

SWS 6932 (graduate)

Soil Biology Management

Instructor:

Dr. Hui-Ling (Sunny) Liao, Associate Professor, Soil, Water and Ecosystem Sciences
Department, University of Florida

Office: Room #2161, McCarty Hall A
2181 McCarty Hall, PO Box 110290, Gainesville, FL 32611

Phone: 352-294-3138

Email: sunny.liao@ufl.edu

Course Format:

Times:

- Spring semester even years: Online Synchronous; Spring odd years: Hybrid
- Online Synchronous Lecture (Spring 2026): Period 3+4, 09:35 am to 11:30 am Tuesday; and Period 4, 10:40 am to 11:30 am Thursday

Student hours: By appointment

Credit hours: 3

Enrollment Cap: 25

Format:

- This course is offered as a co-taught undergraduate and graduate course. (The learning objectives of this course incorporate additional performance criteria and expectations at the graduate level, following the guidelines for writing learning objectives provided by the CALS Curriculum Committee. Specifically, graduate students enrolled in SWS6932 are expected to complete more advanced assignments, including leading discussions on more complex topics, responding to

advanced short essay questions, and producing an advanced written research proposal.)

- Lectures, readings, instructor facilitates class advanced research discussions, independent study project development
- Two Online Synchronous lectures per week (via Zoom). Attendance is mandatory. The online asynchronous lectures will be provided on Canvas to complement the synchronous sessions.
- A corresponding lab course is also offered (see SWS6932: Soil Biology Management Lab). Enrollment in the laboratory course is optional for students; those who register for the lecture course may choose whether to also enroll in the in-person lab. However, students who choose to enroll in the lab must either be enrolled in the lecture course during the same year or have completed it in previous years.

Prerequisites:

Biology, Microbiology, or Microbial Ecology courses.

If you do not meet these requirements, please seek permission from the instructor before enrolling in the course.

Materials and Supplies Fee: None

Course web site:

UF Canvas course management system (eLearning): <https://elearning.ufl.edu/>

Required Technology/Software & How to Obtain Technology:

Technology Requirements Include:

1. Computer and Internet Access
A reliable computer (Windows, macOS, or Linux) with consistent, high-speed internet access is necessary for all online activities and assignments.
2. R & RStudio Desktop
We will use R programming language and RStudio Desktop for data analysis in this class.
 - Download (Free):
R: <https://cran.r-project.org/>
RStudio Desktop (now "Posit Desktop"): <https://posit.co/download/rstudio-desktop/>
 - UF Apps Access: You may use RStudio directly through UF Apps: <https://info.apps.ufl.edu/>

- Installation Instructions:
[Install R - Step-by-step](#)
[Install RStudio Desktop](#)

- 3. Required Peripherals
 Headphones or speakers for listening to lectures
 Microphone or headset for participating in discussions or group work

- 4. Additional Free Software & Online Tools
 - PDF Reader: Adobe Acrobat Reader: <https://get.adobe.com/reader/>
 - Web Browser: Latest version of Chrome, Firefox, Safari, or Edge ([download here](#))
 - Office Suite: GatorCloud provides access to Microsoft Office 365:
<https://www.it.ufl.edu/services/gatorcloud-microsoft-office-online/>
 - UF Canvas: All course content and assignments will be accessed through [e-Learning in Canvas](#): <https://elearning.ufl.edu/>
 - Digital Collaboration For group work, UF provides [GatorCloud Google Apps](#), Zoom (<https://ufl.zoom.us/>), and OneDrive (<https://www.it.ufl.edu/services/gatorcloud-microsoft-office-online/>).

- 5. Access to Library Resources and Databases
 The UF Libraries' online resources (journals, e-books, databases) can be accessed using your GatorLink credentials:
<https://cms.uflib.ufl.edu/accesssupport/onlineresources>
 For help accessing materials, visit [Ask a Librarian](#)
 Assessment Proctoring and Academic Integrity

- 6. No-Cost or Low-Cost Technology Options
 UF Computer Labs: Multiple labs are available on campus, and resources can be found here: <https://labs.at.ufl.edu/>
 UF Technology Assistance: The university provides information on technology loans and internet hotspot access here: <https://students.ufl.edu/keep-learning/>.
 UF Libraries also offer equipment loans:
<https://cms.uflib.ufl.edu/usingthelibrary/equipment>

- 7. Support
 For technical difficulties with UF systems, contact the UF Computing Help Desk:
helpdesk.ufl.edu, Phone: (352) 392-HELP (4357).

