

# Master of Science in Biology

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**Apply to NEIU!** We accept new students in fall, spring, or summer terms. Northeastern offers both a Master in Science (MS) degree in biology and a Master of Arts in Teaching (MAT) degree in secondary education. Please contact us at [BioGradPrograms@neiu.edu](mailto:BioGradPrograms@neiu.edu) with any questions.

## Master of Science in Biology

The Master of Science in Biology program provides advanced training in a wide variety of biological fields. Faculty in the M.S. in Biology program have expertise in a range of subdisciplines including molecular biology, cellular biology, genetics, immunology, biochemistry, microbiology, ecology, botany, and zoology. Students tailor their coursework to suit their goals and may conduct thesis research or complete a degree that is entirely coursework-based. The program prepares students for research-based careers, advancement in teaching careers, or matriculation into PhD or health profession degree programs.

Students may start the M.S. Biology program in the fall, spring, or summer terms. Please reach out to us at [BioGradPrograms@neiu.edu](mailto:BioGradPrograms@neiu.edu) for more information or to address any questions you might have.

### Upon completion of the M.S. in Biology program students will gain:

- A strong understanding of disciplines across biology and mastery of specific subdisciplines of interest.
- The knowledge base necessary to critically evaluate research methods, data, and results.
- Strong written and oral presentation skills.
- Experimental design and laboratory/field skills if completing the research thesis option.

## Admission Requirements

Application forms to the graduate program may be found on the NEIU Admissions website (<https://admissions.neiu.edu/>). We accept students to start the M.S. Biology program in the fall, spring, or summer terms. Please reach out to us at [BioGradPrograms@neiu.edu](mailto:BioGradPrograms@neiu.edu) for more information or to address any questions you might have.

1. Applicants need a Bachelor's degree in Biology or the course equivalent, including two semesters each of General Biology, General Chemistry and Physics, and one semester each of Cell Biology, Ecology, Genetics, Organic Chemistry and Calculus or Statistics. Undergraduate students who are close to completing the Bachelor's degree are welcome to apply.
2. An overall undergraduate GPA of 2.75, with a GPA of 3.0 in the undergraduate biology courses, is required for full admission to the program.
3. A Statement of Goals and Objectives that specifies the applicant's academic and professional goals and the reasons for choosing the Biology M.S. program.
4. Two letters of recommendation from academic references (such as former or current professors) or work-related supervisors who are able to assess the applicant's potential for advanced graduate study in Biology.
5. NOTE: GRE (Graduate Record Examination) scores are NOT required for admission to our program.

Applicants missing a few prerequisite courses may be granted Conditional Admission and be able to take those courses while in the program. Applicants with strong potential, but whose records do not quite meet the official requirements, may be granted Provisional Admission. For more information, please refer to the General Admission Requirements (<https://catalog.neiu.edu/admissions/graduate-students/>) of the College of Graduate Studies & Research. Decisions regarding Conditional and Provisional Admission are made on a case-by-case basis.

## REQUIREMENTS FOR SECONDARY EDUCATION LICENSURE

Students interested in obtaining an Illinois teaching license along with a Master of Science in Biology should apply to the Biology M.S. and Teaching Endorsement programs. Students in these programs complete both the biology coursework and education coursework needed to fulfill the state's requirements for high school science teaching. For information about the teaching licensure requirements, please visit the Secondary Education program page (<https://catalog.neiu.edu/education/educational-inquiry-curriculum-studies/master-arts-teaching-language-arts/#text>) or contact Ms. Vanessa King ([v-king@neiu.edu](mailto:v-king@neiu.edu)), Student Support Specialist in the Goodwin College of Education.

