

# Introduction to Physical Geology (GEO 101N-01, 3 credits) Spring, 2017

**Instructor:** Dr. Kathleen Harper  
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**Office:** CHCB 371  
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**Class Meetings:** MWF from 11:00 AM - 11:50 PM, CHCB 131

**Office Hours: Monday and Wednesday 10-11 AM or by appointment.** Please do not hesitate to contact me to arrange to meet at another time.

**Course Description:** This course is an introduction to geosciences; the study of how Earth works. Humans around the world are impacted every day by interaction with our planet, including geologic hazards and access to natural resources. This course will help you to develop your understanding of both the physical processes that have gone into making the Earth what it is today, and an awareness of how Montana fits into the global picture.

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

- describe, analyze, and assess the geologic features, events, and processes that impact your life
- use evidence (e.g., from graphs, rocks, maps, etc.) 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) Geologic processes have impacted the development of human civilization and the actions of humans can significantly impact the Earth

## Required materials:

- 1) **Essentials of Geology (5<sup>th</sup> Edition), Steven Marshak (ISBN: 978-0393601107) including online access to Norton Smartwork website**
- 2) **Iclicker remote (classroom response system), simple version OK (ISBN: 0716779390) or REEF app**

**Textbook:** Both the textbook and access to the Norton Smartwork website are essential for this course. There is an ebook option (purchase through Norton Smartwork link on Moodle). Access to the Norton Smartwork website access is included with a new text. For registration info, see [Online Assignments](#) below. New textbooks at the bookstore have a Geotours workbook packaged with them for no additional cost (the paper Geotours workbook is optional, as you can access the info online).

One copy of [Essentials of Geology](#) is on reserve at the Mansfield Library circulation desk. It is most effective for your learning to read chapters of the text prior to the class in which they will be discussed.

**Moodle:** You will be using Moodle to see your grades, access course documents, access and register for Smartwork and register an iclicker remote. Access the Moodle course supplement by going to UOnline from the UM homepage. Log on with your NetID. GEO101 will be listed when you enter Moodle. For Tech Support, call the UOnline Techs at 406.243.4999 or 866.225.1641 (toll-free) or email them at [umonline-help@umontana.edu](mailto:umonline-help@umontana.edu). They are available from 8 AM to 5 PM, Monday through Friday.

**Online Assignments (Smartwork and Geotours):** Access Norton Smartwork using the links on the course moodle page, then follow the directions to enter an access code or choose other options. You will have three attempts at each question with no time limit for the Smartwork and Geotour assignments.

If you do not have a paper Geotour workbook, you will find the instructions and text of Geotour questions within the assignment on Smartwork. Your grades should be transferred fairly quickly, but not always totally instantaneously, to the Moodle gradebook as long as you enter Smartwork using the moodle links.

**Please note that the Norton website has its own technical support staff.** Please do not email me for technical support or help with your Smartwork account access. Norton tech support has extended hours including evenings and weekends. The online chat option is the best way to get your question answered quickly. The (green) chat box should appear **after you have submitted the online help request ticket**. Please do let me know if you think your responses have been scored incorrectly or have a question about the accuracy of an exercise.

**iclicker:** The purpose of the iclicker is to give the instructor feedback on student understanding as well as to monitor participation. The browser/app version, REEF polling, is an option. Info at [www.iclicker.com](http://www.iclicker.com) Course credit for clicker use in class will begin **Wednesday, Feb. 1. Register your iclicker remote on the course Moodle site (look for this under the "Course Tools" section).**

**Note that using another student's clicker in class is considered academic dishonesty – this will result in both students receiving zero iclicker points for the semester and will be subject to academic penalty by the University.**

**Assessment:** Exams 1, 2, and 3 – 40% total, lowest of the three dropped  
Final Exam (required) – 20%  
Smartwork and Geotour assignments – 20%  
In-class assignments\* – 10%  
iclicker response – 10%

\* one in-class assignment will be dropped

\* three iclicker days will be dropped

**Final grade:** This course must be taken for a traditional letter grade to meet the Natural Sciences General Education requirement. A minimum final grade of C- is required to meet a Gen Ed requirement.

The following scale may 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- 0-62%	F 59 or below			

**Exams:** There will be three midterm exams and a final exam (a portion of which will cover topics from the whole semester). Exams will include multiple choice and questions with written answers, which may include simple sketches and labelling of diagrams. All material covered during class meetings, in the text, and in other required assignments may appear on exams. Makeup exams will be allowed only for university-excused events and for extraordinary circumstances. If you need to request/discuss a makeup exam, it is required that you contact me in advance of the exam date and as early as possible. The lowest of your three midterm grades will be dropped (including a score of zero for a non-excused missed exam). **All students are required to take the final exam.**

**Extra Credit:** **Maximum extra credit that can be earned is 5% of course grade.**

Activities will include possible field trip, online exercises, and other independent activities TBA.

**Communication:** Please note that I will only use your official UM email. This is required by UM to comply with FERPA (the Federal Educational Rights and Privacy Act). **It is your responsibility to make sure you read messages sent to your UM email address in a timely manner.**

**Studying & Time Expectations:** A standard benchmark for a college course 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 on reading the textbook chapter, doing assignments and other forms of study.

**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 set up a time to meet 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://www.umt.edu/vpsa/policies/student\\_conduct.php](http://www.umt.edu/vpsa/policies/student_conduct.php)

**Classroom courtesy:** Please do not engage in extraneous talking and other distracting behavior in the classroom. Use of cell phones, laptops, and other electronic devices for purposes other than participating in class is distracting and disrespectful and is not acceptable in the classroom.

