GEOL 102 Historical Geology:
The History of Earth and Life

Spring Semester 2012

PLS 1113 9:00-9:50 am MWF (Lecture)
GEO 2107 2:00-5:00 p.m. W (Lab)

Dr. Thomas R. Holtz, Jr.
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NOTE: It is your responsibility as a student to completely read through and understand this syllabus. If you have questions about it, please contact Dr. Holtz. You will be held responsible for following all requirements of this syllabus.

Course Organization: 3 lectures per week (Monday, Wednesday, Friday), 1 laboratory per week (Wednesday).

Field Trip: 1 non-mandatory field trip is planned:

- Sunday, April 22: historical geology of western Maryland (latest Precambrian through Triassic)
  This is non-mandatory and non-graded, but will greatly advance your understanding of historical geology; additionally, there will be rock- and fossil-collecting opportunities on the trips.

Grade:				
	Exam 1:	20%	Labs:	20%
	Exam 2:	20%	Lab Exam:	5%
	Final:	20%	Quizzes:	15%

Grade Scale: ≥90, A; 80-89, B; 70-79, C; 60-69, D; <60, F. "+" and "-" grades are given to the top and bottom two-point range, respectively, within each grade.

Class participation is expected from each student, but will not be used in the calculation of the grade. No extra credit is planned for this course.

LEARNING OUTCOMES: By the end of the semester, every student should be able to:

- Identify the major techniques used by geologists to assess the paleoenvironments and sequence of events found in the rock record
- Recognize the sequence of and interrelationships between major events in the history of the Earth, its surface, and its life forms
- Properly classify different types of sedimentary rocks & structures and major groups of fossilizing organisms from hand samples
- Correctly interpret geological cross-sections, fence-diagrams & other stratigraphic charts, and geologic maps

Lecture Text: *Earth System History 3rd Edition* by Steven M. Stanley (2009, W.H. Freeman & Co.)

Lab Text: *Interpreting Earth History: A Manual in Historical Geology*. Seventh Edition. (***IEH***) by S. Ritter & M. Petersen (2006, Waveland Press, ISBN-13 978-1-57766-704-9)

Supplementary Text: *Maryland's Geology* by Martin F. Schmidt, Jr. (2010, Schiffer Publishers, ISBN-13 978-0764335938)

Websites: http://www.geol.umd.edu/~tholtz/G102/
Website includes copies of the syllabus, handouts, lecture notes, etc. This site will be built up throughout the semester as each lecture page, etc., is added.

http://elms.umd.edu/ Course ID: 2012_01_GEOL102_tholtz
The ELMS Blackboard site will include required online quizzes; announcements concerning the class; class discussion list; copies of the handouts; and so forth. If you have not already done so, make sure that you get access to ELMS.

Policies:

Academic integrity: The University of Maryland has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit http://shc.umd.edu/SHC/Default.aspx

The University of Maryland is one of a small number of universities with a student-administered Honors Code and an Honors Pledge, available on the web at http://osc.umd.edu/OSC/AcademicHonorPledge.aspx. The code prohibits students from cheating on exams, plagiarizing papers, submitting the same paper for credit in two courses without authorization, buying papers, submitting fraudulent documents, and forging signatures. The University Senate encourages instructors to ask students to write the following signed statement on each examination or assignment: "I pledge on my honor that I have not given or received any unauthorized assistance on this examination (or assignment)."

Academic Accommodations: If you have a documented disability, you should contact Disability Support Services 0126 Shoemaker Hall. Each semester students with documented disabilities should apply to DSS for accommodation request forms which you can provide to your professors as proof of your eligibility for accommodations. The rules for eligibility and the types of accommodations a student may request can be reviewed on the DSS web site at http://www.counseling.umd.edu/DSS/receiving_serv.html.

Religious Observances: The University System of Maryland policy provides that students should not be penalized because of observances of their religious beliefs, students shall be given an opportunity, whenever feasible, to make up within a reasonable time any academic assignment that is missed due to individual participation in religious observances. It is the responsibility of the student to inform the instructor of any intended absences for religious observances in advance. **Notice should be provided as soon as possible but no later than the end of the schedule adjustment period (February 7)**. Faculty should further remind students that prior notification is especially important in connection with final exams, since failure to reschedule a final exam before the conclusion of the final examination period may result in loss of credits during the semester. The problem is especially likely to arise when final exams are scheduled on Saturdays.

