

Soil and Water Sciences SWS 4932: Watershed Planning and Management Syllabus, Summer 2023

Description: This course presents an overview of relevant principles and theories related to the management of land and water resources, with special focus on relationships between humans, the landscape, and aquatic ecosystems. The course is divided into three units: Water Quantity, Water Quality, and Integrated watershed planning and management. We will examine how changes in the landscape affect ecosystems, and management frameworks designed to protect aquatic ecosystems. We will also examine the tools and methods that are used to create management measures and inform restoration guidelines. The course will rely heavily on case studies that illustrate how concepts presented in lectures are applied to real-world situations of watershed planning and management. Conceptual and quantitative models of human-environment interactions, relevant regulations, and policies are also reviewed.

Prerequisites: Undergraduate Upper-class Standing (or consent of instructor).

Time and Location: UF Milton (West Florida Research and Education Center), Room 4822
Summer Semester 2023: May 15 to August 11, 2023
Weekly, Tuesdays, 1:00 – 5:00 pm (or 3-5pm)

Instructor: Matthew Deitch, PhD
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Recommended Text: **Textbook for this class is available free through the UF Library System:** *Hydrology and the Management of Watersheds*, 4th edition, by Brooks, Ffolliott, and Magner
ISBN: 9781118459768 (search at <https://cms.uflib.ufl.edu/>)
Additional reading materials such as US Geological Survey reports will be provided in Canvas in each weekly module.

Course Objectives: Upon completion of this course, students will be able to:

1. Describe how frameworks such as conceptual models and adaptive management models are incorporated into watershed planning and management.
2. Describe how ecological goals are incorporated into the management of water quality.
3. Develop designs for reducing runoff and pollution from developed landscapes.
4. Explain how regulatory frameworks are used to improve water quality in streams, lakes, and estuaries.
5. Describe in detail how watershed dynamics are incorporated into the restoration of streams and lakes.

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Weekly topics:

| Week | Date | Topic | Assignment (due date) |
|--|---------|--|---|
| 1 | May 16 | Foundations 1: Anatomy of a watershed; defining sustainability, ecosystem services; how to read scientific papers and reports | Module 1; Conceptual models activity (due 5/23) |
| 2 | May 23 | Foundations 2: Common-pool resources; adaptive management | Module 2; Adaptive management activity (5/30) |
| 3 | May 30 | Watershed hydrology; water rights and policies in the U.S. and beyond; how managers think about streamflow data | Module 3; Water rights analysis (6/6) |
| 4 | June 06 | Watershed models and modeling: hydrology Water quality and water quality issues in the southeastern US; concept of pollutant loads | Module 4; Pollutant study design (6/13) |
| 5 | June 13 | Geomorphology and watershed sediment dynamics; how we examine sediment in the environment; effects of sediment | Module 5; Sediment study activity (6/20) |
| 6 | June 20 | Water Quality part 1; Rural watersheds and agricultural BMPs in the Southeast United States | Module 6; Agricultural BMPs activity (7/5) |
| | June 27 | Summer Break | |
| 7 | July 04 | FIELD TRIP WEEK (Kayak trip, but not on July 4; probably Saturday July 1 or July 8) | Module 7; Watershed field trip activity (7/14) |
| 8 | July 11 | Urban watersheds; green versus gray infrastructure; stormwater design; Water Quality part 2 (where to find water quality data) | Module 8; Stormwater site design part 1 (7/18) |
| 9 | July 18 | Alphabet soup: TMDLs, BMPs, USEPA, FDEP, and water quality assessment through budgets | Module 9; Stormwater site design part 2 (7/25) |
| 10 | July 25 | Restoration of rivers and lakes Watershed models and modeling: water quality | Module 10; TMDL project (8/1) |
| 11 | Aug 1 | Coastal systems and management; Watershed Plans | Module 11; River restoration, Coastal management activities (8/8) |
| 12 | Aug 8 | Final project/watershed management workshop | Final Project Workshop |
| Summer semester ends Friday, August 11 (Grades due August 14) | | | |

Course evaluation

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.ua.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.ua.ufl.edu/public-results/> .

