

EVPP 647

Wetland Ecology Lab & Fields

Fall Semester 2021

INSTRUCTOR: Dr. Changwoo Ahn
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OFFICE:

PHONE:

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LAB/FIELD TIME Saturdays 9:00 am - 1:00 pm (subject to minor change)

LAB LOCATION: David King 3031 or field sites, including mesocosm compound

TA Stephanie Schmidt (sschmi11@masonlive.gmu.edu)

CREDIT HOURS: 1

PREREQUISITE OR COREQUISITE: This course is designed for graduate students who have knowledge and familiarity with wetland ecology principles and practices to earn lab/fields skills. Wetland Ecology and Management (EVPP 646) is a prerequisite and/or co-requisite for this lab/fields class.

REFERENCES:

- *Tiner, R. W. 1993. Field guide to coastal wetland plants of the southeastern United States, University of Massachusetts Press, Amherst, 328 pp.
- *Tiner, R. W. 1988. Field Guide to Nontidal Wetland Identification Environmental Laboratory. (1987).
- *Munsell® Color. 2000. Munsell Soil Color Charts, NY
- * All available in Wetland Ecosystem Laboratory (DK 3079a)
- ** Lab manual for Soil and Water Analysis is available in Wetland Ecosystem Laboratory (DK 3071)→contact Dr. Ahn & Stephanie.

Also needed: field notebook (water-proof), camera (or smartphone) for photos, pencil, calculator, large 3-ring binder, old clothes and boots/shoes for fieldwork, rain gear, wader, audio recorder if available

CLASS E-MAIL:

I will frequently e-mail to remind you of deadlines or to clarify points from a lecture. Please use **GMU e-mail** (**@gmu.edu) to facilitate any communication or discussion. Please check your e-mail **daily**. All assignments should also be submitted electronically through email attachment.

LABS & FIELD TRIPS:

Students are required to participate in scheduled field trips and fieldworks, and to do lab assignment as necessary. Field trips and on-campus lab/field sessions are usually scheduled for Saturdays (subject to weather conditions and to minor change). There may be one longer field trip (a day trip). On-campus lab uses can be arranged on the regular lab hours with the instructor if necessary. Additional work in any of lab or fields should be arranged with both the instructor and Dr. Ahn's graduate student as necessary for your class project.

For the field trips wear shoes that can get wet or rubber boots. Transportation will not be provided for field trips, **car-pooling is strongly recommended**. The cost of food (water and lunch) and your share of the transportation costs (i.e., gas) are at your own expense. Limited laboratory space for your project work is available in our Wetland Ecosystem Lab 1(3071 David King Hall) and Lab 2 (3079a). Coordination with Dr. Ahn and/or TA on lab and equipment use is imperative.

LAB REPORT AND AUDIO FILE PARTICIPATION

Each field lab will require a written report (850-1000 words) that will be due by next field/lab session. Specific instruction for the format and the length of the report will be discussed. *Field trips are an effective way to learn about wetland ecology.* Especially it will require your hard work to apply what you have learned in class to understand and interpret what you see. Lab reports should incorporate photos, videos, audio files etc. as necessary to ecologically best characterize the site visited.

GRADING:	% of Grade
Field trip reports	70
Field trip participation/field work	30
TOTAL POINTS	100

- Your course will be determined using the following straight scale: A (94-100), A- (90-93), B+(86-89), B (80-85), C (70-79), F (< 70)

LAB COURSE SCHEDULE (subject to minor changes):

Date	Locations	Topics and activities
Aug 28	No lab/field	
Sep 4	Ahn Wetland Compound (Orientation)	
Sep 11	Ahn Wetland Compound (field technique training)	
Sep 18	No lab/field	
Sep 25	Huntley Meadow Park –wetland plants, hydrology, and history	
Oct 2	North Fork mitigation bank wetland	
Oct 9	No lab/field	
Oct 16	Lab work (DK 3071)-TBD	
Oct 23	No lab/field	
Oct 30	Ahn Wetland Compound – Plant and soil sampling/field work	
Nov 6	No lab/field	
Nov 13	Mason Neck wetland (Palustrine Forested Wetland, Eagle point) or Dyke Marsh	
Nov 20	Lab work (DK 3071)-TBD	
Nov 27	Thanksgiving	
Dec 4	No lab/fields	

