

# INTRODUCTORY PHYSICAL GEOLOGY GEOL101-005 – FALL 2022

## Syllabus

**Lecture type:** ON CAMPUS, Planetary Hall 131

**Lecture time:** Wednesday, 4:30-7:10 PM

**Instructor:** Dr. G. Mattietti; **E-mail:** [gkysar@gmu.edu](mailto:gkysar@gmu.edu)

**Office Hours:** Exploratory Hall 3413 on Wednesday, 2-4 PM or by appointment

### **Course Objectives and Learning Outcomes:**

This course provides an introductory knowledge of Physical Geology and the integrated Earth Systems. The course introduces basic knowledge about minerals, the origin and variety of rocks and their importance as resources, and the Earth processes that shape our world. The course covers the main natural geologic hazards and their related risks. Plate Tectonics theory is presented within a framework of scientific reasoning, including case studies for examination of how scientific ideas evolve with societal changes and technological improvements. The course includes a final module on planetary geology. This course fulfills the [Mason Core Learning Outcomes for Natural Sciences](#).

Students who apply themselves to the study of the course material develop an appreciation of how Earth system components interplay to provide both resources and challenges to our livelihood. Students 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.

NOTE: GEOL 101 this is a 3-credit lecture class, if you need a laboratory credit, you must enroll in GEOL 103.

### **Instructional Material:**

Textbooks are necessary but no textbook can substitute for effective studying for this class. To help you learn, here are your textbook options, choose what you think works best for you:

- Essentials of Geology, 13/E Lutgens, Tarbuck, and Tasa, Prentice Hall editor. Used, and/or loose-leaf copies are acceptable. The 12th edition of the textbook is also acceptable. Ancillary material from the publisher are not required nor suggested.

- Open source (free) two options:

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/> • If you prefer a hard copy textbook, the recommended one is:

Additionally you will find Lecture powerpoint slides, notes, any course materials, tests, outlines, and similar materials posted on blackboard. PLEASE NOTE: these materials 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.

### **Structure of the class:**

The class is scheduled for two hours and 45 minutes; with a 15 minute break. Review sessions and Q&A sessions are included with the lecture time. Depending on the assignments, homework can be carried out in class or at home.

### **Course requirements and Grading:**

GEOL 101 grade is based on three Lecture exams and Homework assignments. All exams are multiple choice, 50 questions, non-cumulative. All exams are taken individually and during class time. NO lowest score exam will be dropped. 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 with Respondus Lockdown Browser exclusively. Missing exams results in a score of zero. Make up of exams without proof of extenuating circumstances carries a 15% penalty.

Homework consists of assignments that can be repeated until all answers are correct. The homework activities purpose is to further the understanding of the lecture topics. Homework is due by the required deadlines. Late submissions on assignments carry a penalty of 15%.

The final grade for GEOL 101 is calculated as follows, with no Exceptions: 30% (1st exam) + 30% (2nd exam) + 30% (3rd exam) +10% (homework) =100%.

### **Grading scale: Final grade is based on the following scale, with no exceptions:**

A+ ≥99% and above;	A ≥94% to <99%;	A- ≥90% to <94%
B+ ≥87% to <90%;	B ≥83% to <87%;	B- ≥80% to <83%
C+ ≥75% to <80%	C ≥70% to <75%;	C- ≥65% to <70%
D ≥ 53% to <65%;	F <53%	

- No score curve, unless the end-of-semester the MEDIAN for the whole class (based on all lecture exams and homework scores) falls below 80%
- NO Extra-credit available. No individualized assignment for extra credit will be granted to any student because individualized extra credit is unfair to the rest of the class.

