



Florida International University

**For 2022
academic year**

Department of Biological Sciences

**MARINE BIOLOGY
BACHELOR OF SCIENCE
PROGRAM OF STUDY**

For students admitted Fall semester of 2022 or later

Students are encouraged plan their own course selections; PLEASE READ COURSE DESCRIPTIONS in the UNDERGRADUATE COURSE CATALOG at catalog.fiu.edu. Most elective courses have prerequisites that must be taken BEFORE you take the elective course. To see your own progress, you can see and print out your own PantherSoft Degree Audit (PDA) at my.fiu.edu. If you need assistance or have any questions you are encouraged to see an advisor prior to each registration period. There is a dedicated Marine Biology Advising Office at the Biscayne Bay Campus (e-mail mbioadv@fiu.edu), as well as a Marine Biology academic advisor at Biscayne Bay Campus located at Academic One, Room 300. Faculty in Biological Sciences, including Marine Biology faculty, are also available to provide academic and career advising. All Science and Math courses must be completed with a grade of "C" or better to satisfy the requirements.

LOWER DIVISION PROGRAM – MARINE BIOLOGY

- UCC – University Core Curriculum (**Note:** Transfer students with an AA degree from a Florida State System Community College or University are exempt from the UCC) – for marine biology we encourage you to take OCB 2000 (Introduction to Marine Biology) for your UCC requirement.
- Students entering the University with fewer than 60 hours must complete 9 hours of coursework during the summer semester
- General science requirements (generally offered every semester)

<u>General Science Courses</u>	<u>FIU () = credit hours</u>	<u>MDC equivalent</u>
<input type="checkbox"/> Marine Biology at FIU	OCB 1930(1)	
<input type="checkbox"/> General Biology I and II	BSC 2010(3)+Lab(1) BSC 2011(3)+Lab(1)	BSC 1010+Lab or BOT 1010+Lab BSC 1011+Lab ZOO 1010+Lab
<input type="checkbox"/> General Chemistry I and II	CHM 1045(3)+Lab(1) CHM 1046(3)+Lab(1)	CHM 1045+Lab or CHM 1040+Lab CHM 1046+Lab CHM 1041+Lab
<input type="checkbox"/> (A) Organic Chemistry I Organic Chemistry II OR (B) Survey org. chem. and lab AND Intro. analytical chem. and lab AND Marine chemistry	CHM 2210(4)+Lab(1) CHM 2211(3)+Lab(1) CHM 2200(3) & 2200L(1) CHM 3120(3) & 3120L(1) CHS 4600(3)	CHM 2210+Lab
<input type="checkbox"/> General Physics I and II	PHY 2053(4)+2048L(1) PHY 2054(4)+2049L(1) without Calculus or PHY 2048(4)+Lab(1) PHY 2049(4)+Lab(1) with Calculus	PHY 2053+Lab PHY 2054+Lab PHY 2048+Lab PHY 2049+Lab

- Mathematics - Students must complete sub-requirements (A) and (B)

(A) Calculus I	MAC 2311(4)	MAC 2311
(B) Calculus II	MAC 2312(4)	MAC 2312
or		
Statistics I and II	STA 2122(3) & 3123(3)	
	or	
	STA 3111(3) & 3112(3)	

Note: Calculus I and Statistics I together do not satisfy the requirement
STUDENTS WHO TAKE STATISTICS I AND II MUST ALSO COMPLETE CALCULUS I

UPPER DIVISION PROGRAM – MARINE BIOLOGY

- offered in Summer; ◇ offered in Fall; ■ offered in Spring ; * not offered this academic year

□ Required Courses		Credits	Prerequisites (grades of C or higher)
Ecology	PCB 3043 ● ◇ ■	3	BSC 2010 + BSC 2011
Genetics	PCB 3063 ● ◇ ■	3	BSC 2010
Evolution	PCB 4674 ● ◇ ■	3	PCB 3063 + PCB 3043
Marine Biology and Oceanography	OCB 3043 ◇ ■	3	BSC 2010 + BSC 2011
Marine Biology and Oceanography Lab	OCB 3043L ◇ ■	1	(coreq. or prereq.) OCB 3043
Physical Oceanography	OCP 3002 ◇ ■	3	CHM 1045, (PHY 2048 or PHY 2053)
Senior Seminar	BSC 4931 ● ◇ ■	1	Senior standing (≥ 90 credits); (coreq. or prereq.)

- 5 Upper Division Marine Electives (at least 15 credits from among the following courses)

At least 15 credits spread among the following required areas A, B, C and D. Note: At least 1 class per required areas (A, B, C, D) needs to be taken plus one additional class from any of the four categories for a total of 15 credits.

Requirement (A): Biology and Physiology of Marine Organisms

Requirement (B): Marine Ecology and Conservation Biology

Requirement (C): Field Marine Biology Experience

Requirement (D): Marine Molecular Biology

(A) Biology and Physiology of Marine Organisms

1. Invertebrate Zoology ZOO 3205C (4) ◇
2. Marine Botany BOT 4402C (4) ■ or Phycology BOT 4404 (3) ◇
3. Biology of Marine Mammals OCB 4303 (3) ◇ ■
4. Marine Microbial Ecology OCB 4632 (3) *
5. Fish Biology ZOO 4454 (3) ■
6. Animal Physiology PCB 4723 (3) ■ or Comparative Physiology PCB 4724 (3) ◇ or Physiological and Behavioral Ecology of Marine Animals PCB 4776 (3) ◇

