

NRES 251 - INTRODUCTION TO SOIL AND WATER RESOURCES  
SPRING 2023

Lecture: MWF 12:00-12:50 PM TNR 170

Lecture Instructor: Jacob Prater, Associate Professor of Soil and Waste Resources  
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office: 274 CNR, telephone: 715-346-4180  
Office Hours: Wednesday 10-11 am, or by appointment

Lab Sections: Lab room TNR 262

- Tuesday 8-9:50 am (Keymer),
- Tuesday 10-11:50 am (Keymer),
- Thurs. 10-11:50 am (Gunderson),
- Thursday 12-1:50 pm (Prater)

**COURSE DESCRIPTION:** Integrated concepts of soil and water resources at the landscape level: physical, chemical, and biological interactions in soil and water relating to watershed processes and response to land use and management.

**COURSE OBJECTIVES:** This course is designed for undergraduate students in natural resources. The overall objectives of the course are that by the end of the semester the student should be able to:

1. Define soil and water along with their physical expressions (basic morphology)
2. Demonstrate understanding of the important roles that soil and water play as components of natural ecosystems
3. Describe how soil and water interact in a watershed framework or landscape unit
4. Define the important physical and chemical properties of soil and water
5. Describe how the management of soil and water resources affects:
  - a. land use planning
  - b. erosion
  - c. nutrient cycling and nutrient management
6. Perform basic field techniques used to measure physical and chemical properties of soil and water
7. Perform some analyses using the applications of EXCEL (spreadsheet) and GIS as tools in the management of soil and water information

## **READING MATERIALS:**

### **Text Rental:**

Brady, Nyle, C. and Ray R. Weil. 2010. Elements of the Nature and Properties of Soils. 3rd edition. Prentice Hall, NY.

### **Supplemental Handouts and On-line Resources:**

As directed during semester.

### **Lab:**

NRES 251 lab exercises found in the lab manual. The lab manual will be provided during your first lab meeting during the first week of the course (an electronic version is available in Canvas as well).

## **EVALUATION OF STUDENTS:**

Student grades will be determined on the basis of percentage of total points earned from the sum of the categories below.

Type	Points	Total	% of Grade
Exams (4)	30	120	50
Lecture Quizzes	0	0	0
Lab Quizzes (2)	25	50	20.8
Lab Assignments (14)	5	70	29.2

## **EXAMS:**

Four multiple choice exams will be given throughout the semester. Exams will only cover material from a given unit and will not be cumulative although some material in this class will carry over through the entire semester. Lecture exams will likely occur as scheduled in the syllabus, but can be moved at the instructor's discretion.

## **LECTURE QUIZZES:**

Lecture quizzes will be available to help you practice and test your comprehension of lecture topics and readings.

## **LAB ASSIGNMENTS:**

Lab assignments will be assigned during lab. Your lab manual has beneficial material for you to look over and use during lab exercises. Follow the instructions from your lab instructor regarding what you must complete and submit for your assignment. You will also be submitting your lab assignments via Canvas. Be sure to read the assignment carefully and answer all questions that are asked. Some assignments you may have to submit Excel or Word files in Canvas. Be sure to submit the entire file (**not share a link to it**) and not a screen capture of the file. Any assignments submitted for this course must be your work.

## **LAB QUIZZES:**

Two lab quizzes will be given throughout the semester. These quizzes will cover only material introduced in your lab section. They will be short answer, multiple choice, and calculation questions and will be given via Canvas.

## **LATE POLICY:**

Exams cannot be made up unless there is a valid, documented excuse for missing the exam. Lab assignments are considered late if they are not turned in at the specific date and time on the assignment. Assignments can be turned in late, but 1 point will be taken off for each day the assignment is late. Lab quiz grading will be determined by your lab instructor.

## **ATTENDANCE:**

Attendance will be taken for all lab activities. If you are going to miss lab, please contact your instructor as soon as possible. If the absence is appropriately documented arrangements may be possible for you to make up your lab assignment the following week. Make up labs are done on Fridays at 1 pm the following week of the lab missed.

## **INFORM YOUR INSTRUCTOR OF ANY ACCOMMODATIONS NEEDED:**

If you have a documented disability and verification from the Disability and Assistive Technology Center and wish to discuss academic accommodations, please contact your instructor as soon as possible. It is the student's responsibility to provide documentation of their disability to Disability Services and meet with a Disability Services counselor to request special accommodation before classes start.

