Biology M.S.

Degree Requirements: 30 Credit Hours (Thesis Option), 36 Credit Hours (Non-Thesis Option)

Advising
College of Science and Mathematics
Department of Biology
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Admission

Students are selected for the Master of Science in Biology degree program on a competitive basis. Meeting minimum requirements does not guarantee admission. Applications are usually evaluated during the eighth week of the semester prior to the semester of admission. Applications for graduate assistantships must be received by March 1 to receive full consideration for fall. Assistantships are awarded for a maximum of five semesters and are reviewed each semester. Students must comply with the College of Graduate Studies degree completion time line for a master's degree. A student who has not matriculated for three or more consecutive semesters and are reviewed each semester. Students must comply with the College of Graduate Studies degree completion time line for a master's degree. A student who has not matriculated for three or more consecutive semesters must re-apply and meet all admission requirements in effect at the time of the new application for admission.

Admission Requirements

For unqualified admission to the College of Graduate Studies to pursue graduate work leading to the Master of Science degree in Biology, the applicant must have:

Regular
1. Completed requirements for the bachelor's degree in a college accredited by the proper regional accrediting associations.
2. A 2.80 (4.0 scale) cumulative grade point average or higher on all undergraduate work.
3. Scores of at least 153 on the verbal and 146 on the quantitative portions of the Graduate Record Examination (GRE) are typical for applicants to the Master's Program in Biology. For applicants who took the GRE General Test prior to August 2011 scores of at least 500 on the verbal and 550 on the quantitative portions are typical. Lower scores will sometimes be considered, but the applicant will need strong evidence of ability to perform satisfactory graduate work.
4. An undergraduate major or the equivalent appropriate to the proposed field of study. Adequately prepared applicants will typically have completed 24 credits of biology, 9 credits of mathematics, 16 credits of chemistry (including organic chemistry), and 8 credits of physics (or geological science).
5. Two letters of recommendation from individuals familiar with the applicant's potential to complete successful graduate work.
6. A statement of career goals to explain why you are interested in pursuing the degree and to explain your long term career plans.
7. Applicants are strongly encouraged to identify a thesis adviser and submit the name to the graduate program director prior to the application deadline.
8. GRE subject test in Biology is not required, but is preferred

Provisional
Students who fail to meet one of the requirements 2-4 above may be admitted provisionally. To be converted to regular status, provisional students must earn a “B” or higher in their first six (6) credits of Biology graduate courses, approved by the Biology Program Director, with at least three (3) credits at the 7000-level. Directed Individual Study (BIOL 7890) or Biological Problems (BIOL 7893) cannot be taken for these six (6) credits. Students on provisional status may not hold a graduate assistantship.

Non-Degree
Non-degree students are accepted on an individual basis as space is available.

Thesis and Non-Thesis options are possible for the M.S. degree in Biology. The program of study and program requirements for each of the two options are outlined below.

Program of Study (Thesis Option)

The graduate student and their graduate committee shall jointly develop a Program of Study that includes 24 credits in graduate course work including the required courses listed below, plus three (3) credits of research and three (3) credits of thesis.

Thesis Option, 30 Credit Hours

Core Requirements (6 Credit Hours)
BIOL 7531 Research Methods 3
BIOL 7530 Biometry 3

Specialty Requirements (3 Credit Hours)
Select one of the following:
BIOL 7133 Molecular Biology 3
BIOL 7233 Applied Biology
BIOL 7333 Evolutionary Ecology

Other Requirements (21 Credit Hours)
BIOL 7610 Graduate Seminar 2
BIOL 7895 Research 3
BIOL 7999 Thesis 3
Electives courses at 5000G level or above 13

Total Credit Hours 30

Note that a limit of six (6) credits of any combination of Directed Individual Study (BIOL 7890) and Biological Problems (BIOL 7893), and a limit of four (4) credits of Graduate Seminar (BIOL 7610) can be used toward the 30 credit degree requirement.

Other Program Requirements (Thesis Option)

1. Each candidate for the Master of Science Thesis option in Biology must have accomplished the following by the end of their second term to earn or maintain their eligibility for a graduate assistantship:
   a. Identified an adviser within the Biology Department
   b. Formed a Steering Committee of the adviser and two other Biology Department Faculty
   c. Written a thesis proposal and submitted any necessary IACUC / IBC / IRB applications
   d. Met with the Steering Committee formally, submitted and received approval for their thesis proposal (i.e., prospectus) and Program of Study with appropriate signatures.
2. Each candidate must receive approval from his/her Steering Committee and the Director of the Biology Graduate Program to take courses that do not apply to the MS Thesis Degree in Biology, or are taught outside of the Department of Biology.

