take Two	6
Units	15-16
Eighth Semester	
Major Upper-Division Electives (7-11 Units Total) if not satisfied ⁷	0-3
SF State Studies or University Elective – Take Four	13
Units	13-16
Total Units	120-127

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 QR Category III students with a grade of B or higher in high school pre-calculus in the past year may be able to enroll in MATH 226. Please see a department advisor.

⁴ To avoid taking additional units, it is recommended that you meet **SF State Studies** requirements (AERM, GP, ES, SJ) within your GE.

⁵ **Ecology Course - Select One**

- BIOL 482 Ecology (4 units)
- BIOL 529GW Plant Ecology - GWAR (4 units)*
- BIOL 530 Conservation Biology (3 units)
- BIOL 532 Restoration Ecology (3 units)
- BIOL 534 Wetland Ecology (4 units)
- BIOL 577 Ecological and Environmental Modeling (4 units)
- BIOL 580 Limnology (3 units)
- BIOL 582 Biological Oceanography (4 units)
- BIOL 585 Marine Ecology (3 units)
- BIOL 586 Marine Ecology Laboratory (2 units)

⁶ Upper-Division General Education: Physical and Life Sciences (UD-B) is satisfied upon completion of BIOL 355.

⁷ **Electives (7-11 units)**

Upon advisement choose from the alternates not used in fulfilling the "Taxonomy or Whole Organism Biology of an Invertebrate or Vertebrate" or "Major Upper-Division Core Selection One" or "Major Upper-Division Core Selection Two" requirements listed below or any other upper-division Biology courses not specifically excluded for major credit, or any graduate Biology course.

⁸ **Major Upper-Division Core - Select One**

- BIOL 350 Cell Biology (3 units)
- BIOL 357 Molecular Genetics (3 units)
- BIOL 380 Evolutionary Developmental Biology (3 units)
- BIOL 382 Developmental Biology (3 units)
- BIOL 453 General Parasitology (3 units)
- BIOL 600 Animal Behavior (3 units)
- BIOL 612 Human Physiology (3 units)
- BIOL 620 Endocrinology (3 units)
- BIOL 621 Reproductive Physiology (3 units)
- BIOL 630 Animal Physiology (3 units)

⁹ **Major Upper-Division Taxonomy or Whole Organism Biology of an Invertebrate or Vertebrate - Select One**

- BIOL 460 General Entomology (4 units)
- BIOL 461 Insect Taxonomy (4 units)
- BIOL 464 Medical Entomology (3 units)
- BIOL 475GW Herpetology - GWAR (3 units)*
- BIOL 478GW Ornithology - GWAR (4 units)*
- BIOL 555 Marine Invertebrate Zoology (4 units)
- BIOL 570GW Biology of Fishes - GWAR (4 units)*

* Students must complete at least one GWAR course in order to graduate.