

# Agriculture 17 – Introduction to Soil Science

Spring 2022 Face to Face  
(Last updated 1/5/22)

## Instructor Information

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## Course Description

The study of soil physical, chemical and biological properties. Soil classification, derivation, use, function and management including erosion, moisture retention, structure, cultivation, organic matter and microbiology. Laboratory topics include soil type, classification, soil reaction, soil fertility and physical properties of soil. Laboratory required.

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## Course Learning Outcomes

1. Evaluate parent rocks and other soil forming processes on local and global soils. (Lecture)
  2. Discuss and understand the importance of essential plant nutrients. (Lecture)
  3. Demonstrate and determine soil physical properties. (Lab)
  4. Analyze a soil's water holding capacity, water available to the plant, properties and movement of water in soil. (Lab)
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## Course schedule

The tentative course schedule is on the next page: All weekly content will also be organized for you in the Canvas modules.

Your attendance is required at the following times:

Lecture activities: Mondays 8:30 to 10:30

Lab Activities: Wednesday 8:20 (that's 8:20) to 11:30

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# Spring 2022 Intro to Soil Science Schedule

Wk #	Reading	Date	Topics	Online lecture quizzes due	Online Lab Quiz due
1	Ch. 1	1/17	<b>Holiday</b>		
		1/19	Lab 1: Soil properties and function	wk 1 quizzes	
2	Ch. 2	1/24	Lecture: Soil Formation	Wk 2 quizzes	
		1/26	Lab 2: Rocks & minerals		
3	Ch. 2	1/31	Lecture: Soil formation	wk 3 quizzes	
		2/2	Lab 3: Centerville Beach <b>FT</b>		Quiz 1: What is soil?
4	Ch. 4	2/7	Lecture: Intro physical properties	Wk 4 quizzes	
		2/9	Lab 4: Soil physical properties I		
5	Ch. 4	2/14	Lecture: Intro to Soil Density	Wk 5 quizzes	
		2/16	Lab 5: Soil Density		Quiz 2: Formation
6	Ch. 5	2/21	<b>Holiday</b>		
		2/23	Lab 6: Water movement	Wk 6: 2/22	
7	Ch. 5 & 6	2/28	Lecture: Soil and hydrologic cycle	Wk 7 quizzes	
		3/2	Lab 7: Infiltration/ Farm field trip		Quiz 3: physical
8	Ch. 8	3/7	Lecture: soil chemical properties	Wk 8 quizzes	
		3/9	Lab 8: Cation Exchange Capacity		
9	<b>3/14 and 3/16 Spring Break</b>				
10	Ch. 9	3/21	Lecture: pH and EC	Wk 10 quizzes	
		3/23	Lab 9: Testing pH and EC		Quiz 4: Soil water
11	Ch. 10 & 11	3/28	Lecture: Soil Biological properties	Wk 11 quizzes	
		3/30	Lab 10: Soil Ecosystem		
12	Ch. 12 & 13	4/4	Lecture: Nutrient & Nutrient cycles	Wk 12 quizzes	
		4/6	Lab 11: Nutrient testing		Quiz 5: Chemistry
13	handouts	4/11	Lecture: Soil Quality	Wk 13 quizzes	
		4/13	Lab 12: Summary of farm soils		
14	Ch. 3	4/18	Lecture: Soil Classification	Wk 14 quizzes	
		4/20	Lab 13: Soil profile description		Quiz 6: Soil Biology
15	Ch. 3	4/25	Lecture: Soil mapping and mgmt	Wk 15 quizzes	
		4/27	Lab 14: Mapping exercise		
16	Ch. 14 & 15+ Handout	5/2	Lecture: degradation & conservation	Wk 16 quizzes	
		5/4	Lab 15: Soil land classification		Quiz 7: Nutrient paper due
<b>Final</b>		<b>5/9</b>	All	8:30-10:30am	

# Required materials

## Textbook

There are only a few available textbooks for Soil classes. I use the following textbook because it is the one used at Humboldt State and other accredited universities. You have a choice of two editions. The reading assignments on canvas will show the pages for both editions.

