

BACHELOR OF SCIENCE IN BIOLOGY: CONCENTRATION IN CELL AND MOLECULAR BIOLOGY – BIOL ASSOCIATE DEGREE FOR TRANSFER (ADT) 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. Twenty-six units in the major (BIOL 230/BIOL 240, CHEM 115, CHEM 215, MATH 226, 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 (<https://bulletin.sfsu.edu/undergraduate-admissions/transfer-students/>).**

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: 12-18 Units

- American Institutions (0-6 units): US History, US Government, CA Government. If not met in transfer, see next bullets.
- Lower-Division GE (6 units) – Area 3 (3 units in any subarea) and Area 4 (3 units).
- Upper-Division GE (6 units): Area 5UD met in major. Also, courses may satisfy the US History or US/CA Government requirements, and GE 3UD or GE 4UD 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 requirements.

Biology – Cell and Molecular Biology Major: 32 Units

Completed: BIOL 230/BIOL 240, MATH 226, all PHYS, and CHEM 115/CHEM 215.

- Lower-Division Requirements (4 units): CHEM 130 or CHEM 233; BIOL 231
- Major Upper-Division Requirements/GWAR (22-23 units)
- Major Upper-Division Electives (5-6 units) – upon advisement; includes lab component.

University Electives: 11 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., UD GE and the major.

Course	Title	Units
First Semester		
BIOL 231	Advising for Success as a Biology Major (Major Lower-Division Core)	1
Select One (Major Lower-Division Core):		3
CHEM 130	General Organic Chemistry	
CHEM 233	Organic Chemistry I	
US History (https://bulletin.sfsu.edu/undergraduate-education/american-institutions/#USHaGR) or University Elective if met in transfer		3
GE Area 3: Arts and Humanities		3
University Elective - Take Two		6
	Units	16
Second Semester		
BIOL 350	Cell Biology (Major Upper-Division Core)	3
BIOL 355	Genetics (Major Upper-Division Core) ¹	3
Select One (Major Upper-Division Core):		3-4
BIOL 458	Biostatistics	

CSC 306	An Interdisciplinary Approach to Computer Programming	
GE Area 4: Social and Behavioral Sciences		3
GE Area 3UD: Upper-Division Arts or Humanities		3
	Units	15-16
Third Semester		
BIOL 337	Evolution (Major Upper-Division Core)	3
BIOL 351GW & BIOL 351	Experiments in Cell and Molecular Biology - GWAR and Experiments in Cell and Molecular Biology Discussion (Major Upper-Division)	4
BIOL 357	Molecular Genetics (Major Upper-Division Core)	3
Select One (Major Upper-Division Core):		3
CHEM 340	Biochemistry I	
CHEM 349	General Biochemistry	
GE Area 4UD: Upper-Division Social and Behavioral Sciences		3
	Units	16
Fourth Semester		
Electives (5-6 units) ²		5-6
US and California Government (https://bulletin.sfsu.edu/undergraduate-education/american-institutions/#usg) or University Elective if met in transfer		3
University Elective - Take Two		5
	Units	13-14
	Total Units	60-62

¹ Area 5UD (Upper-Division Science) is satisfied upon completion of BIOL 355.

² **Major Electives (5-6 units)**

A full list of courses that can fulfill this requirement can be found in the Degree Requirements (<https://bulletin.sfsu.edu/colleges/science-engineering/biology/bs-biology-concentration-cell-molecular-biology/#degreerequirementstext>).