



Florida International University

**For 2025
academic year**

Department of Biological Sciences

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

For students admitted Fall semester of 2025 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

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

- ☐ 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)

General Science Courses

FIU () = credit hours

MDC equivalent

- ☐ Marine Biology at FIU ◇

OCB 1930(1)

- ☐ 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

- ☐ 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

- ☐ (A) Organic Chemistry I
Organic Chemistry II

CHM 2210(4)+Lab(1)
CHM 2211(3)+Lab(1)

CHM 2210+Lab

OR

- (B) Organic Chemistry I

CHM 2210(4)+Lab(1)

CHM 2210+Lab

Fundamentals of Data Science* CAP 2752

***Note:** This course can be used to substitute for *either* Organic Chemistry II or Physics II, but not both. Please check with your advisor to confirm this course falls in the appropriate category in the degree audit. If you are on a pre- track, **please see your advisor about how this can affect your requirements.** For example, pre-med, pre-vet, etc.

OR

- (C) Survey org. chem. and lab ◇ ■

CHM 2200(3) & 2200L(1)

AND

- Intro. analytical chem. and lab ◇ ■

CHM 3120(3) & 3120L(1)

AND

- Marine chemistry ■

CHS 4600(3)

- ☐ (A) General Physics I and II

PHY 2053(4)+2048L(1) PHY 2053+Lab

PHY 2054(4)+2049L(1) PHY 2054+Lab
without Calculus
or
PHY 2048(4)+Lab(1) PHY 2048+Lab
PHY 2049(4)+Lab(1) PHY 2049+Lab
with Calculus
(B) General Physics PHY 2053(4)+2048L(1) PHY 2053+Lab
without Calculus
or
PHY 2048(4)+Lab(1) PHY 2048+Lab
with Calculus

AND

Fundamentals in Data Science* CAP 2752

*This course can be used to substitute for either Organic Chemistry II or Physics II, but not both. Please check with your advisor to confirm this course falls in the appropriate category in the degree audit. If you are on a pre- track, **please see your advisor about how this can affect your requirements.** For example, pre-med, pre-vet, etc.

- ☐ 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)
Science and Career Literacy**	BSC 3848 ● ◇ ■	1	BSC 2010 + BSC 2011

** (For students admitted prior to Fall 2025, Discuss with your Academic Advisor.)

- ☐ 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) ◇ (Note: This course may be accepted for A or C, but not both. **Please reach out to your advisor.**)
2. Marine Botany BOT 4402C (3) ■ or Phycology BOT 4404C (4) ◇
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) ◇

(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) ● ◇ ■
4. Student Research Lab BSC 3915 (3) or BSC 4914 or Honors Research Lab BSC 4970 (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 (4) ◇
6. Invertebrate Zoology ZOO 3205C (4) ◇ (Note: *This course may be accepted for A or C, but not both. Please reach out to your advisor.*)

(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 4561 (3) ■
6. Phycology BOT 4404 (3) ◇
7. 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 ● ◇ ■

OCB 4005C Biological Oceanography at Sea II ■

OCB 4104C Field Methods in Marine Ecology ◇

PCB 4467C Marine Protected Areas ● ◇ ■

OCB 4104C Field Methods in Marine Ecology ◇

ZOO 3205C Invertebrate Zoology ◇

OCB 3075C Mariculture for Conservation and Restoration ◇

BOT 4402L Marine Botany (1)*

- Global Learning – One Global Learning foundations course (part of the UCC) and a second discipline-specific Global Learning course offered by any FIU department.

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 Invertebrate Zoology, OCB 3043 Marine Biology and Oceanography, 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.)

