

GEOLOGY 102 - HISTORICAL GEOLOGY

SPRING 2002

Dr. Allen Dennis

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Office Hours: T 11-2
Other times by appointment
Texts: *Evolution of the Earth*, 6th ed., Prothero and Dott; *The Beak of the Finch*, Jonathan Weiner; *The Book of Life*, S.J. Gould, ed.

January	10	Introduction	P&D Ch. 1, 4	
	15	The Rock Cycle and Plate Tectonics	2 <i>BoL 22-35</i>	
	17	Solar System and Meteorites	6 (p. 108-118)	Weiner, 3-48
		<i>1. Personal understanding or perspective on Science, its aims, and how science is done</i>		
	22	Moon / Radiometric age dating	5	
	24	*Discussion*		Weiner 49-114
		<i>2. Explan. of Solar System, Prin. of Age Dating, Meteorites, Natural selection and sexual selection.</i>		
	29	The Archean Earth: stratigraphy	6 (119-129), 8	
	31	Archean and Archean Life	6, 9 (195-205) <i>37-45</i>	Weiner 115-157
February	5	Proterozoic	8 (180-192), 9 <i>45-51</i>	
	7	*Discussion*		Weiner, 158-212
		<i>3. Unconformities, Uniformitarianism, Archean geology, How to recognize life, "What do hybrids add to evolution? What problems must they overcome?"</i>		
	12	The Proterozoic and Earliest Life	8, 9	
	14	Dawn of Paleozoic Life, Eukaryotes	206-220, <i>51-63</i>	Weiner, 213-247
	19	Paleozoic Sequences	236-247, 259-264, 294-309, 317, 331-338	
	21	*Discussion*		Weiner, 248-303
		<i>4. Contrasting Archean and Precambrian Geology, Sedimentary Facies, Prokaryotes vs. Eukaryotes, Humans as an evolutionary force.</i>		
	26	Paleomag	7 , 135- 161	
	28	Appalachians	11, 12, 13 , 264-279, 313-320, 342-355	
March	5	Fishes	256-257, 284-286, 290-291, 372-376, <i>65-91</i>	
	7	*Discussion*		
		<i>5. Paleozoic fishes, Precambrian vs. Phanerozoic, Paleomag. evid. for Plate Tectonics, Sequence concept & clastic wedges, Speciation & extinction pattern.</i>		
	11-15	SPRING BREAK		
	19	Absaroka	13 , 331-338	
	21	Permian extinction	98-110, <i>376-380</i>	
	26	Cordillera	14, 15 387-413, 452-474	
	28	Dinosaurs & K-T boundary extinction	<i>93-98, 110-167</i>	
		<i>6. PAL evolution, Conquering land, Recognizing eustatic SL change through facies, Dinosaurs, hot or cold blooded?; Dinosaurs, examples of convergent evolution.</i>		
April	2	Mammals	15 489-504, <i>169-205</i>	
	4	No class		
	9	*Discussion*		

7. *Mass extinctions, Cordilleran geology, Petroleum geology, Mammalian evolution, SL curves, Tertiary orogeny.*

11	Bonus Day	
16	Himalaya-Alpine	15 474-480
18	Quaternary: Ice Ages and Climate Change	16 507-531, 482-488 206-226
23	Hominids	16 532-543
25	*Discussion*	226-251

8. *Causes of ice ages, Mesozoic-Cenozoic vs. Late Proterozoic of eastern North America, Hominid evolution, Recognizing humans, Personal views or perspective on Science.*

If you have a learning or physical disability that might affect your performance in this class, please inform me and Dr. Kay Durden, Coordinator of Disabled Student Services, x3609, to verify your status and provide you with appropriate assistance.

WF date for this class is Thursday 21 February. The Final is scheduled for 8am Tuesday 7 May.

My objective for this class is that you begin to understand the reasoning behind how we know what we know about earth history and the history of life through time. We will be very interested in how different lines of evidence are assembled to construct models of the earth in the past, and what are the assumptions of these models. You will express your understanding of lecture and lab material (i.e., lines of evidence) and assigned readings through short papers on assigned topics, prepared and submitted biweekly. At least once in the semester you will be given responsibility for leading the class in discussion on some aspect of the assigned reading.

Grading: There will be no tests. Every other week you will be responsible for turning in a typed, 5 p. essay on one of several assigned topics, based on lecture, lab or assigned reading. Papers are due at the beginning of Th class; Papers are also to be turned in as MS Word email attachments to dennis@sc.edu. Subject heading of the email should be AGLY 102 – (your last name) – Paper (1, 2, 3, etc).

Biweekly discussions will be held on Weiner and Gould (ed.) assigned reading. Students will be given responsibility for leading discussion, and are expected to participate. **Absence from more than one discussion will result in an F for the class.**

Laboratory: 10 pts a week may be scored in the Laboratory. Scores will be based on written lab exercises. A single 20 point quiz is scheduled for the last lab meeting. **Absence from more than one lab will result in an F for the class.**

160	Eight biweekly essays
50	Final
40	Discussion participation (15 pts. for leading)
<u>140</u>	Lab Grade
390	Total Possible Points

LABORATORY OUTLINE

Laboratory meets Thursday, 1:40-4:30. Attendance is mandatory.

January	10	Rock types; overprinting, unconformities	
	17	Rock Identification and Contours	
	24	*Aiken County Stratigraphy*	
	31	Stars and spectra	
February	7	Facies and Geologic Maps	Ch. 3
	14	Correlation	Ch. 4, App. A1
	21	Fossils	
March	28	*Structure and Metamorphic Rocks Trip*	
	7	*Fossil Field Trip*	
	21	Fossil and Time - Dating	
April	28	Folds and Faults	
	4	No Lab	

18	Igneous and Metamorphic rocks
25	Lab Quiz

There will be no makeup labs.

* Field trip in USCA vehicles. Come in comfortable walking shoes and play clothes.