Soil & Water Sciences Field Research CURE
SWS 4932
Spring 2022
Location: Field sites (Bat House, Natural Area Teaching Lab)
3 credits
Tuesdays 10:40 am -12:35 pm (Periods 4-5) in person in the field, rest asynchronous online

Instructor:
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Office hours: Mondays 3-4 pm (online) or by appointment

Course Description:
Welcome to Soil & Water Sciences Field Research CURE! Through this field Course-based Undergraduate Research Experiences (CURE), students will learn every step that is required to conduct research through lectures and field experiences, and carry out their own research throughout the course. Students will come up with research topics based on their interests, design their own study, collect samples, process samples, analyze data, and write up a research proposal and research report/manuscript. All field exercises and activities will take place on the main campus in Gainesville, FL. Students will work as a team (a group of between 3 and 5 students) in a collaborative manner or as individuals to conduct their research. Lectures are practical and use examples from soil and water science related areas. Students will also learn how to write a scientific proposal and report or manuscript throughout the semester.

The learning objectives of this course are:
1. To practice how to conduct soil and water science research.
2. To demonstrate proficiency in writing a scientific research proposal and manuscript.
3. To acquire the required knowledge and skills about research methods that are used to conduct research.
4. To apply knowledge and skills to conduct research.
5. To execute skills related to effective oral and written communication

Target audience and prerequisites:
This course is designed for sophomore, junior or senior level undergraduate students who are interested in conducting research related to soil and water sciences. There are no prerequisites for this course.

Course Webpage/ materials:
The course will be maintained on the Canvas e-learning website https://elearning.ufl.edu/. All course materials (including lectures, readings, exercises and assignments) will be posted here. Lecture slides will be posted on the Canvas website and maintained throughout the semester. There will be no textbook in this class. For the field exercise and practical, students will meet in-person outdoor (synchronous), while all other lectures will be conducted through online asynchronously. Grades will also be maintained on the website. Please turn in any assignments via this website.

Grading:
Grades will be calculated as follows:
A (93% or greater), A- (90%-92.99%), B+ (87%-89.99%), B (83%-86.99%), B- (80%-82.99%), C+ (77%-79.99%), C (73%-76.99%), C- (70%-72.99%), D+ (67%-69.99%), D (63%-66.99%), D- (60%-62.99%), E (<60%)

Item	Points
Attendance/Participation (Field attendance/Exercise)	100
Assignments (4 assignments 20 pts each)	80
Project proposal	50
Project presentation	50
Final project report	100
Self-evaluation/Reflections	20
Total	**400**

Attendance/Participation
This course relies heavily on active student participation. While there will be short lectures at the beginning of each class, the course period will be spent on active learning activities including hands-on activities and discussions. Class attendance is therefore an essential part of succeeding in this course. Exercises, that will be provided throughout the course to evaluate your learning progress, won't be graded, but count as attendance. You will receive timely feedback from your instructor for each exercise.

Assignments
There will be four assignments throughout the course including scientific writing, data presentation and statistical analysis. Assignments should be submitted by the deadlines specified for each assignment. The deadlines can be extended if you have a reasonable excuse. Late submissions without excuses will still be accepted but you won't receive timely feedback nor full credit (10% of points will be deducted for each week late).

Group or Individual Project: (Proposal, Presentation and final Report)
The class will be broken up into small groups or individuals and each group or individual will choose a topic for their own research project. The group or individual will conduct research throughout the semester. They will present their findings via an online and submit a final research report/article at the end of the semester.

