BIOLOGY M.S.

Graduate Arts and Sciences
Dr. Edwin Li, Director

Mission Statement
The Biology Department offers programs leading to the Master of Science (M.S.) and Master of Arts (M.A.) degrees in biology. These flexible programs meet the needs of students wishing to develop their skills as research scientists or prepare for admission to professional school or doctoral programs. Both programs can prepare students to enter science-related careers or help them advance in education or corporate settings.

Description of Programs
The graduate programs of the Biology Department are intended for graduates who desire training in specialized fields and who are planning a career in teaching, research or professional practice in these areas.

The M.S. program requires completion of an extensive research project and a written thesis and is typically a full-time program completed within two years. The M.A. program is course-based and more easily accommodates part time as well as full-time students. Non-matriculated students may also, with permission, enroll for isolated credit. Competitive Teaching Assistantships are available for students who qualify and there may be additional opportunities for financial support. Students apply to either the M.S. or the M.A. program depending on their interests. Due to the independent nature of the M.S. program, admission is more competitive. The number of M.S. students admitted each year is also limited by the availability of faculty mentors and may change annually. The graduate admissions committee will evaluate all applicants and decide whether the applicant has sufficient credentials to be admitted to the program. A personal interview with the applicant may be requested. The biology graduate program accepts applications all year; however students are generally advised to begin their studies in the fall semester because the required Research Techniques course is offered only in fall. Applicants wishing to be considered for teaching or research assistantships for the fall semester are advised to apply by March 1 as funds are limited and funding decisions are typically made by April 1.

Learning Goals and Objectives

Goal 1: Students will develop their identity as scientists through interactions with faculty mentors, with their colleagues and with nonscientists. They will become informed about prospective careers for life scientists in government, industry and academia as well as learning about the professional and ethical expectations for scientists.

Objective 1.1: Students will be familiar with the appropriate set of research, laboratory and/or field skills used by specialists in their subfields of choice.

Goal 2: Students will be able to understand and critique articles from the primary literature in biology. They will improve their skills in communicating about science, particularly about biology, including data presentation, writing, and oral communication appropriately targeted to various audiences.

Objective 2.1: Students will be able to locate, read, interpret, evaluate and discuss primary literature in Biology.

Objective 2.2: Students will be able to analyze, interpret and present data of various kinds.

Objective 2.3: Students will design, execute and communicate results of research. (For M.A. students, this will take the form of projects completed for courses. M.S. students will complete a traditional thesis that includes a public defense and a written report.)

Goal 3: Students will develop skills in experimental design, data collection and analysis.

Objective 3.1: Students will be able to analyze, interpret and present data of various kinds.

Objective 3.2: Students will design, execute and communicate results of research. (For M.A. students, this will take the form of projects completed for courses. M.S. students will complete a traditional thesis that includes a public defense and a written report.)

Goal 4: Students will have a deeper and more sophisticated understanding of one or more of the subfields of biology, and they will develop the appropriate set of research, laboratory and/or field skills necessary for specialization in the subfields.

Objective 4.1: Students will increase their knowledge and understanding of one or more of the subfields of biology through assignments in courses and research experiences in courses and/or independent study.

Objective 4.2: Students will be familiar with the appropriate set of research, laboratory and/or field skills used by specialists in their subfields of choice.

Course Requirements
Degree candidates for the Master of Science degree in Biology must be full time students and will be required to complete 30 credit hours of graduate study in biology. All M.S. candidates will be required to complete 24 credit hours of formal classroom study and 6 credit hours of thesis research (BIO 794). The 24 credit hours of formal classroom study must include Research Techniques (BIO 550 and BIO 550L) and graduate level courses (500-700 level), which may include up to 4 credit hours of Graduate Seminar (BIO 552) and 8 credit hours of research (BIO 793 BIO 793). Graduate Seminar is required during each semester of enrollment.

Thesis requirement
Degree candidates for the Master of Science Degree in Biology will be required to complete a research problem in their area of specialization and to publish their findings in thesis form. A Thesis Committee will be formed to follow the progress of the candidate, evaluate the final thesis and administer a final oral examination based on the thesis research. The Thesis Committee will consist of three faculty members, and be chaired by the candidate’s research mentor. The thesis must be acceptable in both scholarship and literary quality. Both a public presentation of the thesis work and a private defense of the thesis are required. To be recommended for the Master of Science degree in Biology, the candidate must receive approval of the majority of the committee members. Not later than three weeks prior to the commencement at which the degree is to be conferred, two copies of the completed thesis suitable for binding and bearing approval of the Thesis Committee must be deposited in the Department of Biology office. The cost of preparation, reproduction, and binding of the thesis is the responsibility of the candidate.
Other specific requirements

1. The candidate for the M.S. Degree in Biology is required to graduate with a grade point average of at least 3.0.
2. Successful completion of all requirements must be accomplished within a maximum of 5 years from the time of acceptance to the program.
3. All of the requirements described in this document represent minimum requirements, and it is understood that the Thesis Committee may require additional work to make up for deficiencies in the student's background. Any exceptions to requirements must be approved by the thesis mentor and the graduate director.

Financial Support

Full-time M.S. students can apply for teaching assistantships that include a stipend and tuition scholarship. Other teaching opportunities may be available to both M.A. and M.S. candidate. Students seeking financial support are encouraged to apply by March 1 or earlier for the fall semester.