

**GEOL 102 Historical Geology:  
The History of Earth and Life**  
Spring Semester 2009

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

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 25: 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:	20%	Labs:	20%
Exam 2:	20%	Lab Exam 1:	5%
Final:	20%	Lab Exam 2:	5%
Quizzes:	10%		

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 3<sup>rd</sup> Edition* by Steven M. Stanley (2009, W.H. Freeman & Co.)

Lab Text: *Deciphering Earth History: Exercises in Historical Geology. 4<sup>th</sup> Edition. (DEH)* by R.A. Gastaldo, C.E. Savdra & R.D. Lewis (2006, CPC Publishing)

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

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: 200901\_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://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 6).** 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, 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.

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 2008/2009*). Only those students excused for these causes will be eligible for a make-up exam.

Throughout the course there will be a series of online quizzes using the ELMS system. Please make certain that you stay current with these. They will **typically** be made available Monday afternoon and be due at the beginning of class the following Friday (or available Friday afternoon and due the following Wednesday), and will cover material from class from the previous quiz onward.

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.

Course Evaluations: CourseEvalUM will be open for students to complete their evaluations for Spring 2009 courses between Tuesday, April 28, and Wednesday, May 13. Students can go directly to the website ([www.courseevalum.umd.edu](http://www.courseevalum.umd.edu)) to complete their evaluations, beginning April 28. 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](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

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|---------|---|
| Jan. 26 | Ruins of an Older World: The Discovery of Earth History<br>Reading: Chap 1  |
| Jan. 28 | Every Rock is a Record of History: Historical Approaches to Lithology<br>Reading: Chap. 2<br><b>LAB</b> : Description and Classification of Sedimentary Rocks ( <i>DEH</i> Lab 1) |
| Jan. 30 | Terrestrial Sedimentary Environments<br>Reading: Chap. 5  |
| Feb. 2  | Fluvial & Deltaic Environments; Walther's Law<br>Reading: Chap. 5   |
| Feb. 4  | Coastal & Marine Environments; Transgressions & Regressions<br>Reading: Chap. 5<br><b>LAB</b> : Interpretation of Sedimentary Rocks ( <i>DEH</i> Lab 2)                           |
| Feb. 6  | Geologic Time I<br>Reading: Chap. 6<br><b>Quiz 1 due</b>  |
| Feb. 9  | Geologic Time II<br>Reading: Chap. 6  |
| Feb. 11 | Lithostratigraphy<br>Reading: Chap. 6<br><b>LAB</b> : Relative Time and Sequence of Events ( <i>DEH</i> Lab 3)  |
| Feb. 13 | Biostratigraphy & the Geologic Timescale<br>Reading: Chap. 6  |
| Feb. 16 | Another Geography: Plate Tectonics<br>Reading: Chap. 8  |

- Feb. 18 Every Valley Shall Be Exalted...: Orogenesis I  
Reading: Chap. 9  
**LAB:** Lithostratigraphy (*DEH* Lab 4)  
**Quiz 2 due**
- Feb. 20 ...And Every Mountain and Hill Made Low: Orogenesis II & Geochemical Cycles  
Reading: Chaps. 9 & 10
- Feb. 23 Fossils & Fossilization  
Reading: Chap. 3, 4
- Feb. 25 Evolution I: On the Origin of Species by Means of Natural Selection  
Reading: Chap. 7  
**LAB:** Biostratigraphy (*DEH* Lab 5) & Radioisotopic Dating Techniques (*DEH* Lab 6)
- Feb. 27 Evolution II: Tempo & Mode, Patterns & Process  
Reading: Chap. 7  
**Quiz 3 due**
- Mar. 2 Phylogeny, the Tree of Life  
Reading: Chap. 7
- Mar. 4 **Exam 1**  
**LAB:** Fossil Preservation and Taphonomy (*DEH* Lab 8)
- Mar. 6 The Hadean Eon and Archean Eon I: Strange Æons  
Reading: Chap. 11
- Mar. 9 The Archean Eon II: The Origin of Life  
Reading: Chap. 11
- Mar. 11 The Proterozoic Eon I: Birth of Modern Geology  
Reading: Chap. 12  
**LAB: Lab Exam 1 (Covers material from 1/28 to 2/25)**
- Mar. 13 No Class Today  
**Quiz 4 due**
- Mar. 16-20 **SPRING BREAK!**
- Mar. 23 The Proterozoic Eon II: Rodinia and Pannotia  
Reading: Chap. 12
- Mar. 25 The Proterozoic Eon III: Snowball Earth and the Garden of Ediacara  
Reading: Chap. 12  
**LAB:** Paleontology I Protists, Sponges, Corals, Bryozoans (Read *DEH* Lab 10 and Appendix pp. A-1 to A-6; Lab will be a handout)
- Mar. 27 The Early Paleozoic Era I: Cambrian and Ordovician Geology  
Reading: Chap. 13-14
- Mar. 30 The Early Paleozoic Era II: When Trilobites Ruled the Earth  
Reading: Chaps. 13-14