Required Technology & Digital Information Literacy Skills

Technical skills may include:

- Using the learning management system
- Using email with attachments
- Creating and submitting files in commonly used word processing program formats
- Downloading and installing software
- Using spreadsheet programs
- Using presentation and graphics programs
- Using apps in digital devices
- Using web conferencing tools and software

Digital information literacy skills may include:

- Using online libraries and databases to locate and gather appropriate information
- Using computer networks to locate and store files or data
- Using online search tools for specific academic purposes, including the ability to use search criteria, keywords, and filters
- Analyzing digital information for credibility, currency, and bias (e.g., disinformation, misinformation)
- Properly citing information sources
- Preparing a presentation of research findings

Communication Guidelines

- Use Course Question Discussion Board, for general course questions that others may have.
- Use Canvas Inbox (messaging tool) for questions that are specific to your grades or submissions.
- Email & phone correspondence are for (1) setting a meeting time for office hours, (2) DRC accommodations; (3) emergency situations; or (4) highly sensitive situations.
- A respectful tone is used by all community members in all forms of communication.
- Written communication, both formal and informal, uses the official language of instruction rather than popular online abbreviations and graphic elements such as those sometimes used in social media.
- Video interactions reflect a respectful tone in verbal communications and body language.
- Spelling, punctuation, and grammar are correct.

Course description

This course examines the biological components of soil ecosystems, with a focus on the roles of soil organisms in driving key soil processes, crop production, and agriculture sustainability. Topics include nutrient cycling mediated by soil biota, soil food webs, sustainable soil biological management, the impact of changing environment in such management, and the application of soil organisms in agricultural systems. Students will develop critical thinking skills through engagement with current research, scientific writing, and integrated data collection and analysis. They will also learn to evaluate the outcomes of soil biological management practices.

Why offer this class

Next-generation agricultural management must address both human needs and environmental sustainability. This includes not only producing enough food for a rapidly growing population but also maintaining the health of soil and crops in the face of a changing climate. While our understanding of soil and crop systems from chemical and physical perspectives has advanced significantly, the biological dimension, particularly the role of soil biota in supporting soil and plant health, remains underexplored. These keystone organisms are critical to ecosystem function, yet we still lack a full understanding of how they mediate key processes and how management practices can be optimized to enhance their benefits. With the rapid advancement of modern biology, bioinformatics, and AI-driven big data analysis, combined with decades of applied research in biological management, we now have a unique opportunity to train the next generation of scientists in knowledge and evaluation skill set in this evolving field:

By integrating foundational knowledge, hands-on skills, and analytical tools, students can develop a comprehensive understanding of current scientific developments and the role of biological systems in soil and crop sustainability. Additionally, there is a growing need to equip students with the ability to critically evaluate the biological significance of these systems, synthesize existing foundational and applied knowledge, identify key gaps, and explore practical research and application opportunities. The goal is to provide interdisciplinary training that not only enhances scientific understanding but also prepares students for impactful careers in both academic and applied agricultural sciences. Given the rapid advancements in soil biology and AI-driven data collection, I plan to incorporate

updated content each year to ensure students stay current with the latest knowledge and skills in the field.

Course goals (Course-level learning objectives):

1. Classify the roles of soil biota in mediating key soil processes (nutrient cycling, leach reduction, disease suppression) and their contribution to agricultural sustainability
2. Design and implement soil biological management strategies to enhance soil health indicators (organic matter, aggregation, soil biota diversity) and improve crop productivity
3. Analyze the impact of environmental changes (climate change, land use intensification, pollution) on the efficacy of soil biological management practices and recommend adaptive strategies for maintaining soil health and agricultural resilience
4. Integrate knowledge of soil biota functions, management strategies, and environmental change to develop and critically assess innovative, context-specific interventions that simultaneously enhance soil health, promote agricultural sustainability, and ensure resilience to global change drivers, substantiating recommendations with quantitative and qualitative evidence.
5. Formulate and rigorously justify a research proposal that addresses a critical, underexplored question in soil biology management, demonstrating originality in hypothesis development, advanced experimental design (including appropriate statistical and analytical frameworks), and the integration of interdisciplinary methodologies to advance the frontiers of sustainable agricultural science.

