

GEOLOGY 17.01: Mineralogy

Brooklyn College
Fall 2007

GENERAL INFORMATION

Instructor: Wayne Powell
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Fieldtrips: Sterling Hill Mine, Ogdensburg NJ
Textbooks: Mineralogy, Second Edition. Perkins, 2002, Prentice Hall. (\$100)
Minerals in Thin Section, Second Edition. Perkins and Henke, 2003, Prentice Hall (\$45)

Assessment:	Quizzes	10%
	Lecture Midterm	10%
	Lab Midterm	10%
	Mineral ID Project	20%
	Lecture Exam	20%
	Lab Exam	30%

Learning Objectives:

1. Students will be able to identify common rock-forming minerals in hand-sample
2. Students will be able to determine unknown minerals in hand-sample based upon physical properties and the use of reference tables
3. Students will be able to identify common rock-forming minerals in thin-section
4. Students will be able to determine unknown minerals in thin-section based upon optical properties and the use of reference tables
5. Students will be able to correlate physical properties of minerals with their crystal structure
6. Students will be able to correlate optical properties of minerals with their crystal structure
7. Students will be able to associate common mineral assemblages with general families of rocks (sedimentary, igneous, metamorphic, hydrothermal)

Wk	Lecture	Lab
1	Introduction to Light, Polarized Light, Refractive Index	Optical Properties and the Polarized Light Microscope (Part 1)
2	Cross Polarized Light and Interference	Optical Properties and the Polarized Light Microscope (Part 2)
3	Essential Principles of Chemistry	Common Minerals in Clastic Sedimentary Rocks
	Quiz: Optics	Quiz: Optical Properties
4	Ionic Coordination and Silicate Structures	Common Minerals in Chemical Sedimentary Rocks
5	Symmetry (Part 1)	Common Minerals in Felsic Igneous Rocks
	Quiz: Mineral Chemistry	Quiz: Minerals in Sedimentary Rocks
6	Symmetry (Part 2)	Common Minerals in Mafic Igneous Rocks
7	Lecture Midterm Exam	Midterm Lab Exam
8	X-Ray Diffraction	Common Minerals in Metapelitic Rocks
9	No Lecture -- GSA	Common Minerals in Metabasalts, Metaperidotites, and Marbles
10	Minerals and Igneous Rocks	X-Ray Diffraction
		Quiz: Minerals in Metamorphic Rocks
11	Minerals and Sedimentary Rocks	Asbestos Analysis and the PLM
12	Minerals and Metamorphic Rocks	Common Ore Minerals
13	Minerals and Hydrothermal Systems	Lab Review
		Project Due
14	Lecture Review	Final Lab Exam