

WETLANDS ECOLOGY
(E440, Autumn 2004)

Lecture: Mon. & Wed., 9:30-10:45 AM, SPEA, room 272

Instructor: Christopher Craft

Office: SPEA, Room 410J

Office hours: Mon. & Wed., 10:45-11:30 AM

Description: *Wetlands Ecology* emphasizes the ecosystem structure and function of freshwater and estuarine wetlands, the ecological services they provide and their value to society. The course focuses on seven basic areas:

(1) *Characteristics used to identify wetlands* (vegetation, soils, hydrology)

(2) *Geomorphology and Classification of wetlands*

(3) *Plant and animal adaptations to anaerobic conditions*

(4) *Wetland community structure and ecosystem processes*

(5) *Biogeochemistry of wetlands*

(6) *Wetland functions and values*

(7) *Management of wetlands, including jurisdictional wetland delineation, hydrogeomorphic (HGM) assessment of wetland function and wetland creation & restoration.*

The information will be applied to discuss the role of wetlands as a component of ecosystems, landscapes and the biosphere, their importance as a sustainable resource (for water resources and water quality, wildlife habitat and preservation of natural areas) and their economic and aesthetic values to society.

Readings: *Wetlands* by W.J. Mitsch and J.G. Gosselink (2000). The textbook readings will be supplemented by a course-pak that can be purchased from the TIS bookstore and by reserve readings.

Grading:

You will be evaluated on your knowledge of the material based on 2 quizzes, term paper, group delineation project and (individual) HGM project. There will be 4 half-day field labs and 5 half-day field exercises. The purpose of the field labs is to learn how to identify wetlands from non-wetland areas and to characterize the different types of wetlands. The purpose of the group project is to learn how to delineate a jurisdictional wetland. The delineation exercise will culminate in a group report, including a field presentation that describes the results, including a map of wetland versus non-wetland acreage, of your jurisdictional wetland delineation. In the HGM project, you will collect data to compare wetland function(s) of a natural and degraded forested wetland. The data will be collected as a group but the reports will be written and turned in individually.

Students will complete a short (10-15 pages double spaced) term paper by October 20. You should select a topic carefully, based on your own interests (research, policy, etc) as related to some aspect of Wetlands Ecology. Remember, I am interested in quality, not quantity. **The term paper should be an original piece of work and not something that was submitted for credit in another course.** The term paper must be formally organized with subheadings, including an Abstract, Introduction (with a statement of purpose), Results/ Discussion, Conclusions and a Literature Cited. The Literature Cited section should follow the style of the journal *Wetlands*.

Term paper format: Double-spaced, 8-10 pages in length plus references.
20+ references, at least 80% are from the peer-reviewed literature.
Use a scientific journal (e.g. *Wetlands*) as a template for citing and listing references.

Term paper critique: 1. FOCUS on a specific topic.
2. Include some visual aides (e.g. tables and figures).
3. Cite mostly scientific (wetlands, ecological) literature.
4. PROOFREAD your paper.

Note: I DO NOT accept email submission of term papers, lab write-ups, etc.

Grading Criteria:	Quiz #1	(Oct. 4)	20%
	Quiz #2	(Nov. 15)	20%
	Term paper	(due Oct. 20)	20%
	Delineation exercise	(due Nov. 12)	20%
	HGM exercise	(due Dec. 10)	20%

Lecture Schedule:

Date	Topic	Reading assignment
Aug. 30	Overview / Wetlands of the US & World	Mitsch and Gosselink, chapters 1, 2, 3 & 4
Sept. 1	Wetland Vegetation	M & G, chapter 8
Sept. 3	Field Lab (1/2 day)	
Sept. 6	Wetland Soils	
Sept. 8	Wetland Soils (continued) Wetland Hydrology	M & G, chapter 5
Sept. 10	Field Lab (1/2 day)	
Sept. 13	Wetland Hydrology (continued)	M & G, chapter 5
Sept. 15	Geomorphology / Classification of Wetlands	M & G, chapter 21
Sept. 17	Field Lab (1/2 day)	
Sept. 20	Plant / Animal Adaptations to Wetness	M & G, chapter 7
Sept. 22	Bottomland, Alluvial & Riparian Forests	M & G, chapters 14 and 15
Sept. 24	No lab	
Sept. 27	Swamps (continued)	M & G, chapters 14 and 15
Sept. 29	Northern Peatlands	M & G, chapter 13
Oct. 1	Field Practical Exam	
Oct. 4	Quiz #1	
Oct. 6	Freshwater marshes	M & G, chapter 12
Oct. 8	No lab	
Oct. 11	Tidal Salt Marshes	M & G, chapter 9, Reserve reading
Oct. 13	Jurisdictional Wetland Delineation	M & G, chapters 18 and 21

Oct. 15	Field lab: Intro to Wetland Delineation (1/2 Day)	
Oct. 18	Tidal Marshes (continued) / Mangroves	M & G, chapters 10 and 11
Oct. 20	Wetland Biogeochemistry TERM PAPERS DUE	M & G, chapter 6
Oct. 22	Delineation Exercise (1/2 Day)	
Oct. 25	Wetland Biogeochemistry (continued)	M & G, chapter 6
Oct. 27	Wetland Ecosystem Processes (Productivity, Decomposition)	
Oct. 29	Delineation Exercise (continued)	
Nov. 1	Open Date	
Nov. 3	Open Date	
Nov. 5	Delineation Exercise (if needed)	
Nov. 8	Wetlands and Carbon Cycling	
Nov. 10	Wetland Soil Biology	Reserve reading
Nov. 12	Delineation Field Presentation	
Nov. 15	Quiz #2	
Nov. 17	Wetland Functions and Values	M & G, chapter 16, Reserve readings
Nov. 22	Wetland Mitigation	M & G, chapter 19; Reserve readings
Nov. 24	No class (Thanksgiving holiday)	
Nov. 29	Wetland Creation and Restoration	M & G, chapter 19, Reserve readings
Dec. 1	HGM Assessment of Wetland Functions	
Dec. 3	Field Exercise (HGM Assessment of Wetland Functions)	
Dec. 6	Constructed & Natural Wetlands for Nutrient Removal & Wastewater Treatment	M & G, chapter 20
Dec. 8	Effect of Nutrients on Wetland Structure and Function	
Dec. 10	HGM Assessment Due	