

# **NRES 251: Introduction to Soil and Water Resources**

## **Spring Semester 2021 SYLLABUS**

### **Course Information:**

Lecture Time: Asynchronous online

Lecture Location: Virtual

Credits: 4

Prerequisites: MATH 107

### In-Person (Hybrid) Lab Times:

Lab Location: 262 and 258 Trainer Natural Resources Building **OR** we will meet at a specified location in Schmeckle Reserve

#### Section 1-1 (Scharenbroch)

Cohort A Wednesday 10:00 am – 10:50 am

Cohort B Wednesday 11:00 am – 11:50 am

#### Section 1-3 (Raabe)

Cohort A Tuesday 12:00 pm – 12:50 pm

Cohort B Tuesday 1:00 pm – 1:50 pm

#### Section 1-4 (Raabe)

Cohort A Wednesday 12:00 pm – 12:50 pm

Cohort B Wednesday 1:00 pm – 1:50 pm

### Online-Only Lab Times:

Labs will be run virtually via Canvas. The lab instructor will set deadlines associated with any assignments.

#### Section 1-5 (Gunderson)

## **Instructors Information (alphabetical):**

Ms. Alyssa Gunderson

Email: [Alyssa.Gunderson@uwsp.edu](mailto:Alyssa.Gunderson@uwsp.edu)

Office: 275 Trainer Natural Resources Building

Office Phone: 715-346-3760

Office Hours: Thursday 12:00 pm – 1:00 pm

Dr. Kyle Herrman

Email: [Kyle.Herrman@uwsp.edu](mailto:Kyle.Herrman@uwsp.edu)

Office: 263 Trainer Natural Resources Building

Office Phone: 715-346-4832

Office Hours: Tuesday 10:00 am – 11:00 am. A recurring Zoom invite will be sent out for all students for this time every week. I will be available during this time period. If no one joins me in the first 15 minutes I will sign off but still be available. If this time does not work for you, please send me an email and we can schedule a separate appointment.

Dr. Josh Raabe

Email: [Joshua.Raabe@uwsp.edu](mailto:Joshua.Raabe@uwsp.edu)

Office: 174 Trainer Natural Resources Building

Office Phone: 715-346-2689

Office Hours: Wednesday 9:00 am – 11:00 am

Dr. Bryant Scharenbroch

Email: [Bryant.Scharenbroch@uwsp.edu](mailto:Bryant.Scharenbroch@uwsp.edu)

Office: 278 Trainer Natural Resources Building

Office Phone: 715-346-3704

Office Hours: Tuesday 10:00 am – 11:00 am. A recurring Zoom invite will be sent out for all students for this time every week. I will be available during this time period. If no one joins me in the first 15 minutes I will sign off but still be available. If this time does not work for you, please send me an email and we can schedule a separate appointment.

## Course Objective:

The objective of this class is to expose students to the principles of soils and water resources. This will be accomplished using direct instruction methods during lecture and hands-on experience in the lab and in the field. After completing this course, a student will be able to understand how water flows through the landscape, how specific aquatic ecosystems function, and where sources of water contamination are commonly found. Regarding soils, students will also be able to describe the formation and composition of soils. In addition, students will learn how water, organic matter, and elements are processed within soils and why this medium is critical for supporting life on Earth.

## Learning objectives:

- Describe the composition and formation of soils
- Determine soil properties and interpret how they will impact soil function
- Illustrate the connection between soil properties and management
- Describe the hydrologic cycle in a watershed including groundwater interactions
- Demonstrate how streams/river, lakes, and wetlands function on the landscape
- Evaluate basic water chemistry data

## Required texts:

Brady, NC and RR Weil. 2010. Elements of the Nature and Property of Soils (3<sup>rd</sup> ed). Prentice Hall. New Jersey.

Pennington, KL and TV Cech. 2010. Introduction to Water Resources and Environmental Issues (1<sup>st</sup> ed). Cambridge University Press. New York.

