

Division: ACADEMIC

 DATE: December 7, 1992

 B: Department: SCIENCE & MATHEMATICS

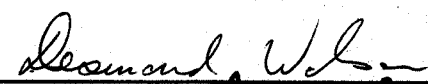

New Course: \_\_\_\_\_

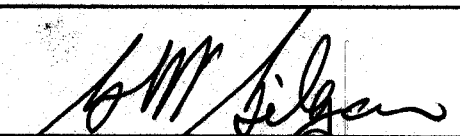
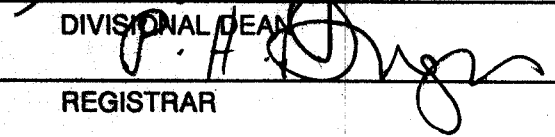
 Revision of Course  
 Information form: X

 DATED: February 17, 1986

C: <u>GEOL 300</u>	D: <u>Introduction to Mineralogy</u>	E: <u>4</u>
Subject & Course No.	Descriptive Title	Semester Credit

<b>F: Calendar Description</b>  This course provides an introduction to the physical, chemical and optical properties of minerals. Crystals, their symmetry and classification will be discussed. The occurrence and classification of rock forming and economic minerals will be discussed.	<b>Summary of Revisions:</b> (Enter date & section) Ex: Section C,E,F, &R  1992-12-3 Section C,D,F,G,H,I,J,O,P,R.																																																																														
<b>G: Type of Instruction:</b> <table border="0" style="width: 100%;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;">Hours Per Week/</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> </tr> <tr> <td></td> <td>Per Semester</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Lecture</td> <td>3</td> <td>Hrs.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Laboratory</td> <td>3</td> <td>Hrs.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Seminar</td> <td>_____</td> <td>Hrs.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Clinical Experience</td> <td>_____</td> <td>Hrs.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Field Experience</td> <td>_____</td> <td>Hrs.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Practicum</td> <td>_____</td> <td>Hrs.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Shop</td> <td>_____</td> <td>Hrs.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Studio</td> <td>_____</td> <td>Hrs.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Student Directed Learning</td> <td>_____</td> <td>Hrs.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td>_____</td> <td>Hrs.</td> <td></td> <td></td> <td></td> </tr> <tr> <td><b>TOTAL</b></td> <td><b>6</b></td> <td><b>HOURS</b></td> <td></td> <td></td> <td></td> </tr> </table>		Hours Per Week/						Per Semester					Lecture	3	Hrs.				Laboratory	3	Hrs.				Seminar	_____	Hrs.				Clinical Experience	_____	Hrs.				Field Experience	_____	Hrs.				Practicum	_____	Hrs.				Shop	_____	Hrs.				Studio	_____	Hrs.				Student Directed Learning	_____	Hrs.				Other	_____	Hrs.				<b>TOTAL</b>	<b>6</b>	<b>HOURS</b>				<b>H: Course Prerequisites:</b> Geol/Geog 120 or Geol 121 or instructors permission
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	<b>I: Course Corequisites:</b> Chem 110 or instructor permission																																																																														
	<b>J: Course for which this course is a pre-requisite</b> None																																																																														
	<b>K: Maximum Class Size:</b> Class 36 Lab 18																																																																														
<b>L: College Credit Transfer</b> <u>X</u>  College Credit Non-Transfer _____	<b>M: Transfer Credit:</b> Requested _____ Granted <u>X</u> Specify Course Equivalents or Unassigned Credit as Appropriate  U.B.C. Geol 200 S.F.U. GE GEOL (4) U. Vic. EOS 200 Level (1.5) OTHER:																																																																														

  
 COURSE DESIGNER(S)  
  
 DIRECTOR/CHAIRPERSON

  
 DIVISIONAL DEAN  
  
 REGISTRAR

N: Textbooks and materials to be purchased by students  
(Use Bibliographic Form):

Klein, C & C. Hurlbut, Jr. Manual of Mineralogy, 20th Ed.  
John Wiley & Sons, 1985.

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Complete Form with Entries Under the Following Headings:

- O. Course Objectives;      P. Course Content;      Q. Method of Instruction;  
R. Course Evaluation

O. Course Objectives:

After successful completion of this course the student will be able to:

1. Identify the point group symmetry of a variety of crystals and crystal models.
2. Classify given crystal models into crystal classes and systems.
3. Explain the principles of translational symmetry and the chemical criteria governing the variation of crystal structure.
4. Show an understanding of the various physical and chemical techniques used to identify minerals.
5. Identify a wide variety of rock forming and economically important minerals.
6. Explain the most important chemical and structural characteristics of the major sulfide, silicate, carbonate and oxide minerals.
7. Show an understanding of the use and care of a petrographic microscope and accessories.
8. Show an understanding of the optical properties exhibited by common rock forming minerals.
9. Determine the optical characteristics of a variety of minerals.
10. Identify a selection of common rock forming minerals in their section.

P. Course Content

The content of this course will include:

A. CRYSTALLOGRAPHY

EXTERNAL SYMMETRY

- a) Symmetry operations
- b) Combination of symmetry elements
- c) Derivation of the 32 crystal classes
- d) Crystallographic axes
- e) Crystal systems

TRANSLATIONAL SYMMETRY

- a) Crystal lattices
- b) Screw axes and glide planes
- c) Space group

B. OPTICAL MINERALOGY

- a) Nature of light
- b) Colour in minerals
- c) The petrographic microscope
- d) Optical properties of minerals

C. DETERMINATIVE MINERALOGY

- a) Silicates
- b) Sulphides
- c) Oxides
- d) Carbonates
- e) Other mineral groups

Q. Method of Instruction

1. The primary mode of instruction will involve lectures and laboratories.
2. Some field trips will be scheduled where appropriate.
3. Readings will be assigned to supplement lectures.
4. Audio-Visual aids will be used where appropriate.

R. Course Evaluation

The evaluation for this course shall consist of four in-class tests plus a final examination. Tests will have both a theoretical and laboratory component.

Test No. 1 Crystallography	10%
Test No. 2 Optical Mineralogy	10%
Test No. 3 Determinative Mineralogy	
Silicates	25%
Test No. 4 Determinative Mineralogy	
Sulphides, Oxides, Carbonates	25%
Final Comprehensive Examination	<u>30%</u>
	100%