### **This is the textbook required for this class:**

The Elements of the Nature and Properties of Soil by Nyle C. Brady and Ray R. Weil

Here is the information you need to purchase the textbook: If you find a good deal share it with others in class or online.

Textbook Edition	ISBN	Cost
3rd	0135014332	Rent: \$37 or To Buy: \$41 to \$55
4th	0133254594	Rent: \$75 or To Buy: \$115 to \$164

## Technology

- Most computers and internet providers are adequate for course success. Speedy internet access (cable, DSL, or satellite) is recommended because video lectures are a required multimedia component of the course.

## Other items you might find helpful

- Three ring binder or spiral notebook to store lab handouts

## Canvas

All content is available to you in Canvas, the official Learning Management System (LMS) of College of the Redwoods.

1. To log into Canvas, you will need to go to <https://redwoods.instructure.com>.
  - a. Your login is the same as your webadvisor login.
  - b. Unless you have changed it, your password is your 8 digit birth date (MM/DD/YYYY).
  - c. For tech help, email [its@redwoods.edu](mailto:its@redwoods.edu) or call 707-476-4160.
2. You can get additional help with online learning at <https://www.redwoods.edu/online>.
3. This is flipped classroom this means you need to view the lecture videos and read material before coming to class. You will be using Canvas more than you might realize. The lecture videos are all on Canvas along the online lecture quizzes. You will also be taking all of your lab quizzes online.
4. All content is organized in weekly MODULES. Each module has the same structure with short online videos following each short lecture. We will try to be organized and consistent, but if there is content you are looking for but can't find, PLEASE email us ASAP. There are probably other folks looking for the same thing.

# Designating pronouns in Canvas

You can designate pronouns to follow your name in Canvas. Here's how:

1. Log into Canvas.
2. Click on Account (top left menu bar thing).
3. Choose Settings from the options that appear.
4. Click on Edit Settings (to the right).
5. One of the new options in the Settings is a pronoun option dropdown.

## Preferred Name in Canvas

Students have the ability to have an alternate first name and pronouns to appear in Canvas. Contact [Admissions & Records](#) to request a change to your preferred first name and pronoun. Your Preferred Name will only be listed in Canvas. It does not change your legal name in our records. See the [Student Information Update form](#)

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# Philosophy of learning

## Learning is a PROCESS

Soil Science is the most challenging class in the Agriculture department. It is a combination of the physical (geology and physics), chemical and biological realms on earth. Learning about and making connections between each of these aspects (physical, chemical and biological) can be a ton of work. My goal is that you TRULY LEARN the material. This requires you to not only learn new concepts and memorize vocabulary but to think about what they mean and how they are related to soil function. LEARNING IS A PROCESS. This course is set up to offer plenty of opportunities to capitalize on learning opportunities and IMPROVE YOUR UNDERSTANDING OVER TIME (and consequently, your grade). Please embrace a GROWTH MINDSET in this class. A growth mindset means you are willing to learn from mistakes, ask questions and take feedback and grades as opportunities to improve yourself. Set out to truly UNDERSTAND the material, and your grade will reflect that understanding. I will do everything I can to help you along the way!

## Active Learning

Passive learning involves the instructor providing content through lecture and students regurgitating the material back on an exam. Active learning allows for the students to be active participants in the learning process. In other words you take responsibility for your own learning by collaborating and discussing with other students, asking questions and identifying and sharing new ways of looking at a topic

Studies have shown that learning happens when the neurons in your brain change the way they communicate with each other. The best way for your brain to change is to DO SOMETHING. This approach has influenced a change in teaching practices on college campuses. More instructors are moving away from a pure lecture to more active learning.

In this course you will be expected to come to lecture and lab activities ready to be an active participant. Lecture and lab will provide opportunities for hands-on and collaborative learning. You are responsible for how active you choose to be. Talking and sharing with other students is an important part of this process. Learning happens when you talk to others about what you are learning.

