

Geology 4320: PETROLEUM GEOLOGY

Spring 2018

Instructor: Dr. Pat Harris
Phone: 294-1452

Office: LDB 312
Email: pat-harris@shsu.edu

Office Hours: M 10:00am – 11:00am, Tu 10:00am – 11:00am, by appointment, or anytime I'm around and my door is open.

Course Information

Location: LDB 318

Time: MW 9:00-9:50
M 2:00-3:50

Required Texts:

1. Petroleum Geology eTextbook. Ver. 1.1, Stephen Bend, 2008. AAPG Special Publication on CD-ROM.
2. Supplemental Readings as Assigned

Course Description

This class is an introduction to Petroleum Geology. The class will consist of two parts; the first part will focus on well log interpretation and the second part will focus on subsurface mapping.

Grading

There are 500 total points available for the class. Your grade will be based on your performance on **one lecture exam, lab/homework assignments, quizzes, mapping project, and a comprehensive final exam**. Exams will consist of calculations, and short answer questions based on lectures, homework, and reading assignments.

The midterm exam will be worth 100 points. Lab/homework assignments will be worth a total of 100 points. The final exam will be comprehensive and worth 150 points. There will be **extra credit questions on the exams**. Extra credit questions will be taken from recent issues of the Oil and Gas Journal (TN860 .04) available in the current periodicals section of the library.

Semester exam (1 X 100 pts)	100 pts
Final exam	150 pts
Homework/lab Assignments + Quizzes	100 pts
Mapping Project	<u>150 pts</u>
Total	500 pts

Exam Policy and Important Class Dates

The midterm exam will be given during the class period on the date listed below. Do not miss the exam! One make-up exam will be given on the last day of class (May 4th at

9:00am) for documented emergencies only (e.g., severe illness, death in immediate family, etc.). If possible, you should notify me **before** missing an exam.

The make-up exam will be cumulative (i.e. it will cover everything covered during the semester). There will be no make-up for the final exam.

Midterm Exam: March 7th

Mapping Project Due: May 2nd

Final Exam: Wednesday, May 9th 9:30am - 11:30am

Grading Scale: percent (%)

A = 90 - 100 B = 80 - 89 C = 70 - 79

D = 60 - 69 F = 59 - 0

Academic Honesty

I expect you to fulfill your academic obligations through honest and independent effort. If I have sufficient reason to believe you are cheating on any graded work in this course, you will be dropped from the course with a failing grade. You may refer to the SHSU Academic Policy Manual, student section, Policy #810213 for specific language.

Americans with Disabilities Act:

Any student with documented disabilities who may need classroom academic adjustments or auxiliary aids and services may request academic accommodations (for example, a note taker). Students must request assistance with academically related problems stemming from a disability by contacting the Director of the Counseling Center in the Lee Drain Annex or by calling (936) – 294 -1720. It is the campus office responsible for reviewing documentation provided by students requesting academic accommodations, and for accommodations planning in cooperation with students and instructors, as needed and consistent with course requirements.

Class Policies on Attendance/Behavior

The university requires that I take attendance for the course. *Each absence in excess of **four** absences (for any reason) will decrease your final grade by 5 percentage points.* Three tardies count as one absence. Your attendance, motivation, and participation are integral to your success in this course. If you miss a lecture, it is your responsibility to obtain the material presented in the lecture from a fellow student.

I expect that you will act like adults. Disruptive behavior will not be tolerated. Please turn cell phones off during class and respect your peers.

If **you** decide to drop the course, it is **your** responsibility to fill out the necessary paperwork or you will receive a grade based upon your performance in the class regardless of the amount of work you completed.

Lecture Topics

*****Please Note***** The topics of lecture are in relative chronological order but are subject to change. The dates of the exams are set and the material to be covered will be clarified based on lecture topics completed.

Topic

Introduction/History
Principles of Drilling
Mud Engineering and Mud Logging
Petroleum – Physical and Chemical Characteristics
OM Types, migration, and post emplacement

Reservoir rock- ϕ types, K
Water, Pressure, & Temperature
ELECTRIC LOGS: Spontaneous Potential
 Gamma Ray log
 Porosity logs
 Resistivity logs
Well Log Signature analysis
Structural and Stratigraphic Traps
SUBSURFACE MAPPING
 Contouring
 Well log correlation
 Mapping Faults
 Structure Maps
 Isochore and Isopach Maps
 Production Maps

Readings

Ch. 1 e-text
Ch. 7 e-text
Notes
Ch. 2 e-text
Ch. 3 e-text, Dow (1978)
Berg (1975)
Ch. 4 e-text
Ch. 5 e-text, Burst (1969)
Ch. 9 e-text, Archie (1950)

Notes
Ch. 4 e-text, B & W (1994)
Ch. 6 e-text, ASGM (2003)