INTEGRATIVE BIOLOGY (M.S.)

https://colsa.unh.edu/biological-sciences/program/ms/integrativebiology

Description

The Integrative and Organismal Biology (IOB) option offers a home to students interested in basic organismal biology in all of its diverse aspects (physiology, neurobiology, behavior, cell biology, genetics, evolution, ecology, systematics, etc.), in both terrestrial and aquatic environments. Modern biology employs approaches and tools ranging from molecular to ecological levels to gain a deep understanding of organismal functions and adaptations. Students in IOB approach their studies with a focus on organisms, and apply whatever tools are necessary to answer thematic and specific questions. Students interested in combining hands-on biological projects with research on teaching and learning biology at the post-secondary level should choose this option. Students completing degrees in IOB will be prepared for a wide range of professional careers in animal and/or plant biology, whether in academia, government, research, or nonprofit organizations.

Requirements

M.S. Degree Requirements

Students plan a program of study in conjunction with their advisor and Master's Thesis Committee, including the required core courses and competencies. Completion of at least **30 credits**, including research credits, is required. A thesis proposal is developed within the first year. Students complete thesis research for 6 to 10 credits# the degree is completed when results are acceptable, a formal thesis presentation and defense has occurred, and the thesis is approved by the Master's Thesis Committee and accepted by the Graduate School.

Number of Credits Required

The M.S. degree requires completion of a minimum of **30 credits**, 6-10 of which may be earned for thesis research (BIOL 899 Master's Thesis). The IB Program specifies the following requirements: (BIOL 901 Introductory Graduate Seminar); 2 courses in experimental design/analysis; 1 course in writing/communication; and an ethics requirement (either RCR training and/or a graduate level class in ethics).

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 Integrative Biology Graduate Program are required to take:

1. Core Course: Introductory Graduate Seminar (BIOL 901). This 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 experimental design and analysis: This may be fulfilled by previous graduate coursework (as determined by the student's advisor and committee), or by taking two graduate-level courses.
- 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: Scientific Writing Writing and Publishing Science (BIOL 902) is taught fall semester, and open to students at any stage of the program. Scientific Communication (BIOL 950) is usually taught in spring.
- 4. Ethics requirement: Students can fulfill this requirement by either taking the Responsible Conduct of Research training workshop or by taking a graduate level ethics course.
- 5. Electives: Students will work with their advisor and committee to identify additional courses appropriate for their area of specialization and their career objectives.

Additional Information/Requirements

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

Accelerated Master's

This graduate program is approved to be taken on an accelerated basis in articulation with certain undergraduate degree programs.

<u>General Accelerated Master's policy</u>, note that some programs have additional requirements (e.g. higher grade expectations) compared to the policy.

Please see the <u>Graduate School website</u> and contact the department directly for more information.

Students admitted via the Accelerated Master's (AM) process may apply up to 12 credits of prior upper-level UNH coursework in accordance with AM policies.

Student Learning Outcomes

Program Learning Outcomes Core Knowledge

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

Critical Thinking

• Critique and evaluate qualitative and quantitative biological research and methods to develop novel hypotheses.

Research

• Apply knowledge of research methods and data analysis techniques to conduct a research project that addresses a gap in the field.

Communication

• 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.