SOIL 362/562 – SOIL GENESIS, MORPHOLOGY, AND CLASSIFICATION

SYLLABUS

Instructor

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TNR 278 (office hours: by appointment only due to COVID19)
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Catalog Description

3 cr. Origin, characteristics, and taxonomic groupings of soils; soil orders, mapping and interpretations also covered. Two hours lecture and two hours laboratory per week. Prerequisites are Natural Resources 251 or instructor consent.

Course Overview

This course covering soil genesis, morphology, and classification is designed for upper level undergraduate and graduate students in soils, natural resources, biological sciences, and related fields. The course is taught through a combination of lectures and hands-on laboratory and field activities. The course covers soil morphology, properties, horizons, processes and formation of soils, soil classification, and the soil orders. Required readings for each lecture and laboratory are from the listed chapters in the text and other supplemental sources posted on the course website. Competency in the course material will be assessed with via examinations and other methods listed in this syllabus.

Course Objectives

The objectives of the course are such by the end of the semester the students should be able to:

1. Understand history, properties, morphology, and characterization of soils.
2. Understand soil horizons and diagnostic horizons.
3. Understand factors and processes that lead to the formation of soils.
4. Understand and utilize principles of soil classification.
5. Understand the key characteristics of major soil orders.

Textbooks

- Buol, S.W., Southard, R.J., Graham, R.C. and P.A. McDaniel. 2011. Soil Genesis and Classification. 6th Edition. John Wiley & Sons, Inc. West Sussex, UK.

Additional References

- Keys to Soil Taxonomy. 2014. Soil Survey Staff. Twelfth Edition. USDA-NRCS. Washington, D.C.
- Illustrated Guide to Soil Taxonomy. 2014. Soil Survey Staff. First Edition. USDA-NRCS. Washington, D.C.
- Soil Taxonomy - A Basic System of Soil Classification for Making and Interpreting Soil Surveys. 1999. Soil Survey Staff. Second Edition. USDA-NRCS. Washington, D.C.

Instructor Feedback

Your opinions matter. I am always willing to hear your thoughts on the course content and my teaching methods. Please feel free to provide feedback to me at any time and using whatever methods you are most comfortable with. Student feedback will be solicited throughout the semester to improve the course and my teaching.

Evaluation and Grading

A variety of methods will be used for student evaluation. These include performance in written examinations, laboratory exercises, and soil profile of the day exercises. Grading will be based upon quality of work with components weighted as follows.

ITEM	NUMBER	POINTS
Laboratory – Exercises	10	30
Laboratory – Soil profile of the day (SPOD)	8	16
Laboratory – Soil map project	1	6
Lecture – Quizzes	6	18
Lecture – Exams	3	30
Total		100

Grading Scale

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

Extra Credit

Extra credit opportunities may be available at the discretion of the instructor.

Graduate Credit

Students enrolled in Soil 562 will meet with instructor during the first couple weeks of the course. The instructor and student will design additional activities to be completed by the graduate student for fulfillment of the requirements for graduate credit.

Attendance and Late Assignments

Students are responsible for all assigned readings, course lectures, and laboratory sessions. Laboratory exercises and soil profiles of the day will not be accepted from students missing laboratory sessions without an excused absence. Exercises and assignments submitted to the instructor late without prior approval will not be accepted and scored a zero. Deductions in points will be applied for late assignments at the instructor's discretion. Scheduling of make-up examinations will be done if an absence is due to personal illness, accident, death in the family, or a circumstance deemed legitimate by the instructor. Prior approval is required for make-up examinations. Make-ups for field trips are not available. Students wishing to attend alternate laboratory sections must have prior approval from the instructor.

Lecture

The lecture component of this course is being delivered asynchronous online. A lecture schedule is provided to assist you in keeping on track in the course. The lecture materials will be posted on the course website and include pdf version of the powerpoint, a video of the instructor delivering the lecture, and any assigned readings. Lecture quizzes and exams will be posted on the course website. Students must complete the quizzes and exams on or by the posted dates in the lecture schedule. It is the responsibility of each student to adhere to the lecture schedule. Please make time in your weekly schedule to complete the readings, watch the videos, ***take notes***, and take the quizzes and exams. Please contact the instructor if you have questions, comments, or concerns.

Lecture Discussion

A weekly synchronous meeting will occur on ***Thursdays at 1200-1250***. The weekly synchronous meeting will be held on Zoom or in-person at an outside location on the UWSP campus TBD. During this meeting the instructor will review some important topics which were covered during the lectures for that week. This time will also be used for any questions on the course materials. The instructor will record the Zoom meeting and post the recording to the course website. In-person meetings may or may not be recorded and posted. The instructor reserves the right to cancel the weekly synchronous meeting. The instructor may cancel the meeting if student attendance is low. ***Attendance of the weekly discussion is optional, but highly recommended.***

