

# Ecology, MS, PhD

**Department:** Biology Department; Environment and Society Department; Plants, Soils, and Climate Department; Watershed Sciences Department; Wildland Resources Department

**College:** College of Science; S.J. & Jessie E. Quinney College of Natural Resources; College of Agriculture and Applied Sciences; S.J. & Jessie E. Quinney College of Natural Resources; S.J. & Jessie E. Quinney College of Natural Resources

## Overview

### About This Degree

Ecology is the scientific discipline concerned with the relationships between organisms and their past, present, and future environments. The Ecology Center at USU has had a string of directors known nationally and worldwide as premier scientists in the field of ecology, and students graduating with a degree in ecology are able to make contacts with influential faculty that can help them as they pursue prestigious post-doctoral programs and faculty positions at universities around the world. Additionally, the Ecology Center hosts a seminar series that brings famous scientists from all over the world to speak at USU.

All ecology students are required to take coursework within various designated areas, and the remainder of coursework and research will be completed in one of the following departments:

- **Biology:** Students who study ecology in the Biology Department focus on theoretical ecology and how it applies to evolution and other disciplines within biology.
- **Environment and Society:** This department is concerned with human ecology and the relationships between humans and natural ecosystems.
- **Plants, Soils, and Climate:** Students in this department study the ecology of plants, soils, and climate and issues that tie them to ecology.
- **Watershed Science:** Ecology students in this department focus on the science and conservation of aquatic ecosystems.
- **Wildland Resources:** Students in this department are concerned with terrestrial ecology and ecosystems.

## Career Options

Students who graduate with a master's typically pursue PhD programs or work as research assistants for government agencies.

PhD graduates primarily seek post-doctoral positions with universities and then go on to faculty positions or work as researchers for government agencies.

## What it takes

### Admissions Requirements

Applicants must have strong backgrounds in biology, and they should also have some understanding of geology, soils, meteorology, chemistry, physics, mathematics, and statistics. Accordingly, incoming students who lack coursework in these areas may be asked to make up deficiencies in addition to the course of study required for their graduate degrees.

To be accepted to the program, it is recommended that applicants first contact a specific faculty member with whom they are interested in working. If the faculty member is accepting graduate students and agrees to work with the student, the student can then apply by completing the following application requirements:

### Application Requirements:

- Complete the [online application](#)
- Pay the \$55 application fee
- Score at or above the 40<sup>th</sup> percentile on the GRE
- Have a 3.0 or higher GPA on your last 60 semester or 90 quarter credits
- Provide transcripts of all college/university credits
- Provide three contacts for letters of recommendation

International students have [additional admissions requirements](#).

## Admissions Deadlines

### Biology:

- The Department of Biology considers applications on a year-round basis. Applications received for fall semester by February 15 will be considered for all financial awards available. Applications received after that date will be considered for the limited amount of financial awards available at the time.

### Environment and Society:

- Fall semester – February 15
- The degree programs in the Department of Environment and Society have rolling admission, meaning the department will continue to consider and accept applications until the program is full. The time it takes to process an application is primarily dependent on the speed with which the School of Graduate Studies receives letters of recommendation, transcripts, and test scores. For most students, this process may take six to eight weeks. Applicants should plan accordingly.

### Plants, Soils, and Climate:

- Applications for graduate programs are accepted year-round. However, chances for acceptance are best if students apply between October and January of each academic year. It is also encouraged that students begin in the fall if possible.

### Watershed Science:

- Fall semester – June 15
- Spring semester – October 15
- Summer semester – March 15
- Preference for financial assistance will be given to applicants who apply before January 10.

### Wildland Resources:

- Applications for graduate programs are accepted year-round. However, chances for acceptance are best if students apply between October and January of each academic year. It is also encouraged that students begin in the fall if possible.

## Financial Assistance

Most students are funded by research [assistantships](#) from their major professors. Additionally, the Ecology Center awards assistantships to qualified PhD students who are otherwise without financial support.

The Ecology Center also provides research support awards for both master's and doctoral students on a competitive basis. Students can receive up to \$5,000 through these awards to purchase research supplies, for travel costs, and other research expenses. In order to be considered, students must submit a detailed proposal, including their research objectives and a budget describing how funds would be used.