GENERAL REFERENCES FOR LAB AND FIELDS

Blake, G. R., and K. H. Hartge. 1986. Bulk density. In *Methods of Soil Analysis*, Part I. Physical and Mineralogical Methods, ed. A. Klute, 363-375. 2nd ed. Madison, WI. Soil Science Society of America.

- Bruland, G. L., and C. J. Richardson. 2005. Spatial Variability of Soil Properties in Created, Restored, and Paired Natural Wetlands, *Soil Science Society of America Journal* 69:273-284.
- Davies, B. E. 1974. Loss-on-ignition as an estimate of soil organic matter. *Soil Sci. Soc. Am. Proc.* 38: 150-151.
- Environmental Laboratory. 1987. *Corps of Engineer Wetland Delineation Manual*. Technical Report Y-87-1. Vicksburg, MS: U. S. Army Engineers Waterways Experiment Station.
- Faulkner, S. P., W. H. Patrick, Jr., and R. P. Gambrell. 1989. Field techniques for measuring wetland soil parameters. *Soil Science Society of America Journal* 53:833-890.
- Gardner, W. H. 1986. Water content. In *Methods of Soil Analysis*, Part I. Physical and Mineralogical Methods, ed. A. Klute, 493-544. 2nd ed. Madison, WI, Soil Science Society of America.
- Heaven, J. B., Gross, F. E., Gannon, A. T. 2003. Vegetation comparison of a natural and a created emergent marsh wetland. *Southeastern Naturalist* 2(2): 195-206.
- Moulds, S., Milliken, H., Sidleck, J., Winn, B. 2005. Restoring Virginia's wetlands: a citizen toolkit. The Alliance for the Chesapeake Bay and the Virginia Department of Environmental Quality.
- Nelson, D. W., and L. E. Sommers. 1996. Total carbon, organic carbon, and organic matter. In *Methods of Soil Analysis*, Part 3. Chemical Methods, ed. D. L. Sparks, 961-1010. 2nd ed. Madison, WI. Soil Science Society of America
- Palmer, M. W., G. L. Wade, and P. Neal. 1995. Standards for the writing of floras. *BioScience* 45:339-345.
- Patrick, W. H., R. P. Gumbrell, and S. P. Faulkner. 1996. Redox measurement of the soils. In *Methods of Soil Analysis*, Part 3. Chemical Methods, ed. A. Klute, 1255-1273. 2nd ed. Madison, WI. Soil Science Society of America
- Peet, R. K. 1974. The measurement of species diversity. *Annual Review of Ecology and Systematics* 5:285-307.
- Peet R.K., Wentworth T.R., and White P.S. 1998. A flexible multipurpose method for recording vegetation composition and structure. *Castanea*. 63:262–274
- Reed, P. B. 1988. National List of Plant Species that Occur in Wetlands: Northeast (Region 1). Biological Report 88 (26.1). Washington D. C.: U. S. Fish and Wildlife Service.
- The Piedmont Environment Council. 2008. Common Wetland Plants of Northern Virginia's Piedmont: A Field Guide (pdf).
- U.S. Department of Agriculture (USDA) and Natural Resources Conservation Service (NRCS). 1996. Field Indicators of Hydric Soils in the United States. Fort Worth, TX: USDA, NRCS. <http://www.statlab.iastate.edu/soils/hydric/>
- Wentworth, T. R., G. P. Johnson, and R. L. Kologiski. 1988. Designation of wetlands by weighted averages of vegetation data: a preliminary evaluation. *Water Resources Bulletin* 24:389-396.