

MARINE BIOLOGY (PH.D.)

<https://colsa.unh.edu/biological-sciences/program/phd/marine-biology>

Description

The Marine Biology (MB) option is intended for students interested in marine, coastal, and estuarine ecosystems, and the organisms that inhabit them, at all levels of inquiry. Some UNH faculty use marine organisms as model systems for molecular phylogeny, cellular metabolism, and neurobiology, while others study the structure and function of marine ecosystems. Some faculty members focus primarily on basic research; others work in more applied areas such as aquaculture and fisheries; many combine the two. Students who have earned advanced degrees at UNH lead agencies involved in managing valuable marine resources, teach marine biology in academic and public settings, own aquaculture companies, or earn a living as researchers. In addition to on-campus facilities, UNH owns the Coastal Marine Laboratory and the Jackson Estuarine Laboratory, and a range of research vessels. UNH has an excellent SCUBA diving program for students interested in becoming certified to dive as part of their research. The Marine Biology option is also affiliated with UNH's School of Marine Sciences and Ocean Engineering.

Requirements

Ph.D. Degree Requirements

Students work with their advisor and their Doctoral Guidance Committee to plan a program of study including the required core courses and competencies, and develop a viable research proposal. The Guidance Committee is normally established by the end of the first semester, and should meet by the end of the second semester. The student presents to the Guidance Committee a preliminary research proposal in which the soundness, originality, and feasibility of the planned research are clearly described. The Guidance Committee is responsible for approving the proposal, and also oversees the qualifying examination through which the student is admitted to doctoral candidacy. The Doctoral Dissertation Committee is established at this point. To earn the Ph.D. degree, students must complete an original dissertation project, present the results at a public seminar, pass an oral dissertation defense consisting of questions from members of the Dissertation Committee, and have the dissertation approved by the Dissertation Committee and accepted by the Graduate School.

Number of Credits Required

There is no specific credit requirement for the Ph.D., though students must take required core courses and meet competency requirements.

Up to 8 credits of graduate credit from another institution may be transferred, provided the credits were not counted toward another degree, and the course grade was a B or higher. Petitions requesting transfer credit must be supported by the advisor and graduate committee, and approved by the UNH Graduate School.

Required Courses, Competencies, and Electives

All students in the Marine Biology Graduate Program are required to take:

1. BIOL 901 Introductory Graduate Seminar: first-semester course focuses on key information and skills for a successful transition into the graduate program, familiarizing students with program requirements and faculty and providing an opportunity to meet others in their cohort.
2. Two courses in contemporary techniques: Students must take two courses in this competency category, with one course needing to be quantitative. Students should consult their advisor or the graduate program coordinator to determine the courses that fulfill this category.
3. One course in writing/communication: This may be fulfilled by previous graduate coursework (as determined by the student's advisor and committee), or by taking one graduate-level course. Recommendations often include coursework in professional writing and communication: BIOL 902 Writing and Publishing Science is taught fall semester, and open to students at any stage of the program. BIOL 950 Scientific Communication is usually taught in spring.
4. One marine-based course: This may be fulfilled by previous graduate coursework (as determined by the student's advisor and committee), or by taking one graduate-level course that has a marine focus.
5. Field requirement: This requirement may be fulfilled by either taking a graduate-level course that has a significant field component as part of the course, or by conducting field research in support of the student's thesis research.
6. Ph.D. students will be required to be a Teaching Assistant for one semester, or demonstrate prior teaching experience.

Additional Information/Requirements

All students in the Marine Biology Graduate Program are expected to present their research in public seminars (including the UNH Graduate Research Conference), and acquire teaching and/or mentoring experience.

Student Learning Outcomes

Program Learning Outcomes Core Knowledge

- Demonstrate expert knowledge of the subdiscipline relevant to their research project and general knowledge of the broader discipline of marine biology.

Critical Thinking

- Critique, evaluate, and integrate qualitative and quantitative biological research and methods to develop original hypotheses.

Research

- Synthesize research methods and data analysis techniques to conduct an independent and original research project that contributes new knowledge to address a gap in the field.

Communication

- Ability to effectively communicate scientific information, concepts, theories, and methods to professional colleagues (specialists), invested parties, and the general public.

Professionalism

- Conduct research ethically and responsibly and intellectually engage with the broader scientific community.