

Fall Semester 2017

ENR 5250.01 Wetland Ecology and Management

INSTRUCTOR: Mark A. Dilley, MS, PWS

Lecturer – OSU School of Environment and Natural Resources

OFFICES: MAD Scientist Associates LLC (work)

253 N. State Street, Suite 101
Westerville, OH 43081

Kottman Hall, Room 359 (Campus; Office meetings by appointment)
2021 Coffey Road
Columbus, OH 43210-1085

PHONE: (614) 531-9156

E-MAIL: dilley.7@osu.edu

TEACHING ASSISTANT: Martha Zapata

SENR graduate student
zapata.22@osu.edu

PREREQUISITE: EEOB 3410 (Intro to Ecology) or Grad Standing

COURSE LOCATION: Lectures: 164 Howlett Hall; Field Trips: Olentangy River Wetland Research Park – 352 W. Dodridge Avenue

TIME OF CLASS: Tuesday/Thursday 8:00 - 9:20 a.m.

CREDIT HOURS: 3

COURSE DESCRIPTION: A comprehensive presentation of the hydrology, vegetation, soils, biogeochemistry, biology, and ecology of wetlands. Emphasis is on biological, physical, chemical, and ecological aspects of major wetland ecosystems found in North America. Course also deals with valuation, classification, management, and restoration of wetlands and streams, with an introduction to the fundamental concepts of ecological engineering.

TEXT: Mitsch, W.J. and J.G. Gosselink. 2015. Wetlands, 5th ed., John Wiley & Son, Inc., New York. **One copy on reserve in Biological Sciences/Pharmacy Library (Reference section). Online access to eBook via OSU library (call # QH104 .M57 2015) and this link:** <http://site.ebrary.com.proxy.lib.ohio-state.edu/lib/ohiostate/detail.action?docID=11027502>. If you access the OSU library system and search “Wetlands Mitsch 2015,” a link to the ebook option will be included in the search results, and you can select “view now” to access a chapter (you can’t download the entire text, but you can read chapter by chapter).

COURSE OBJECTIVES: In this course, engaged and invested students will develop a solid understanding of: 1) wetlands and how they form and function; 2) the ecology of wetlands, including associated plant and animal communities; 3) the societal importance of wetlands and current trends and issues affecting these resources; and 4) basic principles of treatment wetlands and of wetland and stream restoration and management (an introduction to ecological engineering). Course emphasis is on an ecosystem perspective.

WETLAND FIELD EXPERIENCES:

Location: The Wilma H. Schiermeier Olentangy River Wetland Research Park (ORWRP); 352 W. Dodridge Street, The Ohio State University. NOTE: The ORWRP has adequate parking if you drive. It can also be reached easily by walking or bicycle on the bike path that goes through campus along the east bank of river; or via the COTA #18 bus.

Site Description: The Wilma H. Schiermeier Olentangy River Wetland Research Park is a 50-acre research and teaching field research site on the northern edge of the campus of The Ohio State University. There are seven separate ecosystems at the ORWRP that are used for research and teaching, including: a 13-acre bottomland hardwood forest, a 7-acre created natural flowing floodplain wetland (referred to as our "billabong" or oxbow); two 2.5-acre experimental wetlands (water is pumped into these basins), a flowing swale that drains the two experimental wetlands and its adjacent bioreserve pond, the Olentangy River pool itself (adjacent to the bottomland hardwood forest), and a storm water wetland that receives roof runoff from the Heffner Wetland Building.

