

# Master of Science in Biology

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## Goals and Program Description

The Master of Science (M.S.) in Biology degree is designed to enable students to develop an advanced understanding of the biological sciences and the capability to teach or conduct biological research. Programs are flexible and can be tailored to satisfy the professional and goals of each student, preparing students for careers in industry or for advanced study in the life and health sciences.

## Admission Requirements

Students must meet departmental graduate program admission requirements. Students will normally be required to satisfy deficiencies of any courses typically required for a bachelor's degree in biology or a related field.

## General and Course Requirements

Incoming M.S. students are required to take a diagnostic examination to assess the depth of their background in biological science and to help plan the Program of Study. The diagnostic exam must be completed in the student's first semester (as part of BIOL 6690 (<http://coursecat.isu.edu/search/?P=BIOL%206690>)), is conducted by an exam committee appointed by the Chair of the Graduate Committee, and results in a diagnostic exam report. See the Biology Graduate Program website for guidelines and other information.

An advisory committee will guide each student in establishing his or her Program of Study based upon the student's diagnostic exam report, background, and research interests. Formation of the advisory committee will occur in the student's first semester. A minimum of 30 credit hours is required for graduation, including at least 16 credits earned at the 6600 level in biology. In addition to the courses required for all biology graduate students, M.S. students are required to take the following courses:

- BIOL 6648 (<http://coursecat.isu.edu/search/?P=BIOL%206648>) Graduate Problems (4 credit hours)
- BIOL 6650 (<http://coursecat.isu.edu/search/?P=BIOL%206650>) Thesis (6 credit hours)
- BIOL 6692 (<http://coursecat.isu.edu/search/?P=BIOL%206692>) Graduate Seminar (1 credit hours)

The remaining 14 credits may be earned at the 5500 or 6600 level, of which eight credits may come from a related discipline. Courses, seminars, special projects, or readings assigned by the student's advisory committee will provide mastery in core conceptual areas in the biological sciences, including genetics and evolution; anatomy and physiology of animals or plants; cell biology, biochemistry, or molecular biology; and ecology. Students are encouraged to develop a research tool, which can be accomplished by taking classes in biometry, microscopy, or a related field outside the biological sciences, such as geology, engineering, economics, or computer science.

## Research Requirements

A substantial, original research project is required, culminating in a written thesis and oral presentation of the findings at a Biological Sciences department seminar. A thesis proposal must be completed in the student's second semester (typically spring); a written proposal will be given to the advisory committee 1 week prior to a proposal seminar (presented to the department as part of BIOL 6691 (<http://coursecat.isu.edu/search/?P=BIOL%206691>)), to be followed by a proposal defense. The successful proposal defense will result in the development and submission of a Program of Study to the program director. Graduate students may not sign up for BIOL 6650 (<http://coursecat.isu.edu/search/?P=BIOL%206650>) (Thesis) until their thesis proposal has been presented to the department and approved by their advisory committee.

Following completion of an original thesis research project and written thesis, the student will present his or her research findings in a seminar presented to the department, followed by a satisfactory oral defense to the advisory committee.

Additional details regarding the graduate timeline and procedures are available on the ISU Department of Biological Sciences website (<https://www.isu.edu/bios/>).