

## Water Issues Specialization

### Water Issues research includes:

- Water in global change
- Water quantity, hydrologic forecasting and remote sensing
- Water quality, the role of water in biogeochemical cycles
- Consequences of human activities to aquatic ecosystem services
- Consequences of aquatic ecosystem conditions to public health
- Water rights in coupled human-natural systems
- Water contaminant fate and ecotoxicity
- Collaborative watershed planning
- Transboundary water governance

### Specialization requirements:

1. Work with an ESGP advisor from the Water Issues faculty list
2. Complete specialization course requirements
3. Conduct research project in Water Issues topic

### Course requirements:

Choose at least 3 (MS) or 6 (Ph. D.) credits from the following:

ENR 5280 Stream Ecology U & G 4  
ENR 5345 Methods in Aquatic Ecology U 4  
ENR 5355 Aquaculture U & G 3  
ENR 7700 Watershed Ecology and Restoration G 3  
CIVILEN 5230 Transport Phenomena in Water Resources Engineering U&G 3  
CIVILEN 5420 Remote Sensing of Environment U 3  
ENVENG 5120 Advanced Environmental Biotechnology G 3  
CIVILEN 6230 Numerical Models in Water Resources Engineering G 3  
EARTHSC 5206 Advanced Oceanography U&G 3  
EARTHSC 5655 Land Surface Hydrology U 3  
EARTHSC 5751 Quantitative Ground-Water Flow Modeling U&G 4  
EARTHSC 5752 Contaminants in Aqueous Systems G 4  
ENVENG 6210 Environmental Engineering Unit Operations G 3  
FABENG 5730 Design of Agricultural Water Management Systems U&G 3  
FABENG 5750 Stream Geomorphology and Watershed Hydrology U&G 3

### Biological Sciences in Water Issues:

Choose at least 3 (MS) or 6 (Ph. D.) credits of the following:

EEOB 5420 Aquatic Ecosystems- Ecology of Inland Waters U&G 1.5 – 4  
EEOB 6210 Ecotoxicology G 2-4  
ENR 5250.01 + ENR 5250.02 Wetland Ecology and Restoration + Field Laboratory  
U&G 3  
PUBHEHS 7360 Water Contamination: Sources and Health Impact G 3

Physical Sciences in Water Issues:

Choose at least 3 (MS) or 6 (Ph. D.) credits of the following:

CIVILEN 5130 Applied Hydrology U 3  
EARTHSC 5621 Introduction to Geochemistry U&G 3  
EARTHSC 5651 Hydrogeology U 4  
EARTHSCI 5718 Aquatic Geochemistry G 3  
ENR 5273 Environmental Fate and Impact of Contaminants in Soil and Water U&G 3  
ENVENG 6100 Environmental Engineering Analytical Methods G 3  
ENVENG 5430 G 3 Principles of Risk Assessment G 3  
FABENG 5550 G 3 Sustainable Waste Management G 3

Social Sciences and Policy in Water Issues:

Choose at least 3 (MS) or 6 (Ph. D.) credits of the following:

ENR 5451 Water Law U&G 3  
ENR 8350 Ecosystem Management Policy G 3  
LAW 8309 Environmental Law L 2-4

Seminar:

Three (3) credits:

ESGP 7899 – Current Issues in Environmental Science G 1

ENR 8890.02 Ecological Restoration Seminar

Water Issues Faculty

Rattan Lal SENR  
Mark Moritz Arts and Sci  
Kelly Wrighton Arts and Sci  
Gil Bohrer Engineering  
Nick Basta SENR Y  
Larry Brown CFAES  
Jiyoung Lee Public Health  
Joel Barker Arts and Sci  
Allison MacKay Engineering  
Roman Lanno Arts and Sci

Casey Hoy CFAES  
Shaurya Prakash Engineering  
Paula Mouser Engineering  
Susan Olesik Arts and Sci  
Virginia Rich Arts and Sci  
Andy May Engineering  
Linda Weavers Engineering  
Dale White Engineering  
Ozeas Costa Arts and Sci  
Heather Allen Arts and Sci  
Mazeika Sullivan SENR  
Michael Durand SES