Duluth Campus

Water Resources Science Minor

Swenson College of Science & Engineering
University of Minnesota Duluth

Link to a list of faculty for this program.

Contact Information:
Water Resources Science, 173 McNeal Hall, 1985 Buford Avenue, St. Paul MN 55108 (612-624-7456; fax: 612-625-1263)
Email: wrs@umn.edu
Website: http://wrs.umn.edu

- Program Type: Graduate minor related to major
- Requirements for this program are current for Fall 2022
- Length of program in credits (Masters): 9
- Length of program in credits (Doctorate): 12
- This program does not require summer semesters for timely completion.

Along with the program-specific requirements listed below, please read the General Information section of the catalog website for requirements that apply to all major fields.

Water Resources Science (WRS) students take a deep dive into the science behind planning, management, and designs necessary for our public policies related to water. Students will gain a holistic understanding of the hydrologic cycle and associated ecosystems as well as the interplay between biophysical sciences and social sciences.

The WRS graduate minor is structured in a similar interdisciplinary manner to complement many other graduate degree programs. The program involves faculty from the following departments on the Duluth campus: American Indian Studies; Biology; Chemical Engineering; Chemistry and Biochemistry; Civil Engineering; Earth and Environmental Sciences; Geography and Philosophy; Mechanical and Industrial Engineering; Physics and Astronomy; and Political Science; as well as the Large Lakes Observatory, Natural Resources Research Institute, and Environmental Protection Agency in Duluth.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Prerequisites for Admission

Special Application Requirements:
Students interested in the minor are strongly encouraged to confer with their major field advisor and director of graduate studies, and the Water Resources Science director of graduate studies regarding feasibility and requirements.

For an online application or for more information about graduate education admissions, see the General Information section of the catalog website.

Program Requirements

Use of 4xxx courses toward program requirements is permitted under certain conditions with adviser approval.

Minor coursework offered on both the A-F and S/N grading basis must be taken A-F, with a minimum grade of C- earned for each course.

Required Course (3 credits)
Take the following course:
WRS 5101 - Water Policy (3.0 cr)

Electives (6 to 9 credits)
Masters students select 6 credits, and doctoral students select 9 credits from the following in consultation with the Water Resources Science director of graduate studies:
BIOL 5833 - Stream Ecology (3.0 cr)
BIOL 5861 - Lake Ecology (3.0 cr)
CE 4228 - Watershed Engineering (3.0 cr)

CE 5241 - Water Chemistry (3.0 cr)
CHEM 5150 - Organic and Stable Isotope Biogeochemistry (3.0 cr)
CHEM 5212 - Advanced Environmental Chemistry (3.0 cr)
EES 5103 - Geological Paleolimnology (3.0 cr)
EES 5201 - Watershed Hydrology (3.0 cr)
EES 5250 - Hydrogeology (4.0 cr)
GEOG 4446 - Water Processes and Management (3.0 cr)
LIM 5010 - Integrated Approaches to the Study of Inland Waters (3.0 cr)
LIM 5101 - Physical Limnology (3.0 cr)
LIM 5102 - Chemical Limnology (3.0 cr)
LIM 5103 - Geological Paleolimnology (3.0 cr)

Program Sub-plans

Students are required to complete one of the following sub-plans.
Students may not complete the program with more than one sub-plan.

Masters

Doctoral