

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 | |

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|------------|--|
| 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

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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

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