

GEOMORPHOLOGY – GEOL317

Syllabus for Fall 2024

Humans live on the boundary between the solid part of our planet and the liquid plus gaseous part. Processes operating in and below the lithosphere as well as in the hydrosphere and atmosphere shape this boundary – Earth’s surface. Geomorphology is the study of the landforms on Earth’s surface and the physical mechanisms that make them. Most fundamentally, it is the study of how lithospheric and hydrospheric systems interact with each other. The results impact our lives every day.

Instructor: Dr. Aaron J. Martin, amart70@gmu.edu

Class meetings:

Tuesday and Thursday, 12:00-1:15 pm, in person in Exploratory Hall 1005

Friday, 9:00-11:40 am, in person in Exploratory Hall 1005.

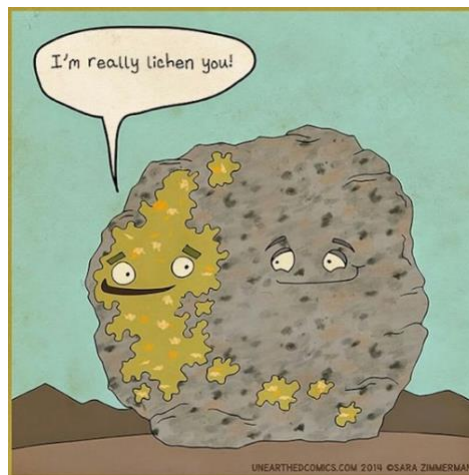
Note that some Tuesday and Thursday classes will be used for hands-on “labs,” and some Friday meetings will be used for discussions and “lectures.”

Office hours: Come see me to discuss what’s working well for you in the course as well as concepts or skills we can practice more together. Meetings online or in person by appointment; don’t hesitate to contact me.

Prerequisites: Grade of 2.0 or better in GEOL 101, GEOL 103, and 102, or 6 credits of GGS, including GGS 102; GGS 412 is strongly recommended.

Class goals: Have fun exploring the remarkable variety of landforms on Earth’s surface and the processes that create them. Enhance analytical and critical thinking abilities in science. Improve scientific writing. Gain appreciation for the interplay between writing about a topic and understanding it. I know! This list is incomplete because it doesn’t include your goals. I’m going to ask you about them.

Mason Core: Writing intensive in major



Course learning outcomes: By the end of this course, students will be able to:

- Describe the landforms of the eastern United States
- Explain the main physical processes that made these landforms
- Perform original research in geology
- Write a professional paper presenting original geology research
- Describe the interactions between understanding a topic and writing about it

Writing intensive course information:

The Faculty Senate Writing Across the Curriculum Committee has approved this course to fulfill the writing intensive requirement for the Earth surface processes and general geology concentrations in the geology major. We will spend significant class time working on writing to meet the norms in professional geology. Your final product will be a report on original research similar to those produced for publication in a peer-reviewed journal or at a government agency such as the United States Geological Survey. With my guidance, you will build your paper section by section over the semester. We will work to improve your writing using the following techniques: in-class instruction, modeling, peer review, consideration of comments and suggestions from peers and me, and revision of your writing taking feedback into account.

The writing-specific learning outcomes for writing intensive courses are the following.

- *Writing-to-Learn:* students will use informal or formal writing in ways that deepen their awareness of the field of study and its subject matter.
- *Writing-to-Communicate:* students will compose one or more written genres specific to the field of study in order to communicate key ideas tailored to specific audiences and purposes; genres may be academic, public, or professional.
- *Writing-as-a-process:* students will draft and revise written works based on feedback they receive from instructors and peers, using strategies appropriate to the genre, audience, and purpose.

A key point is that academic writing not only conveys ideas to others, it helps the writer understand the topic for themselves.

Generative artificial intelligence: We will use generative AI for one or two writing assignments. Generative AI may be used only for the designated assignments; it may not be used on any other assignment. If in doubt, do not use it, and ask me.

Activities and assessment: Education research shows that we learn information more profoundly and better retain that information with repeated exposure to material, building toward deeper understanding. The course activities are designed accordingly.