- 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 Science and Career Literacy 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 for non-Marine Biology Degree seeking students**
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 Minors and Certificates:

- **Minor in Chemistry** (4 additional credits):
 - If you take Chemistry route A (*see above*) you only need one more lecture and lab:
 - CHM 3120 and CHM 3120L; Analytical Chemistry + Lab ◇ ■
- **Minor in Environmental Science** (18 additional credits)
 - Four of the following:
 - EVR 3011; Environmental Resources and Pollution ◇ ■
 - EVR 4026; Ecology of Biotic Resources ◇
 - EVR 4211; Water Resources ◇ (*optional: lab component*)
 - EVR 4310; Energy Resources*
 - EVR 4323; Restoration Ecology ■ (*optional: lab component*)
 - EVR 4401; Conservation Biology ◇
 - EVR 4592; Soils and Ecosystems ■
 - One of the following
 - EVR 4415; Population and Environment Issues ■
 - EVR 4321; Sustainable Resource Development ◇
 - EVR 4352; US Environmental Policy ◇ ■

- **Minor in Statistics** (13 additional credits) *recommended if considering graduate school*
 - Choose one of the following:
 - MAC 2312; Calculus II (*note: this is required for program already!*) ◇ ■
 - STA 2023; Statistics for Business and Economics ◇ ■
 - STA 2122; Statistics for Behavioral and Social Sciences I ◇ ■
 - STA 3111; Statistics I ◇ ■
 - Complete the following:
 - STA 3163 Statistical Methods I ◇
 - STA 3164 Statistical Methods II ■
 - Choose two of the following:
 - STA 3033 or STA 4321; Introduction to Probability and Statistics for CS ◇ ■
 - or Introduction to Mathematical Statistics I ◇ ■
 - STA 4322; Introduction to Mathematical Statistics II ■
 - STA 4202; Introduction to Design of Experiments ◇
 - STA 4234; Introduction to Regression Analysis ◇ ■
 - STA 4502; Introduction to Nonparametric Methods ◇
 - STA 4664; Statistical Quality Control*
- **Certificate in Applied Geographic Information Systems (GIS)** (18 additional credits)
 - GIS: a computer system that analyzes and displays geographically referenced information
 - In other words, habitat suitability maps, animal tracking, etc.
 - Students may apply by contacting the Program Director, Dr. Genevieve Reid, via email (greid@fiu.edu) to schedule a brief introduction meeting and start the registration process. Applications only considered during Fall and Spring Semesters
 - Choose two of the following:
 - GIS 2000; Mapping in Geography ■
 - GIS 2040; Introduction to Applied Skills in GIS ◇
 - GIS 3043; Introduction to Geographical Information Systems ◇ ■
 - Choose two of the following (Category 1):
 - CCJ 4072; GIS and Crime Mapping ◇ ■
 - GIS 3048; Applications of Geographic Information Systems ◇ ■
 - SYA 4352; GIS and Social Research ◇
 - Choose one of the following (Category 2):
 - CCJ 4700; Research Methods and Analysis ◇ ■
 - CCJ 4701; Measurement and Analysis in Criminal Justice *
 - GEO 3110; Research Methods ◇ ■
 - SYA 3300; Research Methods ◇ ■
 - SYA 4450; Advanced Research Methods *
 - PAD 4723; Applied Research Methods *
 - PAD 4712; IT and E-Government *
 - Choose one of the following:
 - CGN 4321; GIS Applications in Civil and Environmental Engineering ■
 - GLY 3759; Visualizing Our World with GIS *
 - SYA 3400; Introduction to Quantitative Social Research ◇ ■
 - PCB 4932 Topic in Ecology; Introduction to Landscape Ecology with GIS ◇ ■
 - Or
 - One (1) additional course under Core Requirements Category 1 or 2.
 - Or
 - Another GIS-related course that the Program Director approves.

“Pre-“ Track Courses:

Requirements may vary by school being applied for. Applicants should verify each individual program's requirements prior to application submission.

☞ Denotes courses already required by the program

Pre-Veterinary:

- Required:

- General Biology 1 + Lab ☞
- General Biology 2 + Lab ☞
- General Chemistry 1 + Lab ☞
- General Chemistry 2 + Lab ☞
- Organic Chemistry 1 + Lab ☞
- Organic Chemistry 2 + Lab ☞
- Physics 1 + Lab ☞
- Physics 2 + Lab ☞
- Genetics☞
- Statistics (one semester)
- Microbiology + Lab; MCB 3020 + MCB 3020L
- Biochemistry; BCH 3033 or Biological Chemistry; CHM 4304
- Cell Biology; PCB 4023
- Physiology; PCB 3702 or 3703
- Anatomy; Zoo 3731 + ZOO 3731L or ZOO 4733