



蘇州大學  
Soochow University

## **GEO 439 Special Topics in Geology**

**Summer 2024**

**Course Credits: 4**

**Contact Hours: 56 hours**

**Instructor: TBA**

**Email: TBA**

### **COURSE OBJECTIVES**

This course explores advanced and specialized topics in the field of geology, focusing on physical and chemical properties of petroleum and methods of petroleum exploration and production. Students will demonstrate mastery of the material through a combination of critical analysis, discussions, research projects, research papers, and comprehensive exams. At the end of the course, students will be able to apply covered concepts to geologic phenomena, and derive appropriate solutions to geologic problems.

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

1. Have knowledge about classification and composition of petroleum.
2. Demonstrate a comprehensive understanding of the selected geological topics.
3. Carry out petroleum system, play and prospect analysis.
4. Synthesize information from current geological research literature.
5. Apply analytical and research skills to investigate specific geological phenomena.

### **PREREQUISITES**

GEO 335 Structural Geology

GEO 339 Human Geography

### **GRADING**

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



ITEM	POINTS
2 Quizzes	10 Points
2 Research Projects	10 Points
Final Research Paper	20 Points
Midterm Exam	25 Points
Final Exam	35 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:**

Selley, Richard Curtis; Sonnenberg, Stephen A, *Elements of Petroleum Geology*, Elsevier Science;Academic Press, 2016.

### **Recommended (Optional) Texts or Other Materials:**

None

## COURSE TOPICS

MODULE	TASKS
Module 1	<p><b>Topics:</b>  Topic 1: Introduction: Historical Review of Petroleum Exploration; The Context of Petroleum Geology  Topic 2: The Physical and Chemical Properties of Petroleum  Topic 3: Methods of Exploration  Topic 4: Subsurface Geology</p> <p><b>Assessments:</b>  Quiz 1</p>



Module 2	<b>Topics:</b> Topic 5: The Subsurface Environment Topic 6: Generation and Migration of Petroleum Topic 7: Modern Organic Processes on the Earth's Surface Topic 8: The Petroleum System <b>Assessments:</b> Research Project 1
Module 3	<b>Topics:</b> Topic 9: The Reservoir Topic 10: Relationship between Porosity, Permeability, and Texture Topic 11: Reservoir Continuity and Reservoir Characterization Topic 12: Production Methods <b>Assessments:</b> Midterm Exam
Module 4	<b>Topics:</b> Topic 13: Traps and Seals Topic 14: Distribution of Petroleum within a Trap Topic 15: Sedimentary Basins and Petroleum Systems Topic 16: Mechanisms of Basin Formation <b>Assessments:</b> Quiz 2 Research Project 2
Module 5	<b>Topics:</b> Topic 17: Nonconventional Petroleum Resources Topic 18: Plastic and Solid Hydrocarbons Topic 19: Shale Gas and Tight Gas Reservoirs Topic 20: Conclusions: Prospects and Probabilities; Reserves and Resources <b>Assessments:</b> Final Research Paper 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**



蘇州大學  
Soochow University

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.