

EASC 101 - 3 Physical Geology**Section:** D100 - 2012 Summer**Instructor:** Cindy Hansen

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Description Topic:

General: REQUIREMENT DESIGNATION: B-Sci

Geology is the science that studies Earth - how it was formed, how it evolved, how it works, and how we can help to preserve it. EASC 101 is an introductory course to the Earth Sciences that has been designed both as a foundation course for Earth Science majors and as a terminal course for those in other disciplines. Lectures investigate geologic theory, while laboratory sessions focus on "hands on" exercises emphasizing rock and mineral identification, Earth structure and processes.

Course Topics:

1. The Layered Earth and Plate Tectonics

Earth's layers: crust / mantle / core vs. lithosphere / asthenosphere / mesosphere / outer core / inner core

Lithospheric plates, plate boundaries, development of plate tectonic theory, our local plate tectonic setting.

2. Earth Materials

Minerals: The composition, structure, and physical properties of minerals; mineral classes and common rock-forming minerals.

Rocks: Igneous, sedimentary, and metamorphic rocks; the processes that result in the formation of rocks, Earth's materials as economic resources.

3. Earth's Interior and Geologic Processes

Earthquakes, structural deformation (faulting/folding), mountain building, volcanism.

4. Geologic Time and Earth's History

Geologic time scale, absolute vs. relative age dating methods.

5. Environments and Surface Processes

Glaciers, rivers, deserts, coastal environments

Mass wasting

Groundwater

Course Organization: This is an intersession course and runs from May 7 - June 25. Each week students will attend two 2-hour lectures and two 3-hour labs; completing the course in the shortened Intersession.

Lectures are Tuesdays & Thursdays from 10:30-12:20 and labs follow after an hour lunch break from 13:30-16:20.

NOTE: This is a lab science course and lab attendance is mandatory. Labs begin in the

firstweek.

Grading:

Laboratory Assignments and Pre-Lab Quizzes: 20%

Mid-Term Theory Test: 20%

Mid-Term Laboratory Test: 15%

Final Laboratory Test: 15%

Final Theory Test: 30%

Required Text:

"Physical Geology, the Science of the Earth"; Fletcher, C. 2001 Wiley; ISBN 978-0-471-22037-4 **Note that any introductory physical geology text book can be used but this is the text that will be the basis for instruction.

Laboratory Manual:

The EASC 101 laboratory manual is required for the course and is available for purchase at the University Book Store. **Please note that you cannot use second-hand lab manuals because students are required to write directly into their lab manuals during the lab period. Please note that the University Bookstore does NOT back lab manuals.

Recommended Text:

None.

Material List:

Pencil, ruler, white eraser, calculator.

Prerequisite/Corequisite:

None.

Notes:

NOTE: Students with credit for GEOG 112 cannot take this course for further credit. GEOG 112 was offered in Geography as an introductory geology course, and was replaced by EASC 101 in the mid-1990s with the establishment of the Earth sciences department.