Purpose Statement:
To provide enhanced training in Conservation Biology to students who desire to enhance their career or prepare for doctoral studies.

Program Description
Students will perform an extensive research project on which they will write their thesis. A flexible curriculum allows students to explore their specific interests. For more information, please visit the program website at [www.uu.edu/msconbio](http://www.uu.edu/msconbio).

Admission Information
Admission Requirements
- 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 2.75.
- Minimum of 12 undergraduate hours in biology applicable to a biology major. Conservation biology, biology, environmental science, forestry, or related area is preferred.
- 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.
- Research topic selection (500-1000 words): Explain your rationale and interest in a particular research project and how you anticipate this particular project assisting you in your career.
- Three letters of recommendation.
- Scores from GRE are required.

Retention Criteria
- Must maintain minimum 3.0 GPA
- Successful proposal defense completed during the first semester or first winter term.
- Committee approval and satisfactory progress towards project completion.

Alternate List
Students who otherwise meet the eligibility requirements for the Master of Science in Conservation 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).

Completion Requirements
Students are required to complete 32 credit hours and have a final GPA of 3.0 to graduate. Students complete
A. BIO 503, 540 (if not completed as an undergraduate), 598 (to be taken twice)
B. Research hours: 6-10
C. Electives: 18 hours
D. Successful defense of a thesis project.

Financial Information
- Application Fee: $50
- Laboratory Fees: A lab fee will be assessed for each lab course.
- Research assistantship includes the cost of tuition, up to 32 credit hours.
- General Student Fee: $24/hour
- Deposit: $500 (will be applied to your general student and laboratory fees), due May 1 or within two weeks of acceptance of your application. The deposit is 100% refundable within 20 business days of the acceptance of your application, 50% refundable between 21 and 35 days after acceptance of your application, non-refundable after 35 days of acceptance of your application. No refunds of deposits will be given after July 1.
- All financial information is subject to change without notice.

Financial Assistance
Financial aid information for graduate students is available on our website at [www.uu.edu/financialaid/graduate/](http://www.uu.edu/financialaid/graduate/). Generally, graduate students may be eligible for Federal Direct student loans or private alternative student loans ([www.uu.edu/financialaid/loans/alternativelenderlist.cfm](http://www.uu.edu/financialaid/loans/alternativelenderlist.cfm), depending on the program of study and the eligibility of the borrower. Union University is also approved by the Department for Veterans Affairs to offer educational benefits to veterans, reservists, and dependents of veterans who qualify for Veterans Benefits. Any person who qualifies for VA Benefits should check with the Office of Student Financial Planning as soon as possible after acceptance into a graduate program. Additional external scholarship information may be obtained through [www.fastweb.com](http://www.fastweb.com).
Course Descriptions: Biology (BIO)

501. Invertebrate Zoology (4) F–Even Years
Students will develop practical vocational skills by working within a framework of designing, performing, and communicating novel scientific research as we explore the diversity, natural history, physiology, and behavior of invertebrate animals. Three hours lecture and 3 hours laboratory/week.

503. Conservation and the Christian Faith (2) F
Conservation and the Christian Faith is designed to examine the complex interaction between conservation ethics, environmental sustainability and Christian faith. We will examine the history of the church’s understanding of and practices toward the care of creation, attempt to frame Christian response to ethical questions as relates to the writings of modern conservation ethicists, and address issues of conservation management and policy as they exist within the framework of environmental need and practice today.

511. Conservation Techniques (3) S–Even Years
A field intensive introduction to techniques for determining the age of many species, trapping for population assessments, terrestrial and aquatic sampling methods, methods for assessing population health through necropsies, and habitat management techniques. One hour lecture and 6 hours laboratory/week.

512/512L. Comparative Vertebrate Anatomy (3) and Comparative Vertebrate Anatomy Lab (1) F–Odd Years
Study of the similarities of anatomy and early development of vertebrates, complemented by dissection of representative adults. Three hours lecture and optional 3 hours laboratory/week.

515/515L. Genetics (3) and Genetics Lab (1) S
A study of the principles of heredity including both classical and molecular genetics. Three hours lecture and optional 3 hours laboratory/week.