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Course instruction will be conveyed to students via weekly Canvas modules. A new module will appear on the course Canvas page every Monday; each module will contain a summary of weekly objectives, instructional materials (including recorded lecture videos and interviews with professionals), readings, links to weekly assignments, and online discussions. The course Canvas page also includes a Zoom link for the Thursday chat session.

Student Evaluation Methods:

Student grades will be determined based on performance in the following categories (total 171 pts):

| | | |
|---|--------------|-------------------|
| Weekly activity sets | 64% of grade | 11 at 10 pts each |
| Participation/attendance (Canvas discussions, in-class group activities) | 7% of grade | 12 at 1 pt each |
| Video questions/activities | 14% of grade | 12 at 2 pt each |
| Final project | 15% of grade | 1 at 25 points |

Participation/attendance: Students are expected to attend each Tuesday session, which will include collaborative work in small groups to discuss topics and begin weekly assignments. Additional information about class attendance at UF can be found at: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

Weekly activities: Each week, students will be assigned an in-depth activity related to topics discussed in the module videos and in class. Additional materials necessary to complete each assignment will be available through the weekly Canvas module. Students are required to submit assignments via Canvas **by the beginning** of the following class session and should be prepared to briefly discuss activity products during the chat session.

Interactive video questions: Lectures will be primarily delivered asynchronously through videos in the program Playposit. Playposit allows the instructor to add questions to videos, which students have to answer before continuing. Additional learning activities using web-based learning tools may also be assigned each week to accompany videos. Responses to video questions and learning tool responses are worth 2 points each week.

Final project: Students will work in collaborative groups on a Watershed Planning and/or Management-related activity on a topic selected by the instructor. The project will incorporate issues and tools discussed in class, and may include conceptual models and adaptive management frameworks, data summaries, hypotheses, future scenarios, models, and future needs. Students will present a summary of their project component to the class on the last class session.

Grades will be scored as follows:

| | | | | | | | | | | | | |
|--------------|-----|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----|
| Course grade | >93 | 90-92.99 | 87-89.99 | 83-86.99 | 80-82.99 | 77-79.99 | 73-76.99 | 70-72.99 | 67-69.99 | 63-66.99 | 60-62.99 | <60 |
| Letter grade | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | D- | E |
| Grade point | 4 | 3.67 | 3.33 | 3 | 2.67 | 2.33 | 2 | 1.67 | 1.33 | 1 | 0.67 | 0 |

A full explanation of UF grading policies can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

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On-line Resources:

An e-learning site for this course is available through Canvas. This provides a format to share documents and discussions with your classmates. This syllabus and general announcements from the instructors to students will also be posted. **IT IS YOUR RESPONSIBILITY TO CHECK CANVAS AND USE THIS RESOURCE TO STAY UP-TO-DATE WITH SCHEDULES AND CLASSWORK.** The Canvas app for mobile devices is free.

Late Policy

It is critical that your work be submitted in a timely manner. Assignments turned in on paper or electronically by the start of class are considered on time. After that, late assignments will lose value at the rate of 10% for the first late day and 5% for each subsequent late day (weekend days count!).

Making up course projects

In the event that you are unable to attend a course chat session, notify the instructor and your small group as soon as possible and we will make arrangements for a substitute session. If you know you have a conflict with a scheduled event in the syllabus, tell your instructor immediately. For all substitute activities, the expectations will be the same as if you were in attendance. If you are unable to attend a chat session, alternatives will be planned (e.g., video recording of presentations). Requirements for class attendance and make-up 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

The University of Florida requires all members of its community to be honest in all endeavors. Cheating, plagiarism, and other acts diminish the process of learning. When students enroll at UF, they commit themselves to honesty and integrity. I fully expect you to adhere to the academic honesty guidelines you signed when you were admitted to UF.

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: <https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>

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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 wellbeing are encouraged to utilize the university's counseling resources. The UF Counseling and 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/ can provide assistance with:
 - 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/> .

Students with Disabilities:

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/> .

Student Complaints:

The University of Florida believes strongly in the ability of students to express concerns regarding their experiences at the University. The University encourages its students who wish to file a written complaint to submit that complaint directly to the department that manages that policy.

Residential Course: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

Online Course: <http://www.distance.ufl.edu/student-complaint-process>