



Syllabus: **ANR 221N Soil Science**

Course Information:

<p>Course Prefix/Number: ANR 221N-1 Semester: Spring 2020 Class Days/Times: Monday and Wednesdays, 9:15pm – 12:00pm Prerequisite: CHEM 080 or high school equivalent, or permission of instructor.</p>	<p>Credit Hours: 4 (includes lab) Course Title: Soil Science Room: I-We:mta Ki: (IWK) Room 5, S-Cuk Du'ag Maşcamakuđ (Main Campus)</p>
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Instructor Information:

<p>Name: Kimberly Danny, MS Phone/Voice Mail: (520) 383-0040 Ext 1040 Cell Phone: (928) 380-5536</p>	<p>E-mail: kdanny@tocc.edu Office location: Ha-Maşcamdam Ha-Ki: (Ed/Faculty Building) Room 121 Office hours: Mon/Wed 4-5pm Tues 10am-1pm Or by appointment</p>
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Course Description:

Fundamental principles of soil science, including the origin, nature, and classification of soils, emphasizing the chemical, physical and biological properties in relation to growth and nutrition of plants.

Student Learning Outcomes: After completion of the course students will be able to

1. Identify the Five Key Functions of Soil in our ecosystem.
2. Describe how indigenous people, including Tohono O'odham, evaluate soils.
3. Describe the factors influencing the formation of soils.
4. Recognize the distribution and use of the 12 soil orders.
5. Relate the influence of the 7 soil physical properties to the functions of soils.
6. Apply soil-water functions to soil management.
7. Associate soil aeration and soil temperature with the soil environment.
8. Recognize the nature and properties of colloidal soil properties.
9. Determine the influence of soil reaction, pH, on soil management decisions.
10. Identify the properties of alkaline and salt affected soils of arid regions.
11. Recognize the importance of soil organisms and organic matter in soil ecology.
12. List the macro-nutrient and micro-nutrient elements of soils.
13. Recognize the goals of practical nutrient management.
14. Associate the significance of soil erosion with land degradation.

15. Recognize how soils can affect plant communities and plant growth.
 16. Apply data found in the Soil Survey of the Tohono O’odham Nation to the practical use of soil science principles.

Course Structure:

Please see the Course Outline at the end of this syllabus for the general structure. Individual assignments include reading the text, answering questions in the chapter reviews, exams, research, and presenting two research projects. Students will also be expected to work in groups for laboratories held in class and for peer review of each other’s presentations. Exams, projects, chapter reviews, and research are meant to ensure a student’s understanding of the student learning outcomes discussed above.

Texts and Materials:

In lieu of a textbook, this course requires that students have their own computer. For those who do not currently have a personal computer, laptops are available for sale in the Bookstore at a reduced cost of \$286. This course has been submitted as one of the courses in which students have access to the laptops at the reduced price.

Suggested Text: Elements of the Nature & Properties of Soils. Brady, N.C. & R.R. Weil. Pearson Prentice Hall.

Useful websites:

NRCS (Natural Resource Conservation Service) soils homepage:

- <http://soils.usda.gov/>
- For instance, here’s a page on soil orders:
https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/edu/?cid=nrcs142p2_053588

National Geographic cover story about soil “The Good Earth”

- <http://ngm.nationalgeographic.com/2008/09/soil/mann-text>

***** A copy of the book is on the Course Reserve Shelf in the main library**

Evaluations and Grading & Assignments:

Your grade will be determined by the following.

Percentage	Points	Grade
90-100%	900-1000	A
80-89.9%	800-899	B
70-79.9%	700-799	C
60-69.9%	600-699	D
0-59.9%	0-599	F

Evaluation	Total Points	Number of Assignments	% of Points
Attendance	145 pts	29 classes x 5 pts each	14.5%
Discussion/Assignments	165 pts	~16 assignments x 10 pts each	16.5%

Lab Reports	390 pts	13 labs x 30 pts each	39%
Research Presentations	100 pts	1 presentation x 100 points	10%
Exams	200 pts	4 exams x 50 pts each	20%
TOTAL	1000 pts		100%

Himdag Cultural Component:

Tohono O’odham traditions and cultural beliefs will be discussed as relevant course topics, and only as appropriate to the Tohono O’odham Nation’s traditional standards for sharing information as determined by the *Himdag* committee.

Policies and Expectations:

Canvas: (<https://tocc.instructure.com/login/canvas>)

- I recommend downloading the “Canvas Student” app onto your phone or device.
- All chapter reviews, homework, lab reports, and presentations must be submitted via Canvas. I will not be excepting any assignments via email.
- Please refer to Canvas for the most up-to-date due dates.

Contacting instructor:

- If you need to get a hold of me, email or Canvas works best for me. I will try to reply within 2 days.
- I also accept text messages or voice calls to my cell phone. However, I may not respond right away.

Attendance & Participation:

- Students are expected to attend each class and arrive on time, except in the case of an excused emergency.
- Students are expected to contact instructor prior to absences, late arrival or leaving class early.
- Students are expected to come to class prepared and complete any preliminary work required as per the course schedule.
- Excused and unexcused absences, late arrivals or early departures will count against a student’s attendance record. Attendance point criteria is outlined in Canvas.

