

BACHELOR OF SCIENCE IN BIOLOGY: CONCENTRATION IN ZOOLOGY – BIOL ASSOCIATE DEGREE FOR TRANSFER ROADMAP

This is a sample pathway for students who transfer to San Francisco State University in the current Bulletin year with an AS-T in Biology. Thirty-two units in the major (BIOL 230, BIOL 240, CHEM 115, CHEM 215, CHEM 216, MATH 226, and the required PHYS sequence) and 33 units of lower-division GE requirements have been satisfied. Check with a major advisor about the most appropriate course sequence. **Degree completion guaranteed in 60 units**; see the Associate Degree for Transfer (ADT) section for more information (<http://bulletin.sfsu.edu/undergraduate-admissions/transfer-students/>).

Course	Title	Units
First Semester		
CHEM 130	General Organic Chemistry (Major Lower-Division Core)	3
Major Upper-Division Taxonomy or Whole Organism Biology of an Invertebrate or Vertebrate ¹		3-4
GE Area C		3
US History (http://bulletin.sfsu.edu/undergraduate-education/graduation-requirements/#USHaGR) or University Elective if US History met before transfer		3
University Elective		3
	Units	15
Second Semester		
BIOL 355	Genetics (Major Upper-Division Core) ²	3
BIOL 458	Biometry (Major Upper-Division Core)	4
GE Area D		3
GE Area UD-C: Upper-Division Arts and/or Humanities		3
University Elective		3
	Units	16
Third Semester		
BIOL 337	Evolution (Major Upper-Division Core)	3
Major Upper-Division Core - Select One ³		3
Ecology Course - Select One ⁴		3-4
GE Area UD-D: Upper-Division Social Sciences		3
University Elective		3
	Units	16
Fourth Semester		
Major Upper-Division Electives (11-14 units) - Take as many as needed to fulfill requirement ⁵		11-14
	Units	13
	Total Units	60

¹ **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 - GVAR (3 units)*
 BIOL 478GW Ornithology - GVAR (4 units)*
 BIOL 555 Marine Invertebrate Zoology (4 units)
 BIOL 570GW Biology of Fishes - GVAR (4 units)*

² BIOL 355 satisfies GE Area UD-B: Upper-Division Physical and/or Life Sciences.

- 3 **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)
- 4 **Ecology Courses - Select One**
 BIOL 482 Ecology (4 units)
 BIOL 529GW Plant Ecology - GVAR (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 & Limnology (4 units)
 BIOL 585 Marine Ecology (3 units)
 BIOL 586 Marine Ecology Laboratory (2 units)
- 5 **Electives (11-14 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" or "Ecology" requirements listed above or any other upper-division Biology courses not specifically excluded for major credit, or any graduate Biology course.
- * Students must complete at least one GVAR course in order to graduate.

To Do at SF State:

Enough total units to reach 120 minimum for graduation; 30 units minimum at the upper-division level; to include the following:

University-Wide Requirements: 15–21 Units

- American Institutions (0-6 units): US History, US Government, CA Government.
- Lower-Division GE (6 units) – Area C (3 units in any subarea) and Area D (3 units). D2 courses satisfy US History; D3 courses satisfy US/CA Government requirements.
- Upper-Division GE (9 units): Courses may satisfy the US History or US/CA Government requirements, and UD-C or UD-D at the same time, if approved for multiple areas.
- Students entering this major with the AS-T in Biology are not required to fulfill SF State Studies or Complementary Studies requirements.

Biology – Zoology Major: 35 Units

BIOL 230/BIOL 240, MATH 226, all PHYS, CHEM 115/CHEM 215/CHEM 216 met in transfer.

- Lower-Division Requirements (3 units): CHEM 130 if not met in transfer.
- Major Upper-Division Requirements, including GVAR - see list below (21 units).
- Major Upper-Division Electives (11 units) – upon advisement.

Major Upper Division Requirement – Also Satisfies University GVAR

Code	Title	Units
BIOL 475GW	Herpetology - GVAR	3
BIOL 478GW	Ornithology - GVAR	4
BIOL 529GW	Plant Ecology - GVAR	4
BIOL 570GW	Biology of Fishes - GVAR	4

University Electives: 10 or More Units

Depends on course choices made at the community college, how transferred units are applied to the requirements above, and course choices at SF State. Some courses may meet more than one requirement, e.g. both in UD, GE and the major.