Historical Geology

Spring 2019 ~ Block 6

Stratigraphy is more gaps than record. Remember a child's definition of a net as a lot of holes tied together with string. -Derek Ager

Instructor: Madeline S. Marshall, Norton 102, mmarshall@cornellcollege.edu (Office phone: 319.895.4309)

Class meeting times & location: 9-11 am and 1-3 pm (Monday-Friday) in Norton Geology 303; meeting times within those time blocks will change during the term as in-class learning, discussions, and projects fluctuate in relative importance. Additionally, Prof. Marshall will be away for interviews for several days during the block, necessitating some changes in schedule.

Office Hours: By appointment (and before/after class). I will make every effort to respond to emails as promptly as possible, but please plan ahead that I will not generally check or answer emails between 8pm and 8am, or as frequently on the weekends. **If you are confused, struggling, or want to learn more, please do arrange to meet with me — there is not time for you to "wait and see" on the block plan.

Textbook: *Earth System History* (Stanley, 2nd ed.); other readings will be posted on the course Moodle website. You are responsible for all assigned readings and content; please check Moodle at least daily for readings and assignments.
**You should have a basic set of colored pencils for several exercises in class. You are welcome to share with a friend, and only require blue, brown, yellow, orange, green, and red. Please come prepared to class every day with paper and a writing utensil, as there will be some in-class questions.
*Textbook chapters assigned in the syllabus are required and will enhance your understanding of the topics covered in class and provide fodder for discussion.

Prerequisites: None. (Class size limited to 25 students.)

Course Description & Objectives:
Over the next weeks we will explore the fascinating and complex story of Earth's 4.6 billion years of change. We will endeavor to understand deep geologic time as we delve into the most important events in the history of our still-evolving planet, and as we discuss a few key uncertainties and unknowns in need of further research. You will trace major events in the evolution of life from simple but elegant single-celled organisms of the ancient Earth through to the diverse and often strange floras and faunas of today's modern environments. Linkages among abiotic and biotic Earth systems will also be explored, given that the dynamics of the lithosphere, atmosphere, hydrosphere, and biosphere are each intricately linked to one another. Your work in the laboratory will reinforce key concepts broached in lecture and discussion, familiarizing you with the generalized rock and fossil records of Earth's history, as well as in the practice and understanding of geological science and evolving organisms.

Students who successfully complete this course will be able to:

1. Describe rocks and interpret their environments of formation; use your knowledge of these rocks to reconstruct geologic histories
2. Explain the fundamentals of fossil preservation and interpretation
3. Describe the geological time scale, and discuss key events in the history of Earth's flora, fauna, and natural environments
4. Explain the timing and causes of mass extinction events
5. Apply the scientific method and the process of scientific study to answer questions and to solve problems (and to interpret rocks!)

This course supports the Educational Priorities and Outcomes of Cornell College with emphases on knowledge, inquiry, and communication.

Evaluation

Grade Breakdown	
Discussion & participation in class	15%
Labs	25%
Quizzes 1 & 2	20%
Final Exam (comprehensive)	20%
Final Project	20%

The assessment tools in this course include in-class participation (e.g., discussions) and short activities (e.g., reading reflections, worksheets) to keep you on track with the material, and credit will be earned by thoughtfully participating in and completing each exercise. There will also be several quizzes and two exams covering class material. These exams will check your comprehension of the ocean's properties and will emphasize your ability to apply the material you've learned from readings, lecture, activities, and discussion to assess hypotheses and solve problems. You will not have a cumulative exam, but your final project will serve as a higher-order assessment for this course, combining research, synthesis, evaluation, and communication as you create your final products.

Success in the Course

My goals for you upon completing this course are for you to have the ability to read and interpret scientific ideas and articles so you will be able to apply this knowledge to your real-world observations and assessment of current issues, to be able to communicate scientific concepts and content to a non-specialist audience in a comprehensible and engaging manner, and make connections between Historical Geology and your other courses (there are many!). Some useful guidelines for succeeding in this course:

1. Push yourself to become fluent in the foundational material and ask questions to ensure you fully understand concepts in class. (Try explaining a topic to a friend or roommate who is not in the class to make sure you know can clearly articulate your ideas.)
2. This course may present new challenges related to spatial reasoning or mathematical concepts, and it is imperative that you leave behind your aversions to those subjects in order to succeed.
3. Revise your writing assignments — a first draft is not the final copy. Proper spelling, grammar, and punctuation are expected.
4. Take advantage of your textbook, readings, classmates, and the instructor as key resources – each will add more depth and another avenue of learning to your experience.
5. The library offers one-on-one tutoring services in geology through the Office of Academic Support and Advising. Contact Brooke Paulsen (bpaulsen) to request a tutor. The sooner, the better!

