General Information

<table>
<thead>
<tr>
<th>Credit/Contact</th>
<th>3</th>
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<tbody>
<tr>
<td>Teaching Format</td>
<td>CANVAS Login: <a href="http://lss.at.ufl.edu">http://lss.at.ufl.edu</a></td>
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<td>Pre-recorded lectures</td>
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<td>Reading materials</td>
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<td>Lecture slides</td>
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<td>Multi-media materials</td>
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<td>Team discussions</td>
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<td>Live chat sessions</td>
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<td>• Adobe Connect - <a href="http://mbreeze.ifas.ufl.edu/sws4800/">http://mbreeze.ifas.ufl.edu/sws4800/</a></td>
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<td>• Schedule - Tuesdays, 7:00 PM</td>
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<td>Term</td>
<td>Summer C, 2015</td>
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<tr>
<td>Instructors</td>
<td>Dr. Todd Z. Osborne (904) 461-4047 (352) 256-3826 (cell) <a href="mailto:osbornet@ufl.edu">osbornet@ufl.edu</a></td>
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<tr>
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<td>Dr. David Hornsby <a href="mailto:hornsbyd@ufl.edu">hornsbyd@ufl.edu</a></td>
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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:

Other Suggested References:


Course Outline

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<th>Week</th>
<th>Dates</th>
<th>Topics</th>
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| 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 |
| 2    | 5/15-5/19| Environmental Project Planning  
Environmental Project Cycle  
Data Quality Objectives  
Sampling Plans  
Health and Safety Plans  
Assignment 2 |
| 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 |
| 4    | 5/29-6/2 | Monitoring Surface Water  
Sampling objectives  
Sampling methods  
Sampling equipment  
Field testing  
Assignment 4 |
| 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 |
| 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:

<table>
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<tr>
<th>Criteria</th>
<th>SWS4800</th>
<th>SWS6932</th>
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<tr>
<td>Assignments</td>
<td>30%</td>
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<td>Field exercise and report</td>
<td>30%</td>
<td>20%</td>
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<td>Project report</td>
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<td>20%</td>
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<td>Midterm exam</td>
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<td>Final exam</td>
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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
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/