Recommend textbook:

None

Reading material:

Additional reading materials, including recently published research relevant to class

assignments and lectures, will be recommended during the first week of the course. Below is a list of example readings that reflect the scope of the lecture topics.

Examples:

Bardgett RD, van der Putten WH. 2014. Belowground biodiversity and ecosystem functioning. *Nature* **515**: 505–511.

Bhaduri D, Sihi D, Bhowmik A, Verma BC, Munda S, Dari B. 2022. A review on effective soil health bio-indicators for ecosystem restoration and sustainability. *Frontiers in microbiology* **13**: 938481.

Frey SD. 2024. The spatial distribution of soil biota and their functions. In: *Soil Microbiology, Ecology and Biochemistry*. Elsevier, 229–245.

Geisen S, Wall DH, van der Putten WH. 2019. Challenges and opportunities for soil biodiversity in the Anthropocene. *Current biology: CB* **29**: R1036–R1044.

Lehmann A, Zheng W, Rillig MC. 2017. Soil biota contributions to soil aggregation. *Nature ecology & evolution* **1**: 1828–1835.

Potapov AM. 2022. Multifunctionality of belowground food webs: resource, size and spatial energy channels. *Biological reviews of the Cambridge Philosophical Society* **97**: 1691–1711.

USDA Tech note: https://www.nrcs.usda.gov/sites/default/files/2023-04/nrcs142p2_052489.pdf

Zhang K, Maltais-Landry G, Liao H-L. 2021. How soil biota regulate C cycling and soil C pools in diversified crop rotations. *Soil biology & biochemistry* **156**: 108219.

Course Schedule: Soil Biology and Management (15 Weeks)

Modul	Topic	Assessment
M1	Introduction to Soil Biology	
W1	a. Course introduction b. Overview of soil biology	
W2	a. Soil microbiota: bacteria and archaea b. Soil microbiota: fungi and others (e.g., protists and nematodes)	Written assignment; Short essay 1- covering W1, W2
W3	a. Soil meso- and macrofauna b. Advanced Research Discussion 1: Diversity and roles of soil biota	
W4	a. Modern tools and techniques for soil biota identification and analysis b. Advanced Research Discussion 2: Analytical tools and big data in soil biology	Short essay 2 - covering W3, W4
M2	Soil Biological Processes	
W5	a. Soil biological networks b. Advanced Research Discussion 3: Belowground food webs and nutrient pathways	
W6	a. Biologically mediated nutrient cycling, gas emissions, leaching and other ecosystem services b. Advanced Research Discussion 4: Biogeochemical impacts of soil biota	Short essay 3- covering W5, W6
W7	a. Soil biology in crop production and sustainability b. Advanced Research Discussion 5: Soil biota and plant nutrient uptake under environmental change	
W8	Midterm-No class Students submit the first draft of their Written assignment Midterm GatorEval Survey	Short essay 4- covering W7, W8
M3	Soil Biological Management and Sustainability	
W9	a. Direct biological management (e.g., Microbial inoculants) b. Advanced Research Discussion 6: Case studies on biological applications in agriculture	
W10	a. Enhancing soil biological functionality through diverse management practices b. Advanced Research Discussion 7: Management strategies that promote beneficial soil biota	Short essay 5- covering W9, W10
W11	a. Technologies to evaluate biological management outcomes b. Advanced Research Discussion 8: Models and tools to assess soil biological interventions	
M4	Impacts, Knowledge Gaps, and Future Directions	
W12	a. Environmental impacts on soil biology management b. Advanced Research Discussion 9: Review articles on environmental influences	Short essay 6- covering W11, W12
W13	a. Knowledge gaps and future directions in soil biology management b. Advanced Research Discussion 10: Critical review of current literature on research gaps and future directions	
W14	a. Technology gaps and future directions in soil biology management	

W15	Final Exam Week: No class Students finalize and submit their Written assignment Final GatorEval Survey	
-----	--	--

Calander:

Months	Date (Tue)	Class	Date (Thu)	Class	Date (Tue)	Class	Date (Thu)	Class
January	13	W1a	15	W1b	20	W2a	22	W2b
January	27	W3a	29	W3b				
February	3	W4a	5	W4b	10	W5a	12	W5b
February	17	W6a	19	W6b	24	W7a	26	W7b
March	3	W8a (mid)	5	W8b (mid)	10	W9a	12	W9b
March	17	Spring break	19	Spring break	24	W10a	26	W10b
March	31	W11a						
April			2	W11b	7	W12a	9	W12b
April	14	W13a	16	W13b	21	W14a		

Course activities and assignments

Grading rubrics for course activities and assignments will be provided on Tuesday of Week 1 and will also be available on Canvas.

