



# Soil 252 Laboratory Spring 2021



Time (Location) –

Wednesday 1:30 – 4:00 PM (Skeen TBA)  
& Thursday 1:30 – 4:00 PM (Skeen W139)

<b>Teaching Assistants:</b>	<b>Michael Whiting</b>	<b>Sundar Sapkota</b>
<b>Office:</b>	Skeen N253	TBD
<b>Email:</b>	mikeaid@nmsu.edu	ssapkota@nmsu.edu
<b>Office Hours:</b>	Virtually on ZOOM 11:00-12:00 pm Monday or by appointment	Virtually on ZOOM 2:00-3:00 pm on Friday or by appointment

**Course Objectives:** *Let's dig deeper and discover more...* This course is designed to give the student a broad overview of the nature and properties of soils through hands-on laboratory exercises and field experiences. The goal is to give the student a better appreciation of the soils that exist around them. Students will work individually or in small groups (as specified by the instructor) in class to complete each laboratory exercise during the assigned class period.

### Learning Objectives:

- Learn techniques for *sampling and characterizing soils* in the region.
- Understand *how soils are formed and the processes* that occur within the soil profile.
- Gain fundamental knowledge on *soil physical, chemical, and biological properties* and how each can influence the overall function of a particular soil.
- Develop *critical thinking and analytical skills* within laboratory and field settings.
- Encourage collaboration, inclusiveness and critical thinking.

### Course Expectations:

Students will be required to submit lab reports for appropriate labs. The discussions and inference of results in laboratory reports should be different for each student and should be submitted individually and not in groups. Students must independently complete quizzes and final project. See “Academic Misconduct” in “student resources” link below.

- Students are responsible for both the material covered during the lab period and for what is in the lab handouts. A laboratory manual for each lab will be posted on Canvas one week before the assigned laboratory.
- Students are responsible for reading the assigned lab exercise handout **prior** to the lab meeting. The laboratory handouts will be made available for each lab on the SOIL 252L Lab Canvas site (<https://learn.nmsu.edu/>). Hard copy of each lab will be provided by the instructor.
- The lab page on Canvas is separate from the SOIL 252 main course page.

**Attendance:** Attendance is mandatory. If you know you will need to miss a lab, for a valid reason, contact Dr. Nicole Pietrasiak ([npietras@nmsu.edu](mailto:npietras@nmsu.edu)) and the lab TA for your section: Michael Whiting ([mikeaid@nmsu.edu](mailto:mikeaid@nmsu.edu)) or Sundar Sapkota ([ssapkota@nmsu.edu](mailto:ssapkota@nmsu.edu)) to see what arrangements can be made to make it up or to attend the other section. This lab course

includes field trips and you should wear appropriate clothing (hats, rugged footwear, sunscreen, etc.) and bring water as we will be spending around 2.5 hours in the sun for few field trips. Due to COVID-19 related public health guidelines (PHO) students will need to wear masks and maintain 6 feet distance at all times. Please inform your TA and course instructor as soon as possible if you unable to follow PHO.

**Grading:** SOIL 252L is a separate class from SOIL 252. Grades in one class do not influence the other. The lab is designed to support the lecture and will be coordinated with the lecture class as much as possible.

<b>10 Quizzes (10 points each) + 1 Final Quiz (50 points)</b>	<b>150 points</b>
<b>10 Lab Activities (20 points each)</b>	<b>200 points</b>
<b>Combined Lab Reports (mid-term &amp; final) 50 points each</b>	<b>100 points</b>
<b>Participation in Discussion Boards</b>	<b>30 points</b>
<b>Final Project Presentation</b>	<b>100 points</b>
<b>Participation</b>	<b>20 points</b>
<b>Total</b>	<b>600 points</b>

**Quizzes:** Each quiz is worth 10 pts and will include any information presented during the previous week's lab as well as preparatory questions from the handouts related to the current lab. Quizzes will be available to complete on CANVAS.

**Lab Activities and Lab Reports:** Lab activities will be done in groups and will allow you to improve your collaboration skills. Points will be given based on participation and attendance. Making personal calls or texting during class time will result in a zero for that day's points. Two combined lab reports (one including all labs completed before mid-term and the other including all labs completed after mid-term) should be submitted.

**Writing Assignments:** Writing assignments will contain guided response questions, critical thinking scenarios, calculations, and evaluations of lab activities. Assignment content is to be determined, and grades will reflect mastery of knowledge and thoughtful responses.

**Final Project Presentation:** This presentation will be based on the Soil Biology Lab. The student will work on their own throughout the semester and will make the presentation at the end of semester.

**Format:** Formatting for any written responses includes name, date, and lab section in the header; 12-point Times New Roman font, 1.5 spacing, and one-inch margins.

**Late Assignments:** Late assignments will be accepted but will receive a reduction of points (amount depends on the assignment) for each day it is late. Any late work can be turned in to your TA's mailbox located in the PES department office Room N127. Please inform your TA of your late submission.

