

GEO102 – Introduction to Physical Geology Lab – Fall, 2019

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This course is designed to complement the lecture class GEO101 – Introduction to Physical Geology through a series of exercises and labs that provide a basic working knowledge of Earth, its materials, structures, and processes. Along with GEO101, this course is designed to provide a broad introduction to Earth's resources on which we depend and the interactions between humans as inhabitants of Earth and Earth's natural geologic processes.

Below is a list of the main **learning objectives** of this course:

- 1) Understand and be able to use the basic units for geologic measurement and appreciate the vast spatial and temporal scales involved in geosciences.
- 2) Develop an appreciation for and basic working knowledge of geologic time, fossilization, and the tools geologists use to date geologic events.
- 3) Understand the means by which minerals are classified, and be able to recognize basic rock-forming minerals through direct observation.
- 4) Describe the basic elements of Earth's plate tectonic system.
- 5) Develop an understanding of plutonic and volcanic rocks, how these are recognized, and how they originate.
- 6) Be able to classify sedimentary rocks, sediment textures, and learn how ancient environments are interpreted from the sedimentary rock record.
- 7) Be able to explain metamorphism, what causes rocks to metamorphose, and identify basic metamorphic rocks.
- 8) Describe 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.
- 10) Understand Earth's fresh water resources, including groundwater, streams, lakes, and wetlands; how these interact and how human activities have impacted water resources.
- 11) Recognize different glacial erosional landforms and deposits.
- 12) Recognize basic desert landforms and understand basic desert processes.
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Your part in this class:

This course will utilize the book *Laboratory Manual for Introductory Geology* by Allan Ludman and Stephen Marshak. The book is available from the UM bookstore.

To succeed in this class, you must acquire a copy of the book *Laboratory Manual for Introductory Geology* and study it carefully; you must come to all lab sessions and complete all labs on time. Also, you must attend a mandatory geology field trip on Sunday, October 6.

Course Grading: Your grade for this class will be based on each of your labs, as well as a midterm and final exam.

Required Field Trip: This course has a required field trip that will be held on Sunday, October 6. We will leave campus at 9am via school bus and be out in the field until about 4pm. More information on the field trip will be forthcoming, but please reserve the date now.

Course Schedule:

Here is the day-to-day schedule for the class, including the basic topics covered and Earth2 chapters that you will need to read and study for each exam:

Week 1, starts Aug. 26:	No labs	NA
Week 2, starts Sept. 2:	Setting the Stage	Chapter 1
Week 3, starts Sept. 9 :	Plate Tectonics	Chapter 2
Week 4, starts Sept. 17:	Minerals	Chapter 3
Week 5, starts Sept. 23:	Rock Cycle and Igneous Rocks	Chapter 4 (part) and 5
Week 6, starts Sept. 30:	Sedimentary Rocks	Chapter 6
Sunday, October 6	Required all-day geology field trip 9-5	NA
Week 7, starts Oct. 7 :	Metamorphic Rocks	Chapter 7
Week 8, starts Oct. 14:	Landforms and Topo Maps	Chapter 8 and 9
Week 9, starts Oct. 21:	Midterm	
Week 10, starts Oct. 28:	Geologic Structures	Chapter 10
Week 11, starts Nov. 4:	Earthquakes	Chapter 11
Week 12, starts Nov. 11:	Geologic History	Chapter 12
Week 13, starts Nov. 18:	Streams, Groundwater	Chapter 13, 14
Week 14, starts Nov.25:	No Labs except for Section 1 (Vets Day makeup)	
Week 15, starts Dec. 2:	Glaciers, Deserts, and Shorelines	Chapter 15-17
Dec. 9-13 – Final Exam	Final Exam	Time and date depend on section

STUDENT CONDUCT CODE: Please be familiar with the UM Student Conduct Code. The Student Conduct Code can be found at: <http://www.umt.edu/student-affairs/community-standards/Student%20Conduct%20Code%20-%20FINAL%20-%2008-24-18.pdf>.

Course Accommodations (DSS): Students with disabilities will receive reasonable accommodations in this course. To request course modifications, please contact me as soon as possible. I will work with Disability Services in the accommodation process. For more information, visit the Disability Services website (<https://www.umt.edu/dss/>) or call 406.243.2243 (Voice/Text).