3. Each candidate for the Master of Science degree in Biology must complete a thesis on a subject approved by his/her steering committee.
   a. This thesis must be presented at a public exit seminar and, within 2 weeks following the seminar, defended before the thesis committee.
   b. The thesis defense is a comprehensive examination that may include questions on the thesis, and subject matter related to the thesis, and course work.
   c. In addition to the thesis, the student must provide the adviser with all forms of the data that were collected, including electronic files, and a written document detailing the contents of the data files (or other forms).
   d. The degree is conferred at the end of the semester, after the student has passed the thesis defense and the final written version of the thesis has been approved by the committee.

4. Students entering the Master of Science Thesis option in Biology can apply to switch to the Non-Thesis option within their first two academic semesters by completing the appropriate change of degree paperwork assuming that they are in good standing (See the Graduate Program Director for the required paperwork). After their second academic semester, applications to switch to the Non-Thesis Option are allowed, but a student cannot transfer more than twelve (12) credits of coursework from the thesis option to the non-thesis option. Additional criteria required to switch programs after the second semester are:
   a. Email the Biology Graduate Committee via the graduate program director a request to switch programs. This email should include an explanation and justification for the request. The request must receive approval from the Department of Biology Graduate Committee. Approval to switch degree programs is not guaranteed.
   b. Complete the Department of Biology Change of Degree Plan checklist, including all signatures.
   c. If any thesis-related and/or grant-related research has been undertaken, providing the faculty mentor with the following (all in hard copy and electronic format whenever possible and relevant):
      • A written one page document detailing the objectives of the initiated research
      • A complete description of the methods used to collect data
      • All forms of data that were collected
      • A written document detailing the contents of all the data files (or other forms)
   d. If data were gathered to meet the obligation of a grant (completely or in part), then the student must waive all rights and ownership over the data and any publications forthcoming from the use of the data.
   e. With the College of Graduate Studies file
      i. a new Program of Study form, and
      ii. a Change of Major or Study Concentration form.
      • Note the Directed Individual Study (BIOL 7890)/Biological Problems (BIOL 7893) course, and course title, requirements described under the non-thesis program below.

Program of Study (Non-Thesis Option)
The graduate student and the graduate committee shall jointly develop a Program of Study that includes 36 credits in graduate course work including the required courses listed below. Either faculty or the graduate program director may advise non-thesis students.

Non-Thesis Option, 36 Credit Hours

<table>
<thead>
<tr>
<th>Core Requirements (8 Credit Hours)</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 5000G-level</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 5000G-level and fulfills scientific process category</td>
<td>4</td>
</tr>
</tbody>
</table>

| Specialty Requirements (6 Credit Hours) | | |
|-----------------------------------------| |
| Select two of the following:            | 6 |
| BIOL 7133 Molecular Biology             | |
| BIOL 7233 Applied Biology               | |
| BIOL 7333 Evolutionary Ecology          | |
| BIOL 7530 Biometry                      | |

| Other Requirements (22 Credit Hours)    | | |
|-----------------------------------------| |
| BIOL 7610 Graduate Seminar              | 1 |
| BIOL 7610 Graduate Seminar              | 1 |
| BIOL 7890 Directed Individual Study     | 3 |
| or BIOL 7893 Biological Problems        | |

Note: "Non-Thesis" must be part of the course title

Electives courses at 5000G level or above | 17 |

Total Credit Hours | 36 |

Note that a limit of six (6) credits of any combination of Directed Individual Study (BIOL 7890) and Biological Problems (BIOL 7893), and a limit of four (4) credits of Graduate Seminar (BIOL 7610) can be used toward the 36 credit degree requirement. Research (BIOL 7895) and Thesis (BIOL 7999) cannot be used toward the Non-Thesis option.

Other Program Requirements (Non-Thesis Option)

1. To continue with the second year, each candidate for the Master of Science Non-Thesis degree in Biology in conjunction with the Graduate Committee must complete a Program of Study and identify an advisor who will oversee the Directed Individual Study (BIOL 7890) and/or Biological Problems (BIOL 7893), with an extensive scientific writing component requirement. Note: "Non-Thesis" must be part of the course title.

2. Each candidate must receive Graduate Committee and Director of the Biology Graduate Program approval to take courses that do not apply to the MS Degree.

3. Students entering the Master of Science Non-Thesis option in Biology can switch to the Thesis option within their first two academic semesters assuming that they are in good standing. They can apply to switch programs by completing the Department of Biology Change of Degree Plan checklist and completing steps 4a. through 4e. under the “Other Program Requirements” of the Thesis option by the end of the second semester. After the second academic semester, students may switch to the Thesis option by completing the required change of option paperwork and completing steps 4a. through 4e. under the “Other Program Requirements” of the Thesis option in the term the change of option is requested. If the change of option is approved, all guidelines for the Thesis option apply.