## Accelerated Bachelor's / Master's degree options

We also offer accelerated tracks for students who have not yet completed the bachelor's degree. The accelerated tracks allow qualified undergraduate students to start taking graduate-level courses while still an undergraduate. Up to twelve credit hours are shared between the bachelor's and master's degrees. The master's degree is thus completed more quickly, and at less expense. The **Accelerated Biology B.S./M.S.** track leads to the Master of Science in Biology degree. The **Accelerated Teaching Track** leads to the Master of Arts in Teaching- Secondary Education degree. Undergraduates interested in pursuing either accelerated track should meet with an academic advisor early in the B.S. program to maximize the benefits and to determine eligibility to apply. Contact [BioGradPrograms@neiu.edu](mailto:BioGradPrograms@neiu.edu) ([biogradprograms@neiu.edu](mailto:biogradprograms@neiu.edu)) for more information.

**ADVISING HELP:** *Questions about the Master's Degree?* Please contact the Biology Graduate Program Advisor, Dr. Michael Stern at [m-stern2@neiu.edu](mailto:m-stern2@neiu.edu). We also welcome questions at [BioGradPrograms@neiu.edu](mailto:BioGradPrograms@neiu.edu) ([biogradprograms@neiu.edu](mailto:biogradprograms@neiu.edu)).

## Degree Requirements

The M.S. in Biology allows students to tailor their program of study to meet their individual needs. Students may attend full-time or part-time and have up to 6 years to finish the M.S. degree requirements. Graduate courses are predominantly offered during the late afternoon and evening hours to accommodate working students. All graduate students are required to take BIO-405 together as a cohort with the other students in their admission year - this course provides instruction on the critical analysis skills required for success in the program as well as the development of career preparation tools. All students also must successfully complete at least one course that includes a laboratory or field component; for students pursuing the Research Thesis Option, the research thesis fulfills this requirement.

Each student in the M.S. in Biology program assembles a portfolio of work that they complete during their tenure in the program. The portfolio serves to:

1. Document the progress toward the degree, and the skills and knowledge base achieved, and
2. Provide students with materials that will help them reach their professional and career goals.

The initial draft of students' portfolio material is assembled as part of the required BIO-405 course with mentorship by the faculty instructor. Subsequent versions of the portfolio are assembled independently on an ongoing basis, and include examples of scholarly work from courses completed by the student in the NEIU graduate program and work produced specifically for the portfolio. All portfolios will include:

- Personal statements, reports of academic progress, and/or self-assessments written at different stages in the program.
- Curriculum vitae or résumés written at several stages of degree completion.
- Literature-based writing assignments in which students demonstrate ability to read, interpret, summarize, and synthesize information at a level expected of a graduate student in biology.
- Short pieces of writing and/or supporting documentation for oral or poster presentations that demonstrate a student's ability to communicate their skills or expertise to both professional and lay audiences.

### Candidacy in the Biology Program

Students need to apply for candidacy within the Biology program after they have completed at least 12 and no more than 18 credit hours of coursework, including BIO-405. Candidacy also requires a GPA of at least 3.0 in courses that count towards the M.S. in Biology degree. Students admitted on a provisional basis must satisfy all program prerequisites before they can receive candidacy. Evaluation of the portfolio will be included in decisions regarding advancement to candidacy. Students must satisfy their candidacy requirements and be declared candidates for the degree before they can register for either Library or Research Thesis credits.

## Degree Tracks

### Research Thesis Option

This option is recommended for individuals who are interested in a career in biological research, are working in applied fields of Biology, or are interested in further graduate or professional studies. Students interested in this option are encouraged to arrange appointments with the graduate program advisor and faculty in their area of interest early in their program, to discuss potential thesis topics.

Students pursuing the Research Thesis Option complete a minimum of 33 credit hours of graduate course work, including BIO-405 and Research Thesis Hours. Up to two (2) credits of Independent Investigations (BIO-482) can replace an equal number of Research Thesis Hours credits. Students must have advanced to candidacy (see above), identified a thesis advisor, and formed a thesis committee before they can submit the research proposal. The research proposal, developed by the student under the mentorship of their thesis advisor and thesis committee, and which delineates the research project the student will conduct (see below), must be approved by the Biology Department before the student can register for Research Thesis credits. The exit requirement for the Research Thesis Option is successful completion of the research project, the public, oral defense of the Research Thesis, and the approval and submission of the written thesis according to CGSR guidelines.

