

EVOLUTION OF THE EARTH GEOLOGY (51)-109

Instructor (Lecture portion): Dr. Paula Allen H208
 Office hours: 10:30-12:30 M-Th or by appoint.
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Lab Instructors: Dr. Paula Allen and Dr. Jeff Kuglitch
 Text Book: Prothero and Dott (2004) Evolution of the Earth (7th Edition),
 Lab Text: Frey, Pinet and Whitney (1994), Earth History
 Supplementary materials: Baraboo field trip guide and supplementary lab materials.
 Field Trip: An all day Saturday Field trip is required, no exceptions without a doctors
 excuse!!!!

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| Grade: Midterm 1: | 100 pts | Lab Quizzes | 50 pts |
| Midterm 2: | 100 pts | Lab Midterm | 100 pts |
| Final Lecture Exam | 100 pts | Lab Final | 100 pts |
| | | Lab Attendance/completion | 50 pts |

Lab and field trip attendance, and completion of labs will be recorded but not graded. If you miss the field trip **without** an excused absence you must write a 10 page term paper (topic of **my** choice) that will be due 4:00 pm May 12th (the last day of the semester) or you will receive an incomplete. If you miss lab **without** an excused absence, you are still responsible for the material, and you must work for me for two additional hours. If you miss a quiz or an exam, there will be no make-up.

Grade Scale based on percentage of total points out of 600.
 ≥90%, A; 80-89, B; 70-79, C; 60-69, D; <60, F. "+" and "-" grades are given to the top and bottom two-points in each grade range.

| DATE | LECTURE | LAB |
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| Week 1 JAN 30 | Introduction to Earth History CH 1 & 2 | Rock and Mineral Review Supplementary Materials p. L-1 |
| FEB 1 | History of the Science and Unifying Stratigraphic Principles CH. 4 | |
| FEB 3 | Classification of Sedimentary Rocks CH 4 | |
| Week 2 FEB 6 | Geologic Time Relative and Absolute Age Dating CH 4 & 5 | Classification of Sedimentary Rocks Earth History Chap 1, 2 Supplementary Materials p. L-16 In-lab handouts |
| FEB 8 | Evolution and the Fossil Record Ch 3 | |
| FEB 10 | Biostratigraphy and the Geologic Time Scale CH 1 & 4 | |
| Week 3 FEB 13 | Depositional Environments and Facies I, Terrestrial Environments CH 8 | Quiz 1 – Rocks and Minerals Fossil Preservation, Intro to Fossils and Trace Fossils Earth History Exercise #3 Appendix B |
| FEB 15 | Environments and Facies II Marine Depositional Systems | |
| FEB 17 | Climate change and Eustacy | |

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| Week 4 FEB 20 | Biogeochemical cycles, isotopes chemostratigraphy, and nutrients and evolution | Relative Age Dating and Application of Stratigraphic Principles Earth History Exercise #4 & 6 |
| FEB 22 | Stratigraphic Nomenclature and modern stratigraphy <i>Assigned Reading: Zalasiewicz et al 2004, Simplifying the stratigraphy of time, Geology v. 32, no. 1, p.1-4.</i> | |
| FEB 24 | Sequence Stratigraphy | |
| Week 5 FEB 27 | Midterm Review | Quiz 2 – Geologic Time Scale Topographic Maps Appendix D Earth History Exercise #7 |
| MAR 1 | MIDTERM EXAM I | |
| MAR 3 | Mountain Building, and Basin Formation Ch 7 <i>Reading: Pinter and Brandon (1997) How erosion builds mountains, Sci. Amer. April 1997 p. 74-79.</i> | |
| Week 6 MAR 6 | History of Continental Drift and Plate Tectonics CH 7 | Geologic Map Construction Appendix D Earth History Exercise #13 |
| MAR 8 | Tectonic Processes and the Wilson Cycle Ch 7 | |
| MAR 10 | Origin of the Earth and Atmosphere CH 6, 8 | |
| Week 7 No class | SPRING BREAK MAR 11-17 | No lab |
| Week 8 MAR 20 | Hadean and Archaen Earliest Life CH8 & 9 <i>March 20-21st GSA Akron, OH</i> | Quiz 3 – Relative Age and Geologic Maps Paleoecology Appendix C Handouts: Autecology and Synecology Exercises |
| MAR 22 | Proterozoic <i>Hoffman and Schrag, 2000, Snow ball Earth: Scientific American</i> CH 8 | |
| MAR 24 | Early Paleozoic Overview CH 10 | |
| Week 9 MAR 27 | Cambrian to Early Ordovician Epeiric Seas | Paleoenvironmental Reconstruction & Facies Maps Earth History Exercise #12 |
| MAR 29 | LAB OPEN MIDTERM REVIEW | |
| MAR 31 | " Middle Ordovician to Silurian Late Ordovician Mass Extinction CH 12 <i>Assigned Reading: Railsback et al, 1990. Palaeontological and isotope evidence for warm saline deep waters in Ordovician oceans, Nature vol. 343, p. 156-159.</i> | |

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| Week 10 APR 3 | Reef Evolution <i>Hallock, P. and Schlager, W., 1986. Nutrient excess and the demise of coral reefs and carbonate platforms. Palaios, v. 1, p. 389-398..</i> | LAB MIDTERM Thursday and Friday, April 6 & 7 Cumulative thus far but heavy on paleoecology and environmental reconstruction. |
| APR 5 | Late Paleozoic Overview CH 13 | |
| APR 7 | Devonian to Mississippian, Black Shales and ocean anoxia | |
| Week 11 APR 10 | Pennsylvanian to Permian CH 13 <i>Reading: Erwin, D. 1996 The Mother of Mass Extinctions, Sci. Amer. 1996</i> | Early Paleozoic fossils, Earth History CH 8., Supplementary study Materials, p. L-22 Appendix B |
| APR 12 | Mesozoic Overview CH 14 | |
| APR 14 | Midterm Review through Late Paleozoic | |
| Week 12 APR 17 | MIDTERM II | |
| APR 19 | Breakup of Pangea and opening of the Tethys ocean CH 14 | Late Paleozoic Fossils Earth History CH 9 Appendix B |
| APR 21 | The Cretaceous Hothouse Movie: End Cretaceous Mass Extinction | |
| Week 13 APR 24 | Cenozoic Overview CH 15 | |
| APR 26 | Paleocene-Eocene transition | Mesozoic Fossils Earth History CH 10 Appendix B |
| APR 28 | <i>Preparation for Baraboo Trip</i> <i>Supplemental Text L26-L69</i> | |
| SAT April 29 | BARABOO FIELD TRIP | |
| Week 14 MAY 1 | The Great American Interchange | |
| MAY 3 | The Quaternary CH 16 | Cenozoic and Recent Fossils Earth History CH 11 Appendix B |
| MAY 5 | Human Evolution Stanley, S. (1992) An ecological theory for the origin of <i>Homo</i> , Paleobiology 18(3), pp. 237-257. | |
| FINALS WEEK MAY 8 | Final Lecture Exam Review | |
| MAY 10 | OPEN LAB FOR LAB FINAL REVIEW | LAB FINAL Thursday and Friday May 11 & 12 (Cumulative but heavy on fossils) |
| MAY 12 | FINAL EXAM | |