

Fall 2015

GEOL 105

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Recommended Citation

Adams, Aubrey, "GEOL 105" (2015). *Faculty Syllabi*. Paper 40.
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Megageology – GEO 105

MW 2:45-4:00pm; 101 Ho Science Center

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Office Hours – 1:00-2:30 M, 10:00-11:20 T, or by appointment

Course Description:

All of human history has been carried out on the tiny sphere known as “Earth” (or in close orbit). Our individual experiences, development as a species, and societies are shaped by the world on which we live. The Earth is often imagined to be static, or unchanging – a belief that has even entered our vernacular with the phrase “solid as a rock.” But, in this class we will learn that across the long history of the Earth, it is actually a dynamically changing place! While many of the processes that shape and reshape the Earth happen too slowly to be easily observed during a human lifespan, they affect our lives in important ways - determining how and where we build our homes, inspiring our art, delineating political boundaries, providing recreation and energy, and even determining the very atoms composing our bodies. Other Earth processes happen quickly and can instantly and dramatically change the course of a person’s life (ex. earthquakes, volcanic eruptions, landslides).

The primary goal of this course is to give you – the inhabitants of Earth – a working knowledge of the formation and evolution of the Earth and its place in the universe. We will emphasize large-scale and long-period processes that have built the Earth as we see it today.

Reading Materials:

Earth: Portrait of a Planet, 5th edition, by Stephen Marshak

The unique subject matter of this course means that no textbook exactly meets the needs of this class. For most of the semester, we will focus on Parts 1-4 of the Marshak text, but this will be supplemented by outside resources (reading, video, or audio) that will be posted on Moodle. You are responsible for keeping up with reading assignments in the text and supplemental resources as posted on Moodle. I will not post whole lectures on Moodle, but will post any complex diagrams or tables on an as-needed basis.

Office Hours:

I strongly encourage you to come to office hours (or make an appointment). This is an excellent time to ask questions about material or assignments, to address any topics you struggle with, or to discuss ideas related to (but not directly covered in) class. While you may choose to ask very simple questions via email or phone, most are better addressed in person during office hours, so I may respond by asking you to come to my office. This does not mean you are “in trouble” - it means that you’ve asked a complex question that I can better answer in person.

Discussion Board:

There will be a class discussion board on Moodle. The purpose of this board is for you to share resources or ideas related to class materials with your fellow students – like that really cool news article about Pluto you found on Facebook. This is not a forum for you to ask me questions about the course content or assignments. I will not be monitoring the board regularly, and will not answer questions submitted there. While you may ask questions of your fellow students, I naturally cannot vouch for their accuracy. You are strongly encouraged to bring your questions to me during office hours. Finally, this is not a forum for topics unrelated to class, which will be deleted if I see them.

Schedule:

The schedule below gives a rough guide to the topics that will be discussed each week. Some topics may take more time than indicated, and others may take less.

Week #	Class Dates	Topic	Reading	Notes
Week 1	8/31, 9/2	The Universe & Orders of Magnitude	Ch. 1 + See Moodle	
Week 2	9/7, 9/9	Suns and the solar system	See Moodle	
Week 3	9/14, 9/16	Planetary Formation	See Moodle	
Week 4	9/21, 9/23	Earth Structure	Ch. 2	
Week 5	9/28, 9/30	Geologic Time	Ch. 12	Exam 1 – 9/28
Week 6	10/5, 10/7	Plate Tectonics	Ch. 3	
Week 7	(10/12), 10/14	Plate Tectonics	Ch. 4	Project Proposal Due - 10/7
Week 8	10/19, 10/21	Rock Deformation & Earthquakes	Ch. 10	
Week 9	10/26, 10/28	Rock Cycle & Types	Ch. 5.1-3; Interludes A&C	
Week 10	11/2, 11/4	Volcanoes	Ch. 9	Exam 2 – 11/2
Week 11	11/9, 11/11	Igneous Rocks	Ch. 6	
Week 12	11/16, 11/18	Ign. & Metamorphic Rocks	Ch. 8	
Week 13	11/23, 11/25	No Classes - Thanksgiving Break		
Week 14	11/30, 12/2	Weathering & Sediments	Interlude B.1-2 & Ch. 7.1-2	Project Due – 12/2
Week 15	12/7, 12/9	Early Earth & the Emergence of Life	Ch. 13.1-6	
Exam Week	Final exam according to university schedule – Tues. 12/15 3-5pm			

Grading:

Participation -	10%
Midterm 1 -	20%
Midterm 2 -	20%
Semester Project -	30%
Final Exam -	20%

Final letter grades will be assigned roughly as described below. Any curve to raise letter grades will be applied only to the final class grades (not individual assignments) and will be at my discretion. No curve will lower letter grades below what is indicated here.

90-100%	- A-, A, A+
80-89.9%	- B-, B, B+
70-79.9%	- C-, C, C+
60-69.9%	- D-, D, D+
<60%	- F

Participation:

The participation portion of your grade will be determined based on interaction during class discussions, participation in in-class activities, and completion of online quizzes. Short quizzes will occasionally be posted on Moodle. You will have five days to complete online quizzes and will be given three attempts to answer. You will be locked out of the quiz for 15 minutes after each attempt, so don't expect to enter three guesses in the final 30 minutes before the deadline! The purpose of the quizzes is to demonstrate to you (and to me) how well you understand the material before you sit down for an exam. To receive full participation credit, you must either answer correctly or enter three attempted answers for each question (remembering that you must wait between attempts).