The Disability and Assistive Technology Center is located in 609 Albertson Hall and can be contacted by phone at (715) 346-3365 (Voice) (715) 346-3362 (TDD only) or via email at [datctr@uwsp.edu](mailto:datctr@uwsp.edu)

Statement of Policy UW-Stevens Point will modify academic program requirements as necessary to ensure that they do not discriminate against qualified applicants or students with disabilities. The modifications should not affect the substance of educational programs or compromise academic standards; nor should they intrude upon academic freedom. Examinations or other procedures used for evaluating students' academic achievements may be adapted. The results of such evaluation must demonstrate the student's achievement in the academic activity, rather than describe his/her disability. If modifications are required due to a disability, please inform the instructor and contact the Disability and Assistive Technology Center in 609 ALB, or (715) 346-3365.

## **COMMITMENT TO INTEGRITY:**

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class as well as integrity in your behavior in and out of the classroom.

## **UWSP ACADEMIC HONESTY POLICY & PROCEDURES:**

Student Academic Disciplinary Procedures

UWSP 14.01 Statement of principles

The board of regents, administrators, faculty, academic staff and students of the university of Wisconsin system believe that academic honesty and integrity are fundamental to the mission of higher education and of the university of Wisconsin system. The university has a responsibility to promote academic honesty and

integrity and to develop procedures to deal effectively with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors. Students who violate these standards must be confronted and must accept the consequences of their actions.

UWSP 14.03 Academic misconduct subject to disciplinary action. (1) Academic misconduct is an act in which a student:(a) Seeks to claim credit for the work or efforts of another without authorization or citation;(b) Uses unauthorized materials or fabricated data in any academic exercise;(c) Forges or falsifies academic documents or records;(d) Intentionally impedes or damages the academic work of others;(e) Engages in conduct aimed at making false representation of a student's academic performance; or(f) Assists other students in any of these acts.

Examples of academic misconduct include, but are not limited to: cheating on an examination; collaborating with others in work to be presented, contrary to the stated rules of the course; submitting a paper or assignment as one's own work when a part or all of the paper or assignment is the work of another; submitting a paper or assignment that contains ideas or research of others without appropriately identifying the sources of those ideas; stealing examinations or course materials; submitting, if contrary to the rules of a course, work previously presented in another course; tampering with the laboratory experiment or computer program of another student; knowingly and intentionally assisting another student in any of the above, including assistance in an arrangement whereby any work, classroom performance, examination or other activity is submitted or performed by a person other than the student under whose name the work is submitted or performed.

### **UNAUTHORIZED SHARING OF COURSE MATERIALS:**

Lecture materials, recordings, and lab manuals for this course are protected intellectual property at UW-Stevens Point. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability requiring accommodation. [Regent Policy Document 4-1] Students may not copy or share lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's

express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

**EXTRA HELP:**

Extra help is available in the following ways: (1) meeting with the instructor during scheduled office hours or by appointment, (2) asking questions prior to, during or right after class, (3) email exchange with the instructor, and (4) tutoring.

**EXCEL SPREADSHEET AND GIS APPLICATIONS:**

Some of the laboratory exercises will require EXCEL spreadsheet (graphing and calculations) and GIS map production and data analysis.

**LECTURE SCHEDULE – subject to change and modification**  
**Spring 2022**

<b>WEEK #</b>	<b>LECTURE TOPICS</b>	<b>READINGS</b>
1	Introduction to the course; overview of soils; the soils around us	Brady Chap 1
2	Formation of soil from parent material	Brady Chap 2
3	Soil architecture and physical properties	Brady Chap 4
4	Soil architecture and physical properties <b>EXAM 1 Friday 2/18</b>	Brady Chap 4
5	Soil water: characteristics and behavior	Brady Chap 5
6	Soil and the hydrologic cycle	Brady Chap 6
7	Soil aeration and temperature; soil colloids	Brady Chap 7, 8
8	Soil Acidity: Organisms and ecology of the soil <b>EXAM 2 Wednesday 3/16</b>	Brady Chap 9,10
	Spring Break	
9	Soil organic matter; the nitrogen cycle	Brady Chap 11, 12
10	Soil erosion and its control	Brady Chap 14
11	Hydrologic cycle; chemical and physical properties of water	
12	Precipitation. Water use concepts, water quality <b>EXAM 3 Wednesday 4/20</b>	
13	Watersheds and their characteristics,	
14	Groundwater/ Surface waters interactions	
15	The river channel	
	<b>EXAM 4 during final exam time slot</b>	