

School of Natural Resources

Aquatic Ecology Specialization - M.S.

Program of Study

Content and Format of Program

Education goals and objectives:

- (1) Provide a rigorous, focused program of educational experiences aimed at developing a graduate-level understanding of the principles of aquatic ecology;
- (2) Promote students who have acquired a high level of expertise in aquatic ecology by designating a specialization;
- (3) Create greater graduate program recognition, for the benefit of students' future employment or advanced graduate programs, and for recruitment of high quality students by faculty affiliated with this specialization.

Courses offered in specialization:

The student's major advisor and supervisory committee, in close consultation with the student, will determine the course work component of the M.S. program, in accordance with the requirements of the M.S. in Natural Resource Sciences degree (as stated for the Option I requirements in the Graduate Studies Bulletin: 30 credit hours minimum, including 6-10 thesis credits, one half of the courses in the major, and at least 8 credit hours of graduate-only courses).

Guidelines or accreditations for this program: none.

Requirements for students in specialization:

- (1) Minimum of 12 credit hours in aquatic ecology courses, as follows:
 - (a) *Required* - Limnology (FFWL 859) or equivalent;
 - (b) *Select two or more* courses from the following:
 - Aquatic Insects (ENT/FFWL 802 & 802L)
 - Advanced Limnology (FFWL 860)*
 - Fisheries Science (FFWL 861)
 - Fisheries Biology (FFWL 862)
 - Wetlands (FFWL 868)
 - Freshwater Algae (BIOS 873)
 - Ichthyology (FFWL 891)
 - (c) *Select one or more* courses from the following:
 - Landscape Ecology (FFWL 810)*

Population and Community Ecology (BIOS/FFWL 854)
Mathematical Models in Biology (BIOS/FFWL 856)
Advanced Population Ecology (BIOS 953)*
Advanced Community Ecology (BIOS/FFWL 959)*

(2) Undergraduate course work may fulfill some of the course requirements listed above (e.g., Limnology may have been taken at the undergraduate level); however, the specialization still requires a minimum of 12 credits from those listed in (1) above;

(3) Proficiency in quantitative methods, as needed to complete the student's research and as approved by the student's supervisory committee;

(4) Thesis topic in aquatic ecology;

(5) Student's major advisor (or one of two co-advisors) must be a SNRS faculty member with expertise in aquatic ecology.

General Governance Procedures

Aquatic ecology faculty will assist in the selection of graduate student applicants wishing to obtain this specialization, according to the following guidelines:

- (1) The student must meet the SNRS admission requirements;
- (2) A suitable faculty major advisor in aquatic ecology must be identified;
- (3) The student's thesis topic and Memorandum of Courses must be approved by the student's supervisory committee.

Availability of Resources and Funding

No additional funds are required to implement this specialization. At least 2-3 M.S. graduates are anticipated per year from this program, based on the average number of students graduating in this area (without specialization) at present; however the number of graduates should rise above present numbers, due to greater program visibility, desirability, and focus.

Impact on Existing Academic Community

Discussions regarding a specialization(s) in the aquatic sciences began with the School of Natural Resource Sciences (SNRS) - Academic Subcommittee, in preparation for the formation of the new SNRS (formed in August 1997). Several water-related specializations (e.g., Water Resources) were suggested in the proposal presented to the Academic Planning Committee. This specialization is consistent with and in direct support of the intent of the M.S. degree name change, as approved by the former FFWL faculty in May 1998 and later by the APC, UNL Graduate Council, and others, because it seeks to "*create better name recognition for prospective students, employers of our*

graduates, and Ph.D. programs for those students who continue their graduate education.” In addition, this specialization is certainly consistent with the overall academic mission of the SNRS, “*A quality academic program for students that incorporates current research findings and technology, and builds on our current knowledge and understanding of the basic principles and processes surrounding natural resources and environmental interactions.*” This specialization also integrates well with and enhances, but does not in any way duplicate or detract from, the proposed specialization in Groundwater Science. Finally, this specialization will contribute to the new initiative to integrate ecology across the two UNL campuses (an Ecology Workgroup has been formed and funded for the next two years to expedite this cooperation).

More recently, interested faculty in aquatic ecology met on several occasions to discuss this specialization plan. The proposal was reviewed by all SNRS faculty and approved at a general faculty meeting on _____.