(B) Marine Ecology and Conservation Biology

1. Coastal Marine Conservation OCB 4070(3) ■
2. Coral Reef Biology OCB 3264 (3) ■
3. Marine Community Ecology OCB 4633 (3) ◇
4. Behavioral Ecology PCB 4414 (3) ◇
5. Fisheries Science OCB 4711 (3) ■
6. Marine Protected Areas PCB 4467C (4) ◇
7. Global Change Ecology PCB 4401 (3) ◇
8. Design and Analysis of Ecological Studies PCB 4934 (3) ■

(C) Field Marine Biology Experience

1. Field Methods in Marine Ecology OCB 4104C (4) ◇
2. Biological Oceanography at Sea I or II OCB 4004 (3) ■ or OCB 4005C (4) ■
3. Scientific Diving BSC 4473C (3) (does not count as a lab – requires open water certification) ● ◇ ■
4. Student Research Lab BSC 3915 (3) or BSC 4914 or Honors Research Lab BSC 4915 (3) ● ◇ ■ Independent study with a Marine Biology faculty member. (Note-requires prior permission of Marine Biology Director)
5. Mariculture for Conservation and Restoration OCB 3075C ◇

(D) Marine Molecular Biology

1. Cell Biology PCB 4023 (3) ● ◇ ■
2. Molecular Biology PCB 4524 (3) ●
3. Bioinformatics for Biologists BSC 4434 (3) ◇ ■
4. Immunology PCB 4233 (3) ● ◇ ■
5. Epigenetics PCB 4133 (3) ■

6. Population Genetics PCB 4553 (3) *

Other courses, as approved in advance by the Marine Biology Undergraduate Program Director, may also be used. Prerequisites may be waived with the permission of the instructor only.

- 4 Upper Division Labs – OCB 3043L plus 3 additional upper division labs. Labs may be selected from any Upper Division Required or Marine Elective courses (co-requisite or prerequisite: the corresponding lecture course). Course numbers followed by the letter C count as both a lecture and a lab.

PCB 3043L Ecology Lab ● ◇ ■

PCB 3063L Genetics Lab ● ◇ ■

PCB 4023L Cell Bio. Lab ● ◇ ■

PCB 4467C Marine Protected Areas ◇

OCB 4104C Field Methods in Marine Ecology ◇

ZOO 3205C Invertebrate Zoology ◇

- Global Learning – One Global Learning foundations course (part of the UCC) and a second discipline-specific Global Learning course offered by any FIU department. See goglobal.fiu.edu/courses for a list of acceptable courses.

UCC Requirement: We highly recommend OCB 2000 for the UCC requirement, if another course is preferred then consider OCE 3014

Discipline-specific: PCB 4467 Marine Protected Areas, ZOO 3205C Marine Invertebrates, and PCB 4553 General Population Genetics (**Note:** Transfer students with an AA degree from a Florida State System Community College or University may take one GL foundations course and a second discipline-specific GL course, or two discipline-specific GL courses offered by any FIU department.)

- 9 credit hours of courses outside the major (see general remarks – Marine Biology) within the last 60 hours of enrollment
Marine Biology majors are encouraged to consider Scientific Writing and/or Public speaking courses to fulfill some of these required credits.

- 120 total credit hours required for graduation, including a minimum of 45 upper division (3000- and 4000-level courses)

*Please be aware that depending on your course selection, the FIU Marine Biology Program can take from 115-125 credit hours to complete. However, to receive an undergraduate degree from FIU, **you must take a minimum of 120 credit hours.**

GENERAL REMARKS – MARINE BIOLOGY

- Total number of credit hours needed for graduation 120
- Number of upper division credit hours needed 45
- Upper division credit hours with 10 biology or marine courses, 4 labs and Senior Seminar 35
(Note, transfer students with >60 credits, must take at least half of their upper division credits at FIU)
- Credit hours needed outside major (see below) in last 60 hours of enrollment 9

Note: For the B.S. in Marine Biology, “outside the major” means outside all the Biological Sciences prefixes BCH, BOT, BSC, ENY, MCB, OCB, PCB, ZOO, and outside of the following courses in other departments: CHM 5285 Marine Natural Products, CHS 4600 Marine Chemistry, GLY 4730 Marine Geology, OCE 3014 Oceanography, OCP 3002 Physical Oceanography. Take these 9 credit hours outside the major from upper division courses to help you reach the 45 hours needed for graduation

- **Minor in Marine Biology**
BSC 2010 and BSC 2011 with labs, OCB 3043 plus lab, and at least two Upper Division Marine Elective courses.

Total upper division credits for OCB 3043 plus lab and Upper Division Marine Electives must number 10 or more. Grades of “C” or better are required for all courses and the labs. Scientific Diving, BSC 4473C, may not be used as one of the two Upper Division Marine Electives. We encourage you to speak with a Marine Biology advisor to plan your program for this minor before enrolling in classes.

RECOMMENDED COURSES – MARINE BIOLOGY

Students are encouraged to take the recommended courses to share the classes with other Marine Biology cohort students. Placement in each course will depend of entry level in math and writing courses. This is a guide to help you succeed in the program but you are welcome to create your own 4-year plan. Please discuss what is best for you with an academic advisor.

1st Year	
Fall	Spring
Marine Biology at FIU OCB 1930 General Biology I BSC 2010 + Lab	General Biology II BSC 2011 + Lab
2nd Year	
Fall	Spring
Ecology PCB 3043	Genetics PCB 3063 / Marine Biology & Ocean. OCB 3043
3rd Year	
Fall	Spring
Evolution PCB 4674	Physical Oceanography OCP 3002