

Historical Geology

Earth Sciences 210

Section: D100

Term: 2013 Spring

Instructor: Robbie Dunlop

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Discussion Topics: General: REQUIREMENT DESIGNATION: B-Sci

EASC 210 is an introductory Science Breadth (BR) course that deals with the historical development of geological thought and the study of Earth history from the Earth's formation through to present day. The course addresses three great themes in Earth history: 1) deep time; 2) plate tectonics through time; and 3) biological evolution and the preservation of organic materials and biological behavior as fossils.

Pertinent geologic concepts include the growth of the continents, the opening and closing of ocean basins, episodes of large-scale erosion and deposition on the continents, and mountain building episodes. Life on Earth will be discussed in relation to the major geological time periods, particularly with respect to significant evolutionary developments and mass extinctions. The interaction of tectonics, climate, and relative sea-level changes upon evolutionary change are examined.

Concepts presented in this course will reappear in higher-level EASC courses, so it is important for majors and minors to develop a basic understanding at this stage in their education.

Learning Outcomes:

Upon successful completion of this course, students will:

1. Know the geologic time scale and understand the background and history of its formation.
2. Appreciate that the rock record is a broken record; a broken record pieced together to form the geologic time scale.
3. Demonstrate understanding of geologic principles used to analyze Earth history.
4. Summarize how Earth's continents and oceans evolve over geologic time, and relate this to specific evidence preserved in the rock record.
5. Recognize the relationships between life (first life, evolution of life, extinctions) and plate tectonics.
6. Document the history of the North American continent through geologic time, with focus on orogenic events, epeiric seas, climate, and the rock record.
7. Be able to identify a variety of invertebrate fossils and use the identified fossils to refine interpretations of Earth history.
8. Be able to evaluate and interpret the geologic history of an area based on the background and skills acquired in this course.
9. Appreciate how the knowledge and skills gained in this course will be carried forward in your future learning within Earth Sciences.
10. Become better learners and feel confident in the learning process.

Course Organization:

Two 50-minute lectures and one 3-hour laboratory period per week. Labs begin in the first week of class.

Grading: Laboratory Participation and Written Assignments: 20%

Mid-Term Theory Exam: 20%

Final Laboratory Exam: 20%

Final Theory Exam: 40%

Required Texts: Levin, H. E., The Earth Through Time, 9th edition (2009), Wiley and Sons, .

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ISBN: 978-0-470-38774-0.

Laboratory Manual: There is no required lab manual. Handouts are provided at the beginning of each lab period. Students should bring their textbooks to lab.

Recommended Texts:

Materials/Supplies: Pencil, ruler, colored pencils, and a scientific calculator.

Prerequisite/Corequisite: EASC 101 or GEOG 111

Notes: Students are expected to have a solid background in mineral and rocks from their first-year prerequisite course. It is recommended that students brush up on this material by reviewing Chapter 4 in the course text, or the corresponding chapters from the first-year textbook.

This outline is derived from a course outline repository database that was maintained by SFU Student Services and the University's IT Services Department. The database was retired in 2014 and the data migrated to SFU Archives in 2015.