

# MATH FOR ENVIRONMENTAL PROFESSIONALS

Course Number: SWS4932/SWS6932

Section: 2897, 29AA, 29AB, 29HC, 29HD, 29HF

Credit Hours: 2 credits

Academic Term: Fall 2020

Class meeting time and location: This class is facilitated 100% online.

## INSTRUCTOR INFORMATION

**INSTRUCTOR NAME:** Dr. Kanika S. Inglett

**EMAIL:** [kanika@ufl.edu](mailto:kanika@ufl.edu)

**PHONE NUMBER:** 352-294-3164

**OFFICE HOURS:** By appointment only.

## COURSE INFORMATION

**COURSE WEBSITE:** <http://elearning.ufl.edu>

**COURSE COMMUNICATIONS:** Send messages to your instructor via the Canvas Mail Tool. Use email for ONLY personal questions such as grades, special circumstances, needed accommodations. Expect a response within 24 hours. All e-mail correspondence to the course instructor must originate from your ufl.edu account, have your full name in the body of the e-mail, and contain your course and section number in the subject line.

If you have a question not specific to you, consult the *Do You Have a Course-Related Question?* Forum in Canvas. It's likely that others have the same questions. Feel free to answer questions posted by your classmates.

**RECOMMENDED TEXTBOOKS:** Math for Soil Scientists by M.S. Coyne and J.A. Thompson. 2006. Thomson Delmar Learning.

**MATERIALS AND SUPPLIES FEES:** N/A

**COURSE DESCRIPTION:** This course is meant to be 'refresher course' that reviews the fundamental principles (of mathematics, chemistry, biology and physics) and calculations that are routinely encountered in environmental sciences. The coursework involves reviewing fundamental principles of quantifying physical (mass/ volume relationships, heat transfer), chemical (oxidation-reduction, buffer preparation, dilution calculations) and microbial properties (biomass, respiration, mineralization, kinetics) in soil and water environments and working through basic calculations that form the basis of all laboratory work. Students who are just beginning their experimental/lab work or graduate studies would greatly benefit from this course.

**PREREQUISITE KNOWLEDGE AND SKILLS:** Basic courses in mathematics, chemistry, and physics at the sophomore and junior level that are typically taken by soil and water science majors.

**COURSE OBJECTIVES:** By the end of this course,

1. Environmental Science majors will recognize mathematical relationships in soil and water sciences.
2. Students will develop mathematical skills that is needed for scientific analyses to assess quality of soil health.
3. Students will develop mathematical skills that can be used to describe biogeochemical properties of soil and water that led to ecosystem functioning.
4. Students will be able to identify assumptions inherent in soil and water calculations.

**INSTRUCTIONAL METHODS:** Web-based lecture videos with interactions are assigned every week. The course material will be released at a set schedule. You will have access to one unit at a time. At the beginning of each week, the instructor will assign the topic/slides to be studied over the period of that week. In order for you to remain on schedule, the study of this material must be completed during that week. Even though the entire module is released and available, I strongly recommend you limit yourself to the material assigned by the instructor so as to gain a reasonable understanding of the material. Associated to each module will be the reading material that may elucidate the material in the texts or slides.

Discussion board is set up for students to post any topic related inquiries. All students are welcome to help out with the calculation questions. I will follow the posts closely and provide guide the steps calculations if needed.

## COURSE POLICIES

**ATTENDANCE POLICY:** Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found on the [Attendance Policies page](#).

### QUIZ/EXAM DATES/POLICIES

There will be quizzes associated with each unit. These can be taken up to two times and the highest score will be considered. Practice quizzes and questions are available to help you get familiar with the format of the quizzes and exams. Therefore, I strongly recommend you use that feature. There are two comprehensive exams in the course. Any work that is illegible will be considered as incomplete and graded as such, so make sure you show complete work in a neat manner.

**MAKE-UP POLICY:** Ample time has been provided for all assignments and quizzes to be completed and students are encouraged not to wait till last minute to begin their work to avoid any last minute issues that prevent them from completing and submitting their work in a timely manner. Make-up allowances for any missed assessments will be considered on a case by case basis and is at the discretion of the instructor.

**ASSIGNMENT POLICY:** Timely completion and submission of assignments is expected. Since each assignment has been allowed

**COURSE TECHNOLOGY:** This course is facilitated 100% online through Canvas. You may access Canvas from UF's e-Learning webpage: <http://elearning.ufl.edu/>. Please contact the UF Help Desk, <http://helpdesk.ufl.edu>, if you have any technical difficulties with Canvas.

