

**University of Florida
Soil and Water Science Department**

**SWS 4800: Soil and Water Monitoring Techniques
SWS 5805: Advanced Soil and Water Monitoring Techniques
Course Syllabus Summer 2017**

General Information

Credit/Contact	3	
Teaching Format	CANVAS Login: http://lss.at.ufl.edu Pre-recorded lectures Reading materials Lecture slides Multi-media materials Team discussions Live chat sessions <ul style="list-style-type: none"> • Adobe Connect - http://mbreeze.ifas.ufl.edu/sws4800/ • Schedule - Tuesdays, 7:00 PM Two-day field trip (St. Augustine, FL): July 8-9	
Term	Summer C, 2015	
Instructors	Dr. Todd Z. Osborne (904) 461-4047 (352) 256-3826 (cell) osbornet@ufl.edu	Dr. David Hornsby hornsbyd@ufl.edu

Course Overview:

The course will provide participants with an understanding of the rules and regulations relevant to environmental monitoring, the concept and importance of representative environmental sampling; standard sampling and analytical procedures; use of common instrumentation for sample collection; quality assurance and control for monitoring; proper documentation techniques, and sampling designs and development of a sampling plan with health and safety features. The students learn in multiple learning activity format, including recorded lectures, video demonstration of sampling techniques, reading materials, online discussions, assignments, team projects, and a field trip with hands-on demonstration. The students not only learn the “what and hows,” but most importantly, the “whys” as they relate to sampling and testing procedures. This will help the students who maybe conducting sampling and testing for their research projects, as well as in performing these tasks in their professional career. Generation of data of acceptable and documented quality helps assure reliability of the data that could be used in forming conclusions or critical decisions.

Course Core Objectives:

All students will:

1. Become familiar with environmental regulations relevant to monitoring program implementation
2. Learn how to prepare sampling designs, sampling plan, and health and safety plan
3. Learn about the methods, technology, and tools for various types of environmental monitoring
4. Obtain hands-on experience in basic application of environmental monitoring concepts, tools, and technologies
5. Become familiar with environmental data sources and be able to determine usability of data
6. Understand and practice common data analysis, interpretation, and presentation
7. For Graduate Students Only: Apply environmental monitoring theories, principles, and practices through an independent research (group) project.

Required Textbook:

Artiola, Janick F., Ian L. Pepper, and Mark L. Brusseau. 2004 .Environmental Monitoring and Characterization. Elsevier Academic Press, San Diego, CA. 410 pages.

Other Suggested References:

Standard Operating Procedures for Laboratory Operations and Sample Collection Activities DEP-QA-001/2008, Florida Department of Environmental Protection, 2600 Blair Stone Road, Tallahassee, Florida. Quality Assurance Section, 2008. (<http://www.dep.state.fl.us/water/sas/sop/sops.htm>)

Environmental Investigations Standard Operating Procedures and Quality Assurance Manual U.S. Environmental Protection Agency, Region 4, 980 College Station Road, Athens, Georgia. May 1996 (Includes 1997 Revisions) (<http://www.epa.gov/region4/sesd/eisopqam>)

Guidance on Choosing a Sampling Design for Environmental Data Collection, US EPA QA/G-5S, December 2002 (<http://www.epa.gov/quality>).

Oster, Neal K. Sampling and analysis. 1997. Prentice-Hall, Inc. Upper Saddle River, NJ 07458.

Course Outline

Week 1 5/08-5/12	Course overview, objectives, and expectations Introduction to Environmental Monitoring Overview of Environmental Monitoring and Characterization Introduction to Common Terminologies and Acronyms Regulations Related to Environmental Monitoring Assignment 1
Week 2 5/15-5/19	Environmental Project Planning Environmental Project Cycle Data Quality Objectives Sampling Plans Health and Safety Plans Assignment 2
Week 3 5/22-5/26	Field Sampling Techniques and Practices Types of field sampling Introduction Regulatory Field Standard Operating Procedures Quality Assurance and Quality Control Assignment 3
Week 4 5/29-6/2	Monitoring Surface Water Sampling objectives Sampling methods Sampling equipment Field testing Assignment 4
Week 5 6/5-6/9	Introduction to Groundwater Monitoring Sampling objectives Types of wells and well configuration Sampling methods Sampling equipment Purging and Stabilization Criteria Assignment 5
Week 6 6/12-6/16	Soil and Vadose Characterization Sampling objectives Sampling methods Sampling equipment Field measurements

	Assignment 6
Week 7 6/19-6/23	Vegetation and Benthic Organism Monitoring Sampling objectives Sampling methods Sampling equipment
Week 8 6/26-6/30	Environmental Laboratory Techniques and Practices Laboratory requirements and good laboratory practices Common laboratory methods for water analysis Assignment 7
MIDTERM EXAM	6/27-6/30
Week 9 7/3-7/7	NO CLASS ON JULY 4 FIELD TRIP JULY 8-9 ST. AUGUSTINE
Week 10 7/10-7/14	Environmental Laboratory Techniques and Practices Laboratory analysis for soil and vegetation samples Quality assurance and quality control in the laboratory Assignment 8
Week 11 7/17-7/21	Data Analysis Introduction to existing data resources Data verification, validation, and quality assessment Assignment 9
Week 12 7/24-7/28	Data Analysis and Interpretation Graphical data analysis Common statistical analyses Use of GIS in environmental data analysis Use of models in environmental monitoring Ethics in Environmental Monitoring
7/25-8/2	FINAL EXAM

Field Trip

A two-day field trip to demonstrate concepts discuss in class is planned at the UF Whitney Laboratory in St. Augustine, FL on July 8-9 (Saturday-Sunday).

Grading Point Evaluation/Scale:

Criteria	SWS4800	SWS6932
Assignments	30%	20%
Field exercise and report	30%	20%
Project report	--	20%
Midterm exam	20%	20%
Final exam	20%	20%

Grading Scale:

Course grades will be determined by summing all scores and dividing by the maximum score possible (400 points) x 100 to obtain a percentage score: 100-92 = A, 91-90 = A-, 89-88 = B+, 87-81 = B, 80-79 = B-, 78-70 = C, 69-60 = D, <60 = Fail. The instructor reserves the right to **add 0-3 points to the final percentage score** on the basis of meaningful chat participation, demonstrated student interest, and overall student dedication.

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Attendance, Late Assignments, and Make-up Exam Policy:

Weekly chat attendance via the Adobe Chat forum is expected. Attendance is based on the student's confirmation of completion of weekly materials and submission of weekly assignment. Attendance for a two-day field sampling exercise is highly encouraged. In the event a student cannot make the field trip portion, an alternative assignment is allowed that consists of spending a day with an environmental monitoring professional in their local area. Any attendance issues must be arranged with your instructor in advance.

Late assignments are accepted only with a valid reason. Assignments submitted more than 2 weeks from due date will not be accepted unless arranged with the instructor. Make-up exam maybe given only in extreme circumstances, as determined by instructor.

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

Academic Honesty

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: *"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."* You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>.

Software Use:

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/*
 - Counseling Services
 - Groups and Workshops
 - Outreach and Consultation
 - Self-Help Library
 - Training Programs
 - Community Provider Database

- *Career Resource Center*, First Floor JWRU, 392-1601, www.crc.ufl.edu/

Each online distance learning program has a process for, and will make every attempt to resolve, student complaints within its academic and administrative departments at the program level. See <http://distance.ufl.edu/student-complaints> for more details.

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation

0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/