

GEOS 100 PHYSICAL GEOLOGY Section ____

Course Outline Winter 2003

Prerequisite: English 12, Chem 11 or Chem 060.

1. Instructor

Dr. Tark S. Hamilton Office Fisher 344-A

Phone 370-3331

Office Hours: as posted Tues- 2:30-5:20, Thurs 4:30-5:20 or by appointment

hamilta@camosun.bc.ca

2. Intended Learning Outcomes

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

1. Recognize mineral names, physical properties, chemical composition, formation
2. Identify ~50 common rock-forming minerals on their physical properties
3. Infer how samples of some rocks have formed: process and conditions
4. Infer the relationship of rock-forming processes to plate tectonics
5. Describe & interpret textures of igneous, sedimentary & metamorphic rocks
6. Describe mineral & chemical variations of abundant rock types
7. Classify common rocks based on texture and composition
8. Relate a range of geological processes and identify their products
9. Understand the natural resources, their settings, limits, value and environments
10. Relate environmental conditions to geological settings and products
11. Apply techniques to determine the chronological order of events in Earth's history
12. Calculate absolute radiometric ages of Earth materials and events
13. Identify common geologic structures & their representation on maps.
14. Identify, describe and interpret geological structures in three dimensions
15. Determine the relationship of geological structures and plate tectonic boundaries
16. Determine the location of an earthquake from seismic data
17. Use seismograms to infer relative earth movements on faults
18. 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, 7th ed.;

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

Recommended reading of other geology texts, a geological glossary (dictionary), a mineral identification book and web based research, readings, real and virtual field trips.

(b) Other

Hand lens, protractor, drawing compass, coloured pencils.

4. Instruction

Classroom 3 hours

Mon-Tue-Wed- 11:30-12:20 F____,

Lab 3 hours

Thursday – 9:30-12:20 F300 and local field trips during lab time and weekend day trips.
14 weeks

5. Assessment

(a) Lab exercises 10 X 2.5%

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

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

(d) Weekly pop quizzes on assigned readings

6. Grading system

Marking Scheme:

A+	100-95	A	94-90	A-	89-85	
B+	84-80	B	79-75	B-	74-70	
C+	69-65	C	64-60	D	59-50	F <50

7. Sequence of topics (subject to modification and repetition):

Introduction: Geological processes and products

Matter and minerals: compositions, crystal structures and physical properties

Igneous rocks, volcanoes and plutons, and resources

Weathering, soil formation, erosion and mass wasting

Sedimentary processes, environments, sediments, rock types and resources

Metamorphism, metamorphic rocks settings, formation and resources

Geologic time: relative and absolute, geologic dating techniques

Water, ice, resources, environmental changes

Crustal deformation, tectonics and structural geology

Earthquakes: types, recurrence, location, effects, tectonic settings

Earth's interior: Core layers, Mantle and Crust, Planetary formation

Ocean floor, basalts, active tectonics, ore formation, unique environments

Plate tectonics, plate boundaries and motions, mantle convection

Mountain building, evolution of continents

Local Geology of that of western Canada

8. Course purpose: introduction to the physical make up and natural processes on and within the earth with an emphasis to the environment and resources. Always ask what each topic has to do with resources, hazards and the environment.