Students who register for the research thesis and subsequently decide not to complete the thesis may, upon program approval, apply the credits completed for the research thesis towards total credit hour requirements for any of the other two options (see below).

### Library Thesis Option

This option is recommended for students who are interested in exploring a particular topic through literature research. The student will choose a library thesis advisor who will guide the student in identifying an appropriate question, preparing a thesis proposal, and writing the thesis. The goals of the library thesis are to explore a specific topic through the current literature with the aim of determining whether there is a particular gap in knowledge and/or if a specific question(s) can be answered through existing knowledge or whether additional experimentation/research are required to address the question.

Students pursuing the Library Thesis track complete a minimum of 34 credit hours of graduate coursework, including BIO-405, at least one course that includes a laboratory or field component, and Library Thesis Hours. The student must have advanced to candidacy (see above), have identified a thesis advisor and two readers, and obtained department approval of the thesis project before registering for Library Thesis Hours credits. The exit requirement for the Library Thesis Option is successful public, oral presentation and defense of the Library Thesis.

## Non-Thesis Option

This option is recommended for students who desire a more flexible approach to graduate training in Biology. It is a popular track for teachers or those who want to become more competitive for admission to professional/health programs.

Students complete a minimum of 36 credit hours of graduate course work, including BIO-405, at least one course that includes a laboratory or field component, and the professional/academic portfolio. For students in the Non-Thesis Option, the portfolio will be evaluated at least 3 times during their tenure and the final portfolio must be submitted to their advisor no later than week 8 of their final semester in the program. The exit requirement for the Non-thesis track is acceptance of the portfolio by the Biology Graduate Advisory Committee.

## Thesis Proposals

Students interested in pursuing either the Library or Research Thesis options submit a thesis proposal for review and consideration by the department before they register for thesis credits. Potential topics are first discussed with a prospective thesis advisor to determine a project focus. The student drafts a proposal that presents the background and scope of the project, literature review, hypothesis/hypotheses to be tested (gap in knowledge and/or question(s) to be addressed in the case of a library thesis), methodology (for research theses only), and anticipated timetable. At the same time, in consultation with the research advisor, the student forms their thesis committee (thesis advisor + 2 additional Biology faculty members for the Research Thesis or thesis advisor + 2 additional readers for the Library Thesis). Once approved by the committee, the proposal is then submitted to the biology faculty for review and consideration.

## Graduate Degree Time-Limit

Students in all degree tracks (see above) have a maximum of 6 years to complete their degree. Students requiring an extension of an additional semester or more to complete their degree should petition the College of Graduate Studies & Research and the Biology Graduate Advisory Committee before the 6-year deadline is reached. Students taking more than 6 years may lose credits earned early in the program and may be required by the CGSR to complete additional course work.

## Courses

BIO courses taken at the 400- or 500-levels count toward the Biology M.S. degree. Approval from the Biology Graduate Advisor is required to take for courses from other NEIU departments. Contact [BioGradPrograms@neiu.edu](mailto:BioGradPrograms@neiu.edu) to learn how to petition to apply coursework from other programs toward the Biology M.S. degree.

*Transfer credits:* A maximum of 9 hours of graduate credit from external institutions can be applied to the requirements for the M.S. degree. Students interested in transferring credits need to submit the petition form for transferring credits (<https://www.neiu.edu/sites/default/files/documents/2022/06/21/Transfer%20of%20Credit%20UPDATED%206.21.22.pdf>) along with official transcripts, a complete/detailed syllabus from the course(s), and rationale for transfer. The petition must be approved by both the College of Graduate Studies & Research and the Biology Department. If these courses are taken after acceptance into the M.S. Biology Program, then the courses must be preapproved. Contact the Biology Graduate Advisor at [BioGradPrograms@neiu.edu](mailto:BioGradPrograms@neiu.edu) for more information.