



蘇州大學
Soochow University

GEO 249 Mineralogy and Petrology

Summer 2024

Course Credits: 4

Contact Hours: 56 hours

Instructor: TBA

Email: TBA

COURSE OBJECTIVES

This course explores the composition, structure, and formation of minerals and rocks. Through a combination of lectures, laboratory exercises, and fieldwork, students will learn about the physical and chemical properties of minerals, their classification, and the processes involved in the formation of different types of rocks. The course will also cover the principles of petrology, including the origin, composition, and classification of rocks, as well as their geological significance.

Upon Completion of this Course, students will be able to:

1. Identify common minerals and rocks based on their physical and optical properties.
2. Interpret the geological history and environmental conditions recorded in rock sequences.
3. Analyze the geological processes involved in the formation and alteration of minerals and rocks.
4. Develop skills in fieldwork, and laboratory analysis relevant to mineralogy and petrology.
5. Apply petrological techniques to investigate the origin and evolution of geological materials.

PREREQUISITES

None.



GRADING

Grades will be determined by accumulating points, with 100 points being the maximum, as follows:

ITEM	POINTS
5 Labs	25 Points
Lab Report	20 Points
Midterm	25 Points
Final Exam	30 Points
Total	100 Points

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

$$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F.$$

We reserve the right to make adjustments to the overall grading policy.

COURSE MATERIALS

Required Texts:

Earth Materials: Introduction to Mineralogy and Petrology, Cornelis Klein, Anthony Philpotts, 2nd Edition, Cambridge University Press, Year: 2017.

Recommended (Optional) Texts or Other Materials:

None

COURSE TOPICS

MODULE	TASKS
Module 1	<p>Topics:</p> <p>Topic 1: Introduction: formation of Earth's chemical elements</p> <p>Topic 2: Materials of the solid Earth</p> <p>Topic 3: Definition of a mineral</p> <p>Topic 4: How are minerals identified?</p> <p>Assessments:</p> <p>Lab#1</p>



Module 2	Topics: Topic 5: Fundamentals of crystal structures Topic 6: Introduction to crystallography Topic 7: Minerals and Rocks Observed under the polarizing optical microscope Topic 8: Igneous rock-forming minerals Assessments: Lab#2
Module 3	Topics: Topic 9: How do igneous rocks form? Topic 10: Igneous rocks: their mode of occurrence and classification Topic 11: Igneous rocks and their plate tectonic setting Topic 12: Sedimentary rock-forming minerals and materials Assessments: Lab#3 Midterm
Module 4	Topics: Topic 13: Formation, transport, and lithification of sediment Topic 14: Sedimentary rock classification, occurrence and plate tectonic significance Topic 15: Metamorphic rock-forming minerals Topic 16: Metamorphic rocks Assessments: Lab#4
Module 5	Topics: Topic 17: Metamorphic grade and facies Topic 18: Some Economic minerals, mainly from veins and pegmatites Topic 19: Some selected earth materials resources Topic 20: Earth materials and human health Assessments: Lab#5 Lab Report Final Exam

ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.

If the instructor reports a student's frequent missing of class to the Soochow



University Academic Administration Office, the student might get a written warning and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share with fellow colleagues.

LEARNING REQUIREMENTS

- 1) Late assignments are not acceptable and are subjected to grade deductions.
- 2) Assignments submitted in the wrong format will be counted as not submitted.
- 3) Failure to submit or fulfill any required course component results in failure of the class.
- 4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
- 5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.

TECHNOLOGY POLICY

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities DIRECTLY related to the course (eg., note taking, reading course documents).

ACADEMIC INTEGRITY POLICY

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.



蘇州大學
Soochow University

DISABILITY ACCOMMODATION

Soochow University is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.