

UNDERGRADUATE STUDIES: MICROBIOLOGY CHECKLIST

Visit the [Biology Undergraduate Advising Center in LSN 102](#)

Phone: (619) 594-6442 Email: biundergrad@sdsu.edu

Program Advisor: Dr. Anca Segall

Preparation for the Major Coursework

Microbiology is the study of microorganisms (bacteria, viruses, fungi), their activities, and their impact on man, animals, and the environment. The discipline and related careers include: medical & clinical microbiology, virology, immunology, industrial microbiology & biotechnology, food & pharmaceutical microbiology, including quality control, soil & aquatic microbiology, biodegradation, microbial physiology & biochemistry, microbial genetics and molecular biology.

Four Year Degree

To finish your degree in four years, all 9 sets of premajor courses listed below will need to be finished by the end of your 4th semester, or the 5th at the latest

Impaction

Biology is impacted. After admission to SDSU, students are initially placed into the Biology premajor. Premajors must meet department specific criteria in order to be admitted into the major. Admission to Biology Major requires the following:

- Completion of all the preparation for the Major courses *and* a combined GPA of 2.8 or higher in these courses (*excluding Phys 180A, 180B, 182A, and 182B*).
- A minimum of C or better in every course (Recommended A's and B's).
- Courses in the Preparation for the Major cannot be taken Cr/Nc.

After completing these requirements, you will be admitted to the Major automatically. *If* you are not admitted automatically meet with the Undergraduate Biology Advisor as soon as possible.

Students who do not meet one or more requirements should meet with the Undergraduate Biology Advisor each semester to determine an appropriate course of action

NOTE: Not all upper division Biology courses are offered every semester. Check the current class schedule for complete course listings.

PREPARATION FOR THE MAJOR (37 units of lower division courses)

Biol 203	Princ. of Cell Molec. Biology	3	
Biol 203L	Princ. of Cell Molec. Biology Lab	1	
Biol 204	Princ. of Organismal Biology	3	
Biol 204L	Princ. of Organismal Biology Lab	1	
Biol 215	Biostatistics	3	
Chem 200	General Chemistry	5	
Chem 201	General Chemistry	5	

Chem 232	Organic Chemistry	3	
Chem 232L	Organic Chemistry Lab	1	
Math 124	Calculus of Life Sciences	4	
Phys 180A	Fundamentals of Physics	3	
Phys 182A	Physical Measurements	1	
Phys 180B	Fundamentals of Physics	3	
Phys 182B	Physical Measurements	1	

UPPER DIVISION MAJOR

No transfer courses will substitute for courses in the major without prior departmental approval.

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(36 units for B.S., 30 units for B.A.)
 Cumulative 2.0 GPA required in all upper division coursework applied to the major.

Required Core Coursework (21 units)

Biol 350 General Microbiology	4	Chem 365 Fundamentals of Biochemistry	3
Biol 351 Genetics	3	Biol 366 Cell and Molecular Biology	3
Biol 352 Evolution	3	Boil 366L Biochem, CMB Lab	2
Biol 354 Ecology and the Environment	3	-----	-

Elective Coursework

(15 for B.S./ 9 for B.A. Units Minimum)

Required: B.S. Four courses must be taken from this list./ **B.A.** Two courses must be taken from this list.

Biol 480	Clinical Hematology (3)	Biol 562	Ecological Metagenomics (3)
Biol 485	Principles of Immunology (3)	Biol 567	Advanced Biochem, C.M.B (4)
Or		Biol 567L	Biochem, C.M.B II Lab (2)L
Biol 585	Cellular and Molecular Immunology (3)	Biol 568	Bioinformatics (3)L
Biol 528	Microbial Ecology (3)L	Biol 584	Medical Microbiology (3)
Biol 549	Microbial Genetic and Physiology (3)	Biol 590	Physiology of Human Systems (4)
Biol 554	Molecular Virology (3)	Chem 432	Organic Chemistry (3)
Biol 556	Scanning Electron Microscopy Lab (2)L	Chem 432L	Organic Chemistry Lab (1)
Biol 557	Transmission Electron Micr. Lab (3)L		

Required: Lab Electives

Lab Elective Requirement For B.S. – select at least <i>one</i> additional lab courses from below (may or may not be organismal)		
Lab Elective Requirement For B.A. – select at least <i>one</i> lab course from below (may or may not be organismal)		

Biol 354L	Ecology and the Environment Lab (2)	Biol 526	Terrestrial Arthropod Biology (4)
Biol 436	Human Physiology Lab (2)	Biol 527L	Animal Behavior Lab (1)
Biol 480L	Clinical Hematology Lab (1)	Biol 528	Microbial Ecology (3)
Biol 512	Evolution & Ecology of Marine Mammals (3)	Biol 530	Plant Systematics (4)
Biol 514	Biology of Algae (4)	Biol 531	Taxonomy of California Plants (4)
Biol 515	Marine Invertebrate Biology (4)	Biol 535	Plant Ecology (4)
Biol 516A	Marine Larval Ecology Research Pt.1 (4)	Biol 540	Conservation Ecology (3)
Biol 516B	Marine Larval Ecology Research Pt.2 (4)	Biol 556	Scanning Electron Microscopy Lab (2)
Biol 517	Marine Ecology (4)	Biol 557	Transmission Electron Microscopy Lab (3)
Biol 518	Biology of Fishes (4)	Biol 562	Ecological Metagenomics (3)
Biol 523	Herpetology (3)	Biol 567L	Biochemistry, Cellular and Molecular Biology Lab II (2)
Biol 524	Ornithology (4)	Biol 568	Bioinformatics (3)
Biol 525	Mammalogy (3)		

Custom Electives

- Customize your major by taking courses that you're interested in that are upper division Biology courses numbered 350-599 (except Biol 452) and upper division Chemistry courses (except Chem 300, 308, 497, 499, 560).
- Prior approval of the Biology Undergraduate Advisor (LSN-102) is needed and paperwork must be filed in order to enroll in Biol 497, 499, and/or 490.
- A maximum of 6 units between Biol 497 and 499 may be applied to the major.
- Elective courses other than Microbiology electives listed above (including Chem 498, Biol 496 and 596) must be approved by the emphasis Advisor.