Lecture Schedule*

WK	DATE	TOPIC	READING	QUIZ
1	1/26	Syllabus	n/a	
	1/28	Introduction	Ch 1: 3-8; 12-23; 29-34	
2	2/2	History	Ch 1: 8-11; 22-29	
	2/4	Morphology	Ch 2: 35-45; 76-87	QUIZ 1
3	2/9	Characterization	Ch 2: 62-76	
	2/11	Horizons	Ch 2: 45-50	
4	2/16	Diagnostic horizons	Ch 2: 51-62	QUIZ 2
	2/18	**EXAM 1**		
5	2/23	Parent materials	Ch 3: 89-102	
	2/25	Climate	Ch 3: 102-112	
6	3/2	Organisms	Ch 3: 118-129	
	2/4	Relief	Ch 3: 113-118	
7	3/9	Time	Ch 3: 129-140	QUIZ 3
	3/11	Processes	Ch 4-5: 141-179	
8	3/16	Classification	Ch 6: 181-232	QUIZ 4
	3/18	**EXAM 2**		
9	3/23	***Spring Break***		
	3/25			
10	3/30	Entisols	Ch 11: 283-292	
	4/1	Inceptisols	Ch 14: 321-330	
11	4/6	Andisols	Ch 9: 249-264	
	4/8	Vertisols	Ch 19: 385-396	
12	4/13	Histosols	Ch 13: 307-320	
	4/15	Aridisols	Ch 10: 265-282	
13	4/20	Gelisols	Ch 12: 293-306	QUIZ 5
	4/22	Mollisols	Ch 15: 331-348	
14	4/27	Alfisols	Ch 8: 233-248	
	4/29	Spodosols	Ch 17: 361-374	
15	5/4	Ultisols	Ch 18: 375-384	
	4/6	Oxisols	Ch 16: 349-360	
16	5/11	Artesols	n/a	QUIZ 6
	5/13	**EXAM 3**		

*The lecture schedule is subject to modification. The instructor will inform students if, and when, schedule alterations occur.

Laboratory

The laboratory component of this course is being delivered in-person and online by request. A laboratory schedule is provided to assist you in keeping on track in the course. The laboratories may include an exercise handout, videos, powerpoints, and other materials. Laboratory assignments will be submitted on the course website. ***Students are required to read all laboratory materials and watch any videos before arriving to laboratory at the scheduled time.*** Time will not be available for students to read and review the laboratory materials during the laboratory period. The instructor will assume that all students have read and reviewed the laboratory materials before arriving in laboratory.

Laboratory Cohorts and Meeting Locations

Due to COVID19 restrictions we will be splitting the laboratory sections into cohorts. Each cohort can have a maximum of 10 students. Students will remain in the cohort and work in the assigned timeslot throughout the entire semester. The cohort meeting times and locations are listed in the table below. During the first eight weeks of the semester, we will meet in TNR 262 and TNR 255. TNR 262 will be used to work on the SPOD and has a room capacity of four students. TNR 255 will be used to work on the laboratory exercise for the day and has a room capacity of seven students. Students will work in both rooms to complete the laboratory activities while adhering to the room capacity limitations. During the last eight weeks of the semester students will either work online or meet and conduct the laboratory exercise in the Schmeeckle Reserve.

COHORT	DAY	TIME	STUDENTS
1-Entisol	Monday	0900-0950	(10) Mark Cook, Owen Murphy, Isabel Krueger, Michelle Fellion, John Haas, Brett Hilliard, Garrett Klepitsch, Gabrielle Bolwerk, Brett Peabody, Ryan Carroll
2-Inceptisol	Monday	1000-1050	(10) Grace Van Hammond, Sully Phillips, Emma Marchese, Bradley Gumtow, Kortney Woldt, Travis Treml, Nathanial Weisenbeck, Adam Laehn, Nick Krohn, Samuel Krebsbach
3-Histosol	Monday	1400-1450	(10) Shannon O'Fallon, Joey Collura, Davis Christensen, Parker Witt, Ethan Hadler, Julia Miranda, Emily Kruzicki, Noelle Vallee, Connor Bell, Colten Lecher
4-Spodosol	Monday	1500-1550	(10) Steph Kumbier, Bree Bazile, Olivia Rauen, Andrew Forster, Dane Loberg, Anastasia Wallner, Jacob Piper, Jonah Freuler, Gabriel Spangler, Jovanna Erickson
5-Alfisol	Thursday	1500-1550	(10) William Dykstra, Ryan Taugher, Mitchell Kelley, Andrew McCann, Emily Yulga, Justin Nowak, Eli Halverson, Colton Lemke, Graham Mulder, Maxwell Richards
7-Artesol	Online	Online	(5) Abby Carr, Aubree Hagen, Kayla Littleton, Earl Funmaker, Hunter Willman

Laboratory Open Hours

TNR 262 is reserved every Friday from 1000-1600 for open lab. The lab is open to all during this time, but we must adhere to the room capacity guidelines of five people at maximum. I will be available for as much of this time as possible. Please contact me if you would like to ensure I am available for your questions during this time.

Laboratory schedule

WK	DATE	LOCATION	TOPIC	SPOD
1	1/25 or 1/28	TNR262/255	Introduction	SPOD 1
2	2/1 or 2/4	TNR262/255	Properties	SPOD 2
3	2/8 or 2/11	TNR262/255	Horizons	SPOD 3
4	2/15 or 2/18	TNR262/255	Diagnostic horizons	SPOD 4
5	2/22 or 2/25	TNR262/255	Parent materials – rocks	SPOD 5
6	3/1 or 3/4	TNR262/255	Parent materials – minerals	SPOD 6
7	3/8 or 3/11	TNR262/255	Climate	SPOD 7
8	3/15 or 3/18	TNR262/255	Classification	SPOD 8
9	3/22 or 3/25	***Spring break***		
10	3/29 or 4/1	Online	Geographic information systems	n/a
11	4/5 or 4/8	Schmeeckle	Relief	n/a
12	4/12 or 4/15	Schmeeckle	Organisms	n/a
13	4/19 or 4/22	Schmeeckle	Soil map project	n/a
14	4/26 or 4/29	Schmeeckle	Soil map project	n/a
15	5/3 or 5/6	Schmeeckle	Soil map project	n/a
16	5/10 or 5/13	Online	Soil map project	n/a

*The laboratory schedule is subject to modification. The instructor will inform students if, and when, schedule alterations occur.

Special Accommodations

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

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.

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.

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.