Assignments:

- If you are not able to submit an assignment on time due to an emergency or hardship, please let me know prior to the deadline so arrangements can be made.
- If you are absent on a lab day, please make an arrangement with other students to get the data you need for the lab reports.
- All chapter reviews are due 2 days before the respective exam. At 11:59 pm two days prior to the exam, the chapter reviews will close and the correct answers will appear at 12 am.

Late Work:

- Chapter reviews and homework assignments will not be reopened after their due date without prior arrangements.
- I will allow lab reports to be submitted late. However, I will grade it as if it was turned in on time, then minus 5 points for every day past the due date. On the 6th day, the report will be marked 0.

Presentations:

- Please upload the final draft of your presentation by 3:45pm on the due date.
- If you are expecting to be absent on the day of presentations, please reschedule with me prior to the due date.
- If you are absent on a presentation day without rescheduling with me beforehand or choose not to present, half of the points will be automatically deducted.

Exams:

- Exams will be conducted in class. If you plan to be absent or experience a hardship (e.g. weather, transportation), please let me know as soon as possible.
- A missed exam with no communication prior or during the class period will be marked 0.
- Make-up exams will be proctored in the main library and must be taken with 2 days of the original exam date.

Cell Phone Use:

- Excessive cell phone use (e.g. watching videos) is not allowed during class, unless permitted by instructor.
- If a student needs to respond to a phone call, please step out of the class room.

Classroom:

- Food and beverages are allowed in classrooms at the discretion of the instructor.
- Students creating disturbances that interfere with the conduct of the class or the learning of others will be asked to leave.
- Possession of drugs, alcohol or firearms on college property is illegal.
- Student behavior is also detailed in student handbook under Student Code of Conduct Violations.

Attendance Policy:

You are expected to arrive to class on time and be prepared to participate in each class period. 4 unexcused absences may result in withdrawal and a “W” or “Y” will be recorded. You may request to be excused from class for religious observances and practices, for illness, for school or work-related travel or for personal or family emergency. If you will be absent, please notify the instructor as soon as possible (approved by Faculty Senate April 2014).

Course Feedback:

All assignments will be graded and returned to the students promptly, typically within a week after the assignment is closed. E-mail and phone messages will be returned within 2 days.

A student or the instructor may request a student conference at any time during the semester. Quarterly grade reports will be provided to each student, either in person, by email or via the electronic system of Canvas.

Instructor Withdrawals:

Students who have missed four consecutive classes (or the equivalent) not submitted any assignments nor taken any quizzes by the 45th day census report, due on February 27, 2020, are assumed NOT to be participating in the class and may be withdrawn at the faculty member's discretion.

Student Withdrawals:

Students may withdraw from class at any time during the first 2/3 of the semester without instructor permission and without incurring any grade penalty. Please be sure to withdraw yourself by March 30, 2020, if you do not expect to complete the class, otherwise you may receive an "F" grade.

Incomplete Policy:

Incomplete (I) grades are not awarded automatically. The student must request an "I" from the instructor who can choose to award an Incomplete only if all three of the following conditions are met:

1. The student must be in compliance with the attendance policy.
2. The student must have unavoidable circumstance that would prohibit the student from completing the course.
3. The student must have completed over 75% of the course requirements with at least a "C" grade.

Incompletes are not a substitute for incomplete work due to frequent absences or poor academic performance. Incomplete grades that are not made up by the end of the ninth week of the following semester will be automatically changed to an F if the agreed upon work, as stipulated on the written form signed by the instructor and the student when the I grade is awarded, is not completed.

Special Withdrawals (Y) Grade:

The "Y" grade is an administrative withdrawal given at the instructor's option when no other grade is deemed appropriate. Your instructor must file a form stating the specific rationale for awarding this grade. "Y" grades are discouraged since they often affect students negatively. Your instructor will not award a "Y" grade without a strong reason.

Academic Integrity:

Violations of scholastic ethics are considered serious offenses by Tohono O'odham Community College, the Student Services Department, and by your instructor. Students may consult the TOCC Student Handbook sections on student code of

conduct, on scholastic ethics and on the grade appeal procedure. Copies are available at Tohono O’odham Community College.

All work done for this class must be your own, or the original work of your group. While you may discuss assignments with other class members, the final written project must clearly be original. You may use work from books and other materials if it is properly cited. Copying from a book without proper reference or from a person under any circumstances will result in an “F” for the assignment, and at the instructor’s discretion, possibly an “F” for the course. If you are uncertain about proper citations, ask your instructor or the librarian.

Equal Access Statement/Disability Accommodations:

Tohono O’odham Community College seeks to provide reasonable accommodations for qualified individuals with disabilities. The College will comply with all applicable regulations, and guidelines with respect to providing reasonable accommodations as required to ensure an equal educational opportunity. This process includes self-identifying as a student with a disability, providing supporting documentation of their disability, and being approved for services through the Disability Resources Office (DRO). It is the student’s responsibility to make known to their instructor(s) the student’s specific needs within the context of each class in order to receive appropriate accommodations. We will work together in order to develop an accommodation plan specifically designed to meet the individual student’s requirements.