- Apr. 1           The Middle Paleozoic Era I: Siluro-Devonian Geology  
 Reading: Chap. 13-14  
**LAB:** Paleontology II Brachiopods, Mollusks (Read *DEH* Lab 11 and Appendix A-7 to A-11;  
 Lab will be a handout)  
**Quiz 5 due**
- Apr. 3           The Middle Paleozoic Era II: The Conquest of Land  
 Reading: Chap. 13-14
- Apr. 6           The Late Paleozoic Era I: Carboniferous Geology  
 Reading: Chap. 15
- Apr. 8           The Late Paleozoic Era II: Permian Geology  
 Reading: Chap. 15  
**LAB:** Paleontology III Arthropods, Echinoderms, Graptolites (Read *DEH* Lab 12 and Appendix  
 A-10 to A-17; Lab will be a handout)
- Apr. 10          The Late Paleozoic Era III: Life in the Coal Swamps  
 Reading: Chap. 15  
**Quiz 6 due**
- Apr. 13          The Late Paleozoic Era IV: Permian Life and the Permo-Triassic Extinction  
 Reading: Chap. 15
- Apr. 15          **Exam 2**  
**LAB:** Paleontology IV Vertebrates, Plants (Read *DEH* Appendix A-17 to A-25; Lab is a handout)
- Apr. 17          The Mesozoic Era I: Triassic-Jurassic Geology  
 Reading: Chap. 16
- Apr. 20          The Mesozoic Era II: Cretaceous Geology  
 Reading: Chaps. 17
- Apr. 22          The Mesozoic Era III: Black Shales and Chalk Seas & The Mesozoic Era IV: Flowers and  
 Mammals  
 Reading: Chap. 16-17  
**LAB:** Geologic Maps and Interpretation of Earth History in Selected Regions pt. 1 (*DEH* Lab 15)  
**Quiz 7 due**
- Apr. 24          The Mesozoic Era V: The Age of Dinosaurs  
 Reading: Chap. 16-17
- Apr. 25 (Sat.) – western Maryland Field Trip: details TBA**
- Apr. 27          The Mesozoic Era VI: The K/Pg Extinction  
 Reading: Chap. 17
- Apr. 29          The Cenozoic Era I: Paleogene Geology  
 Reading: Chap. 18  
**LAB:** Geologic Maps and Interpretation of Earth History in Selected Regions pt. 2 (*DEH* Lab 15)
- May 1           The Cenozoic Era II: Neogene Geology  
 Reading: Chap. 19  
**Quiz 8 due**

- May 4            The Cenozoic Era III: Quaternary Geology  
Reading: Chaps. 20
- May 6            The Cenozoic Era IV: The Age of Mammals  
Reading: Chap. 18-20  
**LAB: Lab Exam 2 (Concentrates on labs from Mar. 4 onward)**
- May 8            The Cenozoic Era V: The Scatterlings of Africa  
Reading: Chap. 18-20
- May 11           The Cenozoic Era VI: Living With The Ice Ages  
Reading: Chap. 18-20  
**Quiz 9 due**
- May 18 (**Monday**)        Final Exam, PLS 1172, 8:00-10:00 am