

# BIOLOGY, MS

**Degree:** Master of Science (MS)

**Field of Study:** Biology

## Program Overview

The Department of Biology offers both thesis (Plan A) and non-thesis (Plan B) Master of Science degree programs.

The Plan A Master of Science in Biology is a thesis graduate degree program. The purpose of the program is to provide advanced exposure to biology for interested professionals, to provide additional training for those wishing to resume or change careers, or to provide additional preparation in biology for students interested in pursuing professional studies in the health sciences. Students are required to write and defend a Master of Science thesis.

Students may also pursue the Plan A Master of Science degree through the Entrepreneurial Biotechnology (EB) track. EB students study state-of-the-art biotechnology, practical business, and technology innovation while working on a real-world entrepreneurial project with an existing company or their own startup. The EB helps to connect students with mentors, advisors, partners, funding sources and job opportunities. EB prepares students to work in diverse research or technology-centered environments.

The Plan B Master of Science in Biology is a non-thesis graduate degree program. The purpose of the program is to provide advanced exposure to biology for interested professionals, to provide additional training for those wishing to resume or change careers, or to provide additional preparation in biology for students interested in pursuing professional studies in the health sciences. Students are not required to write a Master of Science thesis, but the program does require passing a comprehensive oral examination.

## Graduate Policies

For graduate policies and procedures, please review the School of Graduate Studies section of the General Bulletin.

## Program Requirements

Both Master of Science in Biology degree programs (Plan A and Plan B) require a minimum of 30 credit hours of courses at the 300-level or higher. A minimum of 18 credit hours of formal coursework is required for the thesis degree, and a minimum of 27 credit hours of formal coursework for the non-thesis degree. The remaining credits may be research credits (BIOL 601 and BIOL 651). The Entrepreneurial Biotechnology (EB) is a two-year Plan A professional Master of Science degree in Biology. The EB program includes four required courses, an internship, and electives to make up the 30 credit hours. The thesis is based on a real entrepreneurial project with an existing company or your own startup (the internship).

### Plan A (Thesis)

All candidates must complete a total of 30 credit hours in coursework at the 300 level or higher within 5 years of matriculation into the graduate program.

At least 18 of these credit hours must be at the 400-level or above. Further, at least 15 credit hours must be in courses offered by the biology

department. The remaining course work may include courses offered by any department within the University, subject to an advisor's approval and School of Graduate Studies regulations.

Candidates are limited to 3 credit hours of BIOL 601, but may take up to 9 credit hours of BIOL 651.

According to rules of the School of Graduate Studies, once a candidate registers for BIOL 651, the registration must continue for a minimum of 1 credit hour per semester until completion of the degree program.

Students who are uncertain about completing requirements for a Plan A Master of Science degree should consult the regulations for the Plan B Master of Science degree. These two master's degrees have different regulations concerning use of BIOL 601. A candidate may wish to use BIOL 599; the letter grade assigned will reflect the evaluation by the entire Advisory Committee.

### Plan A (Thesis) Entrepreneurial Biotechnology

The Entrepreneurial Biotechnology Program (EB) requires students to write a thesis in order to graduate with a Master of Science in Biology, Entrepreneurship Track. The thesis must be based on a project of significant time investment on the part of the student and must be grounded in the real world (i.e., not simply an academic exercise). Thus, each student is required to work as an intern, employee, or entrepreneur, typically with a start-up, existing company, early-stage investment firm, or affiliate of a research organization. The duration must be at least one year, with one semester reserved for full-time work outside of the classroom (usually the fourth and final semester). Under this requirement, international students will be permitted no more than one semester of full-time curricular practical training (CPT).

### Plan B (Non-thesis)

All candidates must complete a total of 30 credit hours in coursework at the 300-level or higher.

At least 18 of these credit hours must be at the 400-levels or above. Further, at least 15 credit hours must be in courses offered by the Biology Department. At least one course must be taken in each of the following areas of biology: cell and molecular biology (including chemical biology), organismal biology, and population biology. The remaining course work may include courses offered by any department within the University, subject to the advisor's approval and School of Graduate Studies regulations.

Candidates are limited to a total of 6 credit hours of independent study (up to 3 credit hours of BIOL 599 and up to 3 credit hours of BIOL 601). BIOL 599 requires completion of a Course Proposal Form (available in the Biology Departmental Office) and approval by the advisor. In the case of enrollment in BIOL 599, the letter grade assigned will reflect the evaluation by a two-person committee recruited by the student and advisor.