Marine Biology Major

Marine Biology studies life processes of organisms inhabiting saltwater environments—from genetics and evolution to physiological traits and ecosystem functioning. The major is focused on the intersection of marine sciences taught in Oceanography and Aquatic and Fishery Sciences, and all students complete an integrative field experience: a research or field course offered at our marine field station, Friday Harbor Labs. Graduates of Marine Biology are prepared for careers in management agencies at the local to international levels, environmental consulting, non-profit organizations and a range of educational settings. Completing the minimum general education and major requirements for a Bachelor of Science with a Major in Marine Biology requires 106–113 credits.

COLLEGE OF THE ENVIRONMENT GENERAL EDUCATION

Basic Skills (Credits vary)

English Composition "C" (5) ◆

☐ _____

Writing "W" (10)

☐ *Major requirements automatically fulfill*

Reasoning "RSN" (10) ◆

☐ *Major requirement automatically fulfills*

☐ *Major requirement automatically fulfills*

Diversity "DIV" (5) *can overlap with AoI* ◆

☐ _____

Areas of Inquiry (AoI) (60 credits)

Arts and Humanities "A&H" (10 credits) ◆

☐ _____

☐ _____

Social Sciences "SSc" (20 credits) ◆

☐ _____

☐ _____

☐ _____

☐ _____

Natural Sciences "NSc" (20 total) *10 credits of NSc must be outside the major (i.e., not a major prefix and no overlap with major)* ◆

☐ _____

☐ _____

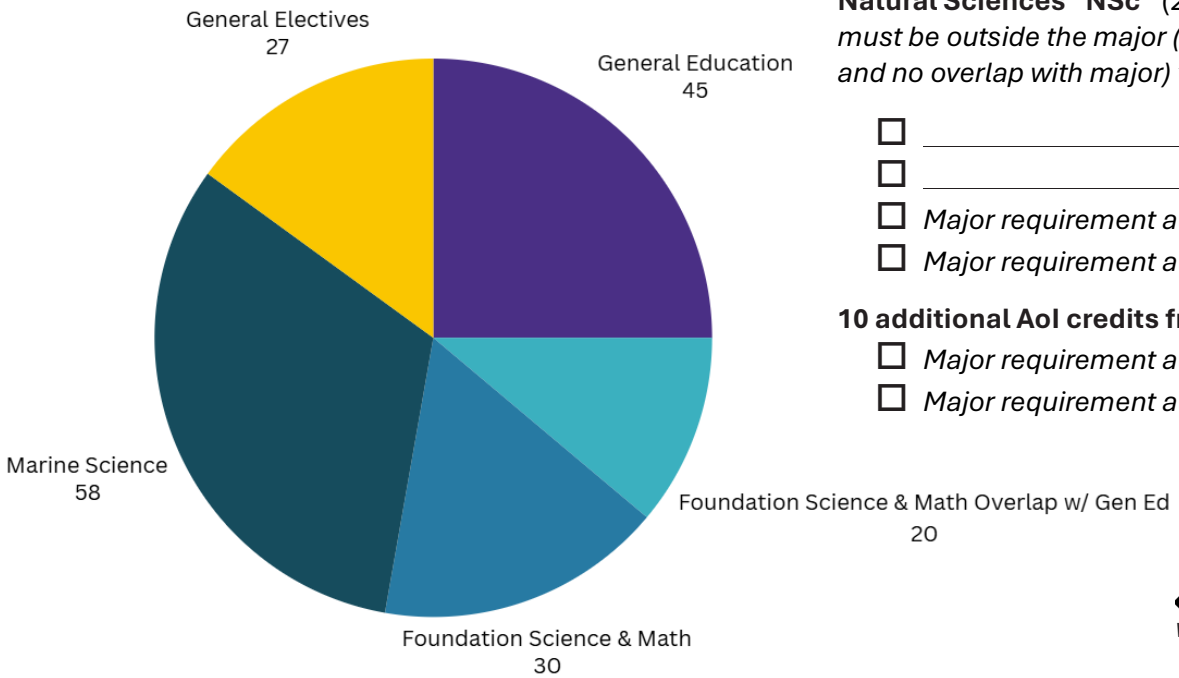
☐ *Major requirement automatically fulfills*

☐ *Major requirement automatically fulfills*

10 additional AoI credits from any category

☐ *Major requirement automatically fulfills*

☐ *Major requirement automatically fulfills*



Last updated 7.30.25

◆*Equivalent course options available at Washington State Community Colleges.*

FOUNDATION COURSES IN SCIENCE AND MATHEMATICS (48–55 credits)

