Master of Arts/Master of Arts in Teaching
Biology

Program Objectives

The Master of Arts (MA) in Biology Program is designed to prepare the student for a career in biology, environmental science, or for advanced study in these fields.

The Master of Arts in Teaching (MAT) Biology Program consists of two tracks, preparing candidates for either initial or professional teacher licensure in Biology at the Secondary level.

Program Description

The MA in biology program offers a flexible program of study with both a thesis and non-thesis track. As students progress through the program, they will develop a strong scientific philosophy, apply sound scientific thinking to analyze biological issues in society, develop skills needed for employment within the field of biology, and expand the breadth and depth of scientific knowledge.

Both the MAT in biology initial licensure and professional licensure tracks provide a balanced curriculum of biology and education courses to give graduates a strong background in content while improving their skills as teachers. Students learn to apply a wide range of biological knowledge including a bioethical perspective, expand their strategies for teaching science to all students, and develop critical thinking skills through experimentation and active learning in the classroom.

Admissions Standards and Criteria

Applicants to the MA/MAT in Biology Program must submit documents as outlined in the graduate admissions section as well as:

- An official transcript of a bachelor's degree from an accredited institution, preferably with (but not limited to) a major or minor in biology or an allied discipline and at least two semesters each of chemistry, physics and mathematics
- The official results of the Graduate Record Exam (GRE)

Notes: Applicants with inadequate preparation will be required to take prerequisite courses prior to admission. The students interested in the thesis option should contact a potential graduate advisor as part of the application process.

- Applicants to the MAT in Biology Initial Licensure program must submit a copy of their MTEL test scores showing successful completion of the Massachusetts Test for Educator Licensure: Communication and Literacy Skills Sub-test.
- Applicants to the MAT in Biology Professional Licensure program must submit a copy of their initial teaching license. Applicants without initial licensure may only be admitted to the Initial Licensure program.

Admissions Resources
E-mail: gceadvisor@fsc.edu
Web site: *www.fsc.edu/gce*

For E-Advising
GCE Virtual Advisor
fsc.edu/gce/virtualadvisor

For more information regarding licensure requirements for teacher preparation programs, contact the Educator Licensure Office at (978) 665-3239 or visit their Web site at www.fsc.edu/edcert.

Program Requirements

The Masters of Arts in Biology Program has a thesis and non-thesis track. Each track provides the student with a solid investigative core balanced by content course work. During the first year each student completes a biology seminar during which the student's writing and communication skills are evaluated. The thesis committee (comprised of the thesis advisor and at least two other graduate faculty) helps the student design a series of courses (electives) which aid them in successfully completing the thesis.

Students in the MAT initial and professional licensure tracks complete 18 credits in Biology at the graduate level. All MAT students are required to take Bioethics, Seminar in Biology and a series of

Teacher Preparation & Educator Licensure web site:
www.fsc.edu/edcert/indexcert.html

Biology electives. As part of the biology electives, students must take at least one course from each of the following areas chosen in consultation with their advisor: 1) ecology and evolutionary biology, 2) cellular and molecular biology. In addition, MAT candidates must complete at least 18 graduate credits in education courses directly related to licensure requirements.

Once accepted, students in the initial licensure track will undergo a transcript review by the graduate program chair and a plan of study will be developed that addresses:

- Courses missing (if applicable) in the subject that are equivalent to the requirements for the undergraduate major in Biology. These requirements include coursework in Genetics, Ecology, Cell Biology and Biological Inquiry. Students with inadequate preparation may be required to take some courses as prerequisite courses that do not count towards the 18 credits of Biology coursework.
- Courses as identified below in the Education core for Initial License (pedagogy courses) including a total of 85 hours of pre-practicum experience.

MA Program of Study

Required Courses

BIOL 7400	Bioethics	3 S.H.
BIOL 9004	Research in Biology	3 S.H.
BIOL 9011	Seminar in Biology	3 S.H.
	Thesis	6-9 S.H.
	*Electives	18-27 S.H.
	Total for Degree	**36 S.H.**

*27 hours reflects a non-thesis option.

MAT Program of Study

Content Core in Biology

BIOL 7400	Bioethics	3 S.H.
BIOL 9011	Seminar in Biology	3 S.H.
	Electives	12 S.H.
	Total	**18 S.H.**

Education core for Initial License

Prerequisite courses at the graduate or undergraduate level

BIOL 2860	Introduction to Secondary School Teaching **OR**	
SEED 7015	Introduction to Strategies for Effective Teaching in the Academic Discipline (with 25 hr pre-practicum)	3 S.H.
SPED 3800	Adolescents with Special Needs **OR**	
SPED 7709	The High School Environment (with 10 hr pre-practicum)	3 S.H.
Graduate courses for initial licensure		**18 S.H.**
ENGL 8076	Process Writing Across the Curriculum (with 25 hr pre-practicum)	3 S.H.
SCED 9000	Advanced Methods of Teaching Science (with 25 hr pre-practicum)	3 S.H.
BIOL 8003	Practicum	6 S.H.

Library Services: The Amelia V. Gallucci-Cirio Library

The Library is located in the Hammond Building and provides daily services.

Web Site

The Fitchburg State Library maintains a home page (*www.fsc.edu/library*) on the Internet to provide information about the library such as hours, online reference services, research inquiries, and access to the library's catalog.

Online Resources

The library maintains subscriptions to electronic journals and databases that include indexes and abstracts; access to thousands of electronic journals with full-text articles; reference titles; and relevant subject based web-sites. They are available from the library home page and from off campus.

Materials Collection

The library houses an extensive collection of materials to support course work and faculty needs, including approximately 238,000 books, 1,000 print periodical subscriptions, and the complete ERIC document collection (online and microfilm).

Reference Services

The reference desk provides service daily. You can also call the Reference Desk (978) 665-3223) or stop by the library for assistance.

Graduate courses in educational research and leadership		**18 S.H.**
EDUC 8300	Research in Education	3 S.H.
SCED 9002	Research in Science Education	1 S.H.
BIOL 9500	Action Research Internship	3 S.H.
	Total Graduate Credits for Degree	**37 S.H.**

Education Core for Professional License**

BIOL 8000	Advanced Methods of Teaching at the Secondary Level	3 S.H.
BIOL 8250	Curriculum and Technology	3 S.H.
BIOL 8260	Curriculum Design and Development	3 S.H.
EDUC 8300	Research in Education	3 S.H.
BIOL 9400	Clinical Experience **OR**	
BIOL 9500	Internship	6 S.H.

**The core experience must include a research project. The proposal is developed in the Research in Education course and conducted during the clinical experience or internship.

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