GLY4310C-07D9,177H(14766,14767) - Igneous and Metam Petro

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GLY4310C - Igneous and Metamorphic Petrology

Professor Michael Perfit, Spring 2020

Sections 07D9 (Lab M. per. 8-9), 177H (Lab W. per. 4-5)

Room: Williamson Hall Rm 202

- **Class Periods**: T R periods 6-7 (generally 12:50 – 2:45 Tues and 12:50-1:40 Thurs)
- **Office Hours**: T-R periods 9 -10, ~ 4pm to 6pm or by appointment (send an email)
- **Office:** Wm 365, Phone 392-2128, **email**: mperfit@ufl.edu

Text: **(Required)** Principles of Igneous and Metamorphic Petrology 2nd Ed; J. D. Winter; Prentice Hall. (First Addition is OK…. **BUT** be aware that page numbers I assign are likely different in that edition and there are some new sections that will not be in the first edition.

Lab text: **Handouts will be provided before each class**

Recommended references (#'s 1 and 4 provide the most info. #'s 2 and 3 are similar to one another, have color imagery and can replace an optical book though they are not as complete a resource.

1. A basic mineralogy text including Optical Mineralogy (Nesse, for example)
2. Petrology of Igneous and Metamorphic Rocks by A. R. Philpotts; Prentice Hall
3. Minerals in Thin Section: Dexter Perkins and Kevin R. Henke; Prentice Hall
4. Petrography of Rocks in Thin Section: Williams, Turner and Gilbert (no longer in print)

Lab Instructors: Meridith Miska (meridith.miska@ufl.edu) and Peng Jiang (pengjiang@ufl.edu)

Lab syllabus will be provided during your lab class. Lab Class Rm 101

Grade evaluation:

- 25% Lab
- 20% Class assignments and in class activities (Team projects), take-home assignments
- 10% final project/ paper
- 30% Exams *(3 @ 10%)*
- 15% Final Exam

Letter grades will be assigned as follows:

- A = 93% or above, A- = 90-92.5%,
- B+ = 87-89.5%, B = 83-86.5%, B- = 80-82.5%,
- C+ = 77-79.5%, C = 73-76.5%, C- = 70-72.5%,
- D+ = 67-69.5%, D = 63-66.5%, D- = 60-62.5%,
- E = 59.5% or below.

Course Summary and Objectives

- **This course covers a great deal of material.** It is important that you attend all classes, keep up with the reading assignments and spend extra time in the lab. I expect you to read all of the assigned material and complete your assignments on time. Late submission of assignments will result in a reduction of 10 % pts. per late day unless prior approval has been given. **Neatness, spelling (spelling like that used in texting is not acceptable) and grammar count.**

The subject material assumes a working knowledge of Physical Geology (e.g rock names, plate tectonics), Mineralogy, and basic Chemistry and Physics. If you are weak in these areas, make sure you review them.

- It is VERY important to review the volcanic, petrologic and metamorphic parts of your Physical Geology class and the phase chemical associations from your Mineralogy class.
- You are **required** to keep a class *notebook* that includes all of the materials handed out in class. The handouts are very important and should be considered primary learning materials. I will check these to make sure you are following all of the classroom lectures.
- Participation in class and in your group is very important – you should not only try to answer questions based on your reading but also learn from your mistakes and discussion among your teammates.
- It is important for you to learn where significant "petrologic" localities are in the world and how they are related to plate tectonics. I will provide you with copies of important overheads and PowerPoint presentations that I show in class (on a Canvas course web site).
- I have very high expectations of you. I will put a great deal of effort into this class and I expect the same from you. This is a demanding class that can be difficult if you do not keep up with the reading and or lectures. I am willing and available to help you with any problems you may have with the course material.
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- **Etiquette, disabilities, cheating etc. :** No cell phones, etc. are allowed to be on during class. Please show courtesy to both your instructors and classmates by arriving and leaving on time and avoiding unnecessary disturbances during class. All students are expected to adhere to the student honor code and conduct code https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/ (Links to an external site.). Cheating or plagiarism will not be tolerated. Students with disabilities

should contact the instructor as soon as possible to discuss appropriate accommodations. The Students Disability Resource center website is https://disability.ufl.edu/students/ (Links to an external site.)