## GEO101-01 Spring, 2017 Course Schedule

<b>Date</b>	<b>Day</b>	<b>Chapter in <i>Essentials of Geology 5e</i></b>	<b>Assignments in addition to textbook reading...</b>
Jan. 23	M	Intro to Course. Prelude – And Just What is Geology?	
Jan. 25	W	Ch. 1 The Earth in Context	
Jan. 27	F	Ch. 1 The Earth in Context	
Jan. 30	M	Ch. 1 The Earth in Context	Syllabus Quiz and Ch. 1 Smartwork, due midnight <b>Sun 1/29</b>
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 Smartwork, due midnight <b>Sun 2/5</b>
Feb. 8	W	Ch. 3 Patterns in Nature: Minerals	
Feb. 10	F	Ch. 3 Patterns in Nature: Minerals	
Feb. 13	M	Interlude and begin Ch. 4 Magma and Igneous Rocks	Ch. 3 Smartwork, also Geotour B (Tectonics), due midnight <b>Sun 2/12</b>
<b>Feb. 15</b>	<b>W</b>	<b>EXAM #1 (covers Ch. 1, 2, 3)</b>	
Feb. 17	F	Ch. 4 Up from the Inferno: Magma and Igneous Rocks	
<i>Feb. 20</i>	<i>M</i>	<i>President's Day Holiday</i>	Ch. 4 Smartwork due midnight <b>Mon 2/20</b>
Feb. 22	W	Ch. 5 The Wrath of Vulcan: Volcanic Eruptions	
Feb. 24	F	Ch. 5 The Wrath of Vulcan: Volcanic Eruptions	
Feb. 27	M	Ch. 5 The Wrath of Vulcan: Volcanic Eruptions	Ch. 5 Smartwork, also Geotour E (Volcanoes), due midnight <b>Sun 2/26</b>
Mar. 1	W	Ch. 6 Pages of Earth's Past: Sedimentary Rocks	
Mar. 3	F	Interlude B (omit B3) and Ch. 6. Pages of Earth's Past: Sed. Rocks	
Mar. 6	M	Ch. 7 Metamorphism: A Process of Change	Ch. 6-7 Smartwork due midnight <b>Tues 3/7</b>
<b>Mar. 8</b>	<b>W</b>	<b>EXAM #2 (covers Ch. 4, 5, 6, 7)</b>	
Mar. 10	F	Ch. 10. Deep Time: How Old is Old?	
Mar. 13	M	Ch. 10. Deep Time: How Old is Old?	
Mar. 15	W	Ch. 10. Deep Time: How Old is Old?	Ch. 10 Smartwork due midnight <b>Tues 3/14</b>
Mar. 17	F	Ch. 9 Crags, Cracks and Crumples: Crustal Deform. and Mtn. Building	
		<i>Mar. 20-24 Spring Break</i>	

<b>Date</b>	<b>Day</b>	<b>Chapter in <u>Essentials of Geology 5e</u></b>	<b>Assignments in addition to textbook reading...</b>
Mar. 27	M	Ch. 9 Crags, Cracks and Crumples: Crustal Deform. and Mtn. Building	
Mar. 29	W	Ch. 8 A Violent Pulse: Earthquakes	Ch. 9 Smartwork due midnight <b>Tues 3/28</b>
Mar. 31	F	Ch. 8 A Violent Pulse: Earthquakes	
Apr. 3	M	Ch. 8 Earthquakes and Interlude D. Seeing Inside the Earth	Ch. 8 Smartwork and Geotour H (EQ), due midnight <b>Sun 4/2</b>
Apr. 5	W	Ch. 12 Riches in Rock: Energy and Mineral Resources	
Apr. 7	F	Ch. 12 Riches in Rock: Energy and Mineral Resources	
Apr. 10	M	Ch. 12 Riches in Rock: Energy and Mineral Resources	Ch. 12 Smartwork due midnight <b>Sun 4/9</b>
<b>Apr. 12</b>	<b>W</b>	<b>EXAM #3 (covers Ch. 10, 9, 8, 12)</b>	
Apr. 14	F	Ch. 14 Running Water: The Geology of Streams and Floods	
Apr. 17	M	Ch. 14 Running Water: The Geology of Streams and Floods	Ch. 14 Smartwk. and Geotour N (Streams), due midnight <b>Tues 4/19</b>
Apr. 19	W	Ch. 16 A Hidden Reserve: Groundwater	
Apr. 21	F	Ch. 16 A Hidden Reserve: Groundwater	
Apr. 24	M	Ch. 18 Amazing Ice: Glaciers and Ice Ages	Ch. 16 Smartwork due midnight <b>Sun 4/23</b>
Apr. 26	W	Ch. 18 Amazing Ice: Glaciers and Ice Ages	
Apr. 28	F	Ch. 18 Amazing Ice: Glaciers and Ice Ages	
May 1	M	Ch. 19 Global Change in the Earth System	Ch. 18 Smartwork and Geotour R (Glaciers) due midnight <b>Sun 4/31</b>
May 3	W	Ch. 19 Global Change in the Earth System	
May 5	F	Ch. 19 Global Change in the Earth System	Ch. 19 Smartwork due midnight <b>Sun 5/7</b>
		<b>Final Exam – Part I: Ch. 14, 16, 18, 19; Part 2: cumulative multiple choice. Tuesday, May 9 10:10-12:10</b>	

**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.**