Water Resources Planning and Management, Interdepartmental Minor/Specialization

(Interdepartmental Area)

An intra-university masters-level minor/specialization with emphasis on water resources planning and management. Each student will be required to complete: 1) a major in one of the departments with approval to offer option as a minor or specialization; and 2) 9 hours of water resources-related courses from departments outside the student's major field (6 hours of which must be from those courses marked with a "+") and approved by the Water Resources Advisory Committee.

The master's degree will be granted in one of the disciplines. The student must be formally registered in one of the departments with approval to offer the option as a minor or specialization. The recommended master's degree option is I (thesis) but other options may be approved. The minor or specialization can be noted on the student's final transcript, for example, civil engineering (water resources planning and management).

Departments/Program(s) with Approval to Offer Option as a Minor or Specialization: Agricultural Economics, Agronomy/Horticulture, Animal Science, Biological Sciences, Biological Systems Engineering, Civil Engineering, Community and Regional Planning, Economics, Earth and Atmospheric Sciences, Industrial and Management Systems Engineering, Political Science, School of Natural Resources, and Sociology.

A Water Resources Advisory Committee coordinates the interdisciplinary aspects of the minor/specialization. The Director of the Nebraska Water Center in the Robert B. Daugherty Water for Food Global Institute serves as chair with one member from each participating department. Approval of individual student program of studies, degree option, and thesis topics (if applicable) will have the concurrence of the student's major department and the chair of the advisory committee. One member of the student's examining committee will be appointed from the Water Resources Advisory Committee. This member cannot be from the student's major department.

Water Resources Planning and Management Advisory Committee: Professors Ray (chair); Thomas Franti (co-chair); Matthew Cushing, Department of Economics; Mark Lagrimini, Department of Agronomy and Horticulture; Sheila Purdum, Animal Sciences; Thomas Franti, Department of Biological Systems Engineering; David Admiraal, Department of Civil Engineering; Dona-Gene Barton, Department of Political Science; Deb Brown, School of Biological Sciences; Kim Tyler or Julia McQuillan, Department of Sociology; Karina Schoengold, Department of Agricultural Economics; Steven Thomas; School of Natural Resources; and Zhenghong Tang, Community and Regional Planning Program

Examples of courses in water resources to comprise the 9-hour minor or specialization are listed below according to departments/programs. Course descriptions and prerequisites are contained in the appropriate departmental/program listings.

Courses may require technical prerequisites; check bulletin listings for details. Courses taught by an instructor in the student's major department cannot be used as part of the nine-hours in the minor or specialization.

Offered in the Department of Agricultural Economics
AECN 856. Environmental Law
AECN 857. Water Law+
AECN 865. Resource & Environmental Economics II

Offered in the Department of Agronomy/Horticulture
AGRO 807. Plant-Water Relations+
AGRO 808. Microclimate: The Biological Environment+
AGRO 825. Turfgrass Science & Culture
AGRO 850. Climate & Society
AGRO 855. Soil Chemistry & Mineralogy
AGRO 872. Applied Soil Physics
AGRO 875. Water Quality Strategy+ (CIVE, CRPL, GEOL, MSYM, NRES, POLS, SOCI 875; SOIL, WATS 484)
AGRO 920. Xenobiotics in the Environment

Offered in the School of Biological Sciences
BIOS 859. Limnology+
BIOS 885. Aquatic Insects
BIOS 889. Ichthyology

Offered by the Department of Biological Systems Engineering
AGEN 853. Irrigation and Drainage Systems Engineering+
AGEN 854. Irrigation Laboratory and Field Course
AGEN 953. Advanced Irrigation and Drainage Systems Engineering
AGEN 954. Watershed Modeling+
BSEN 855. Nonpoint Source Pollution Control Engineering
BSEN 868. Wetlands
BSEN 879. Hydroclimatology
BSEN 957. Modeling Vadose Zone Hydrology+
MSYM 852. Irrigation Systems Management+
MSYM 855. Advanced Irrigation Management

Offered in the Department of Civil Engineering
CIVE 821. Hazardous Waste Management
CIVE 822. Pollution Prevention: Principles and Practices
CIVE 823. Physical/Chemical Treatment Processes in Environmental Engineering
CIVE 824. Solid Waste Management Engineering
CIVE 826. Design of Water Treatment Facilities
CIVE 827. Design of Wastewater Treatment & Disposal Facilities
CIVE 828. Environmental Engineering Chemistry
CIVE 829. Biological Waste Treatment
CIVE 830. Fundamentals of Water Quality Modeling+
CIVE 852. Water Resources Development+
CIVE 854. Hydraulic Engineering+
CIVE 855. Nonpoint Source Pollution Control Engineering (BSEN 855)
CIVE 856. Surface Water Hydrology+
CIVE 858. Groundwater Engineering+

CIVE 916. Interdisciplinary Seminar in Engineering: Economic & Legal Aspects of Water Resources Systems

CIVE 926. Advanced Topics in Water Treatment

CIVE 927. Advanced Topics in Wastewater Treatment

Offered in the Department of Civil Engineering continued

CIVE 954. Advanced Hydraulics
CIVE 958. Groundwater Mechanics

Offered in the Community and Regional Planning Program

CRPL 833. GIS in Environmental Design and Planning
CRPL 870. Environmental Planning & Policy+
CRPL 871. Environmental Impact Assessment
CRPL 875. Water Quality Strategy+

Offered in the Department of Geography

GEOG 812. Intro to Geographic Information Systems

GEOG 818. Intro to Remote Sensing

GEOG 819. Applications of Remote Sensing in Agriculture & Natural Resources

GEOG 820. Remote Sensing III: Digital Image Analysis

GEOG 822. Advanced Techniques in Geographic Information Systems

GEOG 884. Water Resources Seminar+

Offered in the Department of Earth and Atmospheric Sciences

GEOL 884. Water Resources Seminar+

GEOL 875. Water Quality Strategy+

GEOL 888. Groundwater Geology+

GEOL 889. Hydrogeology

GEOL 987. Seminar in Hydrogeology
GEOL 818. Chemistry of Natural Waters
GEOL 870. Field Techniques in Hydrogeology
GEOL 872. Water in Geosciences
GEOL 917. Environmental Isotope Hydrology
GEOL 986. Contaminant Hydrogeology
GEOL 988. Introduction to Groundwater Modeling
METR 850. Climate & Society
METR 823. Physical Meteorology

Offered in the School of Natural Resources

NRES 808. Microclimate: The Biological Environment+ (AGRO, GEOG, HORT, MSYM, NRES 808)
NRES 810. Landscape Ecology
NRES 853. Hydrology+
NRES 884. Water Resources Seminar+ (AGRO GEOG 884, GEOL 884)
NRES 817. Agroforestry Systems in Sustainable Agriculture
NRES 851. Soil Environmental Chemistry
NRES 852. Climate & Society (AGRO, GEOG 850)
NRES 859. Limnology+ (BIOS 860)
NRES 863. Fisheries Science
NRES 868. Wetlands+

NRES 875. Water Quality Strategy+
NRES 879. Hydroclimatology
NRES 881. Stream and River Ecology
NRES 889. Ichthyology (BIOS 889)
NRES 908. Solar Radiation Interactions at the Earth's Surface
NRES 954. Turbulent Transfer in the Atmospheric Layer (BSEN 958)

Revised August 5, 2019