## Grades:

Scale:

A	93-100	C	73-76
A-	90-92	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-62
C+	77-79	F	<60

## Points:

Student grades will be determined based on the following breakdown of points:

	<u>Points</u>	<u>Total</u>	<u>Percent of Total Grade</u>
Exams (4)	30	120	37.5%
Lecture Quizzes (12)	5	60	18.75%
Lab Quizzes (2)	20	40	12.5%
Lab Assignments (10)	10	100	31.25%

**Exams:**

Four multiple choice exams will be given throughout the semester in Canvas. 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. You will be given up to 60 minutes to complete the exam in Canvas between 9am to 7pm on the predetermined exam days. Some of the questions will require you to load images so you need to be sure you have access to reliable internet during exams. You are allowed to use your notes for exams but if you rely too heavily on notes you may have trouble completing the exam in the time allowed. You may not accept help from other persons or internet sources on exams. Any collaboration among students on an exam is strictly forbidden. Violation of this policy could lead to failure on the assignment/exam, failure of the course, or other disciplinary action at the University level.

**Lecture Quizzes:**

You will be given a quiz on lecture material following most lecture topics. This will be assigned in Canvas and the due date will correspond roughly to when the lecture topic is completed on the syllabus schedule. You will be allowed to take the quiz *up to 5 times* to achieve your best score. The quiz will consist of multiple-choice questions and you are allowed to use your notes for these quizzes. You must complete the lecture quizzes by the due date to earn full points, so you will need to manage your time to ensure you are able to review all lecture material in a timely manner. Do not wait until the last minute to begin watching lecture material. Thus, the due dates are spaced evenly to help you keep up with material weekly.

**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, but lab assignments and exercises will likely be altered this semester due to time constraints. Therefore, 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 and not a screen capture of the file. Any assignments submitted for this course must be your work. You will be allowed to drop your lowest score from the lab assignments during the semester. There are 11 total assignments, but we will count your 10 highest scores for your final grade.

**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 or multiple choice questions and the quizzes will be given via Canvas. Your lab instructor will give you more information regarding when and how long you will be given to complete your quiz.

### **Late Policy:**

Exams **cannot** be made up unless there is a valid, documented excuse for missing the exam. Lecture quizzes can be taken late but 1 point will be deducted for each day it is late. 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 in-person activities. If you are going to miss lab, please contact your instructor before your lab time and as soon as possible. If the absence is appropriately documented arrangements may be possible for you to make up your lab assignment that week.

### **Face Coverings:**

At all UW-Stevens Point campus locations, the wearing of face coverings is mandatory in all buildings, including classrooms, laboratories, studios, and other instructional spaces. Any student with a condition that impacts their use of a face covering should contact the [Disability and Assistive Technology Center](#) to discuss accommodations in classes. Please note that unless everyone is wearing a face covering, in-person classes cannot take place. This is university policy and not up to the discretion of individual instructors. Failure to adhere to this requirement could result in formal withdrawal from the course.

### **COVID-19 Mitigation:**

- Please monitor your own health each day using [this screening tool](#). If you are not feeling well or believe you have been exposed to COVID-19, do not come to class; email your instructor and contact Student Health Service (715-346-4646).
  - As with any type of absence, students are expected to communicate their need to be absent and complete the course requirements as outlined in the syllabus.
- Maintain a minimum of 6 feet of physical distance from others whenever possible.
- Do not congregate in groups before or after class; stagger your arrival and departure from the classroom, lab, or meeting room.
- Wash your hands or use appropriate hand sanitizer regularly and avoid touching your face.
- Please maintain these same healthy practices outside the classroom.

### **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 and also 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.

(2) 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.

### **Lecture Expectations:**

The lecture component of this course is being delivered asynchronous online. It is the responsibility of each student to keep up with the lecture schedule. A schedule is provided to assist you in keeping on track in the course. Students should review the lecture materials and perform the assigned readings for each lecture topic on or by the indicated dates. Students should complete the quizzes and exams on or by the posted dates in the lecture schedule. Please contact your lecture instructor if you have questions, comments, or concerns.