A variety of additional funding opportunities are available, including [fellowships](#), [scholarships](#), [tuition awards](#), and [travel support](#). Additionally, students may be eligible for subsidized [health insurance](#) through qualifying assistantships.

## Program Requirements

[Click here](#) to see course requirements for the **Master of Science**.

[Click here](#) to see course requirements for the **Doctor of Philosophy**.

### Qualifying Exams:

#### Biology:

- All **PhD** students must pass a comprehensive exam, usually taken in their second year. The student's graduate committee sets the material of the exam, which consists of a written and an oral component.
- All **master's** students must pass a comprehensive exam with either a written or an oral component, set by their graduate committee. This exam usually takes place when the student has completed a year and a half in the program.

#### Environment and Society:

- **PhD** students must pass a comprehensive exam after completing their coursework and before submitting

their dissertation. The exam will have a written and an oral component based on the student's area of research.

### **Plants, Soils, and Climate:**

- Each student must undergo some sort of qualifying experience. Depending on the student's particular research and their faculty committee, the exam can either be a traditional oral and written exam, a scholarly proposal, or another option best suited to the student's individual situation.

### **Watershed Science:**

- All **PhD** students must pass a comprehensive exam. Students take these exams typically the second or third year after most of their coursework is completed. They take a written exam set by their graduate committee, which is usually followed by an oral component where the committee can pose questions to the student regarding the written exam.

### **Wildland Resources:**

- **PhD** students must pass comprehensive examinations. This exam is used to assess whether a student is prepared to successfully conduct independent research. The assessment depends upon the student's knowledge in his or her area of emphasis and in supporting areas, understanding of philosophical perspectives on scholarship, and ability to communicate this knowledge effectively. It is recommended that the comprehensive exam be taken by the end of the student's second academic year, and it must be passed no later than one year prior to defending the dissertation and before candidacy will be recommended.

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## Get Involved

### Professional Organizations, Honor Societies, and Clubs

**Ecological Society of America:** ESA is a nonpartisan, nonprofit organization of scientists founded in 1915 to improve communication among ecologists, raise public awareness of the importance of ecology, and influence environmental decision making by enhancing communication between the ecological community and policy makers.

### Labs, Centers, Research

**Ecology Center:** The Ecology Center is an administrative structure in the university that supports and coordinates ecological research and graduate education in the science of ecology and provides professional information and

advice for decision makers considering actions that affect the environment. The Ecology Center at USU has had a string of directors known nationally and worldwide as premier scientists in the field of ecology, and students graduating with a degree in ecology are able to make important contacts with influential faculty that can help them go on to prestigious post-doctoral programs and faculty positions at universities around the world.

**Millville Predator Research Facility:** This 165-acre site, part of the National Wildlife Research Center, allows employees to care for more than 100 coyotes involved in learning, behavior, and physiology studies. Studies include coyote behavior in captive environments, reproduction, interactions with other species, and more.

**Remote Sensing/Geographic Information Systems Laboratory:** The RS/GIS advances knowledge in the application of geospatial technologies in ecosystem science and natural resource management. The lab conducts research to meet the requirements of contracting agencies, which include the USDI Bureau of Land Management, USDA Forest Service, the U.S. Department of Defense, the National Guard Bureau, the U.S. Geological Survey, NASA, and various state and international agencies and organizations.

**Utah Botanical Center:** The UBC, located in Kaysville, Utah, is home to research and demonstration projects focused on sustainable living in the Intermountain West. Studies of water conservation, horticulture, water quality enhancement, wetland ecology, integrated pest management, urban forestry, agriculture, fish and wildlife, highway enhancement, and storm-water management combine to make the center a living laboratory.

**Utah Center for Water Resources Research:** The UCWRR facilitates water research, outreach, design, and testing elements within a university environment that supports student education and citizen training.

**Utah Water Research Laboratory:** The UWRL works on nearly 250 water-related projects a year and has projects in all of Utah's 29 counties and more than 40 countries. The lab is one of the go-to places that addresses the technical and societal aspects of water-related issues, including quality, quantity, and distribution of water.

**Water Initiative:** Utah State University supports a broad community of students and faculty engaged in water education, research, and outreach. The USU Water Initiative provides an overarching umbrella for the activities of this community aimed at fostering interdisciplinary collaboration and collegial sharing of ideas related to water across the departments and colleges of USU.