

## GEOL 3215/3115 Igneous and Metamorphic Petrology Spring 2023

**Lecture Meeting Times:** Tuesday 8:30–10:20 am; Geology Building, Room 123

**Lab Meeting Times:** Monday 3–5:50 pm; Geology Building, Room 320

### CO-INSTRUCTORS

	<b>Dr. Jay Chapman</b>	<b>Dr. David Young</b>
<i>Office</i>	Geology Building, Room 319	Geology Building, Room 317
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*Office hours* Please email to set up a time to meet or simply stop by our offices if we're in. Interaction with us positively correlates to better results overall.

**TEACHING ASSISTANT:** Hao Pham - hpham@miners.utep.edu

### I. Course Description

Petrology is the branch of geology that encompasses the origin, chemical and mineralogical composition, and distribution of rocks in the Earth. The Earth's crust and mantle contain igneous rocks (solidified from magma or lava) and metamorphic rocks (affected by heat and pressure). In the lecture part of this course we will learn about igneous melt generation and evolution, crystallization processes that form igneous rocks, the development of metamorphic rocks, and the distribution of igneous and metamorphic rocks in relation to different plate tectonic settings (among many other things). Lab work is a major focus of this course. During lab, we will learn to characterize, describe, and name igneous and metamorphic rocks in hand sample and in thin section, and make interpretations based on observations. Much of the lab work will involve developing our skills using a petrographic microscope and identifying minerals in thin section. This course will be a combination of lecture, lab, and field trips.

### II. Textbooks

*Principles of Igneous and Metamorphic Petrology*, 2<sup>nd</sup> Edition (by Winter, J.D.) (**Preferred**)  
*Principles of Igneous and Metamorphic Petrology*, 3<sup>rd</sup> Edition (by Philpotts, A. and Ague, J.)  
*Essentials of Igneous and Metamorphic Petrology*, 2<sup>nd</sup> Edition (by Frost, B.R. and Frost, C.D.)  
*Petrology: Igneous, Sedimentary, and Metamorphic*, 3<sup>rd</sup> Edition (by Blatt, H., Tracy, R., and Owens, B.)  
*Earth Materials: Introduction to Mineralogy and Petrology*, 2<sup>nd</sup> Edition (by Klein, C. and Philpotts, A.)  
*Petrology: An Introduction to Igneous and Metamorphic Rocks and Processes*, **free online textbook** (by Perkins, D.) <https://opengeology.org/petrology>

*Igneous Petrology*, 1<sup>st</sup> Edition (by Best, M. and Christiansen, E.)  
*An Introduction to Metamorphic Petrology*, 2<sup>nd</sup> Edition (by Yardley, B. and Warren, C.)

### III. Required Supplies

Besides the normal writing and editing items you need for a college-level science course (pencil and eraser, pen, calculator), you will also need a **hand lens**, **colored pencils**, and a **ruler** for this course. We give frequent hand-outs both in lecture and lab: you will need a 3-ring binder to put your hand-outs, notes, and graded assignments. For field trips, you will be responsible for taking field notes.

### IV. Grading for lecture section of the course:

Exams	50%	(2-3 exams; dates to be determined)
Homework and In-Class Exercises	30%	(Attendance is mandatory)
Weekly Blackboard Quizzes	20%	

**Homework Assignments:** There may be homework assignments throughout the semester. These will be a combination of calculations, problem solving, and computer work. I encourage you to discuss these assignments with other students in class and to work collaboratively. However, you **MUST** hand in your own work. Two students handing in identical assignments is plagiarism, and will be treated as such.

**Blackboard Quizzes:** Blackboard quizzes will be posted once a week. The purpose of these is to review past material that we learned earlier in the semester. These quizzes will open after lecture each week and will close the following week when lecture starts. You will have one week to complete these assignments, and there will be no late assignments accepted. **NOTE: THESE QUIZZES ARE AN EASY WAY TO INCREASE YOUR GRADE, BUT IF YOU DON'T DO THEM, YOU CAN REALLY HURT YOUR GRADE!!!!**

**Attendance:** There will be random quizzes and in-class exercises during the lecture. If you miss class or come late, you may lose points. Note: This means that if you are going to be late, or absent, for a legitimate reason, please inform the instructor(s) well before class.

**Late Assignments:** Late assignments will generally not be accepted. However, if you are struggling to get work done on time for any reason, please contact the instructor(s) and we will work with you to come up with a solution.

### V. Grading for lab section of the course

Like many aspects of geology, the laboratory hands-on component of this course is **extremely** important to your overall understanding of the subject matter. Laboratory attendance is mandatory.

#### **Grading:**

Lab Assignments 100%

**Grading Scale for both lecture and lab sections:** Above 90 = A, 80-89 = B, 70-79 = C, 60-69 = D, Below 60 = F

## **VI. Field Trips**

We will be going on 1 Saturday field trip and one Friday-Sunday field trip during the semester (see course schedule for dates). These trips are designed to give you an opportunity to see actual igneous and metamorphic rocks in the field and be able to interpret their significance within the regional tectonic setting of southern New Mexico and west Texas.

## **VII. Academic Dishonesty and Disruptive Behavior**

Students are encouraged to collaborate in class and on class assignments. You are also strongly encouraged to form study groups and make this class a team effort. However, academic dishonesty (plagiarism, copying, etc.) will not be tolerated. Students will adhere to UTEP's academic integrity policy: <http://academics.utep.edu/Default.aspx?tabid=23785>

Any academic or non-academic misconduct will be reported to the Office of Student Conduct and Conflict Resolution in accordance with the UTEP student code of conduct.

## **VIII. Students with Disabilities**

If you think you have a disability or if you are experiencing some learning difficulties, please contact the Center for Accommodation and Support Services (CASS) at 915-747-5148, or see them in person in Union East Room 106. They will provide any necessary accommodations. You should also meet with your instructor to facilitate your needs. Please provide proper documentation of your disability and needs.