## Lecture Schedule (could change as semester progresses):

Week	Date	Lecture Topic	Reading
1	1/25	Soil function and composition	Ch. 1 Brady and Weil
	1/27	Soil horizons and formation	Ch. 2 Brady and Weil
	1/29*		
2	2/1	Soil classification	Ch. 3 Brady and Weil
	2/3		
	2/5	Soil physical properties	Ch. 4 Brady and Weil
3	2/8*	Soil water and air	Ch. 5 Brady and Weil
	2/10		
	2/12		
4	2/15	Soil temperature	Ch. 7 Brady and Weil
	2/17*		
	2/19	<b>EXAM 1 from 9am to 7pm</b>	
5	2/22	Soil colloids	Ch. 8 Brady and Weil
	2/24		
	2/26	Soil pH	Ch. 9 Brady and Weil
6	3/1*	Soil biology	Ch. 10 Brady and Weil
	3/3		
	3/5		
7	3/8	Soil organic matter	Ch. 11 Brady and Weil
	3/10*		
	3/12		
8	3/15	Soil erosion and management	Ch. 12-15 Brady and Weil
	3/17*		
	3/19	<b>EXAM 2 from 9am to 7pm</b>	
9	3/22	<i>SPRING BREAK</i>	
	3/24		
	3/26		
10	3/29	Hydrologic Cycle	Ch. 3 Pennington and Cech
	3/31		
	4/2*		
11	4/5	Watershed Basics	Ch. 5 Pennington and Cech
	4/7		
	4/9		
12	4/12*	Water Use	Pgs 17-32, Ch. 11 Pennington and Cech
	4/14		
	4/16		
13	4/19*	<b>EXAM 3 from 9am to 7pm</b>	
	4/21		
	4/23		
14	4/26*	Groundwater	Ch. 6 Pennington and Cech
	4/28	Water Quality	Ch. 4 Pennington and Cech
	4/30		
15	5/3	Nitrogen and Phosphorus	
	5/5		
	5/7*		
16	5/10	Streams and Rivers	Ch. 8 Pennington and Cech
	5/12	Lakes	Ch. 7 Pennington and Cech
	5/14*	Wetlands	Ch. 9 Pennington and Cech
<b>Finals Week</b>			
<b>EXAM 4 – Wednesday May 19 from 9am to 7pm</b>			

\*denotes that a lecture quiz is due



### Laboratory Expectations:

Each lab section will be split into 2 cohorts (Cohort A and Cohort B). Cohort A will start at the beginning of the scheduled lab period and Cohort B will start 1 hour later. All in person labs and field trip exercises will be completed in 50 minutes. Directions for the week's exercise will be posted on Canvas by Friday of the proceeding week.

**You must watch these directions BEFORE lab!** In order for us to complete lab exercises in a timely manner you must have a good idea of what you are going to do during your lab before it starts. Field trips will be held in Schmeckle and students will walk to a meeting place determined by your instructor. Virtual labs will be done entirely online. If you are enrolled in an online-only lab section your instructor will be reaching out to you to describe how lab exercises will be presented to you.

### Laboratory Schedule (could change as semester progresses):

Week	Date	Topic
1	1/25 – 1/29	<b>In Person</b> – Soil horizons, forming factors, and texture (p. 3)
2	2/1 – 2/5	<b>In Person</b> – Soil density, porosity, and volumetric moisture (p. 19)
3	2/8 – 2/12	<b>Virtual</b> – Watershed analysis – GIS (p. 100)
4	2/15 – 2/19	<i>NO LABORATORY</i>
5	2/22 – 2/26	<b>Virtual</b> – Water and heat in a soil profile (p. 37)
6	3/1 – 3/5	<b>Virtual</b> – Soil survey and interpretation for land use planning (p. 123)
7	3/8 – 3/12	<b>Virtual</b> – Water supply and wastewater treatment (p. 75)
8	3/15 – 3/19	<b>LABORATORY QUIZ 1</b>
9	3/22 – 3/26	<i>SPRING BREAK</i>
10	3/29 – 4/2	<b>Virtual</b> – Stream flow measurements and stream formation (p. 53)
11	4/5 – 4/9	<b>In Person</b> – Principles of ground water hydrology (p. 83)
12	4/12 – 4/16	<b>Virtual</b> – Ground water resource – Little Plover River GIS (p. 95)
13	4/19 – 4/23	<i>NO LABORATORY</i>
14	4/26 – 4/30	<b>In Person (field trip)</b> – Soil profile description writing (p. 45)
15	5/3 – 5/7	<b>In Person (field trip)</b> – Wetlands, water quality – Moses Creek (p. 67)
16	5/10 – 5/14	<b>LABORATORY QUIZ 2</b>

Pages listed are the first page for each topic in the Laboratory Manual.