

# UNDERGRADUATE STUDIES: BIOLOGY – EMPHASIS IN MARINE BIOLOGY CHECKLIST

Visit the [Biology Undergraduate Advising Center](#) in LSN 102  
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## Preparation for the Major Coursework

This emphasis provides education and training for students planning to enter marine professions with a B.S. or advanced degree. Students will be qualified for field and laboratory technician positions, research, and resource development and management. Marine biologists are employed by the private sector (e.g., environmental studies, seafood industries) and public agencies (e.g., NMFS, USFWS, state fish and game, water quality, local planning and management). Marine biologists with graduate degrees normally have a wider range of employment opportunities, including advanced research positions and college and university faculty positions.

### 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 4<sup>th</sup> semester, or the 5<sup>th</sup> 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.

(36 units)

Cumulative 2.0 GPA required in all upper division coursework applied to the major.

**Required Core Coursework (17 units)**

Biol 351 Genetics	3	Chem 365 Fundamentals of Biochemistry	3
Biol 352 Evolution	3	Biol 366 Cell and Molecular Biology	3
Biol 354 Eco. and the Environment	3	Boil 366L Biochem, CMB Lab	2

**Elective Coursework (19 Units Minimum)**

**Required:** At least *three* courses must be taken from this list.

<b>Biol 512</b> Evolution and Ecology of Marine Mammals (3) <sub>L</sub>	Biol 517 Marine Ecology (3) <sub>L</sub>
<b>Biol 514</b> Biology of Algae (4) <sub>L</sub>	Biol 518 Biology of Fishes (4) <sub>L</sub>
<b>Biol 515</b> Marine Invertebrate Biology (4) <sub>L</sub>	Biol 542 Ecological Signaling in the Environment (3)
<b>Biol 516A</b> Marine Larval Ecology Research Pt.1 (4) <sub>L</sub>	Bio 496 Experimental Topics (1-3) and/or
Biol 516B Marine Larval Ecology Research Pt.2 (4) <sub>L</sub>	596 Special Topics in Biology (1-3) (Max 3 units)

**Required:** 2 Lab Courses (One class *cannot* fulfill both lab course requirements.)

1. Organismal Lab Requirement – select at least one <b>Organismal lab</b> in bold from below.		
2. Lab Elective Requirement – select at least one additional lab course from below (may or may not be organismal)		

Biol 350 General Microbiology (4)	Biol 526 Terrestrial Arthropod Biology (4)
Biol 354L Ecology and Evolution Lab (2)	Biol 527L Animal Behavior Lab (1)
Biol 436 Human Physiology Lab (2)	Biol 528 Microbial Ecology (3)
<b>Biol 512</b> Evolution & Ecology of Marine Mammals (3)	Biol 530 Plant Systematics (4)
<b>Biol 514</b> Biology of Algae (4)	Biol 531 Taxonomy of California Plants (4)
<b>Biol 515</b> Marine Invertebrate Biology (4)	Biol 535 Plant Ecology (4)
<b>Biol 516A</b> 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 (3)	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 Marine Biology electives listed above (including Biol 496 and 596) must be approved by the emphasis Advisor.