All labs	60%
<u>All writing</u>	<u>40%</u>
Total:	100%

Labs (60%): Most weeks you will be assigned chapters to read in the textbook and in the laboratory manual, as well as ten questions you must answer online to help you understand the material. You may work on the questions collaboratively. You do not have to do the lab exercises prior to class, that is what we will work on during class.

Reading and answering the online questions is due before the class meeting on Friday. If you cannot access the reading or the questions, email me immediately. If you wait until the class meeting to tell me you can't access the questions, you will lose credit for the questions for that week. Most lab exercises will be worth 3% of your final course grade.

Most laboratory exercises will be derived from the manual and will be due by the end of class. You need access to the lab manual to complete the exercises. If desired, you can bring a physical, paperback copy of the lab manual. Part of the exercises for many labs require internet access and the use of Google Earth Pro. Accordingly, please bring a laptop or tablet to each class period, those designated both lab and lecture, because we will work on lab exercises during some lecture periods. The device must have internet access and Google Earth Pro installed.

We will take field trips to nearby landforms during two of the lab periods. We will drive together in vans rented by the university.

Writing (40%): As described in a previous section, working on writing constitutes a significant part of this course. The previous section provides an introduction to the writing aspect of this course, and I will provide much more information in class and in separate documents. We will work on writing during class time in many ways, including working one-on-one with me directly on your documents. Please bring a laptop or tablet to every class meeting to enable this work.

Extra credit: Extra credit up to 5% of your final course grade is available. There are two extra credit options. (1) Participate in an optional field trip to learn about the geomorphology and geology of the Piedmont, Coastal Plain, and modern coast. We will depart in the morning of October 12 and return in the afternoon of October 14. Participation in the field trip will earn you the full 5% extra credit. (2) Attend Geology Department seminars, which are held Thursday afternoons, 4:30-5:45 pm. You will earn 1% for each seminar, so you must attend 5 seminars to earn the full 5% extra credit. But you can't just go to the seminar unprepared! By 4:00 pm the day of the seminar, you must read a peer-reviewed paper by the speaker that is relevant to their presentation topic and email me a research question based on the paper. You must check each speaker's article with me prior to sending me the research question. Proof of attendance is required.

Grades: With diligent work it is possible for each student to attain an A in this class. Grading will be based on points gained from the assignments listed above, as follows.

100-97% = A+	96-94% = A	93-90% = A-
89-87% = B+	86-84% = B	83-80% = B-
79-77% = C+	76-74% = C	73-70% = C-
69-67% = D+	66-64% = D	63-60% = D-
<60% = F		

Grades will not be curved but will be rounded to the nearest integer following standard rounding rules. Thus an 89.4% will receive a grade of B+ and an 89.5% an A-, for example.

Missed laboratory exercises: The questions due prior to each laboratory exercise must be turned in before the lab period begins. If you must miss a lab exercise for a religious

observance or medical issue, please let me know in advance. If there is a medical or other emergency, please inform me as soon as possible. If you miss a lab exercise for another reason, you may turn it in prior to the next class meeting for 50% credit.

Late writing and other assignments: Unless you have an issue as described in the previous section, a late writing or research assignment will receive a grade deduction of 25% for each day it is late. Questions about articles you read for extra credit must be turned in by 4:00 pm the day of the seminar. I will not accept questions turned in during or after the seminar, and you will not receive extra credit even if you attended the seminar. Failure to check the article with me prior to reading it likewise will result in no extra credit.

Textbooks:

1. *Required:* Landscape Evolution in the United States: An Introduction to the Geography, Geology, and Natural History, 1st edition, 2013, Joseph A. DiPietro, Elsevier, ISBN 978-0123977991. If you obtain a 2nd or 3rd edition, that works too. Sharing the textbook or borrowing it from a library is acceptable.
2. *Required:* Mastering Physical Geography Laboratory Manual, 13th edition, electronic access, 2022, Darrel Hess, Pearson, ISBN 8220123160906. I recommend buying the electronic access through the GMU bookstore to ensure proper registration. Note that the physical textbook alone is not sufficient. You need the “Mastering” product, which includes the textbook and many additional resources. You must register your Pearson account with this course in Canvas. I recommend always accessing the Pearson content through Canvas.
3. *Optional:* If desired, you can purchase a physical, paperback copy of the laboratory manual, which has ISBN 978-0135918395.

