

# Water Resources

## Department Information

- **Department Web Site:**  
www.ndsu.edu/aben/ (<http://www.ndsu.edu/aben/>)
- **Credential Offered:**  
UG Certificate
- **Program Overview:**  
[catalog.ndsu.edu/programs-study/undergraduate/water-resources/](http://catalog.ndsu.edu/programs-study/undergraduate/water-resources/) (<http://catalog.ndsu.edu/programs-study/undergraduate/water-resources/>)

## Certificate Requirements

### Certificate: Water Resources

Required Credits: 12

Code	Title	Credits
Select one course from each category and one additional course from any category for a minimum of 12 credits.		
<b>Hydrology</b>		
Select one course from the following for hydrology: 3		
ABEN 464	Resource Conservation and Irrigation Engineering	
ABEN 484	Drainage and Wetland Engineering	
CE 421	Open Channel Flow	
CE 474	Groundwater Sustainability Design	
CE 477	Applied Hydrology	
GEOL 414	Hydrogeology	
NRM 402	River and Stream Resource Management	
NRM 454	Wetland Resources Management	
or SOIL 454	Wetland Resources Management	
or RNG 454	Wetland Resources Management	
NRM 453	Rangeland Resources Watershed Management	
or RNG 453	Rangeland Resources Watershed Management	
<b>Soil and Water Quality</b>		
Select one course from the following for Soil and Water Quality: 3		
CE 408	Water Resources and Supply	
CE 478	Water Quality Management	
ENVE 460	Environmental Fate and Transport	
GEOL 410	Sedimentology/Stratigraphy	
GEOL 412	Geomorphology	
or GEOG 412	Geomorphology	
GEOL 428	Geochemistry	
SOIL 410	Soils and Land Use	
SOIL 433	Soil Ecohydrology and Physics	
SOIL 444	Soil Genesis and Survey	
<b>Technology</b>		
Select one course from the following for Technology: 3		
ABEN 482	Instrumentation & Measurements	
GEOL 465	Remote Sensing of the Environment	
or GEOG 465	Remote Sensing of the Environment	
CE 476	Watershed Modeling	
GEOL 470	Remote Sensing	
or GEOG 470	Remote Sensing	
GEOG 455	Introduction to Geographic Information Systems	

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GEOG 456	Advanced Geographic Information Systems
GEOG 480	Geographic Information Systems Pattern Analysis and Modeling
SOIL 447	Microclimatology

**Additional Course**

Select one course from any category above.

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**Total Credits**

**12**