Exams:

The dates of the midterms are approximate, and may be adjusted according to the speed at which we cover material in class. Changes to the dates or materials covered will be announced at least one week in advance. The final exam will be administered according to the university schedule during exam week and will be comprehensive.

Semester Project:

Your assignment for the semester project is to creatively present one topic about the formation and evolution of the Earth. You may choose to focus on a broad topic (ex. solar system formation, igneous rocks, earth structure) or a detailed topic (ex. formation of asteroid belts, volcanic lava flows, variation in Earth's crust). I recommend that you focus on processes rather than simply describing "facts." This typically results in a better presentation and indicates a more thorough mastery of the topic.

You may choose the form of your project, which may be in written, audio, visual, or video format. Some possibilities to consider include a fictional story, news article, filmed skit, large-scale poster, interview, model, or website. These are only suggestions to get you thinking of possibilities, so be creative – this is an opportunity to incorporate what you are

learning about the Earth and your own interests. Whatever format you choose for your project, all work must be your own and proper citations for information sources must be given. No rearranging or paraphrasing existing websites, recreating interviews, etc..

Your final project should include a written description of the scientific content in your final project, the details of which will depend on the form of your project. This should be *roughly* 2 pages long, single-spaced, but may vary based upon the form of your project. For example, a website that is dedicated to explaining the details a topic may require less than 2 pages, while a highly interpretive project may require more than 2 pages to explain the content being communicated. All projects should include an additional detailed bibliography listing the resources you consulted for building your project.

During the semester, you will turn in a project plan. This will be a 1-2 page single-spaced document that explains what topic you will present, what form your project will take, why you have chosen this form of presentation, and how you will support the project in the final written description. This will allow me to make sure you are set on the path for success, with a meaningful topic and a clear plan to include original material with enough scientific detail. You are encouraged to discuss your ideas with me before submitting the project plan. This is an especially great idea if you have a creative idea in mind, but aren't sure how to include enough scientific material or if you are unsure whether your project may require more or less than 2 pages in final written description. The project plan will be worth 20% the total project grade, so make sure it's well thought-out! Your project plan will not be graded based on how much you promise to do, but on how clear your plan is.

Your final grade on your semester project will be based on the following aspects. Note that late assignments will be penalized 20% per week and will not be accepted after two weeks.:

Project Plan – 20%

Project Presentation + Final Written Description - 35%

Are the presentation and written description polished, using correct grammar and a logical arrangement? Does the project show originality and extend beyond a research paper?

Scientific Content – 45%

Is the scientific content correct and well-documented? Does the project cover enough breadth/depth? Is the information meaningful, showing a connection of ideas and understanding of processes, rather than simply regurgitating facts?

One word of caution: *note that your grade will be based primarily on the science content of your project*. If you write an inspired work of fiction or direct a clever skit that contains little science, you will not earn an A.

Electronic Devices:

Cell phones, laptops, iPads, etc. may not be used in class without my permission. The use of electronic devices has been demonstrated to be distracting to the user, other students, and to instructors. Recording classes or class material in video, audio, or photographic form is also not allowed without my permission.

Attendance:

While I will not take attendance in class, class attendance is very important to your success. Remember that due to the nature of the course, we will discuss some material in class that may not be found in your reading materials, and I will not post whole lectures to Moodle. Furthermore, part of your participation grade will be based on participation in in-class activities. If you will have an excused absence, let me know before the absence and you will not lose credit for activities you may miss. If you are absent due to illness or an unforeseeable circumstance, email/call me as soon as you are able. Unless you have a note from the university or your advisor, I will likely ask that you come to office hours within the week to discuss whether the absence is excused.

Special Accommodations:

I am committed to meeting your learning needs. If you feel you may need an accommodation based on the impact of a disability, please contact me privately to discuss your specific needs within the first two weeks of class so that I will have sufficient time to arrange the necessary accommodations. Please contact Lynn Waldman, Director of Academic Support and Disability Services at 315-228-7375 in the Center for Learning, Teaching and Research who reviews documentation to determine and help coordinate reasonable and appropriate accommodations for students with disabilities.

Academic Integrity:

Academic integrity is imperative legally, morally, and for your own personal development and education. Therefore, there is **zero tolerance** for any form of academic dishonesty.

This includes, but isn't limited to:

- Quoting text without using quotation marks
- Not using citations to indicate the source of your information
- Using images, sounds, or other materials without giving credit to the source
- Any other form of plagiarism
- Copying the work of an author or fellow student on an exam or quiz
- Providing information about the contents of an exam or quiz to another student
- Fabricating or falsifying information
- Submitting someone else's work as your own or knowingly allowing someone else to submit your work as theirs

As a Colgate student, you are bound by the Academic Honor Pledge listed below.

“As a member of the Colgate community, I pledge to live by and to support the letter and spirit of Colgate’s Academic Honor Code.”

More information about the Colgate University Academic Honor Code can be found at: <http://www.colgate.edu/offices-and-services/deanofthecollege/academichonorcode>