Wetland Science
Professional Degree Concentration in Environmental Conservation

This concentration leads to a Master of Science (MS) degree in Environmental Conservation (Eco) and is designed for students who want professional training in the multi-disciplinary field of wetland science and management. The primary focus of this concentration is on wetland ecology, in combination with training in conservation policy. Students will gain an understanding of wetland ecology, including hydrology, soils, plants, and wildlife; field methods for wetland delineation and functional assessment; and public policy relating to state and federal wetland regulatory programs. The academic requirements of this concentration in combination with a professional internship experience provide students the necessary training for employment with state, federal, and NGO wetland programs, and private consulting firms. Note, this professional degree concentration within the Environmental Conservation graduate program is meant to be a terminal degree for students seeking graduate-level training in this specific field of study and a career as a professional conservation scientist.

A. Prerequisites

Candidates for this concentration will be admitted on the basis of their academic training and professional experience. At a minimum, candidates will be expected to possess:

1) a Bachelor’s degree in:
   • a natural resources field or environmental sciences, or
   • the biological sciences with an emphasis in ecology, or
   • any field with strong background in mathematics and the biological and physical sciences, and professional experience working as a natural resources professional.

Note: prerequisites exist for many of the required courses. Students are expected to have satisfied these prerequisites prior to commencing the program or in addition to the curriculum requirements outlined below.

B. Requirements

Students in this concentration are expected to meet all of the requirements for an MS degree in ECo, as outlined in the student handbook, including the following:

1) A minimum of 43-46 credits is required, 21 of which must be in the major (defined broadly), 6 of which must be at the 600 level or above, and 6 must be practicum credits,
2) A 6-credit professional internship/project practicum approved by the student's graduate advisor and other committee members (see below),
3) A publishable-quality professional paper presenting the results of the professional project, and
4) Successful completion of a comprehensive exam based upon the student’s academic and professional training in wetland science, encompassing three “core” topic areas (core science, quantitative and physical science, and human dimensions) in addition to the required ECo core courses (see below).

C. Curriculum

1. ECo Required Core Courses (8 credits) (take all of the following courses)

   ECO 601 Research Concepts (fall, 3cr)
   ECO 697 Design & Analysis of Ecological Data (fall, 2cr)
   ECO 791S Communicating Science-Speaking (fall, 1cr)
   ECO 791W Communicating Science-Writing (spr, 1cr)
   ECO 691 Seminar in Environmental Conservation (both, 1cr)

2. Core Science (21-22 credits)

   A. Wetland Science (18 credits) (take all of the following courses)

   ECO 768 Wetland Ecology & Conservation (fall even yrs, 3cr)
   PLSOIL 565 Soil Formation & Classification (spr, 4cr)
   PLSOIL 597 Wetland Plant ID & Ecology (fall even yrs, 3cr)
   ECO 528 Forest & Wetlands Hydrology (fall odd yrs, 3cr)
   ECO 597W Wetland Assessment & Field Techniques (spr odd yrs, 2cr)
   PLSOIL 597L Wetlands Delineation (fall odd yrs, 3cr)

   B. Watersheds & Ecosystems (3-4 credits) (take one of the following courses)

   ECO 597R Watershed Science & Management (spr, 3cr)
   ECO 697Q Land Use & Watershed Mgt (fall even yrs, 3cr)
   ECO 597I Aquatic Ecology (spr odd yrs, 4cr)

3. Quantitative (3-4 credits) (take one of the following)

   ECO 592G Introduction to GIS (both, 3cr)
   ECO 577 Ecosystem Modeling & Simulation (fall odd yrs, 3cr)
   ECO 697 Intermediate Biostatistics for Natural Resources (spr, 4cr)

4. Policy & Human Dimensions (5-6 credits) (take two of the following courses)

   ECO 697D Social Conflict & Natural Resources Policy (fall even yrs, 3cr)
   ECO 697W Water Resources Mgt & Policy (fall even yrs, 3cr)
   ECO 597E Endangered Species Mgt (spr, 2cr)
   ECO 697E Human Dimensions of Natural Res. Cons. (fall odd yrs, 3cr)
   ECO 697P Natural Resources Policy & Administration (spr even yrs, 3cr)
5. Internship/Project (6 credits)

ECO 698 Practicum

*Note: students may be able to transfer in up to 6 credits of previous course work.
**Course numbers are subject to change.

D. Internship/Project

Each student in the program not already professionally employed in the wetland field is required to complete at least a 12-week long professional internship. There are numerous internship opportunities with wetland programs with a variety of state and federal agencies in the Northeast, such as the U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, Biological Resources Discipline of the USGS, state wetland agencies, with a variety of NGOs in New England and Washington, D.C., and private consulting firms.

E. Matriculation and Financial Aid

This program should take a full-time student 3-4 semesters, including the summer internship. Funding opportunities are limited, and most students should be financially able to complete the program without relying on assistantships.

F. Concentration Coordinator and Faculty Affiliates

The following faculty (both regular and adjuncts), including the Coordinator, are principally affiliated with this concentration and serve in the role of the student’s advisory committee chair or member and instructor for core courses. All initial inquiries should be directed to the Coordinator.

Coordinator:
Dr. Curtice R. Griffin
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160 Holdsworth Way
Amherst, MA 01003-4210
Tel: 413-545-2640
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Principal Faculty Affiliates:
• Timothy Randhir (randhir@eco.umass.edu)
• Scott Jackson (sjackson@umext.umass.edu)
• Paul Barten (pkbarten@eco.umass.edu)