

# CARBONATE PETROLOGY - GEOL 5326

Spring 2022

TueThrs 9:30 – 10:45 am

Dept of Biology, Geology, and Physical Sciences; College of ALPS; Sul Ross State University

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Office hours:  
MWF 11-11:50 am  
MTW 2-4 pm  
hours could change  
or call or email to make an appointment

## COURSE DESCRIPTION

Carbonate petrology deals with the origin, description, classification, and interpretation of limestones and dolostones. The emphasis will be on carbonate stratigraphy and interpretation of microfacies. Local and regional examples will be examined.

## METHODS OF INSTRUCTION

Course consists of 3 hours of lecture per week and several optional one-day trips. While the emphasis of the course is on carbonate depositional environments, some petrographic exercises will be required including an independent project which will require collecting and preparation of samples. Outside readings and discussions of the articles are also a part of the course.

## FIELD TRIPS

Up to four, one-day to half day, field trips will be offered and will examine local carbonates.

## TEXTS

***Origin of Carbonate Sedimentary Rocks***. 2016. James and Jones. Wiley  
***Carbonate Sedimentology***. 1991. Tucker and Wright. Wiley-Blackwell.  
***Carbonate Depositional Environments, AAPG Memoir 33***. 1983. Scholle & others, eds.

The last 2 are on reserve in the library. Readings/homeworks will be assigned from these texts. Articles from geologic journals may be assigned.

## ATTENDANCE POLICY

Attendance is expected in lectures. Students are expected to inform the instructor of a pending, legitimate, absence and have documentation for the absence.

## DISABILITIES ACCOMMODATION

*Sul Ross State University (SRSU) is committed to equal access in compliance with Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the Student's responsibility to initiate a request each semester for each class. Students seeking accessibility/accommodations services must contact SRSU's Accessibility Services Coordinator, Mary Schwartz Grisham, M.Ed., LPC, Director, Counseling & Accessibility Services, Ferguson Hall (room 112) at 432-837-8203 (leave a message and they will get back to you as soon as they can during working hours) or email [mschwartz@sulross.edu](mailto:mschwartz@sulross.edu). Mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas 79832. Students receive letter with accommodations and then need to contact the instructor as soon as possible to initiate the recommended accommodations.*

## GRADING/METHODS OF ASSESSMENT/EVALUATION

The semester grade/assignments:	Grading Scale:	
75% from lecture exams (3)	100-90.00	A
10% from homework assignments	89.99-80.00	B
15% from term research reports/projects (2)	79.99-70.00	C
	69.99-60.00	D

Exams will occur about every 4 to 5 weeks. Various formats will be used for the questions.

Samples will also be included on exams

Homework will be from text/article readings.

Term research reports/projects: 1) a literature search and synthesis of a topic related to carbonates presented in a written report; 2) an original research project based on sample collection, preparation, description, and interpretation of carbonates resulting in a written report and an oral presentation.

## COURSE SCHEDULE

Wk 1	TueThrs	Jan 11 & Jan 13	Intro & Review of Carbonate sedimentation
Wk 2	TueThrs	Jan 18 & Jan 20	Classification of Carbonate Rocks
Wk 3	TueThrs	Jan 25 & Jan 27	Techniques of Carbonate Petrography
Wk 4	TueThrs	Feb 1 & Feb 3	Microfacies
Wk 5	TueThrs	Feb 8 & Feb 10	Diagenesis; Exam 1
Wk 6	TueThrs	Feb 15 & Feb 17	Stratigraphy of Carbonates
Wk 7	TueThrs	Feb 22 & Feb 24	Carbonate Platforms
Wk 8	TueThrs	Mar 1 & Mar 3	Reefs
SPRING BREAK			
Wk 9	TueThrs	Mar 15 & Mar 17	Permian Reef Complex
Wk 10	TueThrs	Mar 22 & Mar 24	Bahamas; Exam 2
Wk 11	TueThrs	Mar 29 & Mar 31	Persian Gulf
Wk 12	TueThrs	Apr 5 & Apr 7	Dolomite
Wk 13	TueThrs	Apr 12 & Apr 14	Ancient Carbonate Deposits
Wk 14	TueThrs	Apr 19 & Apr 21	Ancient Carbonate Deposits
Wk 15	TueThrs	Apr 26	Presentation
Wk 16	MONDAY	MAY 2	Exam 3      8 am – 10 am

Field trip dates:

Feb 3, 4, 5, or 6

Mar 24, 25, 26, or 27

## EXPECTED LEARNING OUTCOMES & COURSE OBJECTIVES

At the end of the semester, the successful student will be able to apply critical reasoning and problem solving skills to:

- \* identify and describe carbonate hand samples and thin sections using carbonate rock classification schemes (SLO 1 & SLO 3)
- \* interpret and explain the depositional environments (sedimentary processes and settings) that produce various types of carbonate rocks from examination of hand samples and thin sections (SLO 1 & SLO 3)
- \* collect carbonate samples and prepare them in the lab (SLO 3)
- \* writing a paper describing and interpreting a suite of carbonates and then orally presenting the paper (SLO 4)

### **GEOLOGY MASTER OF SCIENCE STUDENT LEARNING OUTCOMES (SLO's)**

- 1.** The student will be able to apply diverse bodies of Geologic information in the area of advanced sedimentary geology.
- 2.** The student will be able to apply diverse bodies of Geologic information in the area of advanced igneous/metamorphic processes, structure and tectonics.
- 3.** The student will be able to apply diverse bodies of Geologic information to field and lab research and techniques.
- 4.** The student will be able to communicate diverse bodies of Geologic information through the standard scientific format of an oral presentation based on a written paper.

### **GEOLOGY MASTER OF SCIENCE MARKETABLE SKILLS**

- \* The student will be able to conduct field work.
- \* The student will be able to use field equipment and lab resources.
- \* The student will be able to use library resources.
- \* The student will be able to communicate in written and oral format.