In-Class Advanced research discussion:

- Each student will be randomly assigned a research article from the suggested reading list to lead an in-class lecture discussion. The reading list and detailed discussion rubric will be provided on Tuesday of Week 1 and will also be available on Canvas.
- Graduate-level readings will be more advanced and require deeper critical engagement. Students are expected to synthesize findings from the assigned literature, critically evaluate methodological approaches, and lead in-depth class discussions by identifying strengths, limitations, and unresolved questions, as well as facilitating thought-provoking dialogue among peers.

Assignments:

- **Lecture discussion assignments (In-class Quizzes and Short Essays)** – These will be in-class quizzes and bi-weekly short essays on the material covered in class. There will be 6 assignments throughout the semester, but only the best 5 will count for your grade.

For in-class quizzes, during each Tuesday Zoom class, there will be ~ 10-minute quiz session covering the material taught in the previous week.

For Sort essays, lecture discussion topics will be assigned in class every other Tuesday, starting from Week 2. You will have two weeks to complete each assignment, with submissions due by 12 PM (EST) on the second Tuesday after the topic is assigned. All submissions should be uploaded via Canvas.

Graduate-level essay questions will require greater depth of thinking/analysis, critical evaluation, and synthesis of concepts compared to those at the undergraduate level.

- **Written assignment** – You are expected to write a research project proposal on a study topic of soil biology management associated with your choice (with a 3-page limit, excluding figures, tables, and references). The proposal format will be provided by the instructor during Week 1 introductory class. You will submit your first draft at mid-term. After receiving feedback, you will revise and submit the final version at the end of the semester. The best grade points of mid-term submission are 10, and the final submission 20 points.

Graduate students are required to develop a more original and rigorous research proposal that incorporates advanced experimental design, statistical analysis, and interdisciplinary methodologies, whereas undergraduates focus on outlining a novel investigation with basic components.

The deadlines for submitting the written assignment are as follows: Mid-submission is due in Week 8 on Friday by 12 PM (EST) via Canvas, and the final submission is due in Week 14 on Friday by 12 PM (EST) via Canvas.

Instructor Interaction Plan

To support your learning and ensure a productive online (lecture) experience, the following interaction plan will be in place:

- **Office Hours and Appointments**
 Scheduled Office Hours: I will be available each week during scheduled virtual office hours (details will be announced on Canvas). You are welcome to join the Zoom meeting for drop-in questions or discussions.
 Appointments: If you are unable to attend office hours, you may request an individual appointment. Please email me at least 24 hours in advance to arrange a suitable time.

- **Communication Channels**
 Email: Please contact me via your UF email address for setting up meetings, DRC accommodations, emergency situations, or sensitive matters. I will respond within 24 hours on weekdays and within 48 hours on weekends or holidays. If you do not receive a reply within this timeframe, please follow up.
 Canvas Inbox: For questions related to your grades or specific submissions, message me using the Canvas Inbox. Messages will be checked daily (Monday–Friday).
 Discussion Board: For general course questions that may benefit other students, use the Course Question Discussion Board on Canvas. I will monitor and respond regularly.

- **Announcements**
 All-important course updates, reminders, and information will be posted through Canvas Announcements. Please check Canvas often to stay informed about deadlines, assignments, and course activities.

- **Feedback on Assignments**
 Feedback on graded assignments will be provided within one week of the submission deadline, unless otherwise noted. For major projects, detailed feedback will be given within two weeks.

- **Engagement and Participation**
 Active participation is encouraged in synchronous sessions (if scheduled), discussion boards, and during office hours. I will help facilitate and monitor online discussions to promote respectful and meaningful engagement.

- **Emergency Communication**
For urgent situations impacting your participation in the course (such as health emergencies), please email me directly as soon as possible.
- **Respectful Communication**
Please communicate professionally and courteously in all correspondence and discussion forums to maintain an inclusive and respectful learning environment.

