

# Biology Major - Marine Biology and Ecology Option 2023-24

Document available online at <https://ib.oregonstate.edu/undergraduate/advising/college-advising-guide>.

The Marine Biology option is designed to give students a rigorous background in marine biology and ecology. It is an excellent way to prepare for marine biology and ecology graduate programs, as well as a variety of marine science careers. A term in residence at Hatfield Marine Science Center is required to complete the spring or summer tracks of the option, and the spring BI 450 Marine Biology and Ecology course in Track I is by application only the fall before attending. The marine biology option covers the Biology and Society, Organismal Biology, Physiology, Writing Intensive Course (WIC) and Experiential Learning or Integrative Biology Elective requirements for the biology major. **Previous versions of this option are different and are tracked in MyDegrees – see MyDegrees for details. All courses and prerequisites are subject to change, and the listing of term offered is based on projected Corvallis campus and Hatfield Marine Science Center offerings.**

## Core Requirements

| Course | Description (Credits)                 | Term(s) | Pre-requisites                          | Comments                                           |
|--------|---------------------------------------|---------|-----------------------------------------|----------------------------------------------------|
| BI 150 | Introduction to Marine Biology (3cr)* | SP      | -                                       | * <b>OR</b> additional upper division course below |
| BI 347 | Oceans in Peril (3cr)                 | W       | BI 221, 222, 223 (C-)                   | BC: Science, Tech. & Society                       |
| OC 201 | Oceanography (4cr)                    | F, W    | -                                       | -                                                  |
| Z 423  | Environmental Physiology (3cr)        | F       | BI 221, 222, 223 (C-) & CH 233/263 (C-) | -                                                  |

**Hatfield Marine Science Center Tracks:** Select one of the following tracks.

**Spring Track:** Hatfield term is spring of junior year. Admission by application only.

| Course | Description (Credits)                        | Term(s) | Pre-requisites                               | Comments                              |
|--------|----------------------------------------------|---------|----------------------------------------------|---------------------------------------|
| BI 450 | Marine Biology & Ecology (WIC Course) (15cr) | SP*     | BI 370, ST 351 (ST 352 recommended), junior+ | *Hatfield only, by application (fall) |

**Summer Track:** Hatfield courses are completed in summer and other courses are taken at Corvallis campus

| Course            | Description (Credits)                           | Term(s) | Pre-requisites        | Comments       |
|-------------------|-------------------------------------------------|---------|-----------------------|----------------|
| BI 351            | Marine Ecology (3cr)                            | W       | BI 221, 222, 223 (C-) | -              |
| BI 353            | Pacific NW Coastal Ecosystems (4cr)             | Su*     | BI 221, 222, 223 (C-) | *Hatfield only |
| BI 373            | Field Methods in Marine Ecology (3cr)           | Sp      | BI 370, ST 351        | -              |
| BOT 416 <b>OR</b> | Aquatic Botany (4cr)                            | F       | BI 221, 222, 223 (C-) | -              |
| BOT 417 <b>OR</b> | Phycology (4cr)                                 | Su *    | BI 221, 222, 223 (C-) | *Hatfield only |
| FW 315            | Ichthyology (3cr)                               | F       | BI 221, 222, 223 (C-) | -              |
| Z 461             | Marine and Estuarine Invertebrate Zoology (4cr) | Su*     | BI 221, 222, 223 (C-) | *Hatfield only |

## Experiential Learning or Marine Elective Course(s) Tracks:

Select one of the following tracks. If you did not complete BI 150 above, select an additional Marine Elective Course to replace it.

**Track I Experiential Learning Credits** (Complete any combination of three credits of the following)

| Course                  | Description (Credits)                                   | Term(s)  | Pre-requisites                  | Comments                        |
|-------------------------|---------------------------------------------------------|----------|---------------------------------|---------------------------------|
| BI 309 <b>OR</b> BI 409 | Teaching Practicum <b>OR</b> Advanced Practicum (1-3cr) | F, W, Sp | Departmental approval required* | * <a href="#">See form here</a> |
| BI 401                  | Research and Scholarship (1-3cr)                        | All      | Departmental approval required* | * <a href="#">See form here</a> |
| BI 406                  | Projects – Curatorial Assistant (1-3cr)                 | All      | Departmental approval required* | * <a href="#">See form here</a> |
| BI 410                  | Internship (1-3cr)                                      | All      | Departmental approval required* | * <a href="#">See form here</a> |

