

BIOLOGY M.S.

Degree: Master of Science

<https://www.towson.edu/fcsm/departments/biology/gradbiology/>

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Greater Baltimore is a center of biotechnology and biomedical research. In addition, the region's rapid growth and development have stimulated environmental concerns and placed strains on the education system.

As a consequence, graduates with master's-level training are sought by research facilities and private laboratories, environmental consulting firms, zoos, aquaria, and public and private secondary schools. The Master of Science degree in Biology is intended to provide students with advanced training in sub-disciplines of biology. Students may earn a degree through a thesis or non-thesis option.

The thesis option provides the necessary background and experience for those who plan further study for their Ph.D., for those whose employment requires research training, and for those who wish to teach in community colleges. This option includes a combination of course work and the completion of a major research project. The results of this project will be prepared for publication in the form of a thesis. Students will select their course work and research efforts in one of two areas: Molecular, Cellular and Microbiology, or Organismal Biology and Ecology. Graduate teaching and research assistantships are awarded on a competitive basis to full-time thesis students.

The non-thesis option is designed for those who want a broader background in biology, including secondary school teachers or students planning to apply to professional schools. This option allows students to obtain a degree entirely through course work. Research opportunities are available but not required for the degree. A diverse course offering is available in the evenings to accommodate working students.

Requirements

Admission Requirements

Application deadlines and a full listing of materials required for admission can be found on the website.

Prerequisite Courses

- Course work in general chemistry, organic chemistry, and physics.
- A GPA of 3.00 in previous biology course work.

Degree Requirements

Thesis and non-thesis option students are required to complete 30 units of course work. Students may take a maximum of three courses at the 500 level, and no more than two courses in disciplines outside of Biology (with the exception of ENVS 604), and only with the prior approval of the student's advisory committee or assigned adviser. A course taken for undergraduate credit at Towson University may not be repeated at the 500 level for graduate credit at Towson University.

Thesis Option

Code	Title	Units
Required Courses:		
BIOL 796	PROFESSIONAL ASPECTS OF BIOLOGY	2

BIOL 797	GRADUATE SEMINAR	1
BIOL 896	BIOLOGY THESIS	6
Research Area:		9
Molecular, Cellular and Microbiology		
OR Organismal Biology and Ecology		
Additional Biology Courses (includes ENVS 604)		3-12
Non-Biology Courses		0-6
Non-Thesis Research (Optional):		0-3
BIOL 701	NON-THESIS RESEARCH	
BIOL 703	INDEPENDENT STUDY	
Total Units		30

- All course work must be approved by the student's thesis advisory committee. Appropriate course work will be based on the student's undergraduate background, area of research and career objectives. Students must select courses and focus their research efforts in one of two areas: Molecular, Cellular and Microbiology, or Organismal Biology and Ecology.
- All students must complete and successfully defend a thesis before the degree is awarded.

Non-thesis Option

Code	Title	Units
Required Courses:		
BIOL 797	GRADUATE SEMINAR	1
Biology Courses (includes ENVS 604)		17-29
Non-Biology Courses		0-6
Non-Thesis Research (Optional):		0-6
BIOL 701	NON-THESIS RESEARCH	
BIOL 703	INDEPENDENT STUDY	
Total Units		30

- Non-thesis option students will select course work with assistance and approval of an adviser from the Biology graduate faculty. Course selections will be based on the student's undergraduate background, purpose for pursuing the M.S. degree, and current or planned career.

Learning Outcomes

1. Students will demonstrate an understanding of biological principles and communicate those principles in oral and written form.
2. Students will be able to read, understand and critically review scientific literature within a selected area of biology, including evaluation of experimental design.
3. Students will be able to design, conduct and defend original research projects (for Thesis students).
4. Students will be able to conduct advanced instruction in undergraduate laboratories and classroom lecture settings (for Teaching Assistants).