

Advanced Topics in Wetlands Ecology and Management: Restoration Ecology

OBJECTIVES:

The course objectives are: (1) to give a conceptual understanding of wetland restoration concepts and related topics; (2) to equip students with the ability to analyze resource problems in wetland restoration; (3) to analyze management strategies for wetland restoration and give students an opportunity for reviewing and discussion of wetland restoration procedures and restoration assessments; and (4) to provide students with experience in leading a seminar, critiquing research papers and researching a topic in wetland restoration.

METHODOLOGY:

Several modes of teaching are utilized: lecture (several guest speakers will be brought in), readings (readings in research articles are critiqued), and students are asked to prepare a written analysis of articles weekly (\cong 1 page) or lead a seminar and discussion on a chosen aspect of restoration. This semester students will be placed in teams to work on the development of a restoration plan for the Duke Wetland site. This project will constitute 60% of the course.

READINGS:

Readings are posted on the ENV 309 website as PDF files that can be downloaded or read directly online.

Supplemental text that is NOT REQUIRED and will be placed on reserve in the library:

Middleton, Beth. 1999. *Wetland Restoration, Flood Pulsing, and Disturbance Dynamics*. New York, J. Wiley.

BULLETIN DESCRIPTION:

ENV 309 – A seminar on wetland ecology restoration issues and concepts. Wetland functions, hydrology, biogeochemistry, decomposition, community habitat, and productivity are discussed in an ecosystem context. Topics vary each semester and cover such areas as wetland restoration, wetland functions, wetland research methods, constructed wetlands for wastewater treatment, and wetland delineation. Students are expected to make oral presentations as well as critique advanced readings in class.

GRADE		
A.	Paper critiques, class discussion, best paper contest	20%
B.	Field trips to restoration sites	10%
C.	Case study restoration presentation on Duke Forest	10%
D.	Case study restoration design and plan for Duke Forest restoration site	60%

Advanced Topics in Wetland Restoration Spring 2004

Instructors: Dr. Curtis Richardson; TAs: Greg Bruland and Mike Osland

Time: 3:00-6:00 pm Tuesday, Rm. A211, LSRC, unless otherwise announced

Note: Assignments are in bold

<i>Tentative Schedule:</i>	
Tuesday, Jan. 13	<ul style="list-style-type: none"> • Course Introduction. • Overview of Duke Restoration. • Announce Best Restoration Paper Contest.
Tuesday, Jan. 20	<ul style="list-style-type: none"> • Field Trip to Duke Forest Restoration Site.
Tuesday, Jan. 27	<ul style="list-style-type: none"> • Snow Day (Class Canceled)
Tuesday, Feb. 3	<ul style="list-style-type: none"> • Critique of 2 assigned papers: <u>Van der Valk</u>- Succession Theory and <u>Mitsch</u>- Self Design. • Guest Lecturer: Mr. Harman, Buck Engineering. • Group sign-up (we'll have four groups of 5)
Tuesday, Feb. 10	<ul style="list-style-type: none"> • Turn in papers for best paper contest with a one paragraph justification. • Best Paper Contest Presentation: please be prepared to give a 2-3 minute summary/defense of your paper. • Critique of 1 assigned paper: <u>Broome and Craft</u>- Tidal Salt Marsh Restoration, Creation, and Mitigation • Guest Lecturer: Dr. Broome, NCSU- "Salt Marsh Construction and Restoration"
Tuesday, Feb. 17	<ul style="list-style-type: none"> • Guest Lecturer: Mr. Bruland, DUWC- "Restoration Case Studies: Spatial Variability, Organic Amendments and Microtopographic Reestablishment" • Critique of 2 assigned papers: <u>Bruland et al.</u> and <u>Bruland et al.</u>
Tuesday, Feb.24	<ul style="list-style-type: none"> • Guest Lecturer: Ron Ferrell, NC Wetland Restoration Program • Critique of 1 assigned paper: <u>Zedler</u>- Progress in Wetland Restoration Ecology • Consulting Firm Meeting Time
Tuesday, Mar. 2	<ul style="list-style-type: none"> • Field Trip to restored wetland: TBA
Tuesday, Mar. 9	<ul style="list-style-type: none"> • Spring Break
Tuesday, Mar. 16	<ul style="list-style-type: none"> • Selected Case Study examples and planning for Duke Restoration

Tuesday, Mar. 23	<ul style="list-style-type: none">• Constructed wetlands for wastewater treatment• <u>Vymazal</u>: Removal Mechanisms and Types of Wetlands
Tuesday, Mar. 30	<ul style="list-style-type: none">• Consulting Firm Meetings
Tuesday, Apr. 6	<ul style="list-style-type: none">• Team presentations (Team 1 and 2)
Tuesday, Apr. 13	<ul style="list-style-type: none">• Team presentations (Team 3 and 4)
Tuesday, Apr. 27	<ul style="list-style-type: none">• No final exam. Restoration Case Study Report due today.