Attendance: Regular attendance and participation in this class and lab is the best way to grasp the concepts and principles being discussed. However, in the event that a class must be missed due to an illness, the policy in this class is as follows:

1. For every medically necessary absence from class (lecture or lab), a reasonable effort should be made to notify the instructor in advance of the class. When returning to class, students must bring a note identifying the date of and reason for the absence, and acknowledging that the information in the note is accurate.

2. If a student is absent on days when exams or labs are scheduled he or she is required to notify the instructor in advance, and upon returning to class, bring documentation of the illness, signed by a health care professional. Absences from exams will not be excused except for those causes approved by University policy (see http://www.umd.edu/catalog/index.cfm/show/content.section/c/27/ss/1584/s/1540 of the

UMCP Undergraduate Catalog). Only those students excused for these causes will be eligible for a make-up exam.

Other: All work on tests, quizzes, etc. must be your own. Although group study can be very useful, make sure that all your work you turn in is your own.

Throughout the course there will be a series of online quizzes using the ELMS system. ***Please make certain that you stay current with these***. Each will typically cover material from class from the previous quiz onward.

Much of the information presented is not available in the textbook. If you cannot make a certain lecture, try and find another student who might lend your their notes. (In fact, establishing a study group early in the course has proven useful for many students in the past).

In cases of inclement weather or other unexpected emergencies, the University may close. Please consult the University main webpage (http://www.umd.edu) or call 301-405-7669 (SNOW) to confirm such cancellations. Dr. Holtz will contact students via ELMS in order to inform them concerning delays of due dates for projects to be handed in or for exams: typically these will be shifted until the next available class date.

Keep up with the required readings! Although the format of the lectures and the chapters do not always match, the readings are important as well. Some of the material to be tested is covered in more detail in the readings than in class.

Readings should be done **prior** to the classtime they are listed.

Course Evaluations: CourseEvalUM will be open for students to complete their evaluations for Spring 2012 courses between Tuesday, April 24, and Wednesday, May 11. Students can go directly to the website (www.courseevalum.umd.edu) to complete their evaluations, beginning April 24. You will be alerted about these dates and provided more information closer to that time, and students will be alerted via their official University e-mail account.

Students who complete evaluations for all of their courses in the previous semester (excluding summer), can access the posted results via Testudo's CourseEvalUM Reporting link for any course on campus that has at least a 70% response rate. You can find more information, including periodic updates, at the IRPA course evaluation website:
https://www.irpa.umd.edu/Assessment/CourseEval/fac_faq.shtml

The expectation is that all students will complete these. This is YOUR chance to anonymously evaluate this class: please use this opportunity!

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MAIN SYLLABUS

Jan. 25 Ruins of an Older World: The Discovery of Earth History
Reading: Chap 1
LAB: No Lab Today, but meet at lab to go over policies

Jan. 27 Every Rock is a Record of History: Historical Approaches to Lithology
Reading: Chap. 2

Jan. 30	Terrestrial Sedimentary Environments Reading: Chap. 5
Feb. 1	Fluvial & Deltaic Environments; Walther's Law Reading: Chap. 5 **LAB**: Analysis of Sedimentary Rocks (***IEH*** Lab 3)
Feb. 3	Coastal & Marine Environments; Transgressions & Regressions Reading: Chap. 5
Feb. 6	Geologic Time I Reading: Chap. 6 **Quiz 1 due**
Feb. 8	Geologic Time II Reading: Chap. 6 **LAB:** Depositional Environments (***IEH*** Lab 4)
Feb. 10	Lithostratigraphy Reading: Chap. 6
Feb. 13	Biostratigraphy & the Geologic Timescale Reading: Chap. 6
Feb. 15	Another Geography: Plate Tectonics Reading: Chap. 8 **LAB:** Relative Dating and Unconformities (***IEH*** Lab 1) & Radiometric Ages (***IEH*** Lab 2)
Feb. 17	Every Valley Shall Be Exalted…: Orogenesis I Reading: Chap. 9 **Quiz 2 due**
Feb. 20	…And Every Mountain and Hill Made Low: Orogenesis II & Geochemical Cycles Reading: Chaps. 9 & 10
Feb. 22	Fossils & Fossilization Reading: Chap. 3, 4 **LAB:** Stratigraphy (***IEH*** Lab 5)
Feb. 24	Evolution I: On the Origin of Species by Means of Natural Selection Reading: Chap. 7
Feb. 27	Evolution II: Tempo & Mode, Patterns & Process Reading: Chap. 7 **Quiz 3 due**
Feb. 29	Phylogeny, the Tree of Life Reading: Chap. 7 **LAB**: Facies Relationships and Sea-Level Change (***IEH*** Lab 8)
Mar. 2	**Exam 1**
Mar. 5	Introduction to the Precambrian and the Hadean Eon: Strange Æons Reading: Chap. 11