516/516L. Physiology (3) and Physiology Lab (1) S
A study of the principles of physiology, emphasizing metabolic processes common to many organisms. Three hours lecture and optional 3 hours laboratory/week.

528. Tropical Ecology (4) S
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 on the nature of life in tropical climates with specific emphasis on coral reefs, tropical rainforests, mangrove swamps, and seagrass communities. Through learning activities students review taxonomic diversity, form and function, ecological roles, and adaptations of representative tropical organisms. Topics include: adaptation to disturbance, physiological mechanisms, locomotion and migrations, defenses against predation, sensory reception, productivity, feeding, biodiversity, reproduction and symbiosis through the lens of tropical ecosystems. Three hours lecture and 3 hours laboratory/week.

529. Environmental GIS (4) F
This course is an introduction to GIS (Global Information Systems) in the context of applications that focus on the environment, conservation biology, and ecology. Main topics covered during the semester will include the historical development of GIS technology, its application, and its theoretical background. Students will develop skills and competency using GIS software and data collection tools. They will apply program knowledge and skills to investigate questions related to ecology, wildlife management, conservation biology, and natural resource management. Three hours lecture and 3 hours laboratory/week.

535. Conservation Biology (3) S–Even Years
A study of the principles of conservation and wildlife management. Examines the ecology of species of interest and the habitat manipulation techniques used in the conservation of such organisms.

536/536L. Ecology and Conservation of the Vertebrates (3) and Ecology and Conversation of the Vertebrates Lab (1) F–Even Years
Study of the natural history and ecology of North American vertebrates, including fish, amphibians, reptiles, birds and mammals. Conservation concerns of particular vertebrates will be examined. Three hours lecture and optional 3 hours laboratory/week.

537. Taxonomy of the Vascular Plants (4) S–Odd Years
A study of the vascular plants of the eastern United States, focusing on the common herbaceous plants, vines, shrubs, and trees and their identification in the field. Field trips required. Two hours lecture and 6 hours laboratory/week.

538/538L. Ecology (3) and Ecology Lab (1) S
A study of the interactions between organisms and their biological and physical environments. Three hours lecture and optional 3 hours laboratory/week.

540. Experimental Design and Biostatistics (4) F
Statistical analysis of data in a biological context. Students will be given the opportunity to identify a variety of biological problems, develop specific questions, design and conduct experiments to address these questions, formulate and test hypotheses, choose and run the appropriate statistical test, and interpret the outcomes of such test. Three hours lecture and 3 hours laboratory/week.

542. Medical Parasitology (4) As Needed
Parasitology is a course that will apply information learned in a variety of Biology courses to the study of parasites and parasitic diseases. Specifically, this course will address the ecology, epidemiology and biochemistry of parasites and diseases caused by parasites. The laboratory will focus on the identification of important parasite groups and methods for host examination and diagnosis. Three hours of lecture and 3 hours laboratory/week.

543. Natural Resources Policy (3) F–Odd Years
Examines current laws and policies governing public and private lands and the conservation of wildlife in the United States.
555. Environmental Ethics (3) F–Odd Years
This course will examine the relationship between humans and their natural environment; addressing the problems confronting the necessity to balance conservation with human need and the use of natural resources. Topics to be explored include an ethical consideration for the urban environment and of wilderness preservation, the interplay of local and global environmental ethics, and the ethics of sustainability. An overarching view of the scope of historical and modern bioethical issues will also enter into our discussions.

556. Marine Biology (3) W
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.

557. Ornithology (3) W
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.

558/558L. Plant Physiology (3) and Plant Physiology Lab (1) S–Even Years
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.

559. Dendrology (4) F–Even Years
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 optional 3 hours laboratory/week.

575. Graduate Research(1-6)
Research experience as part of the completion of the Masters in Conservation Biology. Variable credit to be determined in consultation with faculty mentor.

585. Special Topics in Biology (1-4)
Group studies which do not appear in the department course offerings. Course content will be determined by need.

598. Conservation Seminar (1) F, S
Written and oral presentation of a library research paper and weekly discussions of current biological research. May be repeated once.