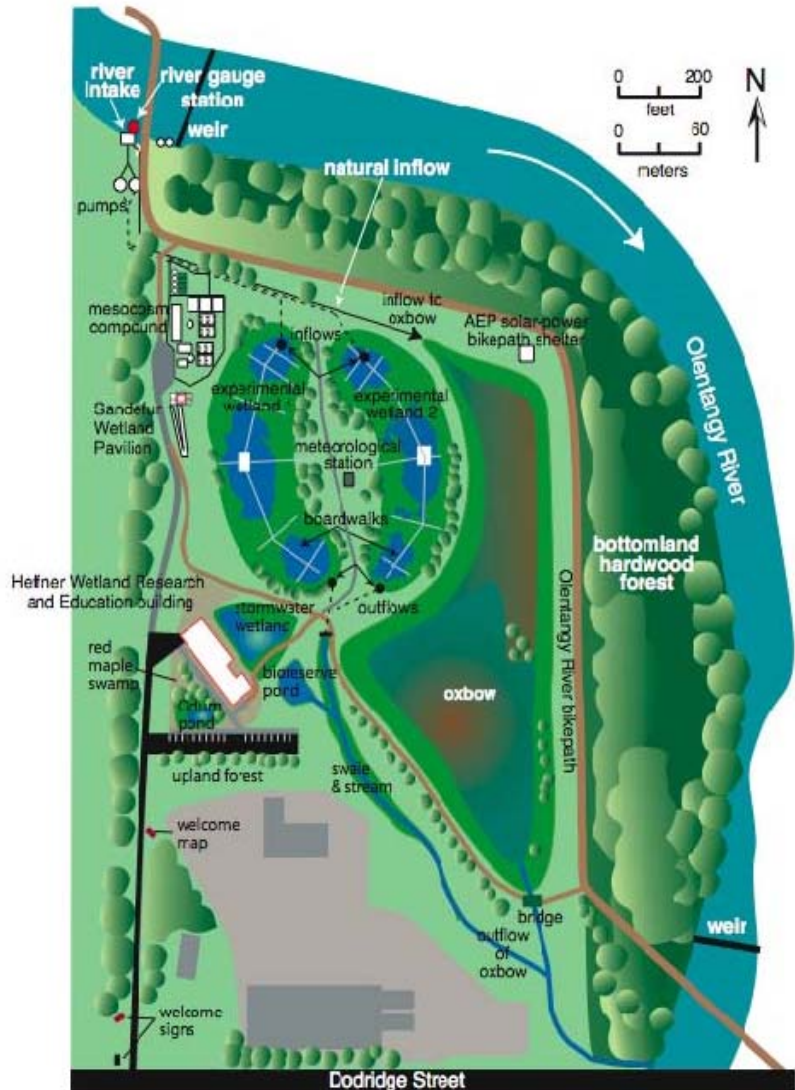
There is also a mesocosm compound designed for wetland experimental work. There are 3 structures on the wetland campus: the Sandefur Wetland Pavilion for wetland observation, bird watching, and outdoor seminars; the Heffner Wetland Research and Education Building with labs, offices, conference room, and wetland library; and the AEP bike path shelter on the city's bike path that passes through the ORWRP. You can fill your bicycle tires using solar energy there!

Field Trip Schedule:

There will be field trips for 3 Thursdays of the course. The schedule (subject to change) is:

- Sep 14 – Wildlife Focus (Special Emphasis on Aquatic Invertebrates)
- Sep 28 – Vegetation Focus
- Oct 10 – Hydrology and Soils Focus

Please meet at our normal class start time (8:00 a.m.) outside the Heffner Wetlands Building's main entrance on these days. Wear appropriate clothing and shoes and dress for the weather, as we will be working outside in and near wet muddy areas.



COURSE GRADING:	Percent of Grade
Quizzes (2; multiple choice/short answer)	10
Midterm Examination*	30
Final Examination** (comprehensive)	35
Attendance/Class Participation	10
Research Paper/Presentation (choose one)	<u>15</u>
TOTAL POINTS	100

* The midterm examination covers lecture material from the prior lectures.

** The final examination is comprehensive and covers material from the entire course.

ATTENDANCE and PARTICIPATION: All students are expected to attend **and participate** in class discussions. A sign-in sheet for attendance will be available at the front of the class for classes between Tuesday August 22 and Thursday, November 30 (28 total). Students requesting to be excused from class need to do so *in writing (e-mail is fine) and in advance* of the class if at all possible by emailing the lecturer and TA (e.g., if attending a conference or other professional development event). Students requesting to be excused from class due to illness need to provide a doctor's note to the lecturer or TA. The attendance and participation grade will be calculated as the number of times the student signs in between August 22 and November 30 divided by 25 (i.e., missing class or not signing in *three times* within this period will not count against the attendance grade), or by fewer than 25 if the student has excused absences.

RESEARCH PAPER or PRESENTATION: All students are expected to research a wetland ecology related topic or current issue in the field of wetland science and develop a 5-10 page summary of the topic (longer does not equate to better – a clear, concise presentation is ideal). Paper should follow the format of the journal of the Society of Wetland Scientists <http://www.springer.com/life+sciences/ecology/journal/13157> and include appropriate and relevant citations to document student's research on the topic. List of cited sources should include at least five (5) original published journal articles, but may also include internet research, books, and other sources of information. The narrative of the paper must be thesis-driven and reflect the author's critical analysis of the topic; research papers that simply provide a summary of source material will not earn full credit.

