



School of Arts & Science
CHEMISTRY AND GEOSCIENCE DEPARTMENT
GEOS 250-001
Introduction To Mineralogy
Semester/Year, Winter 2014

COURSE OUTLINE

The Approved Course Description is available on the web @ _____

Ω Please note: this outline will be electronically stored for five (5) years only.
It is strongly recommended students keep this outline for your records.

1. Instructor Information

(a)	Instructor:	Dr. Tark Hamilton		
(b)	Office Hours:	9:30-10:20 T&F, <u>.Or By Appt. Only.</u> 10:30-11:20 or 12:30-1:20 T-W-Th-F		
(c)	Location:	Young 200 (far West end of Young)		
(d)	Phone:	250-370-3331	Alternative Phone:	250-216-6448 FTr.
(e)	Email:	hamilta@camosun.bc.ca , Read: Tues-Fri		
(f)	Website:	https://faculty.camosun.ca/tarkhamilton/		

2. Intended Learning Outcomes

(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)

Upon completion of this course the student will be able to:

1. Identify over 50 common rock and ore-forming minerals in hand specimen by their physical properties.
2. Explain optics, the nature of light and the interactions of light with physical matter.
3. Use a polarizing microscope to identify minerals in grain mounts and thin sections.
4. Use symmetry elements and angles to analyze point and space groups.
5. Use stereo nets, read crystallographic projection diagrams, and apply miller indices to crystal structures.
6. Identify crystal forms and classify minerals by crystallography.
7. Conceptualize and draw in 3 dimensions.
8. Apply Pauling's rules to the analysis of crystal structures.
9. Use Goldschmidt's rules to predict the placement of minor and trace elements in minerals.
10. Apply the phase rule and read and construct phase diagrams for 2-, 3- and 4-component systems and apply them to mineral stability and mineral chemical reactions.
11. Describe the uses, values and hazards of particular minerals.
12. Distinguish various semiprecious and precious gems.
13. Apply various tools of mineralogy to modern synthetic materials.

3. Required Materials

- Texts: The Manual of Mineral Science, (Dana's Mineralogy) 23rd ed., Case Klein & Barb Dutrow, Wiley 2008
- Mineralogy, 2nd ed. Dexter Perkins, Prentice Hall, 2002
- Minerals in Thin Section, Dexter Perkins and Kevin Henke, 2nd ed., 2004

(b) Other: hand lens, knife, magnet

4. Course Content and Schedule

Class hours F210: 8:30-9:20 Tues, Wed & Fri

Lab hours: F300: 8:30-11:20 Thur

Out of class requirements field trips and course projects part of lab marks:

2 weekend FIELD TRIPS Sunday Jan 26 and Saturday April 5 (announced 2 weeks in advance) these and any in lab field trips require your signed waiver to participate

Your own MINERAL COLLECTION of 15 different minerals from local beaches or outcrops or from away if you travel this semester. Correctly identify the mineral by name, composition, form, habit and describe how it formed from its texture and association. The collection should be submitted 2 weeks before end of term with labelled specimens: TH1, TH2 etc. use your own initials and a summary table and a 1 page key describing your particular specimen.

5. Basis of Student Assessment (Weighting)

(Should be linked directly to learning outcomes.)

25 %: 10 labs & homework or prelab assignments

40%: 2 midterm tests and 2 lab practicums during lab periods. Crystallography, Practical Physical Mineralogy, Optical Mineralogy, Mineral Groups: Elements-Oxides-Carbonates etc., Modern instrumental methods: XRD, SEM, EMP, etc. Week 6 Feb 13 & Week 12 Mar 26. 1 page cheat sheet allowed, 1 test forgiveness policy. 1 later better test score can replace 1 earlier lower test score.

15%: 1 term paper on a mineral commodity, its primary mineral ores, geological setting, paragenesis, environmental issues, consequences for Canadian Economy. This paper is due in completed written and power point form by the start of week 12. Earlier submissions get free guidance and feedback. You also need a 3-5 slide power point talk to present in <= 10 minutes to the class. The paper will follow a scientific article format. The slides and the talk will all be marked.

20%: Written final exam as scheduled by Registrar between April 14-25. Do not plan to travel until after this period. Only Medical excuses apply.

6. Grading System

(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)

Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy E-1.5 at camosun.ca for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. (For these courses a final grade will be assigned to either the 3 ^d course attempt or at the point of course completion.)
CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**. It is the student's responsibility to become familiar with the content of

this policy. The policy is available in each School Administration Office,
at Student Services and on the College web site in the Policy Section.