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# Course assessment

## Summary of Assessment categories

Course category		Percent of total grade
Lecture		
Online lecture Quizzes	5%	40%
In class lecture activities	15%	
Final	20%	
Lab		
Lab Exercises/write-ups	40%	60%
Online Lab Quizzes	20%	

## Assignment Details

- Weekly Online Quizzes (5% of total grade)  
Each week you are expected to watch online lecture videos and take short quizzes to check your understanding after each video. These should be done by Sunday night (11:59) each week. These quizzes are a good way for me to see how everyone understands the material. You can take these quizzes as many times as you want and I will keep your high score.
- Lecture Activities (15%)  
In the lecture portion of the class, you will be expected to interact in small groups or individually through hands-on learning activities. These activities will take place both inside and outside. The handouts for these activities will be due at the end of the class. There is no make-up work for lecture activities.
- Labs (40%)  
Labs start at 8:20 on Wednesday morning. There is a lab prep section in the Canvas modules with a list of things to be done before lab. Often there will be a lab handout for you to read. DO NOT PRINT this handout. I will provide all lab materials, including the handout. You are expected to come prepared to answer questions before starting the lab. These questions will be concerned with the topic of the day.
- Online lab Quizzes (20%)  
There will be 7 online lab quizzes (approximately every two weeks). These quizzes are timed and you have one attempt. The lab quizzes are due Wednesday night at (11:59pm) I usually give approximately 1 hour to take the quiz (it usually takes less). The questions on these quizzes will be more involved than the online lecture quizzes. EXTRA CREDIT can be earned by turning in written answers to the quiz study guide questions. All written response should be in your own words (any indication that responses were copied from the internet will earn a zero for the assignment). These responses can be typed and uploaded in Canvas. These are due at the same time as the quiz. There are now make-ups on lab quizzes. NOTE: The nutrient quiz will involve a one page paper on one nutrient of your choice.

- Extra credit

Extra credit can be earned in the following ways:

1. Assignments in the modules in Canvas labeled “Extra Credit” these are due by Wednesday Of the week of the Module
2. Writing or typing responses (full sentences and thorough responses in own words) to study guide questions for the Lab quizzes; due at the same time as the Lab quiz. These are worth 4 extra points but not to exceed the total points for the quiz.

- Make-up work

You can make-up the following assignments:

1. You can earn half-credit on missed lab assignments. You can answer the questions on the lab and turn them in on the Wednesday following the missed lab.
2. You can also improve your grade on lecture and lab assignments by correcting and rewriting any work you missed.

## Grades

The purpose of grading is to get an idea of how well you are mastering the material in this course. There are a many grades in the gradebook, which means you have ample opportunities to earn points and improve your grade. Everything in the gradebook is driven by your performance on the assessments in the course; lecture and lab activities, quizzes and other assignments

I will use the following scale to determine the letter grade you earn in this class.

<b>A</b> = 93-100%	<b>B +</b> = 88-89%	<b>C +</b> = 77-79%	<b>D</b> = 51 – 69%
<b>A-</b> = 90 – 92%	<b>B</b> = 83-87%	<b>C</b> = 70 -76%	<b>F</b> = 50% or below
	<b>B-</b> = 80-82%		

One more thing: The grade reported in Canvas is the grade you will earn in the course. There is no rounding up or down of the percentages. You have ample opportunities to earn points as outlined in this syllabus. Pay attention to which grade categories have the most influence on your grade.

## Organizing your week

You will definitely want to take the time to plan how you’ll complete the weekly activities. To help you do this, I’ve put together a typical week. Please use this to help you make your own plan for how you’ll complete the course requirements each week.

