

Physical Geology GEOL 101-001 – Spring 2021

Lecture Syllabus

Lecture type: ONLINE SYNCHRONOUS: Through Blackboard Collaborate Virtual Classroom.

Lecture time: Monday and Wednesday, 5:55 to 7:10 PM

Instructor: Dr. G. Mattiotti; **E-mail:** gkysar@gmu.edu

Office Hours: Tuesday 9-11 AM or by appointment. Office hours take place in the blackboard general course room.

Instructional Material

Textbooks are necessary but there is no textbook that substitutes for studying effectively. You have options for the textbooks, choose what you think works best for you:

1 – 1 – From the bookstore or publisher: [Essentials of Geology, 13/E](#) Lutgens, Tarbuck, and Tasa, Prentice Hall editor. Ancillary material from the publisher are not required nor suggested.

Used, and/or loose-leaf copies are acceptable. The 12th edition of the textbook is also acceptable. OR

2 - Open source (free):

- An Introduction to geology by C. Johnson, M. Affolter, P. Inkenbrandt, and C. Mosher <http://opengeology.org/textbook/>
- Physical geology, 2nd edition by S. Earle <https://opentextbc.ca/physicalgeology2ed/> both links are available also on blackboard.

Additional course materials: Pdfs of the lecture-course notes, lecture activities, test and test practice are available to the students through Blackboard*. Notes for each lecture will be posted the day before class.

Course Objectives and Learning Outcomes

This course will provide an introductory knowledge of Physical Geology and the integrated Earth Systems. The course covers knowledge about minerals, the origin and variety of rocks and their importance as resources and the Earth processes that shape the world in which we live. The course covers the main natural hazards that stem from Earth processes and their related risks. This course presents the theory of plate Tectonics within a framework of scientific reasoning. This includes examination of how scientific ideas evolve with societal changes and technological improvements. The course includes a final module on Planetary geology.

Students who apply themselves to the study of the course material will develop an appreciation of how Earth system components interplay to provide both resources and challenges to our livelihood on this planet and to become conversant about the multidisciplinary nature of the Earth Sciences. Successful students will be able to reason about natural processes that characterize the dynamic nature of the Earth and consequently to make informed decisions regarding personal and societal actions. After taking this GEOL 101 class, students will never look at the world in the same way they did before!

**Lecture powerpoint slides, notes, any course materials, tests, outlines, and similar materials posted on blackboard are protected by U.S. copyright law and/or are intellectual property of the course instructor.*

You may take notes and make copies of course materials for your own use but you cannot repost on the web or distribute in any format outside the class.

Course prerequisite

There are no prerequisites for this class.

Course delivery mode: online synchronous with recording of live session

All classes are offered through Blackboard Collaborate Ultra Virtual Classroom. The lectures are delivered in Synchronous mode and a live recording of the lecture will be available to the students who cannot attend the live lecture or wish to review the lecture at a later time.

Course Assessment and Grading Scale

By staying enrolled in this course, acknowledge the following:

GEOL 101 grade is based on Lecture and Laboratory scores. Assessment of the lecture section is based on the results of 3 equally weighted exams, all multiple choice, 50 questions. All three lecture exams count, NO lowest score exam will be dropped.

All exams are taken during class time. Each exam covers 1/3 of the semester and it is NOT cumulative. There is no final exam, however, exam 3 is taken on the day of the final exams as scheduled by the registrar and will be limited to 75 minutes (since it is not a final exam). Online exams are available on blackboard through Respondus Lockdown browser only (no camera). All exams are taken individually, students taking the exams abide by the code of academic integrity.

The final grade for GEOL 101 is calculated as follows, with no exceptions: 25% (1st exam) + 25% (2nd exam) + 25% (3rd exam) + 25% (lab score) =100%.

- Course work total score will generate a letter grade as detailed in the grading scale.

