

GEOL 2312: PETROLOGY

Igneous & Metamorphic Petrology

COURSE INFO

- About us*
- Nature of the course*
- My expectations*
- Grading*

Dr. John Goodge, Professor of Geology
Heller Hall 223
ph. 726-8486
email: jgoodge@d.umn.edu

Office hours MW 10-11 am; Th 2-3 pm; or
by appointment

www.d.umn.edu/~jgoodge/teaching.html

TA: Jenny Koester

COURSE INFO

About us

Nature of the course

My expectations

Grading

- use crystallography, optical theory & systematic mineralogy to explore the world of **petrology** (study of rocks)
- will explore rock formation (**petrogenesis**)
- inter-relations between various rock types, interpretation on geologic maps & role in plate tectonic processes
- sharpen your skills of geologic observation & 3-dimensional thinking
- geologic field relations
- develop a broad & effective understanding of many materials that comprise Earth's lithosphere

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- principal goals are to develop your abilities to **think geologically**, to ask geologic questions, and to solve geologic problems
- many different opportunities to **do your best** work in this class — regular exams, weekly lab assignments, occasional homework problems, a field project, and writing a research paper
- you are expected to **be in lab**, and you will probably need to work outside of lab
- you must do careful, critical **reading** in the text!

COURSE INFO

- | | |
|---|--|
| <input type="checkbox"/> About us | <ul style="list-style-type: none">• Mid-term lecture exam 1 (15%) |
| <input type="checkbox"/> Nature of the course | <ul style="list-style-type: none">• Mid-term lecture exam 2 (15%)• Lab exercises (25%) |
| <input type="checkbox"/> My expectations | <ul style="list-style-type: none">• Lab exams (3) (5%)• Field project (10%) |
| <input type="checkbox"/> Grading | <ul style="list-style-type: none">• Writing assignments (10%)• Final lecture exam (20%) |

COURSE INFO (con't.)

- Other info on back of sheet
- Completion of assignments
- Things we'll be doing
- Supplies
- Conduct

SYLLABUS

- Lecture topics & reading
- Labs
- Exams & assignments
- Field trip

Geol 2312		Petrology		Spring 2008	
Lecture Chem 206; 11:00-12:15 MW				Lab HH118; 10:00-11:50 TuTh	
WEEK	DATE	LECTURE TOPIC	DATE	LAB	READING (Winter)
1	Jan 21	no class	Jan 22	Introduction EGyPT (E, G, P & T) Mineral quiz	1
	Jan 23	Introduction; Earth interior	Jan 24		1
2	Jan 28	Igneous rocks in the field: volcanics	Jan 29	1-Igneous hand sample "	2, 3, 4
	Jan 30	Igneous rocks in the field: intrusives	Jan 31		
3	Feb 4	Crystal-melt equilibria	Feb 5	2-Igneous thin sections "	6 (±5)
	Feb 6	"	Feb 7		
4	Feb 11	Crystal-melt equilibria	Feb 12	3-Behavior of melts "	7
	Feb 13	"	Feb 14		
5	Feb 18	Chemical petrology	Feb 19	4-Phase diagrams "	8 (±9)
	Feb 20	Generation of basaltic magma	Feb 21		
6	Feb 25	MID-TERM EXAM 1 (through Ch 7)	Feb 26	5-M&M® magma chamber "	10
	Feb 27	Diversification of magmas	Feb 28		
7	Mar 3	Basaltic settings – LMIs & MORBs	Mar 4	6-Duluth complex-Sonju intrusion "	11
	Mar 5	"	Mar 6		
8	Mar 10	Basaltic settings – OIBs & CFBs	Mar 11	7a-Viscosity 7b-North Shore Volcanic Group	14, 15
	Mar 12	"	Mar 13		
Mar 17-21 Spring break					
9	Mar 24	Arcs & granites	Mar 25	8-Calc-alkaline rocks LAB QUIZ	16, 17, 18
	Mar 26	Writing assign. due (igneous setting)	Mar 27		
10	Mar 31	MID-TERM EXAM 2 (through Ch 18)	Apr 1	9-Metamorphic hand sample "	22 (±23)
	Apr 2	Metamorphism & metamorphic rocks	Apr 3		
11	Apr 7	Metamorphic structures & textures	Apr 8	10-Metamorphic thin section	23
	Apr 9	Metamorphic mineral assemblages	Apr 10		
12	Apr 14	Metamorphic facies	Apr 15	11-High-P rocks "	24
	Apr 16	Mafic metamorphic rocks	Apr 17		
13	Apr 21	Metamorphic reactions & equilibria	Apr 22	12-Pelitic rocks "	25
	Apr 23	"	Apr 24		
Apr 26-27 Field trip in northern Minnesota					
14	Apr 28	Metamorphism of pelitic rocks	Apr 29	13a-SEM lab 13b-Mineral formulas	28
	Apr 30	"	May 1		
15	May 5	Metamorphism & tectonics	May 6	14-Thermobarometry & P-T paths LAB FINAL	K/H 221-231,240-244
	May 7	"	May 8		

