

# Introduction to Physical Geology (GEO 101N, Sect. 01, 3 credits) Spring, 2012

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**Class Meetings:** MWF from 11:10 AM - 12:00 PM, CHCB 131

**Office Hours: Wednesday and Friday 10-11 AM.** Please do not hesitate to contact me to arrange another meeting time.

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**Required materials:** 1) *Essentials of Geology (3e)*, Marshak (ISBN 978-0-393-93238-6)  
2) Iclicker (classroom response system) (ISBN: 0716779390)

**Course Description:** This course is an introduction to geoscience; the study of how the Earth works. Humans around the world are impacted everyday by geologic hazards, such as earthquakes, volcanoes, and floods, and also by access to natural resources, such as oil and gas, metals, and water. This course will help you to develop a new sense of appreciation of the natural world around you, an understanding of the physical processes that have gone into making the Earth as we know it, and an awareness of how Montana fits into the global picture. This knowledge will help you make intelligent decisions about issues that affect humankind.

**Course Objectives:** After completing this course, you will be able to:

- *describe, analyze, and assess the geologic features, events, and processes that impact your daily life*
- *analyze information (e.g., from graphs, rocks, maps, etc.) to reach reasonable conclusions*
- *use evidence to support an interpretation or explain a concept*
- *understand the general principles associated with the discipline of geosciences including:*
  - 1) *Geoscientists use repeatable observations and testable ideas to explain and understand our planet*
  - 2) *Earth is 4.6 billion years old and has a complex and varied history*
  - 3) *Earth is a complex system of interacting rock, water, air, and life*
  - 4) *Earth is continuously changing, primarily due to active plate tectonics*
  - 5) *Humans depend on Earth for resources that are formed by geologic processes*
  - 6) *Natural hazards pose risks to humans and must be understood in order to minimize and mitigate risks*
  - 7) *Humans significantly alter the Earth and geologic processes have in turn impacted the development of human civilization*

**Moodle:** We will be using a Moodle online course supplement. Moodle is the program for online components of courses. You can log into Moodle by going to either OneStop and then UOnline, or directly to UOnline from the UM homepage. You will see the geology course listed when you enter Moodle. On the UOnline homepage, there are resources you can use to familiarize yourself with Moodle (UM Online Orientation and UOnline 101). If you have technical problems with Moodle, call the UOnline Techs at 243-4999 (during regular working hours only) or email them. To obtain your NetID, go to <http://www.umt.edu/it/support/accessres/netid.php>

**Communication:** Please note as I will only use your official UM email to communicate with you. If you don't wish to use this as your primary email you should set it to forward to another email viewer. **It is your responsibility to make sure you get messages sent to your UM email address.**

**Textbook:** *Essentials of Geology, 3<sup>rd</sup> Ed., by Stephen Marshak*. The textbook is required. The textbook is also available for purchase as an online book through the following link <https://www.wwnorton.com/orders/custombooks/BrwChapters.aspx?ceid=396> (the link lists spring, 2011, but the chapters are the same this year). The textbook is also on reserve at Mansfield Library (2 copies). Assigned readings should be read *prior* to the class in which the material will be discussed.

**iclicker:** The iclicker will be used at every class period. The purpose of the iclicker is to give the instructor feedback on student understanding as well as to monitor participation. You can purchase your clicker at the bookstore or elsewhere. You should try to obtain your clicker as soon as possible so that you can begin using it in class. Used ones are fine, but it must be the iclicker model – other brands will not work. Use your iclicker once in class. Then go to the website ([www.iclicker.com](http://www.iclicker.com)) and register it. **Use your NetID** (the user name that you use when logging into Blackboard) when registering your clicker and enter your name as it appears in the official university directory. Course credit for clicker use in class will begin **Monday, January 30<sup>st</sup>**. **Note that using another student's clicker to class in their absence is considered academic dishonesty – this will result in will both receive a zero for iclicker for the semester and will be subject to academic penalty by the University.**

**Participation:** because of the structure of this class, **attendance is not only recommended, it is effectively mandatory (iclicker = 15%)**. There is overwhelming evidence that there exists a positive correlation between attendance and academic success.

