# Sustainable Water Development, Graduate Certificate

## Requirements

The graduate Certificate in Sustainable Water Development requires 15 s.h. of credit, including at least 9 s.h. earned at the University of Iowa. The courses numbered 5000 and above required for the certificate must be taken at the University of Iowa. Students must maintain a Graduate College major program grade-point average of at least 2.50. The certificate is open to graduate students currently enrolled at the University of Iowa who are completing a degree program.

The Certificate in Sustainable Water Development requires the following coursework.

## Required Courses

| Course # | Title | Hours |
|---|---|---|
| All of these: | | |
| CEE:5096 | Water, Energy, and Food Nexus Seminar (taken for two semesters) | 0 |
| CEE:5350 | Watershed Hydrology and Ecosystem Processes | 3 |
| CEE:5410 | Politics and Economics of the Food, Energy, Water Nexus | 3 |
| URP:6209/ SDG:6000 | Sustainable Communities Lab I | 3 |

## Electives

Students take two elective courses selected from the following list. For more information about approved certificate electives, contact the Sustainable Water Development Program coordinator.

| Course # | Title | Hours |
|---|---|---|
| At least two of these for at least 6 s.h.: | | |
| CEE:4102 | Groundwater | 3 |
| CEE:4104/ SEES:4660 | Groundwater Modeling | 3 |
| CEE:4107/CBE:4410 | Sustainable Systems | 3 |
| CEE:4118 | Statistical Methods in Water and the Environment | 3 |
| CEE:4158/ OEH:4920 | Solid and Hazardous Wastes | 3 |
| CEE:4370 | Open Channel Flow and Sediment Transport | 3 |
| CEE:4385 | Water Scarcity in Rural India | 3 |
| CEE:5156 | Physical and Chemical Environmental Processes | 3 |
| CEE:6253 | Environmental Organic Chemistry | 3 |
| CEE:6255 | Environmental Biotechnology and Bioremediation | 3 |
| ABRD:3445 | India Winterim | arr. |
| ACCT:4300 | Accounting Ethics and Law | 3 |
| ANTH:3110/ CBH:4200/ GHS:3110/ NAIS:3110 | Colonialism and Indigenous Health Equity | 3 |
| BIOL:3663 | Plant Response to the Environment | 3 |
| CBE:5140/ CEE:5513/ME:5113 | Mathematical Methods in Engineering | 3 |
| CBE:5415/IGPI:5415 | Satellite Image Processing and Remote Sensing of Atmosphere | 3 |
| CBE:5425/CEE:5115 | Atmospheric Chemistry and Physics | 3 |
| CBH:5305 | Evaluation: Approaches and Applications | 3 |
| CBH:6205 | Designing and Implementing Interventions | 3 |
| CHEM:4760 | Radiochemistry: Energy, Medicine, and the Environment | 3 |
| CHEM:4873 | Atmospheric and Environmental Chemistry | 3 |
| CPH:3500/ GHS:3500 | Global Public Health | 3 |
| ECE:5630 | Sustainable Energy Conversion | 3 |
| ECON:3345 | Global Economics and Business | 3 |
| ECON:3625/ URP:3135 | Environmental and Natural Resource Economics | 3 |
| ECON:3800 | Law and Economics | 3 |
| ECON:4090 | Natural Resource Economics | 3 |
| ECON:4140 | Labor Economics | 3 |
| LAW:8433 | Environmental Law | 2-3 |
| LAW:8622 | International Environmental Law | 3 |
| LAW:8992 | Water Law | arr. |
| MATH:4740/ CS:4740/IGPI:4740/ STAT:4740 | Large Data Analysis | 3 |
| ME:4048 | Energy Systems Design | 4 |
| OEH:4240 | Global Environmental Health | 3 |
| OEH:4260/ GHS:4260 | Global Water and Health | 3 |
| OEH:5620 | Occupational Health | 3 |
| OEH:6460 | Quantitative Exposure Assessment: Study Design and Evaluation | 3 |
| OEH:6710 | Human Toxicology and Risk Assessment | 3 |
| PHYS:5811 | Classical Electrodynamics I | 3 |
| PHYS:5812 | Classical Electrodynamics II | 3 |
| SEES:3090/ GHS:3070 | Hungry Planet: Global Geographies of Food | 3 |
| SEES:3390 | Integrated Watershed Analysis | 3 |
| SEES:3780/ GHS:3780/ HIST:3240/ POLI:3431 | U.S. Energy Policy in Global Context | 3 |

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|---|---|---|
| SEES:4150/ GHS:4150/ IGPI:4150 | Health and Environment: GIS Applications | 3 |
| SEES:4500/ IGPI:4500 | Advanced Remote Sensing | 4 |
| SEES:4520/ IGPI:4520 | GIS for Environmental Studies: Applications | 3 |
| SEES:4580/ IGPI:4581 | Introduction to Geographic Databases | 3 |
| SEES:4750/ URP:4750 | Environmental Impact Analysis | 3 |
| URP:6205/ PBAF:6205 | Economics for Policy Analysis | 1,3 |
| URP:6225/ PBAF:6225 | Applied GIS for Planning and Policy Making | 3 |
| URP:6233/ PBAF:6233 | Public Finance and Budgeting | 3 |
| URP:6253/ PBAF:6253 | Designing Sustainable and Healthy Cities | 1-3 |
| URP:6256/ PBAF:6256 | Environmental Policy | 3 |
| URP:6258/ PBAF:6258 | Systems and Scenario Thinking | 3 |
| URP:6273/ PBAF:6273 | Creative Community and Economic Development | 3 |
| URP:6295/ PBAF:6295 | Community and Economic Development Policy | 3 |