

# GEOS 100 PHYSICAL GEOLOGY Section 3

## Course Outline Fall 2002

### 1. Instructor

Alan Gell

E 270

Office hours as posted

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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 and 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

Earth, Tarbuck and Lutgens, 7<sup>th</sup> ed.;

Lab. Manual in Physical Geology, AGI, 6<sup>th</sup> ed.

#### (b) Other

Hand lens, protractor, drawing compass, coloured pencils.

#### **4. Instruction**

**Classroom** 3 hours, **Lab** 3 hours

14 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  
Crustal deformation  
Earthquakes  
Earth's interior  
Ocean floor  
Plate tectonics  
Mountain building, evolution of continents  
Geology of western Canada

#### **8. Prerequisites**

ENGL 12 or assessment.

It is assumed that you are very familiar with basic Math and Chemistry to Grade 10, because:

- (a) in labs you will be required to do arithmetical calculations, to plot and interpret graphs and do other basic data manipulation, and
- (b) in lectures and labs you will use chemical symbols and formulas.