Spring 2-1-2021

# NRSM 210N.00: Soils, Water and Climate

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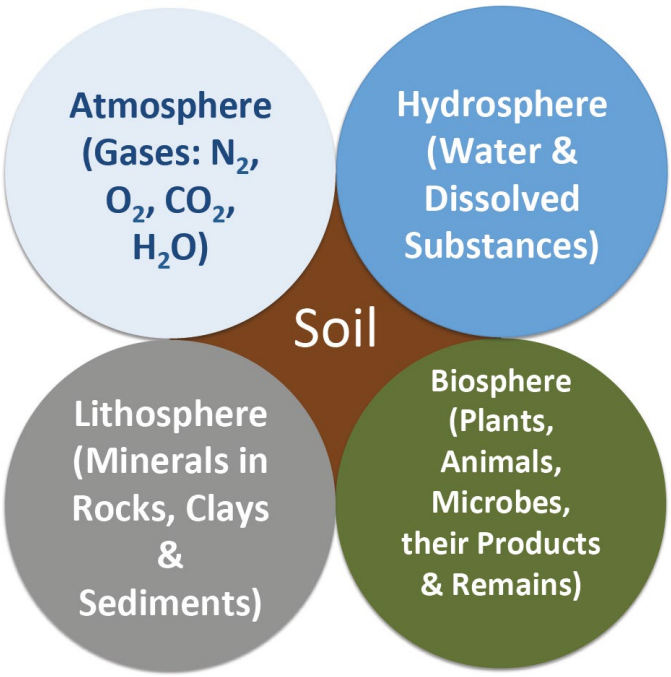
**NRSM 210N – Soils, Water & Climate**

## Course Description

The factors affecting Earth's terrestrial ecosystems are rapidly changing, and understanding their capacity to provide important services to humanity is becoming increasingly important. In this course, students will explore how soils, water, and climate interact to shape Earth's biosphere. We will introduce students to a number of fundamental concepts in soil science, hydrology, and climate to gain a comprehensive view on factors shaping and affecting all terrestrial ecosystems. Through a series of lectures and field-based laboratories, students will be introduced to the important climate factors that influence soil development, how they vary across spatial scales, how variations in the main drivers of soil development affect water retention and water movement in soils, the dynamics of chemical movement in soils, soil morphology, and the interactions between climate, water, soils, and vegetation on the landscape.




## Learning Outcomes

Students will examine properties and processes of Earth's climate and hydrologic systems, and investigate how variations in climate influence both hydrology and soil across the landscape. Over the course of the semester, students will learn a suite of climate, hydrology and soil analysis techniques, and will develop the skills to measure, describe and understand the relationship among climate, hydrology, soils, and vegetation on the landscape. Students will be introduced to atmospheric science, hydrologic science, and soil science through a number of field and lab-based exercises that investigate how these factors influence the ecosystems around us. Students will demonstrate learning through a series of exams and practical laboratory reports and projects. At the end of the course students will understand how the climate system operates, and how it influences ecosystem hydrology, soils and vegetation patterns across the landscape. You will greatly benefit from reading your assigned chapters from the lab book and textbook prior to coming to both lecture and lab. Good luck, and enjoy the class

**NRSM 210 – Soils, Water & Climate**
**Spring 2021**
***Course Details***

**Instructors:**

**Name:** Dr. Kelsey Jencso (Lead Instructor)
**Department:** Forest Management
**Office:** CHCB 423A (The Science Complex)
**Phone:** 243-6793
**Email:** kelsey.jensco@umontana.edu
**Office Hours:** 1:00-1:50 PM, Tuesdays and Thursdays

**Name:** Dr. Cory Cleveland
**Department:** Ecosystem & Conservation Sciences
**Office:** CHCB 423B (The Science Complex)
**Phone:** 243-6018
**Email:** Cory.Cleveland@umontana.edu
**Office Hours:** 9-9:50 AM, Tuesdays and Thursdays (by appointment via Zoom)

***Lecture* location *& Time:***

The course will meet synchronously from 10:00 AM – 10:50 AM on Tuesdays and Thursdays. We encourage all students to attend the synchronous lectures whenever possible. However, all lectures will be recorded and links will be made available for students who are unable to attend lecture synchronously.

