

## Spring 2021 Online Graduate Courses in Natural Resources and Environmental Sciences

- ➔ Registration for non-degree students begins December 14<sup>th</sup>!

### **NRES Online Graduate Programs:**

- [M.S. in Natural Resources and Environmental Science](#)
- [Professional Development Certificates](#)
  - Soil Science and Conservation
  - Water Science and Conservation

Interested in how to start?

<https://online.illinois.edu/getting-started>

2020–2021 Tuition and Fees: \$712/credit hour

Questions? Email us:

[nres-ssc@illinois.edu](mailto:nres-ssc@illinois.edu)

### **What courses are offered this spring?**

Click on the course for additional information:

- [NRES 455 Adv GIS for Natural Resource Planning](#)
- [NRES 474 Soil and Water Conservation](#)
- [NRES 475 Environmental Microbiology](#)
- [NRES 499 Marine & Coastal Conservation](#)
- [NRES 502 Research Methods in NRES](#)
- [NRES 511 Principles of Applied Ecology](#)
- [NRES 516 Ecosystem Biogeochemistry](#)

Learn more about our  
online graduate programs at  
[nres.illinois.edu/online](https://online.illinois.edu)

➔ **NOTE:** NRES 474 and 516 both meet TWO (2) days per week, compared to one for most of our courses.

## NRES 516 Ecosystem Biogeochemistry

Credit Hours: 4 (CRN 69343)

Tuesdays & Thursdays 6:30–8:00 PM

**Instructor:** Dr. Robert Hudson, Associate Professor

Biological, geological, and chemical processes of forest, agricultural, freshwater and marine ecosystems. The effects of pollutants and global change on each ecosystem are addressed along with the biogeochemical interactions among ecosystems.

Each student completes a detailed biogeochemical study for a particular ecosystem.

**Prerequisites:** A 400-level course in two or more of the following areas are recommended: soil science, aquatic science, ecology, and hydrology.

NRES 474 counts toward both the Soil Science and Conservation and the Water Science and Conservation Professional Development Certificates.

## NRES 474 Soil & Water Conservation

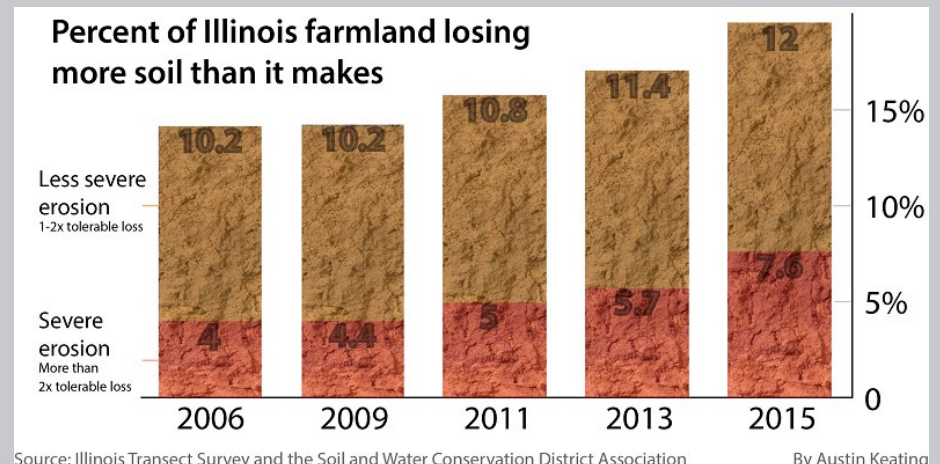
Credit Hours: 3 (CRN 49090)

Mondays & Wednesdays 5:00–5:50 PM plus asynchronous material

**Instructor:** Dr. Michelle Wander, Professor

Application of principles of soil conservation and management to the solution of land-use problems; influence of soil characteristics on erosion control, cropping intensity, water management, and land-use planning.

**Prerequisite:** Intro to Soils





## **NRES 475 Environmental Microbiology**

Credit Hours: 3 (CRN 72879)

Thursdays 6:00–6:50 PM plus asynchronous material

**Instructor:** Dr. Angela Kent, Associate Professor

Introduction to the diversity of microbial populations and their important role in environmental processes in air, water, soils, and sediments. Microbial community ecology and interactions with plants and animals will also be discussed.

Students will learn how microbial activities sustain natural ecosystems and contribute to environmental quality and how these functions are harnessed to support managed and artificial systems. Molecular biology techniques for investigating microbial communities and their activities will also be discussed.

**Prerequisites:** *Intro to Soils and General Chemistry II*

## **NRES 499 Marine & Coastal Conservation Management**

Credit Hours: 3 (CRN 66103)

Wednesdays 6:30–8:30 PM

**Instructor:** Dr. Jocelyn Curtis Quick, Marine Ecologist

Explores the importance of our marine and coastal resources and the challenges in sustainable exploitation. The impacts humans have on these systems is examined across scales, species to ecosystems, with a particular emphasis on tropical species and locations.

We will examine a range of anthropogenic impacts and conservation and marine spatial planning strategies used to mitigate them. Throughout the course, we'll critically assess the data and tools available to managers of these systems and explore the management actions from the viewpoint of multiple stakeholder groups. Students will have the opportunity for discussion and debate on a range of topical marine and coastal issues.

## NRES 455 Advanced GIS for Natural Resource Planning

Credit Hours: 2 (CRN 66031)

Wednesdays 6:30–8:30 PM (8-week course, January 25–March 19)

**Instructor:** Kingsley Allan, GIS Manager, Illinois State Water Survey

Apply Geographic Information Systems (GIS) to natural resource planning and decision making. GIS software with computer-based optimization will be used for data acquisition, image processing, and map modeling. Exercises will promote decision making in various contexts.

Suitable for land cover mapping, monitoring, productivity assessments, land use change, and spatial modeling.

This course supports professionals in urban planning, land or resource management, resource conservation, environmental restoration, and anyone involved in spatial analysis.

Students will have the best experience in this course if they have a computer with adequate power to run ArcGIS Pro (program available free of charge to enrolled University of Illinois students through the [Web Store](#)).

**Prerequisite:** NRES 454 or equivalent course.





## NRES 502 Research Methods in NRES

Credit Hours: 4 (CRN 69541)

Mondays 6:30–8:30 PM plus asynchronous material

**Instructors:** Piper Hodson, Director NRES Online MS Program and Dr. Lynn Anderson-Carpenter

- Exploration of a variety of research designs and methods to improve skills in evaluation and planning of scientific research. Topics will include the use of primary and secondary data, qualitative and quantitative analysis, experimental and non-experimental methods, sampling, data display, managing data, scientific writing, and scientific ethics. A great course for graduate students and those interested in understanding scientific research for purposes of environmental research, advocacy, and conservation.
- **Prerequisite:** At least one graduate-level NRES course.
- **Required textbook:** Graeme Ruxton and Nick Colegrave, *Experimental Design for the Life Sciences* (4<sup>th</sup> ed.). Oxford University Press, 2016. Other readings provided.



## NRES 511 Principles of Applied Ecology

Credit Hours: 4 (CRN 60783)

Tuesdays 6:30–9:30 PM

**Instructor:** Dr. Kirk Stodola, Associate Ornithologist, Illinois Natural History Survey

Provides a thorough foundation of fundamental ecological principles that govern the distribution and abundance of organisms with extra attention to applied ecology as it pertains to current-day ecological problems. The approach will include lectures, discussions, hands-on evaluation and interpretation of data and experimental design presented in case studies, and design and implementation of an independent research project.

**Prerequisite:** At least one undergraduate or graduate course in biology or ecology.