Grading Scale	
94-100 90-93	A A-
87-89 83-86 80-82	B+ B B-
77-79 73-76 70-72	C+ C C-
67-69 63-66 60-62	D+ D D-
59 or below	F

Class Attendance and Participation Policy

You are expected to attend all class meetings. If you have an unavoidable obligation, you must notify the instructor as soon as possible, and we can discuss how to help you make up and keep pace with the class. It is your responsibility to know anything I say in class (including changes in the schedule, etc.) and for having any handouts or assignments passed out in class — most important information will also be on Moodle (check at least daily!), but do not rely solely on Moodle. If you do miss a class, you should get notes from a classmate and handouts/assignments from me the day you return to class. Attendance will factor into your participation grade.

*You are required to participate. Silently waiting as your classmates answer questions or discuss topics is not acceptable. Your contributions should be substantive — it's **always** possible to find (a) something you learned, (b) something that surprised you, and/or (c) something that confused you or that led to more questions. Finally, do not sleep/doze off during class. You will be asked to leave. If you are feeling sleepy, please do feel free to stand up and move around; you can also let me know it's time for a short break.

Email Etiquette

It's always worth a reminder of acceptable email practices: I will only respond to your emails if they include a descriptive subject line, a salutation (not "hey" or "sup, dude"), proper spelling and grammar, and a signature or closing. If in doubt, address your emails and papers to "Professor _____" (not "Ms.").
https://www.insidehighered.com/views/2015/04/16/advice-students-so-they-dont-sound-silly-emails-essay

Late Work and Make-Up Policy

Due to the fast-paced nature of the class, policies are necessarily strict. I will **not** accept late assignments for a grade. If an assignment is listed in the syllabus (or on Moodle) as due on a certain day, be prepared with it at 9am, unless otherwise specified. When in doubt, ask! If you require an extension, please see me well before the assignment deadline. Please note that group activities in class inherently cannot be made up. Exams can be made up only in exceptional circumstances and/or by prior arrangement with the instructor.

Academic Integrity

All members of the Cornell College community are expected to act with academic integrity; an important aspect of this is respecting the work of others. Students must explicitly acknowledge ideas, claims, observations, or data of others, unless generally known. When a piece of work is submitted for credit, a student is asserting that the submission is her or his own work unless there is a citation of a specific source. If there is no appropriate acknowledgement of sources, whether intended or not, this may constitute a violation of the College's

requirement for honesty in academic work and may be treated as a case of academic dishonesty. The procedures regarding how the College deals with cases of academic dishonesty appear in The Catalogue, under the heading "Academic Honesty."
This is different from working with a partner on a project, which is encouraged. Learning how to communicate your scientific thinking to others is an important skill, and discussing hypotheses with others is an excellent way to further your understanding of a subject. However, I do not condone plagiarism in any way; if you plagiarize an assignment, you will receive a zero; if it happens again, you will be reported to the Dean and receive NC for the course. *Write independently, using your own words and conclusions, and acknowledge collaborators.

Technology Policy
Cell phones must be off (silent, not vibrate) and put away during all class periods. I do NOT want to hear or see them. When using laptops or tablets for class activities, I expect you to use them responsibly and respectfully. If you are using them for non course-related activities, I will give you a verbal warning. If this behavior continues, I will ask you to leave and your grade will be negatively impacted.
*You are highly encouraged to take notes and sketch diagrams by hand during class. This is proven to promote better listening and synthesizing of information, and results in a deeper understanding and longer memory of the material. (https://www.scientificamerican.com/article/a-learning-secret-don-t-take-notes-with-a-laptop/)

Academic Accommodations
Cornell College is committed to providing equal educational opportunities to all students. Students should notify the Coordinator of Academic Support and Advising and their course instructor of any disability-related accommodations within the first three days of the term for which the accommodations are required, due to the fast pace of the block format. For more information on the documentation required to establish the need for accommodations and the process of requesting the accommodations, see http://www.cornellcollege.edu/academic-support-and-advising/disabilities/index.shtml.
*Please do discuss with the instructor if you are a person with CVD (color vision deficiency), so that labs and other course material can be made accessible (and more enjoyable) for you.

Add/Drop/Withdrawal
This course may be added or dropped within the first three days of the block, as per College policy, with the permission of the instructor. A withdrawal may be granted on the 15th day, provided that you have completed all assignments, participated fully in course activities, and attended all class sessions (1 *excused* absence permitted). NOTE: A 15-day drop will not be granted to students who, in my estimation, have not made a good faith effort to learn and/or complete the course material. A health withdrawal (WH) may be obtained if health issues are serious enough to interfere with course completion. To qualify, you must speak with a health professional either on or off campus and receive written documentation.

See Moodle for Schedule (subject to change)