

SAULT COLLEGE
of Applied Arts and Technology
Sault Ste. Marie

COURSE OUTLINE

GEOCHEMISTRY

chm 105-3

revised January 1983 by J. Giguere

GEOLOGY TECHNICIAN

GEOCHEMISTRY

CHM 105-3

TOPIC NO.	PERIODS	TOPIC INFORMATION
2		<u>Field Methods</u> <ul style="list-style-type: none">- Sampling procedures- Preparation of samples- Shipping of samples.
3		<u>Basic principles of Geochemistry</u> <ul style="list-style-type: none">- Geochemistry environments. Primary environment, secondary environment.- Rock forming elements. Relative abundances.- Ore elements. Relative abundances in normal rocks; background values; threshold values; significant and non-significant anomalies.- Pathfinder elements.- Calculations of geochemistry.
4		<u>Primary Dispersion</u> <ul style="list-style-type: none">- Syngenetic patterns. Geochemical provinces; local syngenetic patterns.- Epigenetic patterns. Wall-rock anomalies; leakage anomalies; gaseous dispersion patterns.
5		<u>Weathering and Soils</u> <ul style="list-style-type: none">- Weathering processes. Physical; chemical; biological.- Weathering of rocks. Initial composition; weathering products.- Soil formation. Soil profiles; principle soil groups and their geographic distribution.- Weathering of ores. Initial composition; products of weathering.

(C) Dispersion Patterns.

1. Primary Patterns:

- i) The basic conical dispersion patterns will be described in written tests.
- ii) Concentration fall-off based on the inverse squares law, will be calculated in an exercise.
- iii) Special case dispersion patterns will be interpreted on written tests.

2. Secondary Patterns:

- i) Chemical and mechanical factors affecting secondary dispersion will be studied in written assignments with subsequent written tests.
- ii) Dispersion patterns in soils, rocks and drainage systems will be described by word and diagrams in a written test.
- iii) Anomalous conditions in natural waters, drainage sediments and soils will be recited on in written tests.
- iv) A geochemical map will be prepared from supplied notes as an assignment.

Advanced Objectives:

1. The planning of an integrated exploration program highlighting:
 - a) the selection of an area
 - b) the exploration sequence
 - c) the choice of exploration method

To be submitted in report format.

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TOPIC NO.	PERIODS	TOPIC INFORMATION
10		<u>Integrated Exploration Programs</u> <ul style="list-style-type: none">- Selection of area.- Exploration sequence.- Choice of exploration methods.- Role of applied geochemistry. Regional appraisal; reconnaissance surveys; detailed surveys.- Organization of geochemical program.
11		<u>ASSIGNED PROJECTS</u> <ul style="list-style-type: none">-library reading & research-Preparation of a term paper interpreting a set of real field data.

CHM 105

Grading:

Based on a pass grade of 60%

There will be a split of 30% on assignment and 70% on tests.

A supplemental Test will be available to students who have an average of over 50% but less than 60%.

Any student with a grade of less than 50% will have a failure grade in the course

Late assignments

Ass. Grade = marked grade x (495) # days late