Course Schedule:

SWS Field Research CURE			
Steps	Date	Topics	Exercises/Assignment/Reports
Introduction	Jan 12th	Introduction to class	
		What is research?	
		Study environments	
		Identify research topics	Exercise: Come up with 3 research topics

	Jan 19th	Responsible conduct for research	
		Field and Lab safety	
		Search research articles	Search 5 articles for each topic
		Manage research articles	Exercise: Manage citations
Scientific writing	Jan 26th	Scientific writing: Research article	
		Scientific writing: Proposal	
			Assignment:
		Study objectives	Write study objectives for each topic
		Formulate hypotheses	Formulate hypothesis for each topic
		Introduction to soil and water	
		Fundamental knowledge: Water	
		Fundamental knowledge: Soil	
Research Methods	Feb 2nd	Study Design	
		Experimental vs Observational	
		Evaluate effect of treatment/factor	Exercise: Write design for each topic
		Analytical methods	Exercise: Write analytical methods
		Physical/Chemical/Biological	
		Explore data in public database	Exercise: Explore database: Post links
	Feb 9th	Discuss research topics	Exercise: Revise three topics
		Data management	
		Taking Field/Lab notebook	
	Feb 16th	Finalize research topic	Exercise: Individual zoom meeting (W, TR)
		Proposal writing	Exercise: Write a draft proposal for a topic
		Work on logistics (1)	
Preparation	Feb 23rd	Field Exercise/Practice: Water	Project Proposal due (2 pages)
		Field Exercise/Practice: Soil	
		Work on logistics (2)	
Field Sampling	Mar 2nd	Sample collection or experiment (can continue to collect data until March 29th)	
Data analyses	Mar 9th	Data processing/organization	

(Practices)		Data presentations (Figures)	
		Introduction to R-project	
	Mar 16th	Data presentations (Tables)	Assignment: Plot figures, Make tables
		Statistics (testing hypothesis) 1	
	Mar 23rd	Statistics (testing hypothesis) 2	Assignment: Statistics
	Mar 30th	Write Introduction	Exercise: Complete introduction section
		Analyze own data (1)	
Data analyses	April 6th	Write methods	Exercise: Complete methods section
(using your data)		Analyze own data (2)	
	April 13th	Write Results/Discussion	Exercise: Complete Results/Discussion
		Format citations	Assignment: Figures/tables for your data
		Presentation techniques	
	April 20th	Online project presentation	Project presentation (15 min each)
		Course evaluation	Exercise: Draft report due
Final exam week	April 27th	Report review/revision	Self-reflection
		Report completion	Final Project report Due

Grades and Grade Points
For information on current UF policies for assigning grade points, see
https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/.

Attendance and Make-Up Work
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/UGRD/academic-regulations/attendance-policies/.

COVID Response Statements
We will have face-to-face instructional sessions to accomplish the student learning objectives of this course. In response to COVID-19, the following policies and requirements are in place to maintain your learning environment and to enhance the safety of our in-classroom interactions.
• You are required to wear approved face coverings at all times. Following and enforcing these policies and requirements are all of our responsibility. Failure to do so will lead to a report to the Office of Student Conduct and Conflict Resolution.
• If you are experiencing COVID-19 symptoms (Click here for guidance from the CDC on symptoms of coronavirus), please use the UF Health screening system and follow the instructions on whether you are

able to attend class. Click here for UF Health guidance on what to do if you have been exposed to or are experiencing Covid-19 symptoms.
• Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work. Find more information in the university attendance policies.

Online Course Evaluation Process
Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals.

Guidance on how to give feedback in a professional and respectful manner is available at: https://gatorevals.aa.ufl.edu/students/.

Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/.

Summaries of course evaluation results are available to students at: https://gatorevals.aa.ufl.edu/public-results/.

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/process/student-conduct-honor-code.

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.

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, https://disability.ufl.edu/

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general wellbeing 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
  • Counseling Services, Groups, and Workshops, Outreach, and Consultation, Self-Help Library Wellness Coaching
• U Matter We Care, www.umatter.ufl.edu/
• Career Connections Center, First Floor JWRU, 392-1601, https://career.ufl.edu/.
• Student Success Initiative, http://studentsuccess.ufl.edu.

Student Complaints:
• Residential Course: https://sccr.dso.ufl.edu/policies/student-honor-code-studentconduct-code/.
• Online Course: http://www.distance.ufl.edu/student-complaint-process