

WATERSHEDS AND WATER RESOURCES, MINOR

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Watersheds are important landscape features that control the biogeochemistry of natural waters. This interdisciplinary minor enables students to learn the fundamental processes governing the transport and chemical evolution of surface and subsurface waters. It provides a complement to elective and required coursework in Earth sciences, resource management, wastewater treatment, and/or environmental planning. Students in this program will learn to apply fundamental concepts of chemistry, biology, geoscience, and landscape evolution to processes operating at the watershed scale. Learning objectives for the minor include excellence in written and oral expression, the ability to collect and interpret data from dynamic natural systems, and rigor in scientific thought.

What is Watersheds and Water Resources?

Population growth, land-use changes, and global environmental change are among the factors that will place further demands on an already stressed global fresh water supply. The Watersheds and Water Resources minor brings together courses from the colleges of Agricultural Sciences, Earth and Mineral Sciences, Engineering, and Science to provide interdisciplinary perspectives on water resources to help address local and global water challenges.

You Might Like This Program If...

You want to improve the quality of life for people locally, nationally, or worldwide by providing adequate sources of fresh water for human needs, while being sensitive to the needs of other plant and animal species and maintaining healthy ecosystems.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Additional Courses		
<i>Additional Courses: Require a grade of C or better</i>		
Select 18 credits (at least 6 credits at the 400 level) from the WWR committee's approved list of courses, which includes but is not limited to the following:		18
ASM 327	Soil and Water Resource Management	

BE 307	Principles of Soil and Water Engineering
BE 467	Design of Stormwater and Erosion Control Facilities
CE 370	Introduction to Environmental Engineering
CE 371	Water and Wastewater Treatment
CE 461	Water-resource Engineering
CE 475	Water Quality Chemistry
CHEM 202	Fundamentals of Organic Chemistry I
CHEM 402	Environment Chemistry: Atmosphere
ENVE 411	Water Supply and Pollution Control
ENVE 415	Hydrology
ENVSE 408	Contaminant Hydrology
ERM 411	Legal Aspects of Resource Management
ERM 435	Limnology
ERM 450	Wetland Science and Sustainability
FOR 470	Watershed Management
FOR 471	Watershed Management Laboratory
GEOG 431	Geography of Water Resources
GEOSC 201	Earth Materials
GEOSC 340	Geomorphology
GEOSC 412	Water Resources Geochemistry
GEOSC 413W	Techniques in Environmental Geochemistry
GEOSC 419	The Organic Geochemistry of Natural Waters and Sediments
GEOSC 452	Hydrogeology
PLANT 217	Landscape Soil and Water Management
SOILS 405	Hydrogeology
SOILS 418	Nutrient Management in Agricultural Systems
WFS 410	General Fishery Science
WFS 422	Ecology of Fishes

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

University Park

Jodi Vender
Undergraduate Advising Coordinator
305 Walker Building
University Park, PA 16802
814-863-5730
advising@geog.psu.edu

Career Paths

Students earning the Watersheds and Water Resources minor learn a wide range of research and analytical skills that are highly valued by employers. Students with expertise in watersheds and water resources find jobs in all levels of government, nonprofit organizations, and in industry.

Careers

Students earning the Watersheds and Water Resources minor are well positioned to find employment with diverse organizations spanning business, government, and nonprofit sectors. Such organizations may include (but are not limited to): AECOM; CH2M; Dewberry; Dow Chemical; Gannett Fleming; National Oceanic and Atmospheric Administration; Tetra Tech; U.S. Army Corps of Engineers; U.S. Bureau of Reclamation; U.S. Environmental Protection Agency; U.S. Fish and Wildlife Service; U.S. Geological Survey; local, regional, and state agencies; environmental and engineering consulting firms; policy research institutes; private corporations; conservation associations; and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN WATERSHEDS AND WATER RESOURCES (<https://www.geog.psu.edu>)

Opportunities for Graduate Studies

The Watersheds and Water Resources minor is useful for students who are interested in pursuing graduate degrees in the environmental and social sciences and engineering. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) geosciences, geography, environmental sciences, ecology, sustainability, public policy, emergency management, planning, business, engineering, and law. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

Contact

University Park

DEPARTMENT OF GEOGRAPHY
302 Walker Building
University Park, PA 16802
814-865-3433
geography@psu.edu

<https://www.geog.psu.edu>