### **General Course Policies:**

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](mailto:gkysar@gmu.edu); in accordance with protection of privacy best practices, I will not respond to email sent from non GMU official 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 because emails without subject are filtered as spam mail.
- Class etiquette: everybody in the class has the right to a welcoming and safe learning environment. Mute your cell phones, refrain from carrying out conversations during lecture, be respectful of everybody in your class community. Disruptive behavior will incur in disciplinary action.
- Course Assessment: See Course requirement and grading section above.
- 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 that you are unable to take an exam as scheduled, inform the professor immediately. A make up for unjustified absence/failure to take an exam or submit homework on time carries a penalty of 15% on the score.

**All GMU Policies apply to this course:**

- [Academic Integrity](#) It is expected that students adhere to the George Mason University Honor Code as it relates to integrity regarding coursework and grades. The Honor Code reads as follows: "Student members of the George Mason University community pledge not to cheat, plagiarize, steal and/or lie in matters related to academic work." More information about the Honor Code, including definitions of cheating, lying, and plagiarism, can be found at the Office of Academic Integrity website at [pdf of the honor code](#)
- [Disability Accommodation](#). If you need special accommodations/arrangement for the class and the exams, you must first file with the [Office of Disability Services](#) (ext: 993-2474)
- [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.
- As a faculty member I am required to report all disclosures of sexual assault, interpersonal violence, and stalking to Mason's [Title IX Coordinator](#) per [university policy 1412](#). If you wish to speak with someone confidentially, please contact the [Student Support and Advocacy Center](#) (703-380-1434) or [Counseling and Psychological Services](#) (703-993-2380) and [Mason's Title IX Coordinator](#) (703-993-8730; [titleix@gmu.edu](mailto:titleix@gmu.edu))
- Privacy: [Student 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-Mason email address.

## Course Calendar\*

See Academic Calendar for standard holidays

Date	Lecture topic	
Aug. 24	<b>Part 1: Earth Structure and geologic materials</b>	The structure of Earth and the dynamic lithosphere - Minerals
Aug. 31		Igneous Rocks and Volcanoes
Sept. 7		Erosion, sedimentary rocks, and soil formation
Sept. 14		Metamorphic rocks. The Rock cycle Q/A for exam 1
<b>Sept 21</b>	<b>EXAM 1 – online via lockdown browser</b>	
Sept. 27	<b>Part 2: Surface processes and Climate</b>	Mass Wasting. Coastline dynamics
Oct. 5		Rivers and flooding
Oct. 12		Groundwater and glaciers
Oct. 19		Climate Q&A for exam 2
<b>Oct. 26</b>	<b>EXAM 2 – online via lockdown browser</b>	
Nov. 2	<b>Part 3: internal processes. Earth resources, geology of planets</b>	Earthquakes and seismic risk
Nov. 9		Plate tectonics: the birth of a theory. Geology of the seafloor
Nov. 16		Living on Earth: hazards and resources.
Nov. 30		Planetary Geology – Q&A for exam 3
<b>Dec. 7</b>	<b>EXAM 3 - online via lockdown browser</b>	

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

## **Best practices for effective studying for GEOL 101**

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

1 – Come to class, it is not mandatory, but it is a very smart thing to do.

2 – For each hour of lecture, spend at least one hour studying on your own. That is 2.5 hours a week, on average. Spread that time during the week. The most effective way to study is to review your class notes on the same day of class.

3 – There is a considerable amount of material to know for GEOL 101, many technical terms and names to remember and fit in the big picture of the understanding of geological processes. 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 times. One of the best strategies is to review what you have learned at the end of each week, make note of what is unclear and ask for clarifications at office hours or during lectures during Q&As.

4 – How to know if something is going to be in the exam? All geology topics discussed in class 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 material for the exam.

5 – It is a good thing to have questions and doubts about the class materials; it means your brain is working at understanding and elaborating the knowledge. Ask questions during class as well as take advantage of office hours (it is like free tutoring).

6 – 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. Above all, enjoy learning about your home Planet!

GMU Resources has additional resources for your academic success; among others: [Academic success workshops](#) (see calendar), [University Life for students](#).