A+ ≥99;	A ≥95% to >99	A- % ≥90% <95%
B+ ≥87% to <90%;	B ≥83% to <87%;	B- ≥80% to <83%
C+ ≥80% to <75%	C ≥70% to <75%;	C- ≥65% to <70%
D ≥55% to <65%;	F <55%	
- No final curve, unless the end-of-semester final average for the whole class (based on all lecture exams and lab scores) falls below 80%
- Absence/fail to submit an exam will result in a 0 (zero) score for that exam. No make-ups granted unless extenuating circumstances occur (see below).
- NO Extra-credit available. During lecture, there will be opportunities to collect additional points by working at active and collaborative learning activities. These points will be added to your exams and will be the sole opportunities for additional course points, provided they are completed during class time. Extra-credit based on individualized assignment will not be granted under any circumstance because it is unfair to the rest of the class.

Laboratory

This course has an associated portion that will start on the week of February 2. Your laboratory instructor will contact the students enrolled in the class about the steps to obtain the lab material.

General Course Policies

You are responsible for reading attentively this syllabus. By staying enrolled in this course, you agree to the following course policies:

- **Communications: Email** is the official way of communicating with students. Any email from me will come from gkysar@gmu.edu or through blackboard. In accordance with protection of privacy best practices, I will not respond to email sent from non GMU email account. It is your responsibility to make sure that your GMU email is set up properly and to check your email regularly. Your email must have a subject line because emails without subject are filtered as spam mail.
- **Class etiquette:** All students in attendance have the right to a quiet and welcoming learning environment even in a virtual classroom. Since 100+ students are enrolled in class, please mute your microphone during live lecture time. You can ask questions anytime by typing in the chat box or using the microphone once the floor is open for Q&A. Class disruption of any sort will not be tolerated.
- **Use of Camera:** To save bandwidth, we will not use the personal cameras regularly during class, unless instructed to do so.
- Extenuating circumstances might occur that prevent you from taking an exam. If such circumstances can be justified, a make-up session will be arranged. Should you realize you cannot take an exam as scheduled, inform the professor immediately. As per GMU policy on religious festivities, you must inform the instructor at the beginning of the semester if you will be absent to an exam in order to schedule a make-up.
- Make up arranged after an exam and for which there is no evidence of extenuating circumstance beyond reasonable cause, will carry a 15% penalty.
- Course materials available through blackboard is intended to the sole use of the students enrolled in the class, notes and recording are intellectual property of the instructor and cannot be distributed in any format beyond classroom work.

University policies and resources for students

As a GMU student enrolled in this class, you must be aware of the following:

- Privacy: is governed by the [Family Educational Rights and Privacy Act \(FERPA\)](#) and is an essential aspect of this course. Students must use their GMU email account to receive important University information, including communications related to this class. In accordance with FERPA regulation, I will not respond to messages sent from or send messages to a non-GMU email address.
- The Honor Code is an integral part of the educational process, and GMU takes these matters very seriously. Violations of academic integrity occur when students fail to cite research sources properly, engage in unauthorized collaboration, falsify data, cheat during exams and in other ways outlined in the [Honor Code](#). Students accused of academic integrity violations should contact the Office of Academic Integrity to learn more about their rights and options in the process. Outcomes can range from failure of assignment to expulsion from the University, including a transcript notation. The Office of Academic Integrity maintains a permanent record of the violation. For more information, please refer to the [Office of Academic Integrity website](#).
- Be aware of the issues related to the use of study sites, refer to the instruction from the Office of Academic Integrity with important information about study sites. All students are required to watch this video: <https://youtu.be/oKbTrgBCN7c>
- As a faculty member I am required to report all disclosures of sexual assault, interpersonal violence, and stalking to GMU [Title IX Coordinator](#). If you wish to speak with someone confidentially, please contact the Title IX office at <https://diversity.gmu.edu/title-ix/who-can-i-call>
- [Disability Services](#). Any student who may need an accommodation based on the potential impact of a disability should contact Disability Services ods@gmu.edu to establish eligibility and to coordinate reasonable accommodations. IN order to receive accommodation for exams students must submit their DS paperwork before the exam.
- [Counseling and Psychological Services](#) GMU offers counseling and psychological services, supporting mental health and personal development by collaborating directly with students to overcome challenges and difficulties that may interfere with academic, emotional, and personal success.
- [Diversity and Inclusion](#): Faculty, staff and students in this course welcome and value individuals and their differences including race, economic status, gender expression and identity, sex, sexual orientation, ethnicity, national origin, first language, religion, age, and disability.
- Observance of religious holidays. In accordance with University policy, students should notify faculty during the first week of the semester of their intention to be absent from class on their day(s) of religious observance if that should coincide with an exam. For details and policy, see: <https://ulife.gmu.edu/religious-holiday-calendar/>

