

SAULT COLLEGE

of APPLIED ARTS and TECHNOLOGY

Sault Ste. Marie

COURSE OUTLINE

MINERALOGY & PETROLOGY *I*  
GEO 113-3

revised April, 1978 by J. Giguere

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TOPIC NO.	PERIODS	TOPIC INFORMATION
5	5	<u>The Igneous Rocks</u> <ul style="list-style-type: none"><li>- magnetic theory</li><li>- fine grained and coarse grained rock (volcanic &amp; plutonic)</li><li>- textures of Volcanic rocks</li><li>- textures of Plutonic rocks</li></ul>
6	1	Bowen's Reaction Series
7	2	The classification of Igneous rock
8	5	The clan concept of Igneous rock classification
9	15	Identification of common plutonic rocks and textures of plutonic rocks in hand specimen

## MINERALOGY & PETROLOGY

### GEO 113-3

AIM: This course is a first look at the minerals and rocks which constitute the crust of the earth. The Aim of this course is to familiarize the student with the theories of rock and mineral formation and to train the students in rock and mineral identification.

#### OBJECTIVES:

1. The student under written test and with hand specimen will identify 35 of the 70 minerals in the attached list. The remainder will be studied in GEO 123 the second semester continuation of this course.
2. In written test the student will recite on basic terminology of mineralogy.
3. A short library research project with subsequent report will test library skills.
4. The student will demonstrate under Laboratory conditions
  - a) the relative hardness of minerals,
  - b) identify the breaking properties of minerals,
  - c) detect and identify which minerals are ferromagnetic,
  - d) estimations of specific gravity of minerals in hand specimen will be made,
  - e) colour, streak and lustre will be used to classify minerals.
5. Recitation on optical properties of Polarization, Reflection and refraction and growth habits will be made.
6. The fourteen Bravais Lattices will be recited; this also includes the main classification of the six crystal systems.
7. The student will recite the chemical classification of minerals.
8. The student will calculate the theoretical weight percent of elements in minerals.
9. The students will calculate the weight percent of economic elements in supplied specimens based on modal estimates.
10. The students will collect and catalogue mineral specimens from field trips to be submitted at the end of the semester.
11. The students will identify and classify according to clan 50 plutonic and volcanic specimens.

12. The students will recite on the basic definitions of petrology.
13. The student will recite on the petrogenesis of the main classifications of rocks.
14. The students will identify the various textures from rocks, thin sections and projection slides.
15. The students will recite Bowen's reaction series.

MINERALS TO BE STUDIED BY STUDENTS:

Actinolite	Fluorite	Sillimanite
Agate	Galena	Silver
Albite	Garnet	Sodalite
Almandite	Goethite	Sphalerite
Amethyst	Gold	Spodumene
Andesine	Graphite	Staurolite
Anhydrite	Gypsum	Sulfur
Anorthite	Halite	Talc
Apatite	Hematite	Tourmaline
Aragonite	Hornblende	Tremolite
Arsenopyrite	Hypersthene	
Asbestos	Illmenite	
Augite	Kaolin	
Azurite	Kyanite	
Barite	Labradorite	
Biotite	Magnetite	
Black jack	Malachite	
Bornite	Marcasite	
Bytownite	Microcline	
Calcite	Molybdenite	
Cassiterite	Muscovite	
Chalcosite	Nepheline	
Chalcopyrite	Niccolite	
Chalk	Oligoclase	
Chert	Olivine	
Chlorite	Pentlandite	
Chromite	Phlogopite	
Chrysocolla	Plagioclase	
Cinnabar	Prehnite	
Copper	Pyrite	
Corundum	Pyrrhotite	
Cuprite	Quartz	
Diopside	Rutile	
Dolomite	Serpentine	
Epidote	Siderite	