Chemistry (10–15 credits)

Choose one of the following sequences:

Two Course Series

- ☐ CHEM 120 Principles of Chemistry I (5) ◆ *Offered: Su, A*
- ☐ *And one of:*
  - CHEM 220 Principles of Chemistry II (5) ◆ *Offered: W*
  - OCEAN 295 Chemistry of Marine Organic Carbon (5) *Offered: W, Sp*

OR

Three-Four Course Series

Possible Prerequisite of Chem 110—see CHEM Placement Test

- ☐ CHEM 142 General Chemistry I (5) ◆°
- ☐ CHEM 152 General Chemistry II (5) ◆
- ☐ *And one of:*
  - CHEM 220 Principles of Chemistry II (5) ◆ *Offered: W*
  - CHEM 223 Organic Chemistry—Short Program I (4) *Offered: Su, A*
  - OCEAN 295 Chemistry of Marine Organic Carbon (5) *Offered: W, Sp*

Biology (15 credits)

- ☐ BIOL 180 Introductory Biology I (5) ◆°
- ☐ BIOL 200 Introductory Biology II (5) ◆° *check Chemistry pre-reqs/co-reqs*
- ☐ *And one of:*
  - BIOL 220 Introductory Biology III (5) ◆°
  - MARBIO/FISH/OCEAN 270 Aquatic Ecophysiology *Offered: W*

Statistics (5 Credits)

- ☐ Choose one:
  - Q SCI 381 Introduction to Probability and Statistics (5) *Prerequisite of either MATH 120, MATH 124, or Q SCI 291* °
  - STAT 311 Elements of Statistical Methods (5) *Prerequisite: either STAT 220, STAT 221, STAT 290, MATH 120, MATH 124* °

Math (10 credits)

Choose one of the following sequences:

Possible Prerequisite of MATH 120 Precalc

- ☐ MATH 124 Calculus with Analytic Geometry I (5) ◆°
- ☐ MATH 125 Calculus with Analytic Geometry II (5) ◆°

OR

Possible Prerequisite of MATH 120 Precalc

- ☐ Q SCI 291 Calculus for Natural Systems I: Derivatives (5) *Offered: A, W*
- ☐ Q SCI 292 Calculus for Natural Systems II: Integrals (5) *Offered: W, Sp*

Physics (8–10 credits)

Choose one of the following sequences:

Algebra Based Physics

- ☐ PHYS 114 Mechanics (4) ◆°
- ☐ PHYS 115 Heat, Fluids And Electricity And Magnetism II (4) ◆°

OR

Calculus Based Physics

- ☐ PHYS 121 Mechanics (5) ◆° *Prerequisite: either MATH 124 or MATH 134, which may be taken concurrently.*
- ☐ PHYS 122 Electromagnetism (5) ◆° *Prerequisite: either MATH 125 or MATH 134, which may be taken concurrently. or:*

OR

Algebra/Calculus Physics + Oceanography Physics

- ☐ PHYS 114/PHYS 121 Gen. Physics I/Mechanics (4–5) ◆ *See above*
- ☐ OCEAN 285 *and* 286 Physics Across Oceanography: Fluid Mechanics and Waves with Lab (3, 2) *Offered:A*

◆ *Equivalent course options available at Washington State Community Colleges.*
° *Offered A, W, Sp, Su*

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MARINE SCIENCE (58 credits)

Introduction to the Marine Environment (9 credits)

- ☐ Choose one Introductory Marine Science:
  - FISH/OCEAN/BIOL 250 Marine Biology (5) *Offered: A,W*

  OR
  - OCEAN 200 *and* 201 Introduction to Oceanography with Lab (3, 2) *Offered: Sp*

- ☐ OCEAN 210 Integrative Oceans (4*) Prerequisite: either FISH/OCEAN/BIOL 250 or OCEAN 200. Offered: A, Sp*

Communication (3 credits)

- ☐ MARBIO 305 Scientific Writing in Marine Biology (3) Prereq: one course meeting the "C" req. *Offered: A, W, Sp*

Marine Biology Core (15 credits)

- ☐ FISH 323 Conservation and Management of Aquatic Resources (5) *Offered: W*
- ☐ MARBIO/FISH/OCEAN 370 Marine Evolutionary Biology (5) *Prereq: either BIOL 220 or MARBIO 270 Offered: Sp*
- ☐ OCEAN 330 Marine Biogeochemical Cycles (5) *Prereq: OCEAN 210; BIOL 200; and Organic Chemistry Offered: Sp*

Electives (25 credits)

Review the department's approved elective list at marinebiology.uw.edu.