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2020 Tentative Schedule of Topics and Textbook readings

Date	Topic	Reading
7-9-Jan	Intro/Basic Concepts	Ch 1
14-Jan	Igneous Rock Classification & Textures	Ch 2/3
16-Jan	Igneous Rock Classification & Textures	Ch 3/4
21-Jan	Igneous Structures and Field Relations	Ch 4
23-Jan	Phase Rule and Simple Systems	Ch 6/
28-Jan	Binary Systems	Ch6/7
30-Jan	Binary Systems/Ternary Systems	Ch 7
6-Feb	**Exam 1: (Ch 1-4, 6)**	
11-Feb	Chemical Petrology- major elements - concepts	Ch 8

13-Feb	Chemical Petrology major elements – modeling	Ch 8
18-Feb	Chemical Petrology major elements – magmatic series	Ch 8
20-Feb	Chemical Petrology trace elements	Ch 9
25-Feb	Chemical Petrology- trace elements/isotopes	Ch 9
27- Feb	Mantle Melting and Basaltic Magma genesis	Ch10

SPRING BREAK
MARCH 2-8

10 - March **Exam 2: (Ch 7-10)**

12-Mar	Basalt Genesis and Magma diversification	Ch10/11
17- Mar	Mid-Ocean Ridge Magmatism and Tectonics	Ch 13
19- Mar	MORB and OIB volcanism	Ch 13/14
24- Mar	Subduction Zone Volcanism – Island Arcs	Ch16
26- Mar	Subduction Zone Volcanism – Continental Arcs	Ch 17

31- Mar	**April Exam 3 (Ch 10,11,13,14,16,17)**	
2 -Apr	**No Class Structure Field Trip**	
7- Apr	Granitoids/Felsic volcanics	Ch 18
9- Apr	Metamorphism and Metamorphic Rocks	Ch 21/22
14-Apr	Metamorphic Facies and Mafic Rocks	Ch 25
16-Apr	Metamorphism of Pelitic Rocks	Ch 28
21-Apr	Metasomatism	Ch 30
	23-24 Apr- Reading Days	
	FINAL EXAM (TBA)	

Course Summary:

Date	Details
Tue Jan 14, 2020	Assignment Quiz #1 due by 11:59pm
Thu Jan 23, 2020	Assignment Quiz #2 due by 11:59pm
Tue Jan 28, 2020	Assignment Viscocity Exercise due by 2pm
Tue Feb 11, 2020	Assignment Exam#1 due by 3pm
Tue Feb 25, 2020	Assignment REE plotting due by 11:59pm

Date	Details
Tue Apr 14, 2020	Assignment Exam#3 due by 11:59pm
Tue Apr 28, 2020	Assignment Final Project due by 11:59pm
Wed Apr 29, 2020	Assignment Final Cumulative Exam due by 10am
	Assignment Exam#2
	Assignment Kileuea Iki geochemistry
	Assignment Lab 1 Classification and Textures
	Assignment Lab 2 Crystallization
	Assignment Lab 3 Phase Diagrams
	Assignment Lab 4 MORB
	Assignment Lab 5 Ocean Island Basalts
	Assignment Lab 6
	Assignment Lab 7
	Assignment Lab 8
	Assignment Lab 9
	Assignment Lab Final
	Assignment Lab Midterm
	Assignment Lab Quiz 1
	Assignment Lab Quiz 2
	Assignment Lab Quiz 3

Course Status

January 2020

Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29 Previous month	30 Previous month	31 Previous month	1	2	3	4
5	6	7	8	9	10	11
12	13 Today	14 Click to view event details	15	16	17	18
19	20	21	22	23 Click to view event details	24	25
26	27	28 Click to view event details	29	30	31	1 Next month
2 Next month	3 Next month	4 Next month	5 Next month	6 Next month	7 Next month	8 Next month

Assignments are weighted by group:

Group	Weight
Assignments	0%
Final Project	10%
Exams	30%
Quizzes & In-Class exercizes	20%
Lab Assignments	15%
Lab Quizzes	5%
Lab Final	2.5%
Lab Midterm	2.5%
Final Exam	15%
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