Biology

MASTER OF SCIENCE

Program Description

The Master of Science in Biology is designed for graduate students who wish to become knowledgeable leaders and professionals with an in-depth education, and specialized skills in the field of biology. This program promotes competency in the application of scientific methods of investigation to studies in biology with an emphasis on urban and coastal issues. Students develop a sense of creative independence that will allow them to practice in and contribute to a variety of professions and fields of scholarship.

Learning Outcomes

Students will:

• Possess a broad understanding of biology.
• Possess enhanced knowledge of a specific biological field including relevant scientific literature related to their thesis or professional paper.
• Understand the scientific method and be able to design and conduct experiments.
• Be able to accurately describe (orally and in writing) biological research.

Admission Requirements

To be considered for admission to the MS Program in Biology, an applicant must provide the following documents: a completed application form, application fee, official GRE scores, official transcripts of all college and university coursework, an essay (not more than 1000 words) outlining career goals, potential areas of research interest, and a list of up to three faculty members to serve as a graduate advisor, and three letters of recommendation. Students are required to contact potential advisors prior to and during the application process to discuss research opportunities and get an overall feel for the program, and should include a summary of these discussions in their essays. Additional requirements exist for international students, including an approved foreign transcript evaluation that includes a course by course comparison (refer to the Admission section of this catalog). No criterion is weighted more heavily than any other criterion. Send application documents to the university Office of Graduate Studies and Research. Incomplete applications are not considered. Applicants will be notified of the outcome of their application by letter.

Teaching Assistantships are available to graduate students admitted as degree-seeking students. The completed Teaching Assistant Application (forms available at http://www.sci.tamucc.edu/stweb/ta/index.html) and all other materials requested for evaluation should be submitted to the office indicated on that form. For full consideration, the deadline for submitting applications is February 1 for the following academic year. Faculty members conducting funded research projects often hire qualified graduate students as Research Assistants. Students will need to contact faculty members in their field of interest for information on these opportunities.

Non-degree students may enroll in courses for which they have adequate academic preparation, but they may not apply more than nine credit hours of work taken in non-degree status to a graduate degree program. Non-degree students must consult with the Life Sciences Coordinator to determine those courses in which they may enroll and those courses they may later apply to the Biology degree program, if they are admitted to the program. Students must earn a grade of “B” or better in each of the prescribed courses in order to have the courses apply to the plan of study.

Degree Requirements

Each Master of Science degree candidate must complete a minimum of 36 graduate semester credit hours. Undergraduate courses (4000-sequence or lower) are regarded as foundation work and will not count toward the total. A student may request approval for transfer of a maximum of nine semester credit hours of graduate courses from other colleges to a Master of Science in Biology degree plan.
After admission to the graduate program, the Life Sciences Coordinator will advise the student in all matters relating to degree requirements and procedures until a formal advisory committee is formed. By the end of the first semester of graduate study, the student in consultation with the Life Sciences Coordinator will select his or her Graduate Advisory Committee. This committee will advise the student in all matters pertaining to graduate requirements and procedures. A student’s Graduate Advisory Committee must consist of a minimum of three members, at least two of whom must be graduate faculty in the Department of Life Sciences. Additional committee members must be graduate faculty at Texas A&M University-Corpus Christi or adjunct graduate faculty in the Department of Life Sciences. The Chair of a student’s Graduate Advisory Committee must be graduate faculty in the Department of Life Sciences. The student and all members must mutually agree to the size and composition of the Graduate Advisory Committee. The committee will recommend a Degree Plan for the student that will then be submitted to the Dean of the College of Science and Technology for approval.

There are two plans for obtaining the Master’s Degree in Biology: the Non-Thesis Plan and the Thesis Plan.

A. **Non-Thesis Plan** (36 semester hours)

The non-thesis Master’s Degree is designed to provide a broad understanding of biology. The curriculum will especially benefit those individuals in professional employment who seek advancement or additional training to enhance their knowledge and skills. The student is required to write a professional paper based on work done in BIOL 5397-Directed Research. The paper will be on a topic approved by the student’s Graduate Advisory Committee and will demonstrate the student’s ability in organization, data collection, and scientific writing. Graduate students are expected to present their research at a scientific meeting (other than their graduate seminar) prior to graduation.

