

Syllabus: Earth's History of Global Change

GEOL 1122 (#01-803) University of Georgia Fall Semester, 2009
9:30-10:45 Tu&Th Room 200A GG

Professor: Dr. L. Bruce Railsback, Professor, Department of Geology, Univ. of Georgia
B.S. Univ. of Iowa 1981; M.S. Univ. of Iowa 1983; Ph.D. Univ. of Illinois 1989.

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Office Hours: Anytime except 8:00-9:30 am T-Th and 2:00-4:30 MW.

Making an appointment by phone or by email or after class is a good idea.

Textbook: Stanley, S.M., 2009, *Earth System History* (3rd edn.): New York, W.H. Freeman & Co., 551 pp.

Course web page: <http://www.gly.uga.edu/railsback/1122main.html>. This syllabus, including the attached schedule, is subject to change as posted on the course web page.

Course objectives: To acquaint students with the history of the Earth and its life, with emphasis on large-scale patterns of global change. We've inherited control of a planet and, to make intelligent decisions, we need an understanding of how that planet works and how it has gotten to its present condition.

<u>Course Requirements:</u>	Proportion of Final Grade
Participation/In-Class Responses/Summaries of creation stories	5%
Midterm Exam 1 (Tuesday, September 22, 2009 9:30-10:45 am 200 GG)	23%
Midterm Exam 2 (Thursday, October 15, 2009 9:30-10:45 am 200 GG)	35%
Final Exam (Tuesday, December 15, 2009 8:00-11:00 am 200 GG)	<u>37%</u>
Students who have other prior commitments so that they cannot take exams on these days at these times should not take the class.	100%

Attendance and Grades: Detailed records of attendance will not be maintained, and attendance will not be used in calculating final grades. However, it is very difficult to achieve an A, a B, or a C in this course without attending class regularly. Students who choose not to come to class are choosing to receive low grades. It is assumed that students, as adults of voting and soldiering age who have chosen to get a college education, are sufficiently mature to come to class, and sufficiently mature to recognize that their rewards (grades) will depend on their attendance and effort in studying.

The instructor reserves the right to submit statements of withdrawal for students who do not take the first mid-term examination.

Time: Lectures will begin promptly at 9:30 and end no later than 10:45. This course provides 35 hours to cover 4,600,000,000 years of earth history, so there is no time to waste. If you must come in late or leave early, please sit at the sides of the room so as to not distract your colleagues by walking in front of them.

Classroom etiquette: Class meetings are intended for lecture on and discussion of the subject matter, and for students to ask questions about that material. Students are strongly encouraged to ask questions and to remember that there are no stupid questions.

To allow the students to hear all the lectures and participate in all the discussions for which they are paying, no private personal conversations can take place during class. Failure to adhere to this basic maxim of civilized behavior may result in administrative withdrawal from the class. Seating may be assigned as needed.

Pagers and cellular telephones should be deactivated during class time to avoid disturbing students who are trying to listen to class activities.

Closing notebooks, putting on coats, and talking while the lecture or discussion ends are rude behaviors. Many students will still be trying to follow the lecture or discussion that they have paid to attend.

Students with learning disabilities certified by UGA must inform the professor of measures needed to account for those disabilities by the end of the third class meeting. Students for whom the University provides a note-taker are reminded that note-takers are required to not deliver notes for any lecture that the disabled student does not attend.

Student Athletes: Students wishing that their course grades be released to advisors in the UGA athletics program must give the professor a signed dated letter indicating that wish and

indicating the name and campus address of the person to whom the grades should be sent. The course web page has a sample letter or template.

Lecture and Laboratory: GEOL 1122 is a lecture course, and GEOL 1122L is the corresponding laboratory course providing hands-on experience in a smaller class. GEOL 1122 and GEOL 1122L function independently. Students in GEOL 1122L will receive a separate grade for that course.

The geologic time scale will appear repeatedly on exams. Student will be required to know the names and order of the eons, eras, and periods, to know the age of the earth, and to know how many years ago the Hadean, Archean, Proterozoic, Paleozoic, Mesozoic, and Cenozoic began and ended. See page 4 of this syllabus.

Reading and Discussion of *Creation Stories from around the World*: Stories will be discussed in class according to the attached schedule. Discussion will be initiated by a randomly chosen student who will briefly (in less than two minutes, without recourse to the text) coherently summarize the story. Then we will discuss whether the story is appealing (1) as a literal account of the origin of the world and/or (2) as a metaphorical statement on the human relationship to nature. These discussions will develop ideas useful in answering an essay question on the final exam.

Exams: The mid-term examinations will consist of matching, multiple choice, and short answer (1 to 3 sentences) questions. The first part of the final exam will have the same format as the mid-term exams. The second part of the final exam will consist of two essay questions selected randomly from questions linked from the course web page. Copies of previous exams will be available on the course web page. Suggestions on how to prepare for exams are also included on the course web page. Exams must be written with non-red ink or sharp dark pencil.

Make-up exams are usually essay exams, because essay exams can be much more easily prepared on short notice. Exams can be made up in the documented event of illness, death in family, or jury duty. Car trouble, visits by friends and relatives, weddings, travel plans, and other exigencies beyond serious illness or death in family will not be treated as reasonable excuses for missing exams. The meeting to schedule a make-up exam typically takes place at the end of the next class meeting after the exam, and any student wishing to take the make-up exam must justify doing so at least three hours before that class meeting and must be present at that scheduling meeting unless absent for reasons that justify missing an exam.

The exams will require studying and preparation. Many students do not study for the first exam in this course, hoping to find that they don't need to study. Students in that subset of the class usually receive grades between 20 and 50 on the first exam, and their course grade is irreparably lowered. The way to avoid that fate is simply to study.

