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

SYLLABUS

Instructor

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TNR 278 (office hours are Wednesdays at 1200-1300 or by appointment)
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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. 2022. Soil Survey Staff. 13th Edition. USDA-NRCS. Washington, D.C.
- Illustrated Guide to Soil Taxonomy. 2014. Soil Survey Staff. 1st 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.

Evaluation and Grading

A variety of methods will be used for student evaluation. These include performance in quizzes and examinations, laboratory exercises and projects, and soil profile of the day exercises. Grading will be based upon quality of work with components weighted as follows. *The instructor reserves the right to adjust any grades based on student participation and professionalism.*

ITEM	NUMBER	POINTS
Laboratory – Exercises (3 points each)	10	30
Laboratory – Soil profile of the day (SPOD) (1 point each)	10	10
Laboratory – Soil map project (9 points)	1	9
Lecture – Quizzes (3 points each)	6	18
Lecture – Exams (11 points each)	3	33
Total	n/a	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 week 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.

Participation 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.

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.

Lecture

Lectures are on Tuesdays and Thursdays at 1000-1050 in TNR120.

A lecture schedule is provided below. Lecture materials will be posted on the course website and will include copies of the powerpoints, readings, and other materials. Students are responsible for attaining and studying these materials. Students must come to lecture having previewed the materials for each lecture.

To succeed in this course, students must prepare for lectures, attend and actively participate in lectures, take notes, and ask questions. Please contact the instructor if you have questions, comments, or concerns on how to do this.

Lecture quizzes and exams are due on the dates listed in the schedule below. Quizzes and exams will be given in person or on the course website.

*The lecture schedule is subject to modification. The instructor will inform students if, and when, schedule alterations occur. #This lecture or portions of it will not be given in person. ^National Soil Judging Competition and the instructor will not be available for in person lecture for these dates.

Lecture Schedule*

WK	DATE	TOPIC	READING	QUIZ
1	1/23	Introduction	Ch 1: 3-8; 12-23; 29-34	
	1/25	History#	Ch 1: 8-11; 22-29	
2	1/30	Morphology#	Ch 2: 35-45; 76-87	QUIZ 1
	2/1	Characterization#	Ch 2: 62-76	
3	2/6	Horizons	Ch 2: 45-50	
	2/8	Diagnostic horizons	Ch 2: 51-62	QUIZ 2
4	2/13	*Extra time and/or review*		
	2/15	**EXAM 1**		
5	2/20	Parent materials	Ch 3: 89-102	
	2/22	Climate	Ch 3: 102-112	
6	2/27	Organisms	Ch 3: 118-129	
	2/29	Relief	Ch 3: 113-118	
7	3/5	Time	Ch 3: 129-140	QUIZ 3
	3/7	Processes#	Ch 4-5: 141-179	
8	3/12	Classification	Ch 6: 181-232	QUIZ 4
	3/14	*Extra time and/or review*		
9	3/19	**Spring Break**		
	3/21			
10	3/26	*Extra time and/or review*		
	3/28	**EXAM 2**		
11	4/2	Entisols	Ch 11: 283-292	
	4/4	Inceptisols	Ch 14: 321-330	
12	4/9	Andisols	Ch 9: 249-264	
	4/11	Vertisols	Ch 19: 385-396	
13	4/16	Histosols	Ch 13: 307-320	
	4/18	Aridisols	Ch 10: 265-282	
14	4/23^	Gelisols#	Ch 12: 293-306	QUIZ 5
	4/25^	Mollisols#	Ch 15: 331-348	
15	4/30	Alfisols	Ch 8: 233-248	
	5/2	Spodosols	Ch 17: 361-374	
16	5/7	Ultisols	Ch 18: 375-384	
	5/9	Oxisols	Ch 16: 349-360	QUIZ 6
17	5/16	**EXAM 3 (1015-1215)**		

Laboratory

Laboratory meetings are in TNR262. Section 1 meets Mondays at 1000-1150. Section 2 meets Mondays at 1400-1550. Section 3 meets Tuesdays at 1400-1550.

The laboratory schedule is shown below. Laboratory materials include exercise handouts, powerpoints, and other materials. Students are required to study all laboratory materials prior to 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.

TNR262 is reserved every Friday from 0900-1600 for open lab. The instructor will be available for as much of this time as possible. Please contact the instructor if you would like to ensure availability for your questions during this time.

*The laboratory schedule is subject to modification. The instructor will inform students if, and when, schedule alterations occur. #Laboratory meets in the computer laboratory for this date. ^National Soil Judging Competition and the instructor will not be available for in person lecture for these dates.

Laboratory schedule

WK	DATE	LOCATION	TOPIC	SPOD
1	1/22 or 1/23	TNR262	Properties	SPOD 1
2	1/29 or 1/30	TNR262	Horizons	SPOD 2
3	2/5 or 2/6	TNR262	Diagnostic horizons	SPOD 3
4	2/12 or 2/13	TNR262	Parent materials – rocks	SPOD 4
5	2/19 or 2/20	TNR262	Parent materials – minerals	SPOD 5
6	2/26 or 2/27	TNR262	Climate	SPOD 6
7	3/4 or 3/5	TNR262	Classification	SPOD 7
8	3/11 or 3/12	Computer lab#	Geographic information systems	n/a
9	3/18 to 3/19	**Spring break**		
10	3/25 or 3/26	TNR262	*Extra time and/or review*	SPOD 8
11	4/1 or 4/2	Schmeeckle	Relief	SPOD 9
12	4/8 or 4/9	Schmeeckle	Organisms	SPOD 10
13	4/15 or 4/16	Schmeeckle	Soil map project	n/a
14	4/22 or 4/23^	Schmeeckle	Soil map project	n/a
15	4/29 or 4/30	Schmeeckle	Soil map project	n/a
16	5/6 or 5/7	Computer lab#	Soil map project	n/a

Special Accommodations

UW-Stevens Point will modify academic program requirements as necessary to ensure that they do not discriminate against qualified applicants or students with disabilities. If modifications are required due to a disability, please contact the Disability and Assistive Technology Center (DATC). If you have a documented disability and verification from DATC and wish to discuss academic accommodations, please contact your instructor. It is the student's responsibility to provide documentation of their disability to DATC and meet with a Disability Services counselor to request special accommodation before classes start.

Health and Safety

The health and safety of our students, faculty and staff are top priorities. Please monitor your health, including your mental health. If you are not feeling well and/or may be contagious, please do not come to class. As with any type of absence, students are expected to complete the course requirements as outlined in the syllabus.

Emergency procedures

In the event of a medical emergency, call 911 or use the red emergency phones located throughout the campus. Offer assistance if trained and willing to do so. Guide emergency responders to victim. In the event of a tornado warning, proceed to the lowest level interior room without window exposure. Avoid wide-span rooms and buildings. In the event of a fire alarm, evacuate the building in a calm manner and meet outside the building. Notify instructor or emergency command personnel of any missing individuals. In the event of an active shooter, run, escape, hide and fight. If trapped hide, lock doors, turn off lights, spread out and remain quiet. Follow instructions of emergency responders. See UW-Stevens Point Emergency Management Plan at www.uwsp.edu/rmgt for details on all emergency response at UW-Stevens Point.

Use of Course Materials

Lecture and laboratory materials 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 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

UWSP students must maintain high degrees of professionalism and commitment to active learning. You are expected to maintain integrity in your behavior in and out of the classroom. Cheating and/or plagiarism will not be tolerated under any circumstance. Any student found guilty of either will be prosecuted following UWSP Academic Honesty Policy and Procedures.

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 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.