Course Calendar*

Notes and reading assignments for each lecture are posted on blackboard the day before class.

Date	Lecture topic	
Jan 25	Part 1: Earth Structure and Materials	The general structure of Earth
Jan 27		The lithosphere: how plate tectonics works
Feb 1		Minerals
Feb 3		Mineral groups – Silicates and magma formation
Feb 8		Igneous rocks
Feb 10		Volcanoes
Feb 17		Erosion, transport deposition: the making of sedimentary rocks - Soils
Feb 17		Metamorphic Rocks – the Rock cycle
Feb 22		Study Hall – Q&A in preparation for exam 1
Feb 24	EXAM 1 – 75 minutes - during class time	
Mar 1	Part 2: surface processes, hazards, climate	Works of gravity: mass wasting
Mar 3		Works of water: running water on landscape modification
Mar 8		Floods
Mar 10		Groundwater
Mar 15		Glaciers
Mar 17		Coastline dynamic environments
Mar 22		Earth's climate
Mar 24		Geologic and Anthropogenic hazards
Mar 29		Study Hall – Q&A in preparation for exam 2
Mar 31	EXAM 2 – 75 minutes - during class time	
Apr 5	Part 3: seismicity Tectonics, mineral resources. Planetary geology	Geologic Structures
Apr 7		Seismology
Apr 12		Seismic hazards-risks
Apr 14		Plate boundaries birth of a theory
Apr 19		Geology of the seafloor
Apr 21		Geology of resources
Apr 26		Geology of the solar system
Apr 28		Exoplanets - Q&A for exam 3
May 3	EXAM 3 –75 minutes - time window 1:30 to 4:15 PM (as per Registrar scheduling)	

* instructor reserves the right to change lecture topic and order to fit class needs and learning objectives.

Effective studying practices for GEOL101

The following are suggestions from tried and true strategy for doing well in this class:

1 – There is a considerable amount of material to know for GEOL 101, technical terms and names to remember that are associated to the concepts needed for the understanding of geological processes. For each hour of lecture, spend at least two hours studying on your own. Spread that time during the week, there is a significant body of research showing that the most productive studying is obtained in studying for 20-30 minutes blocks. It is not wise to count on scoring high on an exam by binge- studying the night before. Mega study sessions tend to result in huge headaches and memory blackouts at exam time.

2 – The most effective way to study is to review your class notes on the same day of class, take your own notes, not just sit passively listening. Shortly after class, possibly right after it, take 5-10 minutes to review what was said in class, note what you are unclear about and either go to office hours or ask for explanation during Q&A of the following class. At the end of each week, review what you have learned at the end of each week, as if you had an exam on the following week.

3 – How to know if something is going to be in the exam? All geology topics discussed in lecture can be in the exam questions. The course will not cover all that is in the book, but all that is in the notes AND has been covered in class can be question material for the exam.

4 - It is a good thing to have questions and doubts as you study, it means your brain is working at understanding and elaborating the newly acquired knowledge. Ask questions during class as well as take advantage of office hours (it is like free tutoring).

5 - Engage with the topics of geology. Talk about what you learned in class, create study sessions with your classmates, talk about geology with family and friends. Make observations of your surroundings, pay attention when geology-related topics come up in the news, try and identify rocks that might crop out just outside your place or you may have at home. Above all, enjoy learning about your home planet!