If you have any questions about the Instructor Interaction Plan or need additional support, please do not hesitate to reach out to me.

Grading Policy

Grade Rubric

Grades will be based on participation and assignment completion. There will be no exams. Student assessments will be graded using whole point increments only. Fractional scores (e.g., 0.1, 0.25, 0.5) will not be applied.

Lecture section:

Lecture discussion quizzes and assignments 5 x 10 points = 50 points (best 5 scores)

Written assignments (mid and final) 10 + 20 points = 30 points

In-class advanced research discussion leads 1 x 20 points = 20 points

Total = 100 points

Grading Scale: Final grade will result in weighted points

Course Points	≥95.0	≥90.0	≥85.0	≥80.0	≥75.0	≥70.0	≥65.0	≥60.0	≥55.0	≥50.0	≥45.0	<45.0

Lab Points	≥95.0	≥90.0	≥85.0	≥80.0	≥75.0	≥70.0	≥65.0	≥60.0	≥55.0	≥50.0	≥45.0	<45.0
Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E

Failing Grades	Course Points	Grade Points
E	0	0
WF	0	0
I	0	0
NG	0	0

Definitions

E = Failure

H = Deferred grade assigned only in approved sequential courses or flexible learning

I* / I = Incomplete

N* / NG = No grade reported

S = Satisfactory

U = Unsatisfactory

W = Withdrew

WF = Withdrew failing

Information on conversion between letter grade / grade points can be found and the University's grade policy can be found at

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

Expectations and grading policy in this course

Students are expected to complete all assignments independently. Proper citation and acknowledgment of data and literature sources is required. Late submissions will result in point deductions as follows: lecture discussion assignments will incur a 2-point deduction if submitted within 24 hours late, while written assignments will incur a 10-point

deduction if submitted within 24 hours late. Assignments more than 24 hours late will receive a zero.

All assignments must be submitted through the UF course website. Email submissions will not be accepted. For technical issues (e.g., Canvas access), please contact UF IT support for help.

Students will not be penalized for late submissions due to documented and approved circumstances in accordance with UF policies on excused absences and make-up work (See [UF Attendance Policies](#), and below “Attendance, absences policy”)

Attendance, absences policy

Students are responsible for meeting all class objectives as outlined by the instructor. Absences starting from the first-class meeting. Acceptable reasons for missing class or not participating include personal illness, serious family emergencies, required academic activities (e.g., field trips, professional conferences), military service, severe weather conditions, religious observances, participation in official university activities and court-ordered obligations (e.g., jury duty or subpoenas). Other reasons also may be approved at the instructor’s discretion. Students must be officially registered or approved to audit (with proof of audit fee payment) in order to attend class. The University Registrar provides official class rosters to instructors. If you fail to attend at least one of the first two class meetings or labs without notifying the department, you may be dropped from the course. However, do not assume you will be automatically dropped. The department will notify you if this occurs. You can request reinstatement on a space-available basis if you present documented evidence. The university recognizes the right of the individual professor to make attendance mandatory. After due warning, professors can prohibit further attendance and subsequently assign a failing grade for excessive absences. [UF Attendance Policies](#)

Religious holidays

The Florida Board of Education and state law govern university policy regarding observance of religious holidays. The following guidelines apply:

- Students, upon prior notification to their instructors, shall be excused from class or other scheduled academic activity to observe a religious holy day of their faith.
- Students shall be permitted a reasonable amount of time to make up the material or activities covered in their absence.

- Students shall not be penalized due to absence from class or other scheduled academic activity because of religious observances.
- If a faculty member is informed of or is aware that a significant number of students are likely to be absent from class because of religious observance, the faculty member should not schedule a major exam or other academic event at that time. A student who is to be excused from class for a religious observance is not required to provide a second party certification of the reason for the absence. Furthermore, a student who believes that he or she has been unreasonably denied an education benefit due to religious beliefs or practices may seek redress through the student's grievance procedure.

Illness policy

If you miss classes or exams due to illness, you are responsible for notifying your instructors as soon as possible. You should contact your college by the deadline to drop a course for medical reasons. If you need to drop a course for medical reasons, you must contact your college before the published drop deadline. You may also petition the Dean of Students Office for a medical withdrawal. The university guidelines for medical excuse from class are maintained by the Student Health Care Center.

