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Spring 2-1-2022

### GEO 102N.50: Introduction to Physical Geology

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# Introduction to Physical Geology Lab

GEO102N OL

## COURSE SYLLABUS

Course Rubric and Title:	GEO102N Introduction to Physical Geology Lab
Semester Credits:	1 credit (online)
Professor:	Ashley Preston
Office:	MC405, Missoula College
Email:	<a href="mailto:ashley.preston@umontana.edu">ashley.preston@umontana.edu</a>
Office Hours:	TuTh 10:30 – 11:30 or by appt.; Zoom link in Moodle shell

**Course Description:** Offered autumn and spring. Prereq. or coreq., GEO 101N. A series of laboratory and field experiences designed around basic geologic processes and materials. Familiarization with common minerals, rocks, land forms, and structures is required. Intended to provide laboratory experience for GEO 101N. Gen Ed Attributes: Natural Science Course (N). Offered at Missoula College spring semester

**Course Overview:** This lab is designed to complement the lecture class GEO101 – Introduction to Physical Geology and to introduce you to lab work in geology. The objective is to familiarize you with basic geologic concepts and the methods used to study them. The lab emphasizes observation and description, building a “geologic toolbox,” and applying these skills to interpreting geologic structures and processes.

A series of exercises and labs provide a basic working knowledge of Earth, its materials, structures, and processes and their interactions.

There will be a lab assignment or exam almost every week. Labs will consist of brief introductory readings followed by instructions on how to complete the required task—hands-on work with rocks, earth materials, maps, models of geosciences processes, etc.

- **COVID and online specific addendum:** This is an online lab and so we may need to adapt the laboratory experiences to your specific location and available resources. In addition, if you are mobility impaired or have other limitations, we will need to work together to develop alternative but comparable labs. It is your responsibility to get with me early and often to alert me to any special circumstances or constraints.

**Required Text:** Tillery, Bill. 2020. *Physical Science*, 12<sup>th</sup> edition. McGraw-Hill Higher Education. ISBN: 9781260150544; Moodle resources; lab manual (online in Moodle)

**Student Learning Outcomes:** Upon completion of this course, the student will be able to demonstrate an ability to apply lecture material to the lab setting, including:

- Understand and be able to use the basic units for geologic measurement and appreciate the vast spatial and temporal scales involved in geosciences.
- Develop an appreciation for and basic working knowledge of geologic time, fossilization, and the tools geologists use to date geologic events.
- Understand the means by which minerals are classified, and be able to recognize basic rock-forming minerals through direct observation.
- Describe the basic elements of Earth’s plate tectonic system and the means by which we *know* this.
- Develop an understanding of plutonic and volcanic rocks, how these are recognized, and how they originate.
- Classify sedimentary rocks, sediment textures, and learn how ancient environments are interpreted from the sedimentary rock record.
- Explain metamorphism, what causes rocks to metamorphose, and identify basic metamorphic rocks.
- Identify basic geologic structures such as folds and faults and relate each to the type of stress involved.
- Describe the major tectonic settings and ways in which mountains are formed.
- Understand Earth’s fresh water resources, including groundwater, streams, lakes, and wetlands; how these interact and how human activities have impacted water resources.
- Recognize different glacial erosional landforms and deposits.

- Recognize basic desert landforms and understand basic desert processes.
- Understand how atmospheric conditions create weather and climate.
- Understand the methods for collecting climate change data and evaluate the certainty of predictions based on that data.

## Assessment Methods and Grading

- Your grade for this class will be based on 13 labs/activities/exercises (you will drop your lowest lab score).  
Note: **Missed work/activities/labs cannot be made up** without prior approval. Contact me **in advance** of the due date to make arrangements to complete the work if you foresee any upcoming conflicts. You will receive a 0 for any work not completed on time.  
**Late assignments are not accepted.** You will receive a 0 for any assignment not submitted by the due date and time.
- Each lab is worth 50 points.
- The course is worth a total of 600 points.

### Grading Scale

**A grade of 70% (C-) is required to pass this class. Please note: I do not round up—the first two numbers of your grade are your grade. Check Moodle often to keep track of your grades.**

A- = 90 – 92.99; A = 93 - 100;

B- = 80 – 82.99; B = 83 – 86.99; B+ = 87 – 89.99

C- = 70 – 72.99; C = 73 – 76.99; C+ = 77 – 79.99

D- = 60 – 62.99; D = 63 – 66.99; D+ = 67 – 69.99

F = 59 and below

## Topical Weekly Schedule Spring 22—tentative\*

All labs are due on Sunday night at 11:55 p.m. MST of the week they are assigned unless otherwise noted.

