

GEOS 100 PHYSICAL GEOLOGY Section 1

Course Outline Spring 2004

1. Instructor

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2. Intended Learning Outcomes

After successfully completing all components of this course students will be able to:

1. Analyze minerals for common physical properties
2. Identify common rock-forming minerals on the basis of their properties
3. Infer how samples of some rocks have formed
4. Infer the relationship of rock-forming processes to plate tectonics
5. Describe and interpret textural features of rocks
6. Describe compositional features of rocks
7. Classify common rocks based on texture and composition
8. Apply techniques to determine the chronological order of events in Earth's history
9. Calculate absolute ages of Earth materials and events
10. Identify common geologic structures and use symbols to represent such structures on maps.
11. Identify, describe and interpret geological structures in three dimensions
12. Determine the relationship of geological structures to plate tectonic boundaries
13. Determine the location of an earthquake from seismic data
14. Use seismograms to infer relative earth movements on faults
15. Relate the nature and distribution of major earth features such as mountains, volcanoes and earthquakes to plate tectonics.

3. Required Materials

(a) Texts

Physical Geology, Plummer, McGearry and Carlson, 9th ed.;

Lab. Manual in Physical Geology, AGI, 6th ed.

(b) Other

Hand lens, protractor, drawing compass, coloured pencils.

4. Instruction

Classroom 6 hours, **Lab** 6 hours

7 weeks

5. Assessment

(a) **Lab exercises** 10 X 2.5%

(b) **Lab quizzes** 5%, 5%, 10%

(c) **Written exams** 15%, 15%, 25%

6. Grading system

Letter grades will be assigned, as in the A&S grading system.

7. Sequence of topics (subject to modification):

Introduction

Matter and minerals

Igneous rocks, volcanoes

Weathering, mass wasting

Sedimentary processes and rocks

Metamorphism and metamorphic rocks

Geologic time

Water, ice

Geologic structures

Earthquakes

Earth's interior

Ocean floor

Plate tectonics

Mountain building, evolution of continents

Geology of western Canada

8. Prerequisites

ENGL 12 or assessment.

CHEM 060 or Chemistry 11