As an alternative to the paper, students may choose to deliver a presentation to the class on their selected topic. ***Opportunities for the latter option will be somewhat limited. If the demand for this option exceeds the available timeslots, the best and most appropriate topics will be selected by the instructor and TA, and the students whose topics are not selected will be required to complete a paper.***

A rubric for how the research paper/presentation will be assessed, along with additional details about the assignment, will be available on Carmen. An electronic copy of paper or presentation topic is due to a dropbox on Carmen no later than the beginning of class on Thursday, September 14. An electronic copy of an abstract or outline is due to a dropbox on Carmen no later than the beginning of class on Tuesday, October 3.

Supplemental Resources Available:

A significant number of peer-reviewed papers, theses, and dissertations from the ORWRP are listed under **research/publications** at our ORWRP web site <http://swamp.osu.edu>. Recent papers are available from the receptionist at the Heffner Wetland Building. Theses and dissertations are in the university library.

Many of the chapters of scientific annual reports published from 1992 to 2005 are on the OSU Library D-Space web site at <https://kb.osu.edu/dspace/handle/1811/59>. A link to this web site can also be found under **research/publications** of our ORWRP web site <http://swamp.osu.edu>. Hard copies of all annual reports are also found in the library (room 130) of the Heffner Wetland Research Building and in the Life Sciences and Agricultural Libraries on campus.

Academic Misconduct:

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct (http://studentaffairs.osu.edu/resource_csc.asp).

Special Needs:

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated, and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 098 Baker Hall, 93 W 12th Ave; telephone 292-3307, TDD 292-0901; <http://www.ods.ohio-state.edu>.

COURSE SCHEDULE (subject to change):

Date	Lecture Topic/Activity	Required Reading (Wetlands – 5th Edition, unless otherwise noted)
Tuesday, Aug 22	Course Introduction; Human use	
Thursday, Aug 24	Definitions of Wetlands; Wetland Types	Chapters 1 and 2
Tuesday, Aug 29	Major World Wetland Areas	Chapter 3
Thursday, Aug 31	Wetland Hydrology	Chapter 4
Tuesday, Sep 5	Wetland Soils	Chapter 5
Thursday, Sep 7	Biological Adaptations	Chapter 7 (in part)
Tuesday, Sep 12	Vegetation Primer; Wetland Wildlife ID Game	Handout
Thursday, Sep 14	FIELD TRIP: Wildlife Focus; RESEARCH PAPER or PRESENTATION TOPICS DUE	Handout
Tuesday, Sep 19	QUIZ #1 ; Wetland Biogeochemistry team prep	Chapter 6
Thursday, Sep 21	Biogeochemistry team presentations	Chapter 6
Tuesday, Sep 26	Wetland Ecosystem Development	Chapter 7 (in part)
Thursday, Sep 28	FIELD TRIP: Vegetation Focus	Handout
Tuesday, Oct 3	Wetland Classification & Delineation RESEARCH PAPER or PRESENTATION OUTLINE/ ABSTRACTS DUE	Chapter 13
Thursday, Oct 5	Human Impacts & Management	Chapter 14
Tuesday, Oct 10	FIELD TRIP: Soils & Hydrology	Handout
Thursday, Oct 12	NO CLASS - Autumn break	
Tuesday, Oct 17	Wetland Laws & Protection; Midterm Review	Chapter 15
Thursday, Oct 19	MIDTERM EXAMINATION	(Will cover Chapters 1-7 and 13-15)
Tuesday, Oct 24	Wetland Ecosystem Services	Chapter 16
Thursday, Oct 26	Climate Change & Wetlands	Chapter 17
Tuesday, Oct 31	Wetlands & Water Quality	Chapter 19 (in part)
Thursday, Nov 2	Treatment Wetlands	Chapter 19 (in part)
Tuesday, Nov 7	Wetland Creation & Restoration Overview	Chapter 18 (in part)
Thursday, Nov 9	QUIZ #2 ; Tidal Marshes & Restoration	Chapter 8
Tuesday, Nov 14	Mangrove Swamps & Restoration	Chapter 9
Thursday, Nov 16	Freshwater Marshes & Restoration; RESEARCH PAPERS DUE	Chapter 10
Tuesday, Nov 21	Freshwater Swamps & Restoration	Chapter 11
Thursday, Nov 23	NO CLASS – Thanksgiving	
Tuesday, Nov 28	Peatlands & Restoration	Chapter 12
Thursday, Nov 30	Vernal Pools & Creation	
Tuesday, Dec. 5	Optional class day: Review for Final Exam	
Thursday, Dec. 7	NO CLASS (Finals Dec. 11-17)	
Tuesday, Dec 12	FINAL EXAMINATION (8:00-9:45 am)	Comprehensive (Chapters 1-19)