



蘇州大學
Soochow University

GEO 251 Introduction to Mineral Deposits

Summer 2024

Course Credits: 4

Contact Hours: 56 hours

Instructor: TBA

Email: TBA

COURSE OBJECTIVES

The essential portion of this course focuses on different mineral deposit types and their formations, which are considered a foundation for most mineral exploration and exploitation. In this course, a comprehensive and detailed introduction to some specific mineral deposits will be given to all students. Meanwhile, they have bountiful opportunities to participate directly in the experiments of mineral deposit identification to gain profound and principled knowledge. Additionally, various tools will be used in studying mineral deposits and discovering how deposits form and develop.

Upon completion of this course, students will be able to:

1. Gain a comprehensive understanding of different mineral deposit types.
2. Have a deeper knowledge of mineral deposit formations, including ore-forming processes, ortho-magmatic processes, sedimentary processes, metamorphic processes, and hydrothermal processes.
3. Describe the essential geological setting and textures of the main mineral deposit types.
4. Identify mineralogical, chemical, and structural characteristics of mineral deposits and their associated host rocks with basic hand specimens.
5. Acquire direct experience in the process of laboratory examinations and improve related capacity.

PREREQUISITES

GEO 223 Mineralogy



GRADING

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

ITEM	POINTS
2 Quizzes	20 Points
3 Labs	30 Points
Lab Report	20 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:

Kula C. Misra, *Understanding Mineral Deposits*, 1st Edition, Springer Netherlands, 2000.

Recommended (Optional) Texts or Other Materials:

None

COURSE TOPICS

MODULE	TASKS
Module 1	Topics: Topic 1: Introduction to Mineral Deposits Topic 2: Mineral Deposit versus Orebody Topic 3: Styles of Mineralization and Morphology of Mineral Deposits Topic 4: Distribution of Mineral Deposits Assessments: Quiz#1



Module 2	Topics: Topic 5: Overview of Mineral Deposits Formation Topic 6: Ore-forming Processes and Orthomagmatic Processes Topic 7: Sedimentary Processes and Metamorphic Processes Topic 8: Hydrothermal Processes Assessments: Quiz#2
Module 3	Topics: Topic 9: Geologic Setting, Ore Minerals and Textures Topic 10: Hydrothermal Alteration, Zoning, and Trace Element Distribution Topic 11: Interpretation of Isotopes Topic 12: Metamorphism of Ore Assemblages and Age of Mineralization Assessments: Lab#1
Module 4	Topics: Topic 13: Chromite Deposits and Nickel (-Copper) Sulfide Deposits Topic 14: Platinum-Group Element Deposits and Porphyry Deposits Topic 15: Volcanic-Associated Massive Sulfide Deposits Topic 16: Sediment-Hosted Massive Zinc-Lead Sulfide Deposits Assessments: Lab#2
Module 5	Topics: Topic 17: Sediment-Hosted Stratiform Copper Deposits Topic 18: Uranium Deposits Topic 19: Iron-Formations Topic 20: Gold Deposits Assessments: Lab#3 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.

DISABILITY ACCOMMODATION



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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.