

## SWS 4116 – Environmental Nutrient Management

Fall, 2025

Asynchronous online (with weekly chat session), 3 credits

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Office hours: during chat session (Tuesdays, 6:30-7:30 PM, Eastern time), or by appointment.

### Course Description (from UF catalog)

Consumption, existing reserves, formulation, chemical and physical properties, and manufacture of commercial fertilizers; basic chemical reactions of fertilizer materials with the soil and the fate of the nutritional elements whether it be loss by leaching, plant uptake, fixation or soil retention.

### Course Prerequisites

Course pre-requisite: SWS 3022 – Introduction to Soils in the Environment, or instructor consent.

Consent to enroll without the pre-requisite will be made on a case-by-case basis based on past class enrollment in soil science and plant physiology/nutrition and/or professional experience.

### Course Learning Objectives

This course focuses on how plant nutritional requirements can be satisfied to maximize yields, maintain soil fertility and soil health, and minimize environmental impacts. We will examine the role essential nutrients play in plant nutrition and how key biogeochemical reactions affect their availability in soils. We will cover how different fertility sources supply nutrients to plants as well as challenges associated with their use. We will become familiar with tools used to manage soil nutrients sustainably, including soil and plant tissue testing, criteria to determine nutrient input requirements, and best management practices.

At the end of this course, students will be able to :

1. Describe all nutrient cycles, with an emphasis on nitrogen, phosphorus, and potassium, including how they are measured in soils and their effect on crop production;
2. Compare the effects of different fertility sources (e.g., fertilizers vs. manures) and different forms of a given source (e.g., urea vs. ammonium nitrate fertilizers) on nutrient cycling;
3. Quantify crop nutrient demand and fertilizer/manure input rates to meet that demand;
4. Identify and evaluate the efficiency of different best management practices (BMPs);
5. Contrast different approaches used to manage soil fertility (e.g., conventional and organic);
6. Interpret soil testing results and nutrient input recommendations.

### Learning Materials and Supplies

There is no textbook requirement of this class. However, the following textbook is recommended for students that envision a career where soil fertility plays a large role (e.g., crop consultant, extension agent), as the textbook provides additional information and goes into greater depth than lectures and other instructional materials provided for this class.

Soil Fertility and Fertilizers (8th Ed.) by John Havlin et al. 2013; ISBN 013503373X, Pearson.

Note that there might be alternative editions available for this book, either older ones or versions targeting other regions of the world. If you find one of those and want to double-check whether that version would be acceptable, don't hesitate to reach out to me before purchasing it.

### Instructor Interaction Plan

- Expect a response to email and Canvas messages within 72 hours, and faster response during weekdays. Do not wait until the last minute to complete assignments, as I may not be available to answer emails or messages before the assignment is due.
- Expect instructor feedback and grades for submitted assignments within one week after the assignment deadline. I will do my best to provide feedback more rapidly.
- If you have questions or need clarification on instructor feedback, send me an email, ask a question during chat session, or set up an appointment for office hours.
- I plan to post an announcement to the whole class at least once a week to provide updates and upcoming activities and assignments.

### Required Technology & How to Obtain the Technology

Access to a desktop or laptop computer with audio capabilities and a camera are the basic requirements for this class. Exams for this class are proctored by Honorlock, hence you must have the capability to use this software on your device, including the use of Google Chrome. A practice exam to test Honorlock on your system will be available, and I encourage you to do it well in advance of the first exam, to identify any issue and give us the time to troubleshoot the issue(s).

### Required Technology & Digital Information Literacy Skills

This class requires no additional technical skills than common expectations for an upper-division online college class, including the use of canvas, zoom, and commonly used software (e.g., knowing how to use a word processing software, a spreadsheet program, and a presentation software).

### Communication Guidelines

- Use Canvas Inbox for questions about the class.
- Email correspondence at [maltaislandryg@ufl.edu](mailto:maltaislandryg@ufl.edu) should be used primarily for (1) DRC accommodations; (2) emergency situations; or (3) highly sensitive situations.
- In the case of limited access to technology (e.g., during a hurricane evacuation), don't worry about which medium to use, just use whatever works best for you in that context!
- A respectful tone should be used, along with the official language of instruction rather than popular online abbreviations and graphic elements such as those sometimes used in social media. Spelling, punctuation, and grammar should be correct in all communications.

### Technical Support

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

## Weekly Course Schedule

The class consists of weekly modules with pre-recorded lectures and a weekly synchronous chat session (Tuesdays 6:30-7:30 PM) held on zoom. Students will be assessed using a mix of assignments: 7 quizzes, 5 problem sets, 4 discussions, and 3 exams. Quizzes and problem sets provide questions that help prepare for the exam, although there are no quantitative questions on the exams.

The exams count for the most points and are open from Saturday until Tuesday, and students need to complete the exams during a single session on canvas (proctored by Honorlock). Quizzes cover 2 modules at a time, and they are due on the Friday of the last module covered; the only exception is quiz #7, which is due on a Wednesday (12/3), as it's the last day of the semester. Problem sets are also due on a Friday, but they are due on weeks when there are no quizzes due (except for 10/31, module 11). Original posts for discussions are due by Wednesday, and replies are due the following Tuesday.