Requirement	Course	Credits	Lab	400-level
Biodiversity One course			☐	☐
Ecology and Ecosystems One course			☐	☐
Organismal Processes One course			☐	☐
Other Electives (Additional courses to bring total to 25 credits)			☐	☐
			☐	☐
			☐	☐

Lab: Check two courses from your list taken with a lab section
400-level: Check three courses from your list taken at the 400-level
Research: Maximum of 6 credits of independent research

Integrative Field Experience (IFE) (6 credits)

Review the department's approved list at marinebiology.uw.edu. Culminating requirement of the major. All courses require time in the field away from the UW Seattle campus, and most are offered at the UW's marine field station Friday Harbor Labs (FHL). Research or field courses at other marine field stations, labs, or study abroad programs have the possibility of petition.

Course Number	Course Name	Credits	Term

MARINE BIOLOGY MAJOR ELECTIVES (25 credits)

See website for most up to date listing. Course offerings subject to change. Courses in yellow are Friday Harbor Lab courses.

Course Number	Course Name	Credits/Lab	Offered
BIODIVERSITY (1 course minimum)			
BIOL 434	Invertebrate Zoology	5	Variable
FISH 310	Marine Invertebrate Diversity	5	Spring
FISH/BIOL 311	Biology of Fishes	5	Autumn
FHL 375	Marine Mammals of the Salish Sea	5	Autumn & Spring
FHL 430/BIOL 430	Marine Zoology	5	Spring
FHL/BIOL 432	Marine Invertebrate Zoology	9	Summer
FHL 440/BIOL 445	Marine Botany	5	Spring
FHL 446	Marine Botany: Diversity and Ecology	9	Summer
ECOLOGY AND ECOSYSTEMS (1 course minimum)			
BIOL 423	Marine Ecological Processes	3	Variable
FISH 406	Parasite Ecology	5	Autumn
FISH 450	Salmonid Behavior and Life History	4	Autumn
FISH 464	Arctic Marine Vertebrate Ecology	5	Winter, odd years
FISH 470	Evolutionary Ecology of Marine Mammals	5	Winter for 2026
MARBIO/BIOL 433	Marine Ecology	5	Variable
OCEAN 403	The Southern Ocean: Climate and Ecosystems	5	Spring
FHL 403	Novel Marine Ecosystems	5	Spring
FHL 420	Marine Ecology of the Salish Sea	5	Spring
FHL 495	Behavioral Ecology of Marine Invertebrates	5	Autumn
ORGANISMAL PROCESSES (1 course minimum)			
FISH/BIOL 340	Genetics and Molecular Ecology	5	Autumn
FISH 427	Tropical Marine Biology	5	Winter
FISH 444	Conservation Genetics	5	Winter
FISH 460	Applied Marine Animal Physiology	5	Spring
OCEAN 432	Microbes in a Changing Ocean	3	Winter
FHL 471	Comparative Anatomy & Physiology of Marine Organisms	5	Autumn
OTHER ELECTIVES (Additional courses to a total of 25 credits)			
FISH 312	Fisheries Ecology	3/5	Spring
FISH 423	Aquatic Invasion Ecology	4	Autumn
FISH 437	Fisheries Oceanography	4	Autumn
MARBIO 301	Current Topics in Marine Biology	1	Winter
MARBIO 302	Conversations in Marine Biology	1	Winter
OCEAN 402	Advanced Marine Biogeochemical Processes	3	Autumn
OCEAN 409	Marine Pollution	3	Spring
OCEAN 480	Global Ocean - Human Culture	3	Variable
Q SCI/FISH 454	Introduction to Quantitative Ecology	5	Winter
Q SCI/FISH 458	Advanced Ecological Modeling	5	Spring
FHL 480	Professional Portfolio in Marine Science	5	Spring
FHL 490	Marine Sciences Seminar	1	Spring
RESEARCH COURSES (Maximum of 6 credits)			
MARBIO 479	Research in Marine Biology	1–15	
FHL 470	Research in Marine Biology	6	Autumn & Spring
SPECIAL TOPICS (Approved by individual offering; see website for details)			
FISH 478, 497	Topics in Sustainable Fisheries, Special Topics in A&FS	1-15	
OCEAN 411, 431, 497	Advanced Special Topics in Oceanography	1–15	
FHL 468	Advanced Topics in Ecology and Biomechanics	9	Variable
FHL 472	Friday Harbor Labs Research Apprenticeship	15	Autumn
FHL 495	Special Topics in Natural Science	3-5	Variable

meets lab requirement

must take 5 cr. section to meet lab requirement

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INTEGRATIVE FIELD EXPERIENCE (6 credits)

Students select from a list of eligible courses which give hands-on experience with changes in the marine environment at a variety of scales (over time and space) and systems (physical and biological). These advanced courses build on the foundational knowledge developed across the three core areas of the major (biodiversity, ecology and ecosystems and organismal processes) and develop skills in fieldwork techniques, data analysis and science communication.