The general rule at most universities is that a student should expect to do at least two hours of work (reading or studying) outside class for every hour spent attending class. That level of preparation, in addition to studying for exams, should leave the student well-prepared.

Exams will be graded blindly, in that students will be asked to fold over the corner of the front page of their exam so that the instructor does not see the name. Exams will be graded one page at a time (i.e., the first page of everyone's exam will be graded, then the second page, and so on). The exams will be shuffled before the grading of each page. These procedures ensure that no bias can enter into the grading of exams.

Final Grades: All exam and other grades are recorded as numbers, not letter grades. At the end of the course, final numerical averages are used to determine final letter grades. Percentages used to divide letter grades will be at or below the following values: A 92%, A- 90%, B+ 87%, B 83%, B- 80%, C+ 77%, C 73%, C- 70%, D+ 67%, D 63%, D- 60%; these vary from year to year. Students are assured that there will always be at least one "A" (and usually several) as a "curve" is developed to fit the distribution of final grades.

Your instructor wants students to learn the material, to do well on the exams, and to receive good grades in the course. Low grades are not a necessity - there will be no problem with giving nothing but A's and B's if all the students do A and B work.

The Administration of the University of Georgia requires that the following statements appear on all syllabi:

Students are expected to observe the University Honor Code and Academic Honesty Policy. All academic work must meet the standards contained in *A Culture of Honesty*. Students are responsible for informing themselves about those standards before performing any academic work. The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

GEOL 1122 Schedule for Fall 2009 - See course web page for updates & supplements

Lxr	Date	Topic or Business	Reading* (see notes below)
<i>Part I. Basic Materials in Historical Geology</i>			
1	8/18/09	Introduction; Minerals	Syllabus (read it!); 31-35, web pages
2	8/20/09	Igneous and Metamorphic Rocks	35-37; 44-46; CS #1
3	8/25/09	Sedimentary Rocks, and Fossils	37-44; 99-102 [106-123]; 47-53; Web diagram; CS #2
4	8/27/09	Strata and Stratigraphy	8-10; 142-147; Web diagram; CS #3
5	9/01/09	Structural Geology & Plate Tectonics	178; 187-193; 202-204; Web diagrams
<i>Part II. Basic Principles and Geologic Time</i>			
6	9/03/09	Goals and Theories	"What is Science?" (web); CS #4
7	9/08/09	Working Through Time	3-5; CS #6
8	9/10/09	Correlative and Relative Dating	142-144; Web Diagrams; CS #7
9	9/15/09	Absolute Dating	137-139; [28-29 on isotopes]; Web stuff; CS #9
10	9/17/09	Age of the Earth & Geologic Time Scales	136-137; 10-12; 145-147; Web Diagram
-	9/22/09	Exam I	- -
<i>Part III. Biological Evolution of the Earth</i>			
11	9/24/09	Explanations of Biological Evolution	152-158; Web examples
12	9/29/09	Mechanics of Biological Evolution	158-172; WWW Life ; CS #10
13	10/01/09	Precambrian Life	256-261; 269-275; Web resources; CS #11
14	10/06/09	Evolution of Vertebrates I	70-73; 321-325; 327-330; 351-356; Web
15	10/08/09	Evolution of Vertebrates II	382-390 (incl. ESS 16-1); 379-380; 411- 414, ESS 17-1; CS #13
16	10/13/09	Evolution of Mammals & Hominids	434-437; 484-493; Web pages
-	10/15/09	Exam II	
<i>Part IV. Environmental Evolution of the Earth</i>			
17	10/20/09	The Origin of the Universe	244-247; Web reading and pages
18	10/22/09	Evolution of the Earth	247-256; 183-184; 284-286; 362-364; maps in cover and on 265, 289, 305, 343, 357, 358, 375, 391, 405, 415, 431, 441; Web; CS#14&15
19	10/27/09	Evolution of the Ocean & Atmosphere	249; 261; 275-280; 219-229; web; CS #16
20	10/29/09	Phanerozoic Sea Level and Climate	144-147; Web diagram
21	11/03/09	The Cenozoic	440-443 [232-234 on isotopes] Web; CS #12
22	11/05/09	Quaternary Glaciation	104-106; 461-470; Web diagrams
23	11/10/09	The Holocene I - Greenhouse effect & global warming	Web pages
24	11/12/09	The Holocene II - Change of the Earth Surface	Web pages
25	11/17/09	H3 - 20th-21st Century Enviro Issues	503-507; 514-519; [Web pages]
26	11/19/09	The Holocene IV - Changing ecologies	Web Lecture Illustrations; CS #20 .
27	12/01/09	The Holocene V - Alternatives for the Late Holocene	- - -
28	12/03/09	Summary and Review	The Land Ethic Revisited (Web)
	12/08/09	No class meeting because UGA classes follow a Friday schedule on this Tuesday.	
-	12/15/09	Final Exam 8:00-11:00 am Room 200A GG (there are no conflicting exams)	

*Notes regarding readings:

All readings are in Stanley's *Earth System History*, except for web pages, which are labeled "WWW", and for numbers labeled "CS", which are numbers for stories in *Creation Stories from around the World*, a publication linked from the course website.

Pages in brackets are not required reading, and they will not be used to generate exam questions.

They are suggested reading that may make lecture material easier to understand.

Reading assignments do not include "Earth System Shift" ("ESS") inserts unless specifically noted.

Reading assignments include all figures to which reference is made, even if the figures fall outside the page range indicated.

Undiscussed CS readings roll over to the next class meeting.

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The fourth page of this syllabus is a diagram illustrating the geologic time scale. It is included in the paper version distributed in class.