

GEO 306 Mineralogy/Petrology I
Spring 2003

Lectures: MWF 11:35-12:30 Rm. 267 ESS

Lab: Friday 12:50-3:40 Rm. 267 ESS

Course requirements: Homeworks + Quizzes: 25%
Exams (3, incl. Final): 45%
Lab exercises, quizzes: 30%

Instructor: Brian Phillips, ESS Room 240, 632-6853.
Office hours: T 3-4; Weds. 9-11; or, by prior arrangement (email please).
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TA: Matthew Whitaker, Office Hours: MWF, 10:30-11:30, Rm 075.
email: Matthew.Whitaker@sunysb.edu

Texts: (K) Klein, C. Manual of Mineral Science, 22nd Edition, John Wiley, 2002
(BT) Blatt, H., and Tracy R.J.; Petrology 2nd Edition, W.H. Feeman, 1996

Late Policy: All material handed in late will be deducted 20% per day.

If you have a physical, psychological, medical, or learning disability that may impact on your ability to carry out assigned course work, I urge you to contact the staff in the Disability Support Services office (DSS), ECC, 632-6748 (phone/TTY). DSS will review your concerns and determine with you what accommodations are necessary and appropriate. All information and documentation of disability are confidential.

Any student at the University at Stony Brook who considers her/himself to be the victim of illegal discrimination or harassment may contact the University Ombuds Office (W0505 Melville Library; 632-9200) for informal and confidential advice and consultation about opinions for resolution and support. Students may also file a formal grievance within 45 days of the alleged discriminatory act with the office of Diversity and Affirmative Action (294 Administration Bldg.; 632-6280).

Tentative Class Schedule

<u>Date</u>	<u>Topic</u>	<u>Reading*</u>
Jan 22	W Composition of the earth, atoms, ions	
24	F Bonding, Ionic radii coordination polyhedra	K 38-69
27	M Paulings rules, sphere packing	K 70-80
29	W Crystal structures, Translational periodicity, unit cell	K 80-90
31	F ionic substitution, solid solution	K 90-93
Feb 3	M Simple ionic structures (I)	K 85-90; 371-378
5	W Simple ionic structures (II), oxides	K 371-378
7	F Snowed out	K 334-342
10	M gibbsite, brucite; anionic groups: sulfate, carbonate	K 404-411
12	W Classification of silicates, orthosilicates	K 441-448
14	F Orthosilicates, olivine, zircon, garnets	K 448-452
17	M buried in snow again	
19	W Aluminum silicates, pyroxenes	K 452-457
21	F amphiboles	K 457-462
24	M Layer silicates	K 462-475
26	W Framework silicates; silica minerals, phase transitions	K475-490
28	F Framework silicates; feldspars, exsolution	K475-490
March 3	M Point Symmetry, Stereographic projection	K 170-189; 240-248
5	W Point groups (Crystal classes), Miller indices	K 192-201
7	F Translations, plane groups	K 213-228
10	M Space groups, Bravais Lattices	K 229-239
	Review Sessions (3:00 and 6:00)	
12	W Exam (Through point groups, Miller indices)	
14	F More space groups	
17-21	Spring Break	
24	M Mineral reactions, stability	K 104-122
26	W Polymorphic reactions, exsolution, textures	K 134-148
28	F Rock Classifications	BT ch. 3
31	M Phase diagrams	BT ch.4
April 2	W multicomponent phase diagrams	
4	F Eutectic diagrams	BT ch. 5
7	M Melting loop, peritectic	
9	W Ternary phase diagrams	
11	F Exam (Comprehensive through binary phase diagrams)	
14	M Introduction to Petrology; Plate tectonic settings	
16-18	No Class	
21	M Petrology of the Mantle	BT ch. 7
23	W Igneous rocks of Oceanic Lithosphere	BT ch. 8
25	F Basalts	BT ch.6; pp. 110-112
28	M Igneous rocks of convergent margins	BT ch. 9
30	W Igneous rocks of Continental Lithosphere	BT ch. 10
May 2	F Introduction to metamorphic rocks and textures	BT ch. 18-19
5	M Metamorphic assemblages and reactions	BT ch. 20-21
7	W Metabasalts, ultramafics	BT ch. 22
9	F Metamorphism of pelitic rocks	BT ch. 23

*Reading to be done *before* lecture.