- Most eligible courses are offered at the UW's marine field station Friday Harbor Labs (FHL).
- Courses are offered at varying times of year with time spent away from campus ranging from a minimum of three weeks to a full academic quarter.
- All majors must complete 6 credits through a qualifying course; additional credits earned in the field may qualify for other Marine Biology Major requirements.

IFE Priority Application

UW Marine Biology and Friday Harbor Labs administer an annual 'IFE Priority Application' in the month of January for all eligible courses offered in the upcoming 18 months.

- Eligibility for Priority Application – see https://marinebiology.uw.edu/students/marine-biology-major/integrative-field-experience/
- ***Starting in Winter 2026, Marine Biology majors will still be able to apply for summer FHL course offerings through the general FHL application. However, Marine Biology majors will no longer be prioritized over other applicants.***
- Must either have completed, or be set to complete the following by the quarter you take your IFE course (check the Marine Biology Major requirements page for course details):
    - Introductory Marine Science: OCEAN 210
    - Physiology: FISH/OCEAN/MARBIO 270 or BIOL 220
    - Communications: MARBIO 305 or FHL 333
    - Statistics: Q SCI 381 or STAT 311
    - 3 upper-division courses for electives/core, one of which must be a core course (FISH 323, OCEAN 330 or MARBIO 370)

IFE Options

Spring

Zoology Botany (Zoo-Bot) Program (16–17 cr): Full-term spring (approximately 10 weeks)
Students enroll in three courses (FHL 430: Marine Zoology, FHL 440, Marine Botany and FHL 470: Research in Marine Biology) with an optional 1 credit seminar (FHL 490). Students earn major elective credits in addition to the IFE requirement.

Spring Marine Studies (16-17 cr): Full-term Spring quarter (approximately 10 weeks)
Students enroll in three courses (FHL 450: Research in Novel Marine Ecosystems and two additional courses) with an optional 1 credit seminar (FHL 490). Students earn major elective credits in addition to the integrative field experience requirement.

Summer – See note above

FHL 468: Advanced Topics in Ecology & Biomechanics (9 cr): Half-term summer (approximately 5 weeks)
Students enroll in a single, nine-credit course. Topics vary by section and year, and eligible courses are approved annually. Approved courses complete the six-credit integrative field experience requirement with the remaining three credits applied to 'other marine biology elective'.

FHL 492: Ecology & Conservation of Marine Birds & Mammals (9 cr): Half-term summer (approximately 5 weeks) Students enroll in a single, nine-credit course. Offered every other summer in "odd years." Students earn 3 credits of major elective in addition to the IFE requirement.

Early Fall

MARBIO 488: Marine Biology in the Field (6 cr) Three weeks prior to the start of fall quarter (exact dates vary by year). Standard, campus-based course offered annually in the fall with a mandatory field component covered in the three weeks prior to the start of fall quarter (exact dates vary by year) at Friday Harbor Labs. The FHL field component consists of short research training modules focused on intertidal ecology, trophic ecology, and oceanography followed by independent research projects conducted in small groups. The on-campus portion focuses on analysis, presentation, and communication of research project results.

Fall

Autumn Marine Studies (16cr): Full-term fall quarter (approximately 10 weeks)
Students enroll in three courses (FHL 469: Ecology and Human Interactions in the Salish Sea, FHL 471: Comparative Anatomy and Physiology of Marine Organisms and FHL 470: Research in Marine Biology). Students earn major elective credits in addition to the integrative field experience requirement.

Research Apprenticeship: FHL Apprenticeship (15 cr): Full-term fall quarter (approximately 10 weeks)
Students engage in advanced undergraduate research in a small cohort of students. Topics vary by section and year, and eligible apprenticeships are approved on a section basis. Approved apprenticeships complete the six-credit integrative field experience requirement, with six additional credits applied to 'other marine biology elective' and the remaining three credits applied to "non major elective."