

GEOLOGY 2302: PETROLOGY SPRING 2008

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Textbook: *An Introduction to Igneous and Metamorphic Petrology*, by John D. Winter
See syllabus for weekly reading assignments in the textbook.

Class webpages: See the webpages updates to the schedule, keys to homework and exams, and other review materials: [http://www.geo.umn.edu/courses/2302/..](http://www.geo.umn.edu/courses/2302/)

Grade basis:

Igneous exam	20%
Metamorphic exam	20%
Lab	30%
Igneous assignments (3)	15%
Metamorphic assignments (3)	<u>15%</u>
	100%

Note on exams/quizzes: *The lecture exams will be conducted during regularly scheduled laboratory times.* There is a igneous petrology exam at the end of the igneous half of the course (Week 8, before Spring Break). During the last week of the semester, there is a metamorphic petrology exam (Week 15, during the May 8 lab times). *There is no cumulative final exam.*

Policy on homework/quizzes: To receive full credit, homework must be turned in at the announced time. Half-credit is given for up to 24 hours late. No credit for homework turned in more than a day late.

There are no make-up exams/quizzes unless (1) you document in advance that you are prevented from taking an exam by a university-sponsored event (in this case, arrangements for a make-up must be made at least one week prior to the scheduled exam), or (2) you have a severe, documented emergency (in this case, contact one of us *as soon as possible*).

Late work: Late material will be given half credit up to one day after the due date/time, and no credit will be given for material turned in more than one day late.

Field trip: There will be a one-day, optional-but-important field trip to Duluth and the North Shore of Lake Superior on Saturday, April 26. Details will be announced later in the term.

Provisional schedule

Week	Date	Topic	Reading & Homework
1	W Jan 23	Introduction	Ch. 1
2	M Jan 28	Igneous classification	Ig. HW#1 assigned Ch. 2, Ch 8 (p 128-136), Appendix
	W Jan 30	Magma + Igneous environments	Ch. 4
3	M Feb 4	Phase diagrams I	Ch. 6 (p. 84-92, 95-98)
	W Feb 6	Phase diagrams II	Ig. HW#2 assigned Ch. 6 (p. 92-95, p. 98-108)
4	M Feb 11	Igneous Differentiation I	Ch. 8 (p. 136-140, 142-146) Ch. 11 (p. 202-207)
	W Feb 13	Igneous Differentiation II	Ch. 8 (p.146-151)
5	M Feb 18	Igneous differentiation and Layered Intrusions	Ch. 12 219-221,228-242 Ig. HW#3 assigned
	W Feb 20	The mantle and the origin of basalt	Ch. 10 (p 181-194) Ch. 11 (p 200-202)
6	M Feb 25	Oceanic magmatism I Ridges	Ch. 13
	W Feb 27	Oceanic magmatism II Islands	Ch 14. P. 260-266, 274-276
7	M Mar 3	Subduction zone magmatism I	Ch. 16 (p. 293-304, 309-315)
	W Mar 5	Subduction zone magmatism II	Ch 17 (p. 326-342)
8	M Mar 10	Rhyolites and Granites I	Ch. 18. (p. 343-349, 360-361)
	W Mar 12	Rhyolites and Granites II	
	<i>Th Mar 13</i>	<i>Igneous Exam (in lab)</i>	<i>Covers up to W March 5</i>
	SPRING BREAK		
9	M Mar 24	Metamorphism, metamorphic variables	Ch. 21, up to p. 428* Met. HW#1 assigned
	W Mar 26	Metamorphic textures, crystal growth	Ch. 23
10	M Mar 31	Isograds, facies, intro to P-T paths	Review of Ch. 21; Ch. 25: p. 496-500
	W Apr 2	Metamorphic phase diagrams	Ch. 24
11	M Apr 7	Metamorphic reactions	Ch. 26
	W Apr 9	Intro to regional metamorphism	Ch. 1; Ch. 25: p. 508-512; Ch. 29: p. 599-605; Met. HW#2 assigned
12	M Apr 14	Metamorphism of basalt	Ch. 25: p. 500-506
	W Apr 16	High pressure petrology	Ch. 25: p. 506-508
13	M Apr 21	Metamorphism of sediments	Ch. 28
	W Apr 23	Sediments to granulites to magma	Ch. 28
14	M Apr 28	Rocks and fluids	Ch. 29: p. 586-599; Ch. 30
	W Apr 30	More paleohydrology	Met. HW# 3 assigned
15	M May 5	Determining metamorphic pressures and temperatures	Ch. 27, selected pages through p. 553
16	W May 7	Pressure-temperature-time paths	Ch. 27
	<i>Th May 8</i>	<i>Metamorphic exam (in lab)</i>	<i>Covers from W March 5 to W May 7</i>

* Ch. 22 will help you with recognizing and naming metamorphic rocks in lab; you should read it before the first metamorphic petrology lab