- Monday: come to class having watched the online lecture videos and bring notes to class be prepared to answer questions
- Tuesday: Check the lab prep section of the module. If available read over lab handout online (do not print this) lab handouts will be provided in class
- Wednesday: complete all online quizzes in the weekly module, bring notes to lab and be prepared for activities and questions
- Wednesday through Sunday: Watch lecture videos and take the online lecture quizzes

## How to watch online lecture videos and take notes

1. Make a plan on how and where to watch
2. Take notes on paper or digitally. Writing is the best way to learn!
3. Summarize what you have learned
4. Write down questions for the lecture and lab activities
5. Reward yourself for a job well done

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## Course policies

### Drop policy

It is very important that you make attendance a priority in this course. You will be dropped from the course due to the following:

3. Missing the first week of class
4. Missing 3 or more classes during the semester

### Make up policy

- There are no make-ups for lecture activities and lab quizzes
- Partial credit can be earned for missed lab activities by answering questions on the lab handout. This is DUE the Wednesday following the lab you missed. No credit if not turned in on time.

## Communication

### Communication and you

Which device is best for you to receive messages from your instructor? Text? Email? Be sure and change the contact method in Canvas so that you receive important and up to date information about field trips, quizzes and projects. Don't be left out! Here is how to do it:

1. Go to Canvas
2. Click on "Account" at the top of the far left navigation bar
3. Click on "Settings"
4. On the far right look for "Ways to Contact"
5. Change or add an email address under "Email Addresses"
6. Add a device under "Other Contacts"

Please be advised that you have a right to privacy. It is your legal right that no information about you can be disclosed to anyone (including parents/guardians) without your prior written consent.

## Communication with your class and instructor

If you have a question or concern, please contact me. I am very available to help you, as long as you are polite and respectful. Here are some guidelines to follow:

- **For Face to Face questions:** Meet me after class on Monday or Wednesday
- **For individual or personal questions:** Send an email through Canvas
- **For questions that would benefit the whole class:** 1) Ask during class 2) send a message through Pronto (an online chat program that all students can see)
- **For urgent questions:** Call me on my Cell phone
- **Always be polite.** I appreciate the stress everyone is under these days. Please work toward being open and honest and treating others with respect and care.

## Academic Integrity

There is ZERO tolerance for any form of academic dishonesty, including cheating, helping others to cheat, falsification of data, or plagiarism. However, I enthusiastically encourage you to work together in this class on many activities. If you are wondering about whether or not something would be considered cheating, please please please ask me! Let's decide together. I know you want to truly learn the content of this class, and "grades" tend to be the way we've always quantified someone's learning. We want your grade to accurately reflect your learning, and if you don't do your own work, then this won't happen. (Now...I do have to include the following information in my syllabus, for legal reasons. But please know that I trust you and am confident in your success this semester.) Academic dishonesty in any form WILL result in a formal report and details will be submitted to the appropriate authorities. Refer to the Student Code of Conduct and Disciplinary Procedures at <http://www.redwoods.edu/District/Board/New/Chapter5/Ap5500.pdf> for more information about CR policies.

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# How to be successful in this class

Soils can be a challenging course. Often students come to the course with some knowledge of soils but are blown away by the depth of information. It is important that you stay on top of the work, ask questions and be open to the learning process. Please contact me with any concerns from viewing lectures to clarifying concepts.

## Advice on how to study for this class:

1. Study soil science at least 5 times per week if not every day. Some suggestions...
  1. Read the textbook and answer the study guide questions
  2. Watch the video lectures and TAKE GOOD NOTES. Then rewrite or summarize your notes and take the online lecture quizzes often.
2. **Be conscious during video lectures. Make lists of your questions and bring them to class. When in class, interact, sit in the front, and ask questions when you don't understand something.**
3. Be diligent and disciplined in lab. It might be tempting to skate through lab, take short cuts, finish early, and essentially be a slacker. Don't! Labs are designed to offer hands-on experiences with the complex materials presented in lecture. Take advantage of this opportunity to improve your learning.
4. Stay ahead of the game. Don't miss lectures or labs, and utilize the study aids offered through Canvas.
5. If the going gets tough, READ your textbook! IT WILL HELP (especially if you use it to answer tough questions).
6. You can do this!

*This syllabus is subject to change at any time...I will be sure to let you know!*