

Department of Biology Graduation Checklist
<https://biology.sfsu.edu/advising/undergraduate>

LD= _____
 UD= _____

Student: _____
 Last First
 Advisor: _____

E-mail _____
 Phone _____

BACHELOR OF SCIENCE IN BIOLOGY: CONCENTRATION IN MICROBIOLOGY

Sp/Su 24 based on 2023 offerings

Course is 3 units unless otherwise noted.

Class	Prerequisites (must be completed with a C- or better, unless otherwise stated; however, Chemistry prerequisite courses must be completed with a C or better)	Class Name	Units				v	on DPR?
			Units	Fa 23	Sp 24	Su 24		
BIOL 230		Introductory Biology I	5	yes	yes	no		
BIOL 231		Advising for Success as a Biology Major	1	yes	yes	no		
BIOL 240	Biol 230	Introductory Biology II [Meets GE Areas B2 (Life Science) & B3 (Lab Science)]	5	yes	yes	no		
CHEM 115	see http://bulletin.sfsu.edu/courses/chem/	General Chemistry I: Essential Concepts of Chemistry	5	yes	yes	yes		
CHEM 215	Chem 115	General Chemistry II: Quant. Appl. of Chem. Conc. (3)	3	yes	yes	yes		
MATH 226 ¹	see http://bulletin.sfsu.edu/courses/math/	Calculus I(4)	4	yes	yes	yes		
PHYS 111/112 ¹	see http://bulletin.sfsu.edu/courses/phys/	General Physics I/Laboratory (3/1)	4	yes	yes	yes		
PHYS 121/122 ¹	see http://bulletin.sfsu.edu/courses/phys/	General Physics II and Laboratory (3/1)	4	yes	yes	yes		
Select one organic chemistry¹ sequence (3-6 units):			3 - 6					
CHEM 130	Chem 115	General Organic Chemistry [meets GE Area B1]		yes	yes	yes		
CHEM 233 and CHEM 335	see http://bulletin.sfsu.edu/courses/chem/	Organic Chemistry I [meets GE Area B1] and Organic Chemistry II (3/1)		yes	yes	yes		
			Total lower division requirements (units): 34-37					

Upper Division Requirements (15 units)

BIOL 337	Biol 230 + Biol 240 + Biol 355	Evolution	3	yes	yes	no	
BIOL 355 ²	Biol 230 + Biol 240 + Chem 115	Genetics [meets GE UD-B requirement]	3	yes	yes	yes	
BIOL 401	Biol 230 + Biol 240 + Chem 233 or Chem 130	General Microbiology	3	yes	yes	no	
BIOL 402GW	Biol 401 (may be taken concurrently) + GE Area 2	General Microbiology Laboratory - GWAR	3	yes	yes	no	
Biochemistry course¹ selected from the following (3 units):			3				
CHEM 340	Chem 215 + Chem 233 + Chem 335 with grades of C or better	Biochemistry I		yes	yes	no	
CHEM 349	Chem 215 (grade C or better) + [Chem 130 (grade C or better) or Chem 335 (grade of C- or better)]	General Biochemistry		yes	yes	yes	
			Upper Division Requirements (units) 15				

Upper Division Electives (11 units)

Upper division electives in Microbiology: Select 11 units from the following courses, including at least two laboratory courses with approval of an advisor

Class	Prerequisites	Class Name	Units			v	on DPR?
			Fa 23	Sp 24	Su 24		
BIOL 420 ²	Biol 401 or Biol 355 or Biol 350	General Virology		yes	no	no	
BIOL 425	(Biol 401 or Biol 355 or Biol 350) + (Chem 233 or Chem 130)	Emerging Diseases		no	yes	no	
BIOL 430 ¹	Biol 401 with a C or better	Medical Microbiology		no	yes	no	
BIOL 435 ¹	Biol 350 or Biol 401	Immunology		yes	yes	no	
BIOL 442	Biol 401 + Biol 402GW + Chem 340 or Chem 349 (Chem class can be concurrent)	Microbial Physiology		no	no	no	
BIOL 453 ²	Biol 230 + Biol 240 + Biol 355	General Parasitology		yes	no	no	
Select two laboratory courses from the following:							
BIOL 351 GW	Biol 350+ Biol 355	Experiments in Cell and Molecular Biology (4)		yes	yes	no	
BIOL 431 ²	Biol 401 + Biol 402GW + Biol 430 (Biol 430 can be concurrent)	Medical Microbiology Lab (2)		no	yes	no	
BIOL 436 ²	Biol 402GW, concurrent enrollment in Biol 435	Immunology Laboratory (2)		no	no	no	
BIOL 443	Biol 442 (may be taken concurrently)	Microbial Physiology Laboratory (2)		no	no	no	
BIOL 446	Biol 350 or Biol 355 or Biol 401	Microbial Genomics (4)		no	yes	no	
BIOL 454 ²	Biol 453 (may be taken concurrently)	General Parasitology Laboratory (1)		yes	no	no	
BIOL 490	Biol 230 + Biol 240	Ecology of Infectious Diseases (4)		no	yes	no	
BIOL 625 ¹	one college-level physiology course	Hematology		no	yes	no	
BIOL 638	Biol 230, GPA 3.0 or higher	Bioinformatics & Genome Annotation (4)		yes	yes	no	

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				Fa 23	Sp 24	Su 24	v	on DPR?
BIOL 699	Restricted to senior Biology majors; consent of the department and instructor.	Independent Study in Biology (1-3 units) <i>requires faculty mentor's approval</i>		yes	yes	no		
CHEM 336	see http://bulletin.sfsu.edu/courses/chem/	Organic Chemistry II Laboratory (2)		yes	yes	yes		
OR CHEM 343 ²	see http://bulletin.sfsu.edu/courses/chem/	Biochemistry I Laboratory		yes	yes	no		

¹ **Required** for admission to Clinical Laboratory Science graduate programs.

² **Recommended** for admission to Clinical Laboratory Science graduate programs.

Course Num.	Course Title	Units

What course has student taken to meet GVAR? (Typically Biol 402GW)

GVAR course must be completed with a C- or better to meet graduation requirements

	Required	Completed
Total upper division unit requirements:	26	_____
Total units for major (minimum 60 units)	60-63	_____

Recommendations for targeted post-graduate plans

Health profession
 Students must take Chem 216
 Students must take the full year of organic chemistry with lab: Chem 233/234 and Chem 335/336.

Graduate programs
 Some graduate programs require Chem 216.
 Some graduate programs require a full year of organic chemistry with lab (Chem 233/234 and 335/336).
 Some graduate programs require a full year of biochemistry: Chem 340 and Chem 341.
 Student should consult with major advisor to optimize course plan for goals.

Clinical Laboratory Science Program

Note the courses indicated in the checklist as required or recommended for CLS graduate programs
 CLS graduate programs require a minimum 3.0 GPA.
 Students should take Chem 130 (General Organic Chemistry, 3 units) and Chem 349 (General Biochemistry, 3 units)
 Students must take the following courses as their upper division ELECTIVES in Microbiology concentration
 BIOL 430 (Medical Microbiology, 3 units)
 BIOL 435 (Immunology, 3 units)
 BIOL 625 (Hematology, 3 units)
 Students should take the following courses (not part of the major) required for CLS program:
 CHEM 321 & 322 (Quantitative Chemical Analysis + Lab, 3/2 units)
 Biol 612 (Human Physiology, 3 units)