

BIOLOGY MAJOR – Marine Biology Option 2014-2015

Both tracks below cover the additional upper division science and organismal biology requirements for the Biology major. A term in residence at Hatfield Marine Science Center is required in both Track 1 (spring) or Track 2 (summer). Track 1 includes BI 450 Marine Biology which is available by competitive application and counts as a major WIC course. Other coursework taken abroad or at Hatfield may be approved by Brock McLeod. **All courses and prerequisites are subject to change.**

Track 1 (21+ credits)

Electives: Select two or more 3+ credit courses from the following:

Hatfield	Course	Pre(Co)requisites	Term	Credits
✓	BI 302 Biology & Conservation of Marine Mammals	BI 211, 212 and 213	Summer	4
	BI 358 Symbiosis and the Environment	BI 21x series, year CH	Alternate W	3
✓	BI 421 Aquatic Biological Invasions	BI 211, 212 and 213	Summer	4
	BI/FW 464 Marine Conservation Biology	BI 370	?	3
✓	FW 331 Ecology of Marine and Estuarine Birds	BI 211, 212 and 213	Summer	4
✓	FW 426 Coastal Ecology and Resource Management	BI 211, 212 and 213	F	5
✓	FW 431 Dynamics or Marine Biological Resources	BI 370	F	4
	FW 465 Marine Fisheries	FW 315 or BI 450	?	4
	FW 474 Early Life History of Fishes	FW 315 or BI 450	F	4
	OC 201 Oceanography	None	W, Sp	4
?	OC 332 Coastal Oceanography	None	W, Summer	3
	OC 333 Oceans Coasts and People	OC 201	Sp	3
	OC/FW 434 Estuarine Ecology	OC 201	F	4
	OC 440 Introduction to Biological Oceanography	OC 201 or permission	Sp	3

Required (15 credits) taken spring of junior year or later:

✓	BI 450 Marine Biology (WIC course) – by application	JR standing, BI 370	Sp	15
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Track 2 (22+ credits)

Required Courses (16-17 credits)

Hatfield	Course	Pre(Co)requisites	Term	Credits
	OC 201 Oceanography	None	W, Sp	3
	BI 351 Marine Ecology & BI 352 Marine Ecology Lab	BI 211, 212, 213; BI 351	Sp, Su	3+2
	BOT 416 Aquatic Botany	BI 211, 212 and 213	F	4
✓	Z 461 Marine & Estuarine Invertebrates OR Z 361 Invert. Biol. AND Z 372 Invert. Biol. Lab	BI 211, 212 and 213 BI 211, 212 and 213	Sp Su	3+2 4

Elective Course: Select two or more 3+ credit courses from the following:

✓	BI 302 Biology & Conservation of Marine Mammals	BI 211, 212 and 213	Summer	4
	BI 358 Symbiosis and the Environment	BI 21x series, year CH	Alternate W	3
✓	BI 421 Aquatic Biological Invasions	BI 211, 212 and 213	Summer	4
	BI/FW 464 Marine Conservation Biology	BI 370	?	3
	FW 315 Biology of Fishes	BI 211, 212 and 213	F	3
✓	FW 331 Ecology of Marine and Estuarine Birds	BI 211, 212 and 213	Summer	4
✓	FW 426 Coastal Ecology and Resource Management	BI 211, 212 and 213	F	5
✓	FW 431 Dynamics or Marine Biological Resources	BI 370	F	4
	FW 465 Marine Fisheries	FW 315 or BI 450	?	4
	FW 474 Early Life History of Fishes	FW 315 or BI 450	F	4
?	OC 332 Coastal Oceanography	None	W, Summer	3
	OC 333 Oceans Coasts and People	OC 201	Sp	3
	OC 334 Polar Oceanography (WIC course)	OC 201	Sp	3
	OC/FW 434 Estuarine Ecology	OC 201	F	4
	OC 440 Introduction to Biological Oceanography	OC 201 or permission	Sp	3

OSU Marine Biology Resources and Information

Marine Biology Careers

Marine biologists are involved in such diverse areas 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 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 21-22 credits of additional course work in marine biology and completion of 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).

Further information about marine biology careers can be found at:

- <http://www.marinecareers.net/index.php>
- <http://hopkins.stanford.edu/careers.htm>
- <http://ocean.peterbrueggeman.com/career.html>

BI 450 Marine Biology 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 dormitories on the coast in Newport, OR.

BI 450 Marine Biology is taught spring term and satisfies 15 credits of the Track I Marine Biology Option and the major WIC requirement. Admission to Marine Biology is by application each fall (see Cordley Hall 3029) and restricted to juniors and seniors who have taken BI 370 Ecology. The course covers marine invertebrates, algae and fishes in addition to sections on intertidal and coastal ecology and marine conservation. The end of the course features student research projects.

Hatfield Marine Science Center also offers a variety of summer marine courses. These courses cover many courses in Track II or electives in Track I of the Marine Biology Option. Visit <http://hmsc.oregonstate.edu/studentinfo.html> for current listings of the many offerings in summer term.

Marine Biology Research, Internships & International Opportunities

Professional Experience

- Units with marine research faculty include Zoology, Fisheries & Wildlife, Microbiology, College of Earth Ocean & Atmospheric Sciences and others. Hatfield Marine Science Center <http://hmsc.oregonstate.edu/faculty-research> also has some faculty and agency opportunities. Students should look up faculty research on websites and contact them directly about volunteering, as most student positions are unpaid.
- OSU Marine Team <http://oregonstate.edu/marineteam/> frequently has short-term projects for students – use the contacts section of the website to follow up
- OSU Lubchenko/Menge/PISCO lab <http://mytilus.science.oregonstate.edu/> often needs volunteers – contact Jerod Sapp at pisco@science.oregonstate.edu
- Hatfield Marine Science Center and Sea Grant summer programs <http://hmsc.oregonstate.edu/internships>
- See Marine Biology/Oceanography sections at <http://ib.oregonstate.edu/professional/internship-research/intern-volunteer-list> for off-campus opportunities
- The NSF REU (Research Experiences for Undergraduates) program is excellent and nationally competitive. See <http://www.nsf.gov/home/crssprgm/reu/> for details.

International Opportunities

Many international programs in marine biology are available through OSU. These programs can be integrated in to a 4-year degree with the Marine Biology Option and include a diverse group of study abroad & international internships choices. See <http://ib.oregonstate.edu/ugfiles/studyabroad.pdf> for more information.

Diving Opportunities

- A variety of Physical Activity Courses (PACs) for diving certifications are offered at OSU (below). These courses require significant time commitments and should not be taken first term. See the OSU Catalog for course details.
 - PAC 242 Open Water
 - PAC 243 Advanced Open Water
 - PAC 244 Rescue Diver
 - PAC 246 Dive Master Training
- The OSU Research Office offer GRAD 430 Introduction to Scientific Diving. Enrollment requires instructor permission and a minimum of Advanced Open Water. <http://oregonstate.edu/research/diving/>