

GEOLOGY 204 – Evolution of the Earth Spring 2013

Lecture: 9:00-9:50 MWF

Lab: Monday 1:30-4:30

Instructor: Karla Parsons-Hubbard

(lab meets in Carn. 212)

Contact information: Karla.hubbard@oberlin.edu, Carnegie room 403, x58353

Office hours: KPH: Tues. 3:00-4:30pm and Wednesday 10:00-12:00pm

Text: Earth's Evolving Systems, Ronald Martin, Jones & Bartlett Publishers

Readings: Reserve readings (noted as [r] below) will be available on Blackboard. I expect chapter readings and reserve readings to be completed BEFORE the class to which they apply. I will not cover the readings in their entirety during lectures, but the readings are considered an important component of this course and you are responsible for their content.

Course Goals: Evolution of the Earth is an important course for those interested in majoring in Geology and for those with an interest in the history of our planet-life system. In this class we will learn to think in terms of the time scale of our planet, which is more than 4.5 billion years old. The evidence for the evolution of Earth is found in the rocks and fossils that we see at the earth's surface. You will use the tools that you learned in introductory Geology (plus some new ones) to interpret this history from the Archean through the Pleistocene.

Labs and Field Trips: Due to field trip costs and lab expendables, there will be a **laboratory fee of \$10** that will be collected from each of you. The fee helps to offset the cost of renting vans and purchasing maps, etc. There will be one weekend field trip this spring. This trip will depart on Friday evening and return on Sunday at dinnertime. There is no better way to gain an understanding of the historical record in the rocks than to visit outcrops and interpret what you see. I strongly recommend that you participate.

Writing and other mini-assignments: There will be three writing assignments to accompany certain topics in this course. These assignments are expected to be double-spaced, and in 11pt or 12pt font with standard 1 or 1.25" margins. These will be handed in through Blackboard. The purpose of the assignments is not only to enhance your understanding of course content, but also to work on your writing skills. Original drafts will be returned for revision if writing is not up to standards; and if returned, grade will reflect the fact that the first draft was not well done. Each assignment will have specific guidelines, but all are expected to be your own work and you will be required to sign the Honor Code in order to have your grade recorded. We will also build a timeline throughout this course. I will create a timeline template and you and your team will add to the group timeline as we work through Earth history during the last 2/3 of the course.

HONOR CODE: There will be three exams in this class and each exam will be closed book and notes. You may not consult references, notes, electronics, or any other person (besides me) while taking the test. I expect you to write out and sign the Honor Pledge on each exam to attest to your adherence to the Honor Code. I will not record your grade for an exam until the pledge is signed. Laboratory exercises are normally expected to be small group efforts.

Consultation with classmates and reference materials is expected and encouraged. However, each student must hand in his/her own assignment (unless otherwise stated) and I expect written work to be your own understanding of the assignment and not copied from a classmate's.

Accommodations for disabilities: I am happy to provide accommodations for those of you with disabilities. Remember you must provide all relevant documentation to the Office of Disability Services and they will supply a letter that you should share with me so that we can work out how to best serve your needs. It is most helpful if we work the details out well before your need for accommodation arises.



Grade break-down:

18% each for exams I & II	36%
24% for cumulative final	24%
Lab exercises	20%
Writing & other assigns.	15%
Participation and field trip	5%