Mar. 7	The Archean Eon I: Rocks and Atmospheres Reading: Chap. 11 **LAB**: Fossils and Fossilization (***IEH*** Lab 8)
Mar. 9	The Archean Eon II: Biogenesis Reading: Chap. 12
Mar. 12	The Proterozoic Eon I: Birth of Modern Geology **Quiz 4 due**
Mar. 14	The Proterozoic Eon II: Rodinia and Pannotia Reading: Chap. 12 **LAB**: Paleontology I Common Precambrian and Paleozoic Fossils I (Lab will be a handout)
Mar. 16	The Proterozoic Eon III: Snowball Earth and the Garden of Ediacara Reading: Chap. 12
Mar. 19-23	**SPRING BREAK!**
Mar. 26	The Early Paleozoic Era I: Cambrian and Ordovician Geology Reading: Chap. 13-14
Mar. 28	The Early Paleozoic Era II: When Trilobites Ruled the Earth Reading: Chap. 13-14 **LAB**: Paleontology II Common Paleozoic Fossils II (Lab will be a handout)
Mar. 30	The Middle Paleozoic Era I: Siluro-Devonian Geology Reading: Chap. 13-14
Apr. 2	The Middle Paleozoic Era II: The Conquest of Land Reading: Chap. 13-14 **Quiz 5 due**
Apr. 4	The Late Paleozoic Era I: Carboniferous Geology Reading: Chap. 15 **LAB**: Paleontology III Common Post-Paleozoic Fossils (Lab will be a handout)
Apr. 6	The Late Paleozoic Era II: Permian Geology Reading: Chap. 15
Apr. 9	The Late Paleozoic Era III: Life in the Coal Swamps Reading: Chap. 15
Apr. 11	The Late Paleozoic Era IV: Permian Life and the Permo-Triassic Extinction Reading: Chap. 15 **Quiz 6 due** **LAB**: Index Fossils and Depositional Sequences (***IEH*** Lab 12)
Apr. 13	**Exam 2**
Apr. 16	The Mesozoic Era I: Triassic-Jurassic Geology Reading: Chap. 16
Apr. 18	The Mesozoic Era II: Cretaceous Geology

Reading: Chaps. 17
LAB: Interpretation of Geological Maps (***IEH*** Lab 13)

Apr. 20 The Mesozoic Era III: Black Shales and Chalk Seas & The Mesozoic Era IV: Flowers and Mammals
Reading: Chap. 16-17
Quiz 7 due

Apr. 22 (Sun.) – western Maryland Field Trip: details TBA

Apr. 23 The Mesozoic Era V: The Age of Dinosaurs
Reading: Chap. 16-17

Apr. 25 The Mesozoic Era VI: The K/Pg Extinction
Reading: Chap. 17
LAB: Canadian Shield, Stable Platform, and Coastal Plain (***IEH*** Lab 14) and Paleozoic Orogenies of Ancestral North America (***IEH*** Lab 15)

Apr. 27 The Cenozoic Era I: Paleogene Geology
Reading: Chap. 18

Apr. 30 The Cenozoic Era II: Neogene Geology
Reading: Chap. 19
Quiz 8 due

May 2 The Cenozoic Era III: Quaternary Geology
Reading: Chaps. 20
LAB: Cordilleran Geology (***IEH*** Lab 16), Cenozoic Geology (***IEH*** Lab 17), and Pleistocene Geology (***IEH*** Lab 18)

May 4 The Cenozoic Era IV: The Age of Mammals
Reading: Chap. 18-20

May 7 The Cenozoic Era V: The Scatterlings of Africa
Reading: Chap. 18-20

May 9 The Cenozoic Era VI: To the Anthropocene and Beyond!
Reading: Chap. 18-20
Quiz 9 due
LAB: **Lab Exam**

May 16 (***Wednesday***) Final Exam, PLS 1113, 8:00-10:00 am