The following courses are required:

- BIOL 5102  Graduate Research Seminar (1 semester hour)
- BIOL 5397  Directed Research (3 semester hours)
- MATH 5315  Statistical Methods of Research (3 semester hours)

Advanced Electives (29 semester hours minimum)*

TOTAL: 36 semester hours

*The advanced electives must be approved by the student’s advisory committee in order to be counted for credit towards the graduate degree.

B. **Thesis Plan** (36 semester hours)

The thesis Master’s Degree requires a thesis based upon original research. The research must include a review of relevant literature, a description of the results from original research on a topic approved by the Graduate Advisory Committee, statistical analysis when appropriate, and an appropriate discussion of the results. The research must be conducted during the period that the student is enrolled at Texas A&M University-Corpus Christi. Graduate students are encouraged to present their research at a scientific meeting (other than their graduate seminar) prior to graduation.

The following courses are required:

- BIOL 5102  Graduate Research Seminar (1 semester hour)
- BIOL 5392  Thesis Proposal (3 semester hours)
- BIOL 5393  Thesis Research (3 semester hours)
- BIOL 5394  Thesis Submission (3 semester hours)
- MATH 5315  Statistical Methods of Research (3 semester hours)

Advanced Electives (23 semester hours minimum)*

TOTAL: 36 semester hours
*The advanced electives must be approved by the student’s Graduate Advisory Committee in order to be counted for credit towards the graduate degree. Thesis students may change to the Non-Thesis Plan at any time with the approval of the Graduate Advisory Committee.

The thesis and non-thesis professional paper must follow format requirements as established in the Biology Graduate Handbook, and must be approved and signed by the members of the student’s Graduate Advisory Committee and the Dean of the College of Science and Technology.

**Academic Preparation**

Degree candidates in biology are expected to enter the program with competencies that are equivalent to those required of Texas A&M University-Corpus Christi undergraduate biology majors as described in the biology section of the undergraduate catalog. Therefore, a degree candidate who lacks adequate academic preparation may be required by his or her Graduate Advisory Committee to complete undergraduate course work prior to the completion of the MS degree. Such course work will be regarded as foundation or prerequisite work and will not count as credit towards the total required for completion of the degree.

**Enrollment Requirements**

The minimum enrollment requirements for the Master of Science degree program in Biology are:

1. Thesis and non-thesis degree students must complete a minimum of twelve semester hours of graduate level credit per academic year (fall semester to fall semester). Failure to complete this minimum will result in dismissal of the student from the program.
2. A student must register for BIOL 5940 Project Research (3 semester hours or more) unless he or she is otherwise enrolled in a minimum of twelve semester hours of degree plan courses per year.

**Final Oral Examination**

Each student must take a final oral examination during his or her final semester. The student’s Graduate Advisory Committee will administer the examination. It will cover topics related to the thesis or professional paper as well as broad aspects of biology. The student is responsible for scheduling the examination with the faculty involved. A student who fails the final oral examination may repeat it after a minimum of four months. If a student fails the second oral examination, he or she will not be permitted to continue in the program.

**For Additional Information**

Website:  http://lsci.tamucc.edu/biol
Campus address:  Science and Technology Building
                Room 319; Phone (361) 825-2754
Mailing address:  Graduate Biology Program, Unit 5800
                  College of Science and Technology
                  Texas A&M University-Corpus Christi
                  6300 Ocean Drive, Corpus Christi, Texas 78412-5800

**GRADUATE COURSES**

Graduate standing is required for enrollment in 5000-level courses. Exceptions can be made for outstanding undergraduate students with the Dean’s consent. For details, see “Graduate Study by Undergraduates” in the catalog chapter titled “Academic and Degree Requirements.” Weekly lecture and laboratory hours associated with each course are designated by (lecture:lab) following the semester hours when appropriate. The laboratory hours shown are laboratory instructional time. In most cases, additional laboratory time will be required to complete assigned work. Prerequisites for entry into a course are indicated, but may be waived with permission of the instructor.