Final lecture exam: Mon. May 12, 10 am - noon

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Lecture topics & reading

Labs

Exams & assignments

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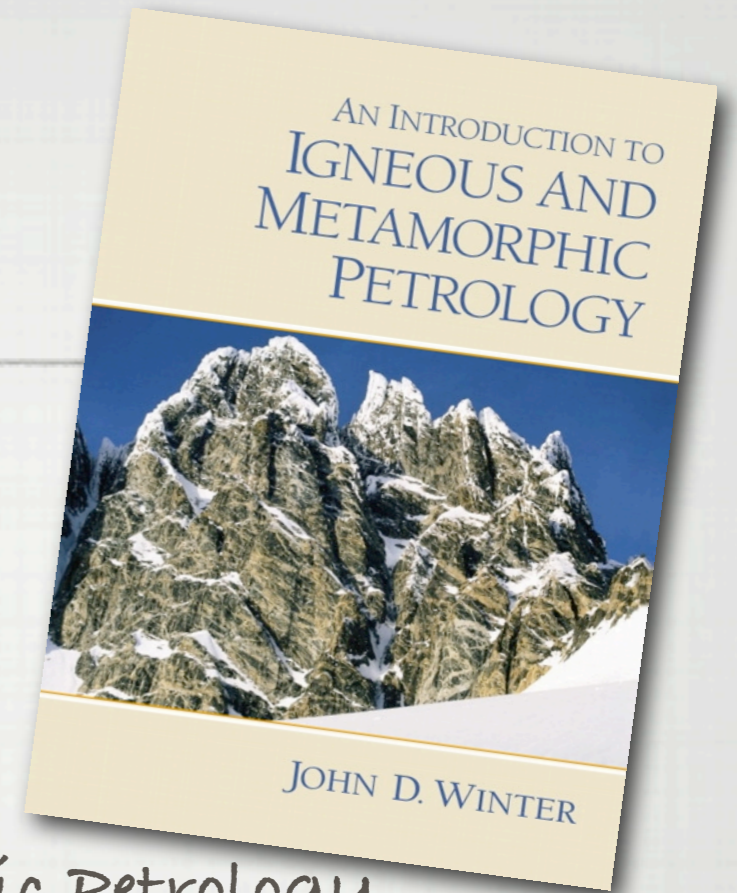
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TEXT



- Winter: Introduction to Igneous & Metamorphic Petrology
- Text support: http://www.whitman.edu/geology/winter/JDW_PetClass.htm
- Other sources
 - comprehensive resource
 - readable
 - emphasizes key concepts & processes
 - still some typos — consult errata

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- check your field trip schedule (April 26-27)

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- mineral quiz** this Thursday at the beginning of lab!