To enhance student preparation for professional school, graduate school, or career opportunities.

The Master of Science in Biology is offered through two tracks: Pre-Professional and General Biology. The Pre-Professional track is designed for students who are seeking to be better prepared for health-related professional programs. The General Biology track is a broader, more customized program for students who are seeking to further their education or career opportunities through advanced training in Biology. The program includes mentoring and advising for students for both professional programs and career preparation. The Master of Science in Biology is very affordable compared to similar programs around the country, and students who complete advanced training in Biology at Union are extremely well prepared to be successful at the professional level (for more information, please visit the program website at *www.uu.edu/msbio*).

- Bachelor's degree from accredited college or university; Official transcript(s) showing all course work, completion of baccalaureate degree(s), and all graduate credit previously attempted. Even if withdrawal occurred prior to earning credits and even if those credits do not apply to the current degree being sought, official transcripts must be sent from each institution.
- Minimum undergraduate GPA of 2.5.
- Minimum of 12 undergraduate hours in biology applicable to a biology major.
- Statement of purpose (500-1000 words) which identifies your educational goals and expectations from the program, as well as your primary and secondary career objectives.
- Three letters of recommendation.
- Scores from professional exam recommended (i.e, GRE, MCAT, PCAT, etc.).

- Must maintain minimum 3.0 GPA
- If not achieved after Fall term, student will be on probation, and will be able to raise the GPA with the Winter term course
- If GPA of 3.0 is not achieved after Winter term, student will meet with the program director to discuss progress.

Students who otherwise meet the eligibility requirements for the Master of Science in Biology but who apply after the entering class has been filled will be placed on an alternate list and will be notified if they are selected for inclusion in the program for the upcoming academic year. Students who are placed on the alternate list and who are not admitted will receive a refund of half of their Application Fee ($25).

Both the Pre-Professional and General Biology tracks require 30 credit hours and a final GPA of 3.0 to graduate. Students should complete the 30 hours over two semesters, typically taking 15 hours in the fall and 15 hours in the spring. This sequence includes a 2 hour required course in the fall, Career Development in Biology, and a 2 hour required Graduate Project in both the fall and spring, leading to the completion of a non-thesis final paper. At least two courses during the fall and spring terms should include the accompanying lab section. Students may take additional laboratory sections if space permits.

A. BIO 518, 570, 571, 598

B. Fall Semester: Three courses from B/Span⊀1cfc[1.58 067

Prerequisite: BIO 521.
A continuation of BIO 521 studying body systems: endocrine, cardiovascular, respiratory, urinary, digestive, and lymphatic. Three hours lecture and optional 3 hours laboratory/week.

A study of biological systems at the cellular and subcellular levels emphasizing functional aspects such as protein processing and sorting, membrane systems, energy generation in mitochondria and chloroplasts, and cell signaling. Three hours lecture and optional 3 hours laboratory/week.

Basic principles of molecular biology focusing on recombinant DNA methods as applied to a variety of biological questions. Students will learn basic research laboratory skills through a wide range of methods from gel electrophoresis to subcloning. Three hours lecture and optional 3 hours laboratory/week.

This course introduces students to the pathophysiology underlying human disease progressions with an emphasis on cell injury, adaptation and death, genetic components of disease processes, systemic disease, including cardiovascular, renal, respiratory, endocrine, neurologic and gastrointestinal disorders, and neoplasia. Along with lectures, students will engage with primary research literature to enhance their understanding of various disease processes and research methodology, including critical analysis of basic science and epidemiological data.

This field course is designed to showcase the basic flora and fauna of the tropics and review ecological principles within these unique tropical environments. Lectures and labs focus

Lectures and labs on the nature of life in the ocean and in coastal environments. The first part of the semester is spent at Union University facilities and the second part is spent exploring the coastal environments of South Georgia and the Atlantic Coast of Florida. There is an extra fee associated with this class.

Focuses on the identification and ecology of birds in the eastern United States. Multiple field trips are required, culminating with a 10-day trip to South Georgia and Florida. There is an extra fee associated with this class.

Study of physiological factors influencing the chemical and structural composition of plant absorption and utilization of water and minerals; photosynthesis, translocation, respiration, nitrogen metabolism; and growth and development. Physiology is the study of how plants function, including resource acquisition, energy creation and use, resource allocation, life cycle, and stress response. Three hours lecture and optional 3 hours laboratory/ week.

This course will focus on the identification and management of trees, focusing on forest ecology and silvicultural practices. The laboratory will include field trips that will focus on tree identification. Three hours lecture and 3 hours laboratory/ week.

Students enrolling in this course will work with a faculty mentor on a year-long project, culminating in a research paper, which will be defended in a public forum before a committee of three faculty members (including the mentor). The mentor will work with the student to select courses to support the general overview of the project.

Continuation of BIO 570.

Group studies which do not appear in the department course offerings. Course content will be determined by need.

Variable content course designed to address cutting-edge topics in cell and molecular biology.

Students will develop proficiency in searching biological literature, writing a well-constructed summary of primary literature, making an oral presentation of primary literature and data analysis. Students will improve their critical thinking skills and their ability to evaluate and explain data. Students will also engage in meaningful discussions with other students and Biology Faculty on a number of relevant biological topics. This course may be repeated once.