**Computer Resources Needed:**

To be successful in this class, at a minimum, all students need access to a computer that allows them to do the following things. If you do not have access to a computer with the following capabilities, please notify Dr. Jencso:

1. Log on and participate in classes remotely via UM's Zoom platform. All lectures and labs will meet via Zoom.
2. Access all content and use all features in UM's Moodle platform.
3. Word processing capabilities, preferably MS Word.
4. Access, download, and open Powerpoint-based lectures uploaded to Moodle.
5. A working version of Excel. At least some of the labs will require students to learn and use Excel to manipulate data and produce graphs. Access to a current version of the Microsoft Office platform that includes Word, Excel, and Powerpoint should also be available via IT.
6. A working version of Adobe Acrobat (Reader), preferably with the ability to convert MS Office files to PDFs.
7. Ability to access and use YouTube (and all internet content), where lab videos will be posted.
8. Internet access to the online version of the textbook.

****Course Zoom link:***

https://umontana.zoom.us/j/95576343511?pwd=UHFBNGdTNUxyUi9YVmtZU2hUb294dz09
Passcode: 210210

*Note: This link will be used for all course lectures and lab sections.

## Required Text:

***– A Custom Edition for Soils, Water & Climate.*** 2020. Pearson Publishing.

This is a custom, electronic textbook and is available from Pearson. To purchase online with a major credit card or PayPal, go to: https://console.pearsoned.com/enrollment/dxyfnl. Once you create an account (user name and password) you will be able to purchase the electronic text. After purchasing, you will receive a confirmation email with another link that you will use to access the material. We suggest you bookmark this link for easy access. ***Please see below for more information on accessing the textbook.***

### Additional Course Materials & Information:

The course content will be available on UM Moodle. On the Moodle site, you will need to enter your Net ID and password to access the course schedule, lab manual, and material to supplement lectures, including some outside readings. Whenever possible, lecture notes will be posted on the Moodle page before lectures but may be modified post-lecture according to how much was covered in class. All exams and lab assignment must be uploaded to designated folders on the Moodle site – **we will not accept emailed assignments.**

## Lab Instructors/TAs:

At least initially, TA's will not plan to hold regular office hours. To meet with your lab instructor/TA, please email them directly to schedule an appointment.

Kimberly Bolhuis: kimberly.bolhuis@umconnect.umt.edu
Hilary Schultz: hilary1.schultz@umontana.edu
Rebekah Brassfield: rebekah.brassfield@umontana.edu

## Lab location & Time:

Labs will meet remotely on Zoom from 2:00 PM – 4:50 PM Mon-Fri (unless otherwise noted), starting the week of March 8. As with lecture, lab sections will meet synchronously, and we encourage all students to attend the synchronous labs whenever possible. However, all lab sessions will be recorded and links will be made available for students who are unable to attend synchronously. We also expect that students will attend their regularly scheduled lab. If, for some reason, you cannot attend you scheduled lab one week, please email your assigned TA and make arrangements to attend another lab.

**Lab Book:**

The *Climate, Water and Soils Lab Manual* will be available on Moodle in late February/early March. Please read the assigned lab material before coming to lab each week. Quizzes prior to each week's lab are fair game.

**Course Assignments and Grading*:**

Grades will be computed from the following four components:

- Lab assignments, homework, quizzes, etc. (25%)
- Exam 1 (25%)
- Exam 2 (25%)
- Exam 3 (25%)

* Please note, this class is offered for traditional letter grade only, it is not offered under the credit/no credit option.

**WARNING:** There will be NO MAKEUP EXAMS and NO MAKEUP LABS except under very unusual circumstances. If you miss a lab, you should make plans to attend another. Participation in lab, as measured by completed assignments, is not optional. Students that do not turn in more than one lab assignment will not pass the lab, and students who do not pass lab will not pass the course. Finally, students with more than one failing grade on the three midterm exams will not pass the course.

## *Class Attendance Policies*

Students are strongly encouraged to attend all class meetings and complete all assignments for courses in which they are enrolled (either synchronously or asynchronously). Instructors may excuse brief and occasional absences for reasons of illness, injury, family emergency, religious observance or participation in a University sponsored activity (University sponsored activities include for example, field trips, ASUM service, music or drama performances, and intercollegiate athletics). Instructors shall excuse absences for reasons of military service or mandatory public service.

## *Recommended Preparation*

- Successful completion of a university-level chemistry course (e.g., CHMY 121N). This is recommended but not required.
- Come to class and be prepared to participate.
- Before class, read the assigned material and be prepared to answer questions. Quizzes covering the reading are fair game.
- Check Moodle a few days following the lecture for possible changes to posted lecture materials and to begin review.
- Turn in assignments on time.
- To pass this course, you MUST have a passing grade in the lab, so plan accordingly. This means no more than one absence from lab, and passing performance (average) on the laboratory assignments.