For more information or to request academic accommodations, please contact: Anthony Osborn, TOCC Disabilities Resource Coordinator, aosborn@tocc.edu, or 520-360-5044 for additional information and assistance.

Title IX:

Tohono O’odham Community College encourages each student to have the knowledge and skills to be an active bystander who intervenes when anyone is observed or being harassed or endangered by sexual violence. Sexual discrimination and sexual violence can undermine students’ academic success and quality of life on campus and beyond. We encourage students who have experienced or witnessed any form of sexual misconduct to talk about their experience and seek the support they need.

Confidential support and academic advocacy can be found with: Student Services Title IX Coordinator/Counselor, Alberta Espinoza, M.Ed. located in I-We:mta Ki: Room 18. Phone: 520-383-0033. Email: aespinoza@tocc.edu.

Conduct: Bias, Bullying, Discrimination and Harassment

Tohono O’odham Community College faculty and staff are dedicated to creating a safe and supportive campus environment as a core value. Harassment based on age, class, color, culture, disability and ability, ethnicity, gender, gender identity and expression, immigration status, marital status, political ideology, race, religion/spirituality, sex, sexual orientation, and tribal sovereign status will not be tolerated.

Course Outline: Important Dates

DISCLAIMER: This syllabus is designed to evolve and change throughout the semester based on class progress and interests. You will be notified of changes to the schedule via Canvas.

Course Outline Key

CR-# = Chapter Review

LR-# = Lab Report

M = Monday

T = Tuesday

W = Wednesday

Thu. = Thursday

F = Friday

S = Saturday

Sun. = Sunday

WEEK	DATE	TOPIC	LAB	HOMEWORK
1	M 1/13	Syllabus Overview Introduction, function of soil		Assigned reading Discussion post due 1/19
1	W 1/15	Soil formation The scientific method How to write a lab report		
Friday 1/17: Last day to add/drop without instructor's signature Monday 1/20: Martin Luther King Jr's Day – College Closed				
2	W 1/22	Soil formation	Lab 1	LR-1 due W 1/29 Assigned reading Discussion post due 1/26
Friday 1/27: Last day to add/drop with instructor's signature Tuesday 1/28: Last day to drop with a full refund				
3	M 1/27	Soil classification		Assigned reading Discussion post due 2/2
3	W 1/29	Soil properties	Lab 2	LR-2 due W 2/3
4	M 2/3	Soil properties		Assigned reading Discussion post due 2/9
4	W 2/5	Soil mapping and soil survey Review	Lab 3	LR-3 due W 2/12
4-week progress report				
5	M 2/10	Exam 1		Assigned reading Discussion post due 1/19
5	W 2/12	Soil Survey	Lab 4	LR-4 due W 2/19
Monday 2/17: Presidents Day – College Closed				
6	W 2/19	Soil water	Lab 5	LR-5 due W 2/26 Assigned reading Discussion post due 2/23
7	M 2/24	Soil water		Assigned reading

				Discussion post due 3/1
7	W 2/26	Hydrologic cycle	Lab 6	LR-6 due W 3/4
Friday 2/27: 45-Day Census				
8	M 3/2	Soil aeration and temperature		Assigned reading Discussion post due 3/8
8	W 3/4	Soil, colloids, review	Lab 7	LR-7 due W 3/11
8-week progress report				
9	M 3/9	Exam 2		Assigned reading Discussion post due 3/22
9	W 3/11	Soil reactions	Lab 8	LR-8 due W 3/25
Monday 3/16 – Friday 3/20: Spring Break				
10	M 3/23	No Class (Tentative) - Instructor at AIHEC Spring Conference		Assigned reading Discussion post due 3/29
10	W 3/25	Saline and sodic soils	Lab 9	LR-9 due W 4/1
Monday 3/30: Last day to withdraw from classes with a "W"				
11	M 3/30	<i>Guest Lecture</i>		Assigned one of Dr. R-A's papers for reading Discussion post due 4/5
11	W 4/1	Soil organisms	Lab 10	LR-10 due W 4/8
12	M 4/6	Soil organic matter and carbon cycle		Assigned reading Discussion post due 4/12
12	W 4/8	Review	Lab 11	LR-11 due W 4/15
12-week progress report				
13	M 4/13	Exam 3		Assigned reading Discussion post due 4/19
13	W 4/15	Electro-conductivity	Lab 12	LR-12 due W 4/22
14	M 4/20	Nutrients		Assigned reading Discussion post due 4/26
14	W 4/22	Nutrient management	Lab 13	LR-13 due W 4/29
15	M 4/27	Soil conservation		Assigned reading Discussion post due 5/3
15	W 4/29	Review, Presentation preparation		
16	M 5/4	Final Exam		

16	W 5/6	Research Presentation Due		
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