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Art by Richard D. Dobbs, Jr

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Day	Date	Topic	Readings	Lab/Assignment due
Mon.	Feb. 4	Earth's History & Systems	Ch. 1 & 2 Chamberlain [r]	LAB: Review of minerals & igneous rocks
Wed.	Feb. 6	Weathering & Sediments	Ch. 3	
Fri.	Feb. 8	Sedimentary Environments & Sed. Rxs.	Ch. 3	
Mon.	Feb. 11	Stratigraphy & Relative Time	Ch. 5	LAB: Sediments & Sed Rocks Assignment Due: Chamberlain
Wed.	Feb. 13	Evolution, Biostrat., & Correlation	Ch. 4	
Fri.	Feb. 15	Absolute Dating	Ch. 5	
Mon.	Feb. 18	History of Plate Tectonics	Ch. 6	LAB: Appalachian Basin Lab Assignment Due: Ordering events
Wed.	Feb. 20	Plate Tectonics, Tectonic Cycles	Ch. 6	Mnemonics due
Fri.	Feb. 22	Co-evolution of Atmosphere, Hydrosphere, & Life		
Mon.	Feb. 25	Formation of the Solar System	Ch. 7	LAB: Appalachian Basin Lab
Wed.	Feb. 27	The Archean Earth	Cool Early Earth [r]	
Fri.	Mar. 1	Archean to Proterozoic Orogens	See pp. 41-49	Time Scale Quiz
Mon.	Mar. 4	EXAM 1 (topics through Feb. 27)		LAB: Fossils I [pp. 300-312]
Wed.	Mar. 6	The Origin of Life	Ch. 8	
Fri.	Mar. 8	Origin of Life, continued	Trefil et al. [r]	
			Timescale Team:	Archean
Mon.	Mar. 11	Proterozoic I - Modern Plate Tectonics	Ch. 9, 269-283	LAB: Fossils II [pp. 300-312]
Wed.	Mar. 13	Proterozoic II - Climate & Geochemistry	Ch. 9, 283-293 Anbar-Knoll [r]	
Fri.	Mar. 15	Cambrian Metazoan Life	Grotzinger [r] Chengjiang [r]	Assignment due: Origin of Life essay
			Timescale Team:	Proterozoic

Mon.	Mar. 18	Cambro-Ordovician Tectonics & Life	Ch. 10	LAB: Development of Wyoming
Wed.	Mar. 20	The Ordovician	Ch. 11	
Fri.	Mar. 22	The Silurian	Benton "fish" [r]	
SPRING BREAK				[Timescale: Ediacaran-Cambrian]
Mon.	Apr. 1	Devonian Tectonic Developments		LAB: Terranes Lab I
Wed.	Apr. 3	Life in the Devonian		
Fri.	Apr. 5	No Class		
			Timescale Team:	Ordovician-Silurian; Devonian
Mon.	Apr. 8	Vertebrate Transition to Land	Benton "4 feet" [r]	LAB: Terranes Lab II
Wed.	Apr. 10	Pangea: Tectonics & Climate	Ch. 12	
Fri.	Apr. 12	EXAM II		
			Timescale Team:	Carboniferous – Permian extinc
Mon.	Apr. 15	Late PZ Marine Ecosystems		LAB: Metamorphic Rocks & Geology of Maine
Wed.	Apr. 17	End PZ Mass Extinction & Break up of Pangea	Ch. 12	
Fri.	Apr. 19	Mesozoic Rifting of Pangea	Ch. 13	
			Timescale Team:	Triassic-Jurassic
Mon.	Apr. 22	Early MZ Life	Benton "dinos" [r]	LAB: The Niagara Section
Wed.	Apr. 24	Dinosaurs and other MZ Tetrapods		
Fri.	Apr. 26	Dinosaurs continued	Bakker [r]	
FIELD TRIP: Upstate New York				
Mon.	Apr. 29	MZ Sea Life and the Cretaceous World	Motani [r]	LAB: Field Trip - Clev. Museum
Wed.	May 1	End-K Extinction & Rise of Mammals		
Fri.	May 3	Paleogene Tectonics	Mantle Plumes [r] Ch. 14, Ch 15 (part)	Assignment due: Dino Essay
			Timescale Team:	Cretaceous – End K extinction
Mon.	May 6	The MZ-CZ Story of the American West		LAB: Review Games
Wed.	May 8	The Neogene & Lg. Pleistocene Faunas	Ch. 15	
Fri.	May 10	Neogene & "Anthropocene"	Ch. 17	Timescale Team: Paleogene
FINAL EXAM: (COMPREHENSIVE back to Feb. 25, start of Earth History Section) Thursday, May 16, 9-11am				