Twelve-day rule

Students involved in athletic or extracurricular activities may be absent for up to 12 scholastic days per semester without an academic penalty. A *scholastic day* refers to any day when regular classes are scheduled. Instructors are expected to be flexible with scheduling exams or assignments for students affected by this rule. The 12-day limit applies to individual students, not entire teams or groups. If a group's schedule would cause any student to exceed this limit, adjustments must be made to keep each student within the 12-day cap. Students who have been previously warned about excessive absences or unsatisfactory academic performance should not take additional absences, even if they have not yet reached the 12-day limit. It is the student's responsibility to maintain both academic performance and consistent attendance.

Also find the link for UF attendance policies: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

Online course evaluation process

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online. Students can complete evaluations in three ways:

1. The email they receive from GatorEvals,
2. Their Canvas course menu under GatorEvals, or
3. The central portal at <https://my-ufl.bluera.com>

Guidance on how to provide constructive feedback is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens. 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 are expected to uphold the highest standards of integrity as outlined in the UF Honor Code. This 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." All work submitted for credit must reflect your own efforts unless the instructor has explicitly permitted collaboration. The following pledge is required or implied on all assignments: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." You are responsible for understanding and adhering to all university policies related to academic integrity and the Student Honor Code. If you are aware of any situation that may promote academic misconduct, you are obligated to report it to the appropriate university personnel. Academic dishonesty will not be tolerated. Any violations will be reported to the Dean of Students' Office for possible disciplinary action.

For more information, please refer to:

- Student Conduct and Honor Code: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>
- Updated (2018) UF Student Honor and Code of Conduct: <http://gatortimes.ufl.edu/2018/08/20/updated-uf-student-honor-and-student-code-of-conduct>

Examples of Academic Integrity Violations

To ensure that you follow the Honor Code and uphold academic integrity, **do not**:

- Sell or share exam questions
- Copy and paste someone else's work into a discussion post (including GenAI output).

- Participate in any discussion app or group that shares answers and solutions to assignments.
- Reuse previously submitted assignments if not permitted.

Academic Integrity Help

Turnitin Draft Coach : This is a tool for UF students that provides feedback to help improve your academic writing and research skills. It can help with:

- **Unintentional plagiarism:** The Similarity Check tool compares your text to internet content, student papers, and academic journals to identify matches.
- **Citations:** The Citations Check tool identifies missing citations and references and suggests fixes.
- **Grammar:** The Grammar Guide tool finds grammar mistakes and suggests edits.

Artificial Intelligence Policy

There are no restrictions on software use for this class or its assignments. However, all University of Florida faculty, staff, and students are expected to comply with all laws and licensing agreements related to software use. Unauthorized use, copying, or distribution of software may result in legal consequences and is considered a violation of university regulations, subject to disciplinary action.

You may use generative AI programs (such as ChatGPT or similar tools) to help generate ideas and brainstorm, unless otherwise specified in individual assignment instructions. Be aware that material generated by AI may be inaccurate, incomplete, or otherwise problematic, and relying exclusively on such tools can limit your independent thinking and creativity.

For certain assignment sections, you will be asked to compare outcomes between using AI tools and not using them. This is designed to help you develop skills in effectively utilizing AI to enhance your work.

You may not submit any work generated by an AI program as your own. If you include material generated by an AI program, it must be properly cited, as you would with any other reference, and you should consider the quality and appropriateness of the reference. All AI-generated content must be cited in APA format. For example:

OpenAI. (2024). ChatGPT (Version 4) [Generative AI model]. <https://openai.com/chatgpt>

Services for students with disabilities

The Disability Resource Center (DRC) supports students with disabilities by coordinating accommodation to ensure equal access to academic opportunities. Services include registering disabilities, recommending classroom accommodations, providing assistive technology, interpretation services, and helping resolve disability-related concerns between students and faculty. Students seeking accommodation must first register with the DRC through the Dean of Students' Office. Once registered, students will receive official documentation, which must be presented to the instructor to request accommodation. For more information, visit the DRC in 0001 Reid Hall, call 352-392-8565, or go to www.dso.ufl.edu/drc/.