Technology requirements:

- Announcements, assignments, and exercises in this course will regularly use the Canvas learning system, available at <https://canvas.gmu.edu/login/canvas>.
- You are required to have regular, reliable access to a computer with an updated operating system (recommended: Windows 10 or Mac OSX 10.13 or higher) and a stable broadband Internet connection (cable modem, DSL, satellite broadband, etc., with a consistent 1.5 Mbps [megabits per second] download speed or higher).
- You must register your Pearson account so your responses show up in my Canvas gradebook.
- You must bring your own laptop computer or tablet to every class meeting. We will use it for the writing assignments and also for the labs.
- You must install the free Google Earth Pro application on your laptop or tablet, and bring it to the lab meetings.
- If any of these technology requirements present a problem, let me know right away.

Respectful use of electronic devices: Each student may use a laptop computer or a tablet during class to access the laboratory exercises. Please be respectful of your peers and your instructor and do not engage in activities that are unrelated to the class. Note too that lots of research shows that humans cannot focus on more than one highly-demanding

cognitive task at a time. Texting, gaming, or checking if your order was delivered means that you're paying almost no attention to what's happening in class.

E-mail and Canvas use: I will distribute electronic copies of documents and make announcements on Canvas. To send me a message, please use your university email account. Due to privacy concerns, I will not respond to messages sent from or send messages to a non-Mason email address. In general, I respond within 24 hours to emails received on official university work days. I will respond to emails received over weekends and holidays on the next day the university is open.

University common course policies: Please follow [this link](#) to university-wide policies on academic standards, accommodations for students with disabilities, the Family Educational Rights and Privacy Act and use of GMU email addresses for course communication, and Title IX resources and required reporting.

Collaborative work: I encourage you to work together in class and on laboratory exercises. You may discuss ideas and share references for the research project. In contrast, the writing assignments must be your own individual work, written in your own words. You may not share specific sentences nor copy others' writing verbatim. This instruction refers to both your classmates' writing and work published anywhere, including in scientific articles in journals, popular science articles, and on the internet.

Emergency class cancelation/adjustment policy: If the campus closes, or if a class meeting needs to be canceled or adjusted due to weather or other concern, students should check Canvas for updates on how to continue learning and for information about any changes to events or assignments.

Mason student support: The university offers a host of resources to help you with all aspects of life at Mason, from improving your math or writing skills to guiding you towards mental and physical health. The webpage at <https://stearnscenter.gmu.edu/knowledge-center/knowning-mason-students/student-support-resources-on-campus/> is a one-stop shop for on-campus student support resources. Even if you don't need it right now, I encourage you to visit this page to see what the university can offer you.

Religious observances: I am committed to ensuring that religious obligations do not conflict with course requirements. Such flexibility requires advance notice. Therefore, it is your responsibility to inform me of any intended absences for religious observances, or to request accommodations, in advance. Notice should be provided as soon as possible, but no later than September 15.

Diversity: The Department of Atmospheric, Oceanic, and Earth Sciences, an intentionally inclusive community, promotes and maintains an equitable and just work and learning environment. We 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 ability status. We emphasize that we value our diverse student body.

Names and pronouns: It is important to me to call you how you want to be called. If you wish, please share your name and gender pronouns with me and indicate how best to address you in class and via email. I use he/his/him for myself and you may address me as “Dr./Prof. Aaron” or “Dr./Prof. Martin” in email and verbally.

Keys for success: All students can succeed in this course. Here are some tips to make that happen.

- 1) Attend all classes and participate actively – MOST IMPORTANT.
- 2) Communicate with me. If things are going well, let me know. If there is an issue that needs addressed, tell me as soon as possible.
- 3) Keep up with reading, homework, and other assignments. If you feel that you don’t understand the material, ask for help right away. Partial list of sources of help: classmates, me, the textbook.
- 4) Do the extra credit.

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