**TECHNOLOGY CHECKLIST:** The technology checklist provides recommendations for students enrolled in the Distance Education Track in Environmental Science. It is the responsibility of the student to have access to a personal computer (or laptop), the Internet, and maintain the functionality of peripherals (e.g. web cam and audio system) to successfully participate in distance education courses offered by the Soil and Water Science Department.

- Personal computer or laptop with sufficient hard drive space to store course materials and speakers
- Web camera (optional)

- External microphone (e.g. headset with build-in microphone, voice over IP device) is required.
- Review the [Student Computing Requirements](#) for policy, hardware, and software information.

PLAYPOSIT: This course uses PlayPosit to provide interactions within the online lecture videos. When you select on a video thumbnail, the lecture video will open in a new tab for you to watch and complete the interactions (e.g., multiple choice questions, discussion forums, polling surveys, reflective pauses, etc.). Why is this course using PlayPosit? There is [extensive research](#) to support the use of interactive videos in an online environment to enhance student engagement and retention. The interactions provide an opportunity for you to assess and apply your understanding of the concepts that are being discussed in the video.

For more information on PlayPosit, please review [The Student Experience](#). If you have any technical difficulties while using PlayPosit, please review [PlayPosit Troubleshooting](#) before contacting the UF Help Desk. Information relating to accommodations and privacy can be found at [PlayPosit Accessibility](#) and [PlayPosit Privacy Policy](#).

It is highly recommended by PlayPosit that you use [Google Chrome](#) web browser when viewing and interacting with the videos.

**ONLINE COURSE EVALUATION:** Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semesters, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

## UF POLICIES

**UNIVERSITY POLICY ON ACCOMMODATING STUDENTS WITH DISABILITIES:** Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, [www.dso.ufl.edu/drc](http://www.dso.ufl.edu/drc)) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

**UNIVERSITY POLICY ON ACADEMIC CONDUCT:** UF students are bound by The Honor Pledge which states, “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 Honor Code. On all work submitted for credit by students 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." The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

**CLASS DEMEANOR OR NETIQUETTE:** All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions, and chats. Review the [Netiquette Guide for Online Courses](#) for expected student behavior.

**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. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

## GETTING HELP AND RESOURCES

For issues with technical difficulties for Canvas, please contact the UF Help Desk at <http://helpdesk.ufl.edu> or (352) 392-HELP (4357).

Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from the Help Desk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Other resources are available at [Distance Learning's Getting Help](#) for:

- Counseling and Wellness resources
- Disability resources
- Resources for handling student concerns and complaints

- Library Help Desk support

Should you have any complaints with your experience in this course, please visit [Distance Learning's Student Complaint Process](#) to submit a complaint.

## GRADING POLICIES

### METHODS BY WHICH STUDENTS WILL BE EVALUATED AND THEIR GRADE DETERMINED:

Associated with each module will be a quiz that must be completed. Assignments will also include practice quizzes and PlayPosit video interactions that are expected to be submitted in time. Timely submission (as indicated on the assignments) of the assignments is critical for proper grading and credit. Your understanding of the material will be tested with two exams during the semester.

Exams will be time limited and will include calculations of data sets (provided by the instructor) related to your study material. The Exam will be available to all students for a instructor determined time period. Once accessed, students will have a specified time to complete the exam and submit it with all the supplementary work. As indicated initially, the amount of interaction is also important. Attendance and participation during discussion sessions is strongly encouraged. Special permission should be obtained in advance if the student is unable to attend the chat session.

**COURSE GRADING POLICY:** Grades will be determined based on your performance on the following activities:

Graded Items	Percentages
Unit 1 & 2 Assignments Unit 1: The Basics, Unit 2 : Quantifying Physical and Chemical Properties of Soils	12%
Unit 3 & 4 Assignments Unit 3: Problem-Solving in Soil Biochemistry, Unit 4: Problem-Solving in Soil Biology	12%

Graded Items	Percentages
Unit 5 & 6 Assignments (& 7 for grad students only)  Unit 5: Problem-Solving in Soil Chemistry, Fertility, and Management, Unit 5: Problem-Solving in Soil Biogeochemistry, Unit 7: Data Analysis and Sampling	12%
Exam 1	24%
Exam 2	40%

**GRADING SCALE:** For more information, review [Frequently Asked Questions for Minus Grades](#).

Percent	Grade
95.0 – 100.0	A
90.0 – 94.99	A-
87.0 – 89.99	B+
83.0 – 86.99	B
80.0 – 82.99	B-
77.0 – 79.99	C+
73.0 – 76.99	C
70.0 – 72.99	C-
67.0 – 69.99	D+
63.0 – 66.99	D
60.0 – 62.99	D-

<b>Percent</b>	<b>Grade</b>
0 – 59.99	E

Disclaimer: This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.

Last update: 8/28/2020