Module	Topic	Assessments	Due Dates
M1	Introduction & review	N/A	N/A
M2	Nitrogen cycle	N/A	N/A
M3	Nitrogen inputs	Discussion #1 - post Quiz #1 (M2-M3)	9/3 9/5
M4	Phosphorus cycle	Discussion #1 - replies Problem set #1	9/9 9/12
M5	Phosphorus inputs	Quiz #2 (M4-M5)	9/19
	<b>Exam #1 on modules 2 to 5</b>	<b>Exam #1</b>	<b>9/20-9/23</b>
M6	Potassium cycle and inputs	Discussion #2 - post Problem set #2	9/24 9/26
M7	Secondary macronutrients (calcium, magnesium, sulfur)	Discussion #2 - replies Quiz #3 (M6-M7)	9/30 10/3
M8	Micronutrients	Problem set #3	10/10
M9	Soil pH and salinity	Quiz #4 (M8-M9)	10/17
	<b>Exam #2 on modules 6 to 9</b>	<b>Exam #2</b>	<b>10/18-10/21</b>
M10	Nutrient and irrigation management & 4Rs		
M11	Soil and plant testing	Quiz #5 (M10-M11) Problem set #4	10/31 10/31
M12	Environmental Impacts	Discussion #3 - post	11/5
M13	Best Management Practices (BMPs)	Discussion #3 - replies Quiz #6 (M12-M13)	11/11 11/14
M14	Soil health & regenerative agriculture	Discussion #4 - post Problem set #5	11/19 11/21
M15	Organic agriculture	Discussion #4 - replies Quiz #7 (M14-M15)	12/2 12/3
	<b>Final cumulative exam on all modules</b>	<b>Exam #3</b>	<b>12/6-12/9</b>

## Grading Policy

This course will utilize Honorlock, an online proctoring service, for all exams, i.e., exams 1, 2 and 3. You are required to have a functioning webcam and stable internet connection to ensure academic integrity during testing; any suspicious activity detected by Honorlock may be reviewed by the instructor and could result in academic dishonesty violations.

## Course Grading Structure

Assignment Type	Point Value	Percent of Final Grade
<b>Exam 1</b>	125	12.5%
<b>Exam 2</b>	125	12.5%
<b>Exam 3</b> (cumulative final)	250	25%
<b>5 Problem sets</b> (4% each)	200	20%
<b>4 Discussions</b> (4% each)	160	16%
<b>7 quizzes</b> (2% each)	140	14%

## Grading Scale

Grade	Points	Percentage
<b>A</b>	≥ 940	94 - 100
<b>A-</b>	≥ 900	90 - 94.9
<b>B+</b>	≥ 850	85 - 89.9
<b>B</b>	≥ 800	80 - 84.9
<b>B-</b>	≥ 760	76 - 79.9

Grade	Points	Percentage
<b>C+</b>	≥ 720	72 - 75.9
<b>C</b>	≥ 680	68 - 71.9
<b>C-</b>	≥ 640	64 - 67.9
<b>D</b>	≥ 600	60 - 63.9
<b>E</b>	< 600	< 60

## Attendance & Make-up Work

Late assignments (problem sets, discussions) will get a 20% deduction for each late day, up to 2 days; if submitted on or after the 3<sup>rd</sup> day, the student will be assigned the grade 0. Quizzes and exams must be completed during the allocated period (no late submissions accepted).

Please refer the official University policy for additional details: [UF Attendance Policies](#)

## Academic Honesty

University of Florida students are bound by the Honor Pledge. 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 by abiding by the Student Honor Code." 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). 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 [Student Conduct Code Process](#).

For example, do not:

- Sell or share exam and quiz questions.

- Copy and paste someone else's work into a discussion post or a problem set answer (including generative AI output).
- Participate in any discussion group that shares answers and solutions to assignments.
- Reuse previously submitted assignments.

### Artificial Intelligence Policy

You may use generative AI programs to help generate ideas and brainstorm for discussion posts and problem sets. You cannot use AI for quizzes and exams. Note that the material generated by these programs may be inaccurate, incomplete, or otherwise problematic. Beware that generative AI use may also stifle your own independent thinking and creativity.

You may not submit any work generated by an AI program as your own. If you include material generated by an AI program, it should be cited like any other reference material (with due consideration for the quality of the reference, which may be poor). Any AI-generated content you use must be properly cited, for example:

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

### Student Privacy Disclaimer

Our class sessions are audio-visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing 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 un-mute during class and participate orally are agreeing 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 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

### 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/>.

### 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

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the [Disability Resource Center](#). It is important for students to share their accommodation letter with their instructor and discuss their access needs as early as possible in the semester.

### Campus 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.

### Health and Wellness

- *U Matter, We Care*: If you or someone you know is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu), 352-392-1575, or <https://umatter.ufl.edu/> to refer or report a concern and a team member will reach out to the student in distress.
- *Counseling and Wellness Center*: Visit <https://counseling.ufl.edu/> or call 352-392-1575 for information on crisis services as well as non-crisis services.
- *Student Health Care Center*: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit <https://shcc.ufl.edu/>

- *University Police Department*: Visit <https://police.ufl.edu/> or call 352-392-1111 (or 9-1-1 for emergencies).
- *UF Health Shands Emergency Room / Trauma Center*: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; visit <https://ufhealth.org/locations/uf-health-shands-emergency-room-trauma-center>
- *GatorWell Health Promotion Services*: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit <https://gatorwell.ufsa.ufl.edu/> or call 352-273-4450.

### 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](mailto: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](#)

### Student Complaints:

- 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

- Adobe
  - [Adobe Privacy Policy](#)
  - [Adobe Accessibility](#)
- Honorlock
  - [Honorlock Privacy Policy](#)
  - [Honorlock Accessibility](#)
- Instructure (Canvas)
  - [Instructure Privacy Policy](#)
  - [Instructure Accessibility](#)
- Microsoft
  - [Microsoft Privacy Policy](#)
  - [Microsoft Accessibility](#)
- YouTube (Google)
  - [YouTube \(Google\) Privacy Policy](#)
  - [YouTube \(Google\) Accessibility](#)
- Zoom
  - [Zoom Privacy Policy](#)
  - [Zoom Accessibility](#)