**Track II Marine Elective Course** (select one or two courses)

| Course              | Description (Credits)                                 | Term(s) | Pre-requisites                          | Comments                   |
|---------------------|-------------------------------------------------------|---------|-----------------------------------------|----------------------------|
| BI 353              | Pacific NW Coastal Ecosyst. (4cr) (if not used above) | Su*     | BI 221, 222, 223 (C-)                   | *Hatfield only             |
| BI 358              | Symbiosis and the Environment (3cr)                   | W*      | BI 221, 222, 223 (C-) & CH 233/263 (C-) | *Alternate years           |
| BI 485              | Monster Biology (3cr)                                 | W       | BI 311*, BI 370*                        | *May be taken concurrently |
| BOT 416 <b>OR</b>   | Phycology (4cr) (if not used above)                   | F       | BI 221, 222, 223 (C-)                   | -                          |
| BOT 417             | Aquatic Botany (4cr) (if not used above)              | Su*     | BI 221, 222, 223 (C-)                   | *Hatfield only             |
| FW 302 <b>OR</b>    | Biology and Conservation of Marine Mammals (4cr)      | Su*     | BI 221, 222, 223 (C-)                   | *Hatfield only             |
| FW 315 <b>OR</b>    | Ichthyology (3cr) (if not used above)                 | F       | BI 221, 222, 223 (C-)                   | -                          |
| FW 316 <b>OR</b>    | Systematics of Fishes (3cr)                           | F       | BI 221, 222, 223 (C-)                   | -                          |
| FW 331 <b>OR</b>    | Ecology of Marine and Estuarine Birds (4cr)           | Su*     | BI 221, 222, 223 (C-)                   | *Hatfield only             |
| FW 421 <b>OR</b>    | Aquatic Biological Invasions (4cr)                    | W*      | BI 221, 222, 223 (C-)                   | *Ecampus only              |
| FW/OC 434 <b>OR</b> | Estuarine Ecology (4cr)                               | F       | BI 221, 222, 223 (C-)                   | -                          |
| FW 464 <b>OR</b>    | Marine Conservation Biology (3cr)                     | F       | BI 370                                  | -                          |
| FW 469 <b>OR</b>    | Physiology & Behavior Marine Megafauna (3cr)          | F*      | BI 221, 222, 223 (C-)                   | *Hatfield hybrid course    |
| FW 476              | Fish Physiology (4cr)                                 | W*      | FW 315 or BI 450                        | *Ecampus only              |
| MB 314              | Aquatic Microbiology (3cr)                            | Sp      | BI 221, 222, 223 (C-) & CH 233/263 (C-) | -                          |
| OC 340              | Biological Oceanography (4cr)                         | Sp, Su* | BI 221, 222, 223 (C-). OC 201 (C-)      | *Hatfield in summer        |

## Marine Biology Careers

Marine biologists are involved in diverse areas such as community ecology, ocean pollution mitigation, marine physiology, marine natural products and ocean policy. Few individuals work on the science of a very specific group of organisms such as marine mammals, and therefore broad training is considered advantageous. Entry-level positions in the field include technician work in many settings such as agencies, non-governmental organizations, environmental consulting companies and academia. Graduate work in marine biology can be an important consideration as it increases both salary and opportunities.

The marine biology option requires an additional 15 credits of coursework beyond the biology major. For this reason, students completing the option have a solid foundation for [a career in marine biology](#) and biological fields in general. All students interested in marine biology should plan to get professional experience before graduation as it is critical to employment and graduate school opportunities. OSU offers a wealth of opportunities (see Research and Internships below).

## BI 450 Marine Biology and Ecology and Summer Courses at Hatfield Marine Science Center

A variety of marine, field-intensive courses are offered at Hatfield Marine Science Center (HMSC). Students taking these courses live in HMSC Residence Halls on the coast in Newport, Oregon during spring or summer terms.

- **BI 450 - Spring:** This 15-credit Marine Biology course taught spring term satisfies the Spring Track of the marine biology option and the major WIC requirement. Admission to BI 450 is by application each fall and restricted to juniors and seniors who have taken or are taking BI 370 Ecology and Statistics 351. The course covers marine invertebrates, algae, fishes, intertidal and coastal ecology, marine conservation, and features student research projects. Spring students may elect to stay on until summer to complete their additional marine elective courses.
- **Summer:** There are a variety of [HMSC summer courses](#). Students in the Summer Track of the marine biology option complete the BI 353 and Z 461, generally with two other marine courses for their option.

## International Opportunities

Many [international programs](#) in marine biology are available through OSU. These programs can be integrated in to a four- year degree with the Marine Biology Option and include a diverse group of study abroad and international internships choices.

## Professional Experience

Units with marine research faculty include Integrative Biology, Fisheries and Wildlife, Microbiology, College of Earth, Ocean and Atmospheric Sciences and others. Hatfield Marine Science Center also has faculty and agency opportunities. Students should look up faculty research on department websites and contact them about volunteering, as most student positions start as unpaid.

- **Ocean11 Club\Marine Team:** [The Ocean11 Club](#) is for students interested in marine studies at OSU. [The Marine Team](#) is connected to Ocean11 and highlights specific marine research opportunities.
- **Integrative Biology research labs:** Student should look broadly for marine opportunities, but you can see information about [labs in IB here](#).
- **Hatfield Marine Science Center and Sea Grant Programs:** [HMSC research](#) & [HMSC internships](#)
- **Aquarium opportunities:** [Oregon Coast Aquarium volunteers](#)
- **Hatfield Marine Science Center:** [Volunteering in the visitor center](#) or contact [Sid Stetson](#) for aquarium volunteering
- **Other marine opportunities:** [Off campus opportunities](#)