Earth Science 303: GeoTechniques: Petrographic Microscopy (CRN: 10461) Fall 2005

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Office Hours: M 2-4, W 3-5, R 11-12, by appointment, or feel free to drop in most times.

Text: Minerals in Thin Section, 2nd ed., Perkins, D., and Henke, K.R., 2004.

Grading Scheme:

	Percent
Midterm Exam	35 %
Take-Home Final Exam	30 %
Exercises and Assignments	18 %
Class Project	12 %
Attendance and Participation	5 %

WEEK	DATE	TOPICS	READING
1	9/26-9/30	Course Overview and Objectives Review of Earth materials Introduction to Optical Mineralogy Basic operation of petrographic microscope	p. 1, 6-8 materials provided
2	10/3-10/7	Basics of Light; Polarization More on light and microscopy (Refractive Index, Snell's Law, Relief) Isotropic vs. Anisotropic Minerals	p. 3-9 p. 10-13
3	10/10-10/14	Optical Indicatrix Several key optical mineralogy concepts (Interference colors, birefringence, pleochroism, extinction, sign of elongation)	p. 8-9, 14-20
4	10/17-10/21	Crystallography: Symmetry and Crystal Systems Uniaxial Optics; Intro. to Interference Figures	materials provided p. 16-17, 18-22
5	10/24-10/28	Biaxial Optics; More on Interference Figures Identification and description of rock-forming minerals using petrographic microscope	p. 16-17, 22-27 p. 28-30, 37-41
6	10/31-11/4	**Midterm Exam**	
7	11/7-11/11	**No class:** Fri. Nov. 11 (perhaps we can arrange a make-up time)	
8	11/14-11/18	Classification of common rock types and description of microscopic textural relations in common rocks Digital image capture and image analysis software	materials provided
9	11/21-11/25	**No class:** Fri. Nov. 11 (Continue microscopic studies, collect and analyze digital images)	
10	11/28-12/2	In-class presentations of class projects Distribute take-home final	
Final	12/5-12/9	Take-home final (Due: to be determined by class consensus)	