Student concerns and complaint resources

If you have concerns or need to file a complaint, please refer to the following resources:

- General Concerns and Complaint Process (Florida Department of Education): <https://www.fldoe.org/schools/higher-ed/fl-college-system/about-us/concerns-complaints.shtml>
- For SNRE Students: <https://snre.ifas.ufl.edu/resources/reporting-concerns/>
- Residential Course: <https://www.sfa.ufl.edu/written-student-complaints/>
- Online Course: <https://pfs.tnt.aa.ufl.edu/state-authorization-status/#student-complaint>

Privacy and Accessibility Policies

For information about the privacy policies of the tools used in this course, see the links below:

- Adobe
 - [Adobe Privacy Policy](#)
 - [Adobe Accessibility](#)
- Instructure (Canvas)
 - [Instructure Privacy Policy](#)
 - [Instructure Accessibility](#)
- Microsoft
 - [Microsoft Privacy Policy](#)

- o [Microsoft Accessibility](#)
- Perusall
 - o [Perusal Accessibility](#)
 - o [Perusal Privacy](#)
- YouTube (Google)
 - o [YouTube \(Google\) Privacy Policy](#)
 - o [YouTube \(Google\) Accessibility](#)
- Zoom
 - o [Zoom Privacy Policy](#)
 - o [Zoom Accessibility](#)

Additional Support Resources

Please don't hesitate to reach out to me or the SWES Graduate Student Coordinators, if you need help accessing resources that support your success in this course. Below are a few useful links based on common concerns:

Health & Wellness

- UF Medical Student Portal (U Matter, We Care): <https://students.med.ufl.edu/u-matter/>
- UF Counseling & Wellness Center: <https://graduate.education.med.ufl.edu/resources-for-counseling-and-wellness/>
- UF GatorCare Mental Health & Counseling Services: <https://gatorcare.org/find-a-provider/mental-health-services/counseling/>

UF Financial Aid/Scholarship opportunities

- UF Student Aid-A-Gator: <https://www.sfa.ufl.edu/aidagator/>
- <https://grad.ufl.edu/gss/funding/srs/>
- <https://grad.ufl.edu/apply/funding/>

State-Level Financial Aid and Scholarships:

- Florida Student Scholarship & Grant Programs: <https://www.floridastudentfinancialaidsg.org/SAPHome/SAPHome?url=home>

- Florida Department of Education Financial Aid:
<https://www.fldoe.org/finance/financial-aid-scholarships/>

Academic Resources

- *E-learning technical support*: Contact the UF Computing Help Desk at 352-392-4357 <https://it.ufl.edu/helpdesk/> or via e-mail at helpdesk@ufl.edu.
- *Career Connections Center*: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
- *Library Support*: Various ways to receive assistance with respect to using the libraries or finding resources.
- *Teaching Center*: 1317 Turlington Hall, 352-392-2010. General study skills and tutoring.
- *Writing Studio*: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.
- *Student Concern*: [Report Student Concerns or Conduct](#)

Technical Support

If you experience technical difficulties or have limited access to computers, internet connectivity, hardware, or software, there are resources available to ensure you can fully participate in this course:

- **UF Libraries Equipment Loans**
UF Libraries provide equipment loans, such as laptops or tablets, to students who may not have access to the necessary technology. Learn more about available equipment and how to request a loan here: <https://cms.uflib.ufl.edu/usingthelibrary/equipment>
- **Technical Support Contacts**
For any technical issues with UF systems (e.g., Canvas, GatorLink, UF Email), contact the UF Computing Help Desk. UF Computing Help Desk & Ticket Number: All technical issues require a UF Helpdesk Ticket Number. The UF Helpdesk is available 24 hours a day, 7 days a week. <https://helpdesk.ufl.edu/> | 352-392-4357
- **Free Software Access**

Students can download required course software, such as R (<https://cran.r-project.org/>) and RStudio Desktop (now Posit Desktop, <https://posit.co/download/rstudio-desktop/>), at no cost.
- **Additional Support**

Please reach out if you encounter ongoing barriers related to access or technology use so that we can help connect you to additional campus resources or discuss alternative arrangements as needed.

Student Privacy Disclaimer

For online courses with recorded materials, a statement informing students of privacy related issues such as: Our class sessions may be audio-visually recorded for students in the class to refer and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image agree to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who are un-mute during class and participate orally agree to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

In-Class Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or guest lecturer during a class session.

Publication without the permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student.

Software Use

All faculty, staff and students at 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 individual violators. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.