Week	Lab	Reading
Week 1	No labs	NA
Week 2	Lab 1: What's your Latitude?	Earth in space
Week 3	Lab 2: Name that Rock...or is it a Mineral?	Rocks and Minerals
Week 4	Lab 3: The making of a theory	Plate Tectonics
Week 5	Lab 4: Name that fault, or fold, or...?	Building Earth's Surface
Week 6	Lab 5: Volcanoes and earthquakes	Building Earth's Surface
Week 7	Lab 6: Tearing it Down	Shaping Earth's Surface
Week 8	Lab 7: A LONG, LONG Time Ago	Geologic Time
Week 9	Lab 8: Life Through Time	Geologic Time
Week 11	Lab 9: Rivers of air	Earth's Atmosphere
Week 12	Lab 10: TBD	Earth's Atmosphere
Week 13	Lab 11: CC Evaluating the methods and data	Weather & Climate
Week 14	Lab 12: TBD	Weather & Climate or Waters
Weeks 15	Lab 13: Earth's Waters	Earth's Waters
Week 16	Lab 14: TBD	

\*tentative and subject to change as the semester evolves and our resources vary

**When conditions permit you may be required to go out into the field to make observations and collect data.**

## Course Accommodations Statement (DSS)

*Students with disabilities may request reasonable modifications by contacting me. The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and [Disability Services for Students \[DSS\]](#).*

*"Reasonable" means the University permits no fundamental alterations of academic standards or retroactive modifications. 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, call 243-2243 (voice/TDD), or see <http://www.umt.edu/dss/>. I will work with you and DSS to provide an appropriate modification.*

Make an appointment or stop by (via Zoom) during office hours to talk about your accommodations and how to use them for this course. If you plan on using an accommodation for an assignment, you must let me know in advance. I will do my best to grant the

accommodation if it does not undermine the objectives of the assignment. However, you must contact me prior to the due date—even better, prior to the start of the assignment—to let me know if you will need to use an accommodation that allows for an extension on the deadline. I cannot grant a deadline extension retroactively.

### **Important Dates and Deadlines (Registrar's Office)**

Click on <https://www.umt.edu/registrar/calendar.php> to see the calendar for important dates and deadlines about adding, dropping, payment, withdrawals, etc.

### **Student Conduct Code**

In an effort to ensure that students are informed about the consequences of academic misconduct, the Academic Officers of The University of Montana have determined that the following statement must be present on every course syllabus. You will be held to these standards in this course.

*All students must practice 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](#).*

Plagiarism will not be tolerated. The U of M's student Conduct Code defines plagiarism as "Representing another person's words, ideas, data, or materials as one's own or the student's own previous work as if it were the student's own original work." Students may be asked for their research or sources at any time. Plagiarism will be handled in strict accordance with the University of Montana Student Conduct Code.

### **Email policy at UM**

According to the University email policy effective on 1 July 2007, an "employee must use *only* UMM assigned student email accounts for all email exchanges with students, since such communication typically involves private student information." This means that you *must* send any correspondence through your official UM student email account. For more information on setting up and using your official UM student email account contact tech support.

**My policy:** I strive to respond to all emails within 24 hours, excluding holidays and weekends. I do not check emails on the weekends or after 5 on weekdays so take care to plan your correspondence accordingly.

### **Diversity, Equity, and Inclusivity**

Missoula College values the diversity of its students, faculty, and staff as an essential strength that contributes to our shared educational mission. Students of all backgrounds and perspectives are recognized and respected in this class. Course content and activities are intended to honor diversity of gender, sexuality, ethnicity, race, culture, religion, age, disability, socioeconomic status, and all dimensions of diverse human experiences and their intersection. Please notify your instructor if components of this course present barriers to your inclusion. Students can also reach out to Dr. Salena Beaumont Hill in the [Office of Inclusive Excellence for Student Success](#), which provides student support for BIPOC and LGBTQ+ students and student groups. To explore making a formal report about discrimination or harassment, please visit the [Equal Opportunity / Title IX office](#). For counseling or advocacy related to discrimination, please visit [SARC](#).

### **Student Support Resources (including COVID-Specific Policies and Information)**

*Keep yourself updated and informed as policies evolve. Prepare to adapt*

From the Office of the Provost: [Student Support Resources](#)

### ***COVID-specific Student Accommodations from the UM Administration***

As usual, students needing accommodations must work with Disability Services for Students (DSS). DSS will work with students and instructors to facilitate student accommodations.

If an undergraduate student becomes sick and needs to quarantine, they should inform their advisor for help staying on track academically.