

WATER RESOURCES, CERTIFICATE

(Code 160-601)

Advisor: S. Clark (Geology and Environmental Science).

The Department of Geology and Environmental Science administers a **Water Resources certificate**. This certificate is intended for students who plan to enroll in a Master's degree program in Water Resource Management, students interested in careers in environmental policy or environmental law, and any STEM and Geography majors interested in broadening their understanding of water-related topics. Holistic water resources management integrates insights from a wide range of disciplines. The flexibility of this certificate allows individuals to tailor their course selection to focus on the aspects of water resources that are most relevant to each student's specific interests.

Code	Title	Credits
Minimum of 15 credits required:		15
Core (9-10 crs):		
ENV/GEOG 377	U.S. Environmental and Sustainability Policy	3
GEOL 308	Water Resources	3
One course selected from:		3-4
CHEM 304	Environmental Chemistry	
BIOL 376	Aquatic Ecology	
GEOG 363	Watershed Analysis	
GEOG 364	Fluvial Processes and Landforms	
GEOL 315	Hydrogeology I	
Beyond the core 9-10 credits, students must take two courses from the following broad array of water-related courses.		6-8
Courses, if not used above, may be selected from:		
BIOL 338	Vegetation Ecology	
BIOL 376	Aquatic Ecology *	
CHEM 304	Environmental Chemistry *	
ECON 268	Environmental Economics	
ENPH 441	Water and Wastewater	
GEOG 335	Geographic Information Systems I	
GEOG 340	Climatology	
GEOG 363	Watershed Analysis *	
GEOG 364	Fluvial Processes and Landforms *	
GEOL 304	Global Environmental Change	
GEOL 315	Hydrogeology I *	
PHIL 320	Environmental Ethics	
*Course may be counted in either the core or elective category, but not both.		

Note 1: Students cannot pursue the Geology major and the Water Resources certificate to meet graduation requirements for completing a first and second degree program.

Note 2: Students pursuing the Biology major or Geography major and the Water Resources certificate to meet graduation requirements for completing a first and second degree program must earn a minimum of 48 unique credits between their major and this certificate program.

Program Learning Outcomes

Students completing this program will be expected to meet the following learning outcomes:

- Explain Earth processes.
- Use mathematics and computational methods to analyze scientific and geological data.
- Read, write, and critically evaluate geological papers.
- Construct an internally consistent geological map utilizing field data, topographic maps, geological maps, air photos, geographic information systems (GIS) data, and geological cross sections.
- Use analytical and quantitative methods to evaluate an environmental problem.