**Assessment:** Exams 1, 2 and 3 – 50 % total, lowest of the three dropped  
Final Exam (**required**) – 25%  
Clicker points – 15%  
Reading quizzes and geotours – 10%

**Final grade:** This course must be taken for a traditional letter grade to apply it to Gen Ed requirements. The following scale can be adjusted at my discretion.

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 63-66%
D- 60-62%	F 59 or below			

**Extra Credit** – Optional Saturday Field Trip (participation and short assignment): 5%. Other options will be offered on the Blackboard site. **Maximum extra credit per student is 5% of course grade.**

**Reading Quizzes and Geotours:** Assigned reading quizzes and geotours can be found on the Moodle course supplement. The due dates are listed on the schedule below. You can take the quizzes as many times as you like up to the deadline time given – your highest scoring attempt (out of 20 points) will be recorded for your grade. The quiz will not be available after the due date/time listed.

Information needed to complete Geotours, which are questions on observation of satellite and other data using Google Earth can be found on the Moodle site. You can either do these exercises on your own computer, or use Google Earth in one of the UM computer labs.

**Exams:** There will be three midterm exams and a final exam (which will include a comprehensive portion), all multiple choice scantron exams. All material covered in lecture, text, and assignments (see schedule below) is fair game. Exams will have a different format than you are probably used to in that they will in part be collaborative. Details will be given in class about this test-taking method. Makeup exams will be allowed only for university-sponsored events and for extraordinary circumstances – please note that your lowest-scoring midterm of the three will be dropped. All students are required to take the final exam.

**Studying & Time Expectations:** A standard benchmark for studying for a college science class is **2-3 hours of work outside of class for each hour in class**. This means that for our 3-hour class, you should plan to spend 6-9 hours per week outside of class. Part of that time you will be reading the textbook chapters. Some of the time will be spent working on quizzes or discussing/studying with other students in the class.

**Papers:** Do not give a peer or a professor any kind of paper unless you have kept a copy! The professor reserves the right to ask for a second copy of anything you have handed in.

**Students with Disabilities:** Whenever possible, and in accordance with civil rights laws, the University of Montana will attempt to provide reasonable modifications to students with disabilities who request and require them. Please feel free to setup a time with me to discuss any modifications that may be necessary for this course. For more information, visit the *Disability Services for Students* website at [www.umt.edu/dss/](http://www.umt.edu/dss/)

**Academic Integrity:** 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. The Code is available for review online at [http://life.umt.edu/vpsa/student\\_conduct.php](http://life.umt.edu/vpsa/student_conduct.php).

**Classroom courtesy:** This will be a large class and the classroom can be expected to be full. Please be considerate of your classmates. Please do not engage in extraneous talking and other distracting behavior in the classroom. Use of cell phones, ipods and other handheld devices is not acceptable in the classroom.