- **Carry a notebook as we will be talking about the labs and making observations in the field sites. Recording your observations will be the key to write the discussion for your lab reports.**
- **All the important information will be notified on Canvas.**

<b>Title</b>	<b>Date</b>	<b>What to expect?</b>
<b>Lab 1:</b> Icebreaker and Introduction to Soils	01/27; 01/28	Icebreaker, Course objectives and overview Basic concepts: Soil and its importance, processes and formation, sampling techniques
<b>Lab 2:</b> Soil Survey & Field Trip: Soil sample collection/ Parent Material and Soil Formation (FIELD TRIP)	02/03; 02/04	Group 1: Soil sampling and preparation at two different locations, Group 2: Soil formation-factors and processes. Observations at field sites
<b>Lab 2:</b> Soil Survey & Field Trip: Soil sample collection/ Parent Material and Soil Formation (FIELD TRIP)	02/10; 02/11	Group 1: Soil formation-factors and processes. Observations at field sites Group 2: Soil sampling and preparation at two different locations,
<b>Lab 3:</b> Soil Texture (I) / Bulk Density (FIELD TRIP)	02/17; 02/18	Group 1: Determine soil texture by hand/feel in lab. Group 2: Determine bulk density of tilled and compacted soils using soil cores and conduct field soil texture by hand.
<b>Lab 3:</b> Soil Texture (I) / Bulk Density (FIELD TRIP)	02/24; 02/25	Group 1: Determine bulk density of tilled and compacted soils using soil cores and conduct field soil texture by hand. Group 2: Determine soil texture by hand/feel in lab
<b>Lab 4:</b> Field Trip: Soil Morphology (FIELD TRIP)	03/03; 03/04	Characterizing soil profile-horizon, structure, consistency, color etc.; Soil site characteristics and effervescence test Group 1: Site A Group 2: Site B
<b>Lab 4:</b> Field Trip: Soil Morphology (FIELD TRIP)	03/10; 03/11	Characterizing soil profile-horizon, structure, consistency, color etc.; Soil site characteristics and effervescence test Group 1: Site B Group 2: Site A
<b>Lab 5:</b> Soil Biology	03/17; 03/18	Prepare and manage two pots (Sterilized soil Vs. Living soil.) Students will plant seeds and observe seedling growth and overall health.
<i>SPRING BREAK MARCH 23</i>		
<b>Lab 6:</b> pH and EC (soluble salts) / Soil texture (II)	03/24; 04/25	Group 1: Acidity, classifying salt affected soils, soluble salts and electrical conductivity of soils. Group 2: Mechanical analysis of soil texture using Hydrometer method.

<b>Lab 6:</b> pH and EC (soluble salts) / Soil texture (II)	03/31; 04/01	Group 1: Mechanical analysis of soil texture using Hydrometer method. Group 2: Acidity, classifying salt affected soils, soluble salts and electrical conductivity of soils.
<b>Lab 7:</b> Soil aggregate stability (groups will be assigned an hour each)	04/07; 04/08	Determine soil aggregation by soil test kit method. Group 1: 1:30-2:30pm. Group 2: 3:00-4:00pm.
<b>Lab 8:</b> Soil Health	04/14; 04/15	Understanding soil health indicators. Determining aggregate stability and oxidizable carbon of soils
<b>Lab 9:</b> Soil Fertility	04/21; 04/22	Soil nutrients; work through worksheet Calculation based on fertilizer doses and nutrient requirement
<b>Lab 10:</b> Soil Biology Presentation	04/28; 04/29	In form of <i>class presentation (100 points)</i> – Power point presentation summarizing the results and what you learned while completing the Soil Biology Lab.
<b>Final Quiz</b>	05/05; 05/06	<i>Final Quiz (50 points)</i>

Grades in this course are assigned *without* Fractional Grading. Your final letter grade will be determined according to the following scale:

<b>Percentage of possible points earned</b>	<b>Final grade</b>
90-100%	A
80-89%	B
70-79%	C
60-69%	D
≤59%	F

## **CLASSROOM COVID-19 SAFE PRACTICES**

COVID-19 is a disease that spreads primarily from person to person. Therefore, all employees, students and visitors are expected to take personal responsibility for their own health, help protect the health of others, and keep the Aggie community safe from the spread of COVID-19 and other infections. To minimize the risk to public health presented by the spread of COVID-19 while working and learning at NMSU, students are expected to adhere to the expectations outlined in the Crimson Commitment Classroom COVID-19 Safe Practices Acknowledgement form signed in My.NMSU.edu.

## **SYLLABUS STUDENT RESOURCES & POLICIES**

Please visit <https://provost.nmsu.edu/faculty-and-staff-resources/syllabus/policies> for university policies and student services, including Discrimination and Disability Accommodation, academic misconduct, student services, final exam schedule, grading policies and more.

**Disclaimer:** The schedule is subject to change due to weather, availability of equipment or field sites. Students will be notified of any changes via email and posted on Canvas.

**Covid-19:** Please check canvas for details.

