

**GEOL 102 Historical Geology:  
The History of Earth and Life**  
Spring Semester 2008

PLS 1172 9:00-9:50 am MWF (Lecture)  
GEO 2107 2:00-5:00 p.m. W (Lab)

Lecture Instructor: Dr. Thomas R. Holtz, Jr.  
Room: Centreville 1216, Office Hours: Tu 8:30-11:00 am or by appointment  
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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:

- Saturday, April 5: historical geology of western Maryland (latest Precambrian through Triassic)  
These are 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:	25%	Labs:	20%
Exam 2:	25%	Lab Final:	5%
Final:	25%		

Grade Scale:  $\geq 90$ , 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.

Lecture Text: *Earth System History 2<sup>nd</sup> Edition* by Steven M. Stanley (2005, W.H. Freeman & Co.)

Lab Text: *Laboratory Studies in Earth History 9<sup>th</sup> Edition (LSEH)* by Harold L. Levin & Michael S. Smith (2008, McGraw Hill)

Supplementary Text: *Maryland's Geology* by Martin F. Schmidt, Jr. (1993, Tidewater Publishers)

Website: <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.

**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://www.studenthonorcouncil.umd.edu/whatis.html>

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://www.jpo.umd.edu/aca/honorpledge.html>. 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](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 8).** 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.

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

Absences from exams will not be excused except for those causes approved by University policy (see p. 39-40 of the *UMCP Undergraduate Catalog 2007/2008*). Only those students excused for these causes will be eligible for a make-up exam.

Attendance in class is expected. 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).

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.

**NOTE:** As part of the nature of the course, there will be a lot of memorization (less than a foreign language class, but more than that found in more mathematically-oriented introductory science classes). This will include lots of geological and paleontological terms. Also, if there are words or concepts with which you are not familiar, feel free to ask Dr. Holtz (in class, after class, over email, etc.) for an explanation or clarification.

**Course Evaluations:** As with all CMPS classes, the course evaluations will be done online during the last several weeks of the semester. 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. 28 History as Pattern and as Process; The Discovery of Earth History  
Reading: Chap 1
- Jan. 30 Every Rock is a Record of History: Historical Approaches to Lithology  
Reading: Chap. 2  
**LAB:** Introduction to Sedimentary Rocks & Textural Clues to the History of Sediment (*LSEH 1-2*) (Also, read Sedimentary Rocks Under the Microscope (*LSEH 3*))
- Feb. 1 Terrestrial Sedimentary Environments  
Reading: Chap. 5
- Feb. 4 Fluvial & Deltaic Environments; Walther's Law  
Reading: Chap. 5
- Feb. 6 Coastal & Marine Environments; Transgressions & Regressions  
Reading: Chap. 5  
**LAB:** Ancient Sedimentary Environments (*LSEH 4*)
- Feb. 8 Geologic Time I  
Reading: Chap. 6
- Feb. 11 Geologic Time II  
Reading: Chap. 6
- Feb. 13 Lithostratigraphy  
Reading: Chap. 6  
**LAB:** Tectonic Settings (*LSEH 5*)
- Feb. 15 Biostratigraphy & the Geologic Timescale  
Reading: Chap. 6
- Feb. 18 Plate Tectonics and Continental Drift  
Reading: Chap. 8
- Feb. 20 Orogenesis I  
Reading: Chap. 9  
**LAB:** Sea-Floor Spreading & Plate Tectonics (*LSEH 6*)
- Feb. 22 Orogenesis II  
Reading: Chap. 9
- Feb. 25 Fossils & Fossilization  
Reading: Chap. 3, 4
- Feb. 27 Evolution I: On the Origin of Species by Means of Natural Selection  
Reading: Chap. 7  
**LAB:** Age Relations and Unconformity (*LSEH 7*)

- Feb. 29 Evolution II: Tempo & Mode, Patterns & Process  
Reading: Chap. 7
- Mar. 3 Phylogeny, the Tree of Life  
Reading: Chap. 7
- Mar. 5 **Exam 1**  
**LAB:** Rock Units and Time-Rock Units (*LSEH 8*)
- Mar. 7 The Archean Eon I: The Oldest Rocks  
Reading: Chap. 11
- Mar. 10 The Archean Eon II: The Origin of Life  
Reading: Chap. 11
- Mar. 12 The Proterozoic Eon I: Birth of Modern Geology  
Reading: Chap. 12  
**LAB:** The Advance and Retreat of Ancient Shorelines (*LSEH 9*)
- Mar. 14 The Proterozoic Eon II: Rodinia and Pannotia  
Reading: Chap. 12
- Mar. 17-21 **SPRING BREAK!**
- Mar. 24 The Proterozoic Eon III: Snowball Earth and the Garden of Ediacara  
Reading: Chap. 12
- Mar. 26 The Early Paleozoic Era I: Cambrian and Ordovician Geology  
Reading: Chap. 13-14  
**LAB:** Fossils and Their Living Relatives: Protists, Sponges, Corals, Bryozoans, and Brachiopods (*LSEH 10*)
- Mar. 28 The Early Paleozoic Era II: When Trilobites Ruled the Earth  
Reading: Chaps. 13-14
- Mar. 31 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  
**LAB:** Fossils and Their Living Relatives: Mollusks, Arthropods, Echinoderms, Graptolites, and Plants (*LSEH 11*)
- Apr. 4 The Late Paleozoic Era I: Carboniferous Geology  
Reading: Chap. 15
- Apr. 5 (Sat.) – western Maryland Field Trip: details TBA**
- Apr. 7 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  
**LAB:** Fossil Indicators of Age, Environment, and Correlation (*LSEH 12*)

- Apr. 11 The Late Paleozoic Era IV: Permian Life and the Permo-Triassic Extinction  
Reading: Chap. 15
- Apr. 14 **Exam 2**
- Apr. 16 The Mesozoic Era I: Triassic-Jurassic Geology  
Reading: Chap. 16  
**LAB:** Geologic Maps and Geologic Structures (*LSEH 14*)
- Apr. 18 The Mesozoic Era II: Cretaceous Geology  
Reading: Chap. 17
- Apr. 21 The Mesozoic Era III: Black Shales and Chalk Seas  
Reading: Chaps. 16-17
- Apr. 23 The Mesozoic Era IV: Flowers and Mammals  
Reading: Chap. 16-17  
**LAB:** Canadian Shield and Basement Rocks of North America (*LSEH 15*)
- Apr. 25 The Mesozoic Era V: The Age of Dinosaurs  
Reading: Chap. 16-17
- Apr. 28 The Mesozoic Era VI: The K/Pg Extinction  
Reading: Chap. 16-17
- Apr. 30 The Cenozoic Era I: Paleogene Geology  
Reading: Chap. 18  
**LAB:** Mountain Belts of North America & The Interior Plains and Plateaus (*LSEH 16-17*)
- May 2 The Cenozoic Era II: Neogene Geology  
Reading: Chap. 19
- May 5 The Cenozoic Era III: Quaternary Geology  
Reading: Chaps. 20
- May 7 The Cenozoic Era IV: The Age of Mammals  
Reading: Chap. 18-20  
**LAB:** Lab Final
- May 9 The Cenozoic Era V: The Scatterlings of Africa  
Reading: Chap. 18-20
- May 12 The Cenozoic Era VI: Living With The Ice Ages  
Reading: Chap. 18-20
- May 19 (**Monday**) Final Exam, PLS 1172, 8:00-10:00 am