## ***Other, Warnings, Caveats, Red Tape, and University Considerations***

You are expected to read the assigned material, and will be responsible for its content. We will ask a lot of you in this class, and expect a high level of commitment to the course. A knowledge of the factors that determine ecosystem structure and function is integral to understanding a range of critical environmental issues the world now faces. Just like in many areas of science, to deal with those issues, you must first learn the basics of the discipline. And hopefully along the way you have some fun!

## ***Students with Disabilities***

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with DSS, please contact DSS in Lommasson 154 or 406.243.2243. We will work with you and DSS to provide an appropriate modification. The laboratory portion of the course is field based and may require some strenuous activity.

### ***Course Withdrawal Deadlines and Drop/Add Policies***

After registering and through the **first seven (7) instructional days of the semester**, students may use Cyberbear to add courses or change sections and credits; through the **first fifteen (15) instructional days of the semester**, students may use Cyberbear to drop courses. Fees are reassessed on the sixteenth day of the term. Added courses and credits may result in additional fees. For courses dropped by the fifteenth instructional day, no fees are charged and courses are not recorded. (For deadlines and refund policy for withdrawal from all courses, see the Withdrawal sections of the catalog.)

The Office of the Registrar has previously required paper forms for students to add, drop, or change classes after the 15th instructional day (or equivalent for summer). Workflow now allows students to collect the required permissions to complete a registration change without paper.

**Beginning the sixteenth (16) instructional day of the semester through the forty-fifth (45) instructional day,** students use the Course Add Change Drop link in Cyberbear under Student Services to drop or add a course, make changes of section, and change grade/credit options. For instructions on how a student submits a Course Add Change Drop request in Cyberbear go to: http://www.umt.edu/registrar/PDF/PaperlessDropsAddsChangesforStudents.pdf.

A $10.00 processing fee is charged for each drop/add request that is approved. Added courses and credits may result in additional fees. There are no refunds or reductions of fees for courses dropped and grades of W (withdrew) are recorded.

**Beginning the forty-sixth (46) instructional day of the semester through the last day of instruction before scheduled final examinations,** students use the Course Add Change Drop link in Cyberbear to drop or add a course, make changes of section, and change grade/credit options. However, if a student submits a request to drop a course after the 45th instructional day of the semester, Workflow requires approval not only from the instructor of the course and the student's advisor, but also from the Dean(designee) of the student's major. A $10.00 processing fee is charged for each approved request. There are no refunds or reductions of fees for courses dropped, and the instructor assigns a grade of WP

(withdrew/passing) if the student's course work has been passing or a WF (withdrew/failing) if the course work has been failing. These grades do not affect grade averages but they are recorded on students' transcripts.

The opportunity to drop a course for the current term for such a course ends on the last day of instruction before scheduled final exams. Dropping a course taken in a previous term or altering grading option or audit status for such a course is not allowed. The only exceptions are for students who have received a grade of NF (never attended).

Course withdrawal deadlines are published on the UM Website prior to the start of each semester.

**Finally, the usual rules concerning academic honesty apply in this course.**

All students must adhere to UM policies on academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. Academic misconduct includes plagiarism. Don't plagiarize someone else's work, period.

**Detailed instructions for accessing the course textbook**

1. Follow the link https://console.pearsoned.com/enrollment/dxyfnl to purchase or access book.
2. If you don't have an account already, create one. Follow steps for account verification though email, and phone for password recovery. If you have an account already, use this account to purchase the course book.
3. 
    a. Students, please click the "I have not yet purchased this material" hyperlink under the yellow "Sign In" button. You will then be prompted to purchase the book. You will need a major credit card.
4. Once purchased, navigate to your Course Materials section within Pearson's website. You should be taken there automatically.
    a. At this step, make sure you are filtering your visible course materials by "Courses I'm taking", not "Courses I'm teaching". That's where you should find your book.
5. Navigate to the book. Once opened, bookmark this screen and pin the new bookmark to your browser's bookmark bar. This will be MUCH easier than trying to sign in and find the book every time.
    a. Sign out and clicked your bookmark several times to make sure you can always access the book after being prompted to sign back in. Use this bookmark throughout the semester for accessing the textbook.

**Note:** Unfortunately, there is not a laptop/computer download option for Collections, but there is an app for offline use on a mobile device (phone or tablet). All Collections are available on the Pearson e-text downloadable and available offline via the following link: https://www.pearson.com/us/higher-education/products-services-teaching/course-content/textbooks-and-etexts/pearson-etext-app.html