

AGENDA



River Course 201 – Natural Channel Design Principles

November 2-4, 2022

Asheville, North Carolina

This three-day workshop provides an overview of natural channel design applications for stream restoration design. Students work in small groups to analyze reference reach data and develop design parameters. They work through the process of developing a morphological table listing design parameters for stream channel dimension, pattern, and profile, and then develop stream channel layouts, typical cross-sections, and longitudinal profiles, and apply basic hydraulic and sediment transport calculations. Other topics include in-stream structures, plan sheet development, design specifications, and construction. Students are encouraged to bring laptops for spreadsheet applications. This workshop requires completion of RC 101 or equivalent background in stream morphology assessment.

Day 1

7:30 a.m.	Registration
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8:00 a.m.	Classroom: Overview of Restoration
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12:00 p.m.	Lunch (Provided)
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1:00 p.m.	Field Trip: (Vans Provided) Foster Creek - Restoration Project Tour Boylston Creek - Design Study Site (Evaluate Condition & Restoration Opportunities)
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5:00 p.m.	Adjourn
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Day 2

8:00 a.m.	Classroom: Review Reference Reach Data & Begin Group Design Exercise - Dimension - Hydraulic & Sediment Transport Check
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12:00 p.m.	Lunch (Provided)
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1:00 p.m.	Continue Design Exercise - Alignment & Profile
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5:00 p.m.	Adjourn
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Day 3

8:00 a.m. **Classroom:** Overview of Structures

9:30 Finalize Group Designs

11:00 Groups Present Final Design

11:30 **Lunch** (Provided)

12:30 p.m. Plan Production for Stream and River Restoration

1:30 Restoration Construction

3:00 p.m. **Adjourn**

Workshop sponsored by:

NC State University, Department of Biological & Agricultural Engineering, Stream Restoration Program, NC Sea Grant and Jennings Environmental

Continuing Education:

This workshop is approved for 16 professional development hours (PDHs) for PEs, approved by the NC Board of Examiners for Professional Engineers and Land Surveyors.

Instructor Biographies

Barbara A. Doll, Ph.D., P.E.

Barbara Doll is an Extension Specialist for North Carolina Sea Grant and an Extension Assistant Professor in the Biological & Agricultural Engineering Department at NC State University. Barbara holds a Ph.D. in Biological and Agricultural Engineering and is a licensed professional engineer who joined Sea Grant in 1992 to work on water quality issues. Sea Grant is a federal/state program that promotes the wise use of coastal resources. Much of Barbara's current research and outreach focuses on ecological restoration, reducing the impacts of nonpoint source pollution and assessing the effectiveness of restoration practices. She has developed and implemented several innovative stream restoration projects including the multi-million dollar, three-phase project to restore Rocky Branch, a creek that runs a mile through the North Carolina State University campus and is a tributary to the Neuse River.

Gregory Jennings, Ph.D., P.E.

Dr. Gregory Jennings, joined NC State in 1990 as an Assistant Professor. He progressed through the academic ranks and was named Professor in 2001. Over his career at NC State Dr. Jennings made significant contributions in the areas of water quality, watershed management, stream restoration, and ecological engineering. He served as Water Quality Coordinator for the College of Agricultural and Life Sciences, in which role he coordinated interdisciplinary water quality educational and research programs. Dr. Jennings also led the development of the NC State University Stream Restoration Program, probably the pre-eminent program across the United States, that has educated both students and professionals through delivery of education programs based upon research conducted at NC State and elsewhere.

Jack Kurki-Fox, Ph.D., P.E.

Jack recently received his doctoral degree from the Biological and Agricultural Engineering Department at NC State. His research included modeling the impacts of climate change on natural wetland hydrology and characterizing anthropogenic disturbance to natural wetland water quality. Jack is now a research associate in a joint collaboration between the Biological & Agricultural Engineering Department and Sea Grant. He holds master's and bachelor's degrees in civil engineering from the University of Florida. He also worked at a water resources engineering consulting in Florida prior to pursuing his Ph.D. at NC State.