## GEO101-01 Spring, 2012 Course Schedule

Date		Chapter in <i>Essentials of Geology</i>	Online quiz/Geotour (due date/time)
Jan. 23	M	Intro and Ch. 1 - The Earth in Context	
Jan. 25	W	Ch. 1 - The Earth in Context	
Jan. 27	F	Ch. 1 - The Earth in Context	
Jan. 30	M	Ch. 2 - The Way the Earth Works: Plate Tectonics	Ch. 1 quiz – Due Mon., 1/30, 10:30 AM
Feb. 1	W	Ch. 2 - The Way the Earth Works: Plate Tectonics	
Feb. 3	F	Ch. 2 – The Way the Earth Works: Plate Tectonics	
Feb. 6	M	Ch. 2 – The Way the Earth Works: Plate Tectonics	Ch. 2 quiz – Due Mon., 2/6, 10:30 AM
Feb. 8	W	Ch. 3 – Patterns in Nature: Minerals and Interlude A – Rock Groups	
Feb. 10	F	Ch. 4 – Magma and Igneous Rocks	Geotour 2 – Due Fri., 2/10, 10:30 AM
Feb. 13	M	Ch. 4 – Magma and Igneous Rocks	Ch.3 and 4 quiz – Due Mon., 2/13, 10:30 AM
Feb. 15	W	Ch. 4 – Magma and Igneous Rocks	
Feb. 17	F	Ch. 5 – The Wrath of Vulcan: Volcanic Eruptions	
Feb. 20	M	<b>Washington-Lincoln Day Holiday</b>	No reading quiz due – study for exam.
Feb. 22	W	<b>MIDTERM EXAM #1 (Ch. 1-4, Int. A)</b>	
Feb. 24	F	Ch. 5 – The Wrath of Vulcan: Volcanic Eruptions	
Feb. 27	M	Interlude B – A Surface Veneer <u>and</u> Ch. 6 – Sedimentary Rocks	Ch. 5 and 6 quiz – Due Mon., 2/27, 10:30 AM
Feb. 29	W	Ch. 6 – Pages of Earth's Past: Sedimentary Rocks	
Mar. 2	F	Ch. 7 – Metamorphism	
Mar. 5	M	Ch. 7 – Metamorphism <u>and</u> Interlude C – The Rock Cycle	Ch. 7 quiz – Due Mon., 3/5, 10:30 AM
Mar. 7	W	Ch. 8 – A Violent Pulse: Earthquakes	
Mar. 9	F	Ch. 8 – A Violent Pulse: Earthquakes	
Mar. 12	M	Ch. 8 – A Violent Pulse: Earthquakes	Ch. 8 quiz – due Mon., 3/12, 10:30 AM
Mar. 14	W	Interlude D – Seeing Inside the Earth	
Mar. 16	F	Ch. 9 – Deformation and Mountain Building	

Mar. 19	M	Ch. 9 – Deformation and Mountain Building	No reading quiz due – study for exam.
Mar. 21	W	<b>MIDTERM EXAM #2 (5-8, Int B/C/D)</b>	
Mar. 23	F	Interlude E – Fossils and Evolution and Ch. 10 – Time	
Mar. 26	M	Ch. 10 – Deep Time: How Old is Old?	Ch. 9 and 10 quiz – due Mon., 3/26, 10:30 AM
Mar. 28	W	Ch. 10 – Deep Time: How Old is Old?	
Mar. 30	F	Ch. 12 – Energy and Mineral Resources	
<b>Apr. 2,4,6</b>		<b>Spring Break</b>	
Apr. 9	M	Ch. 12 – Energy and Mineral Resources	Ch. 12 quiz and Geotour 9 – due Mon., 4/9, 10:30 AM
Apr. 11	W	Ch. 12 – Energy and Mineral Resources	
Apr. 13	F	Interlude F – Intro. to Hydrologic Cycle and Ch. 14 – Streams	
Apr. 16	M	Ch. 14 – Running Water: The Geology of Streams and Floods	Ch. 14/16 quiz – due Mon., 4/16, 10:30 AM
Apr. 18	W	Ch. 16 – A Hidden Reserve: Groundwater	
Apr. 20	F	Ch. 16 – A Hidden Reserve: Groundwater	
Apr. 23	M	Ch. 16 – A Hidden Reserve: Groundwater	No reading quiz due – study for exam.
Apr. 25	W	<b>MIDTERM EXAM #3 (covers Ch. 9, 10, 12, 14, Int E/F)</b>	
Apr. 27	F	Ch. 18 – Amazing Ice: Glaciers and Ice Ages	
Apr. 30	M	Ch. 18 – Amazing Ice: Glaciers and Ice Ages	Ch. 18/19 quiz– due Mon.,4/30,10:30 AM
May 2	W	Ch. 19 – Global Change in the Earth System	
May 4	F	Ch. 19 – Global Change in the Earth System	
		<b>FINAL EXAM: 10:10 AM - 12:10 PM, Thursday, May 10 (Part 1: Ch. 16,18,19; Part 2 is comprehensive)</b>	

Tentative date for optional field trip: Saturday, April 14

**The above schedule, policies, procedures, and assignments for this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better student learning.**