**GLY 325 STRATIGRAPHY & SEDIMENTATION F-16**

**Text**: Principles of Sedimentology and Stratigraphy, 2012 (5rd ed.), Sam Boggs, Jr.

**Instructor**: Dr. Ronald L. Martino

Office: S174; Office Hours: MW: 10-11,12-1 T: 9-1 (appt. recommended)

Phone/Email: 696‑2715, martinor@marshall.edu

**Time and Location:** MWF:11-11:50, Tue: 1-2:50, Room S170

**Course Description**: Stratigraphy & Sedimentation‑(GLY 325, 4 hrs)

Formation, organization, sequence, and correlation of sedimentary

rocks; study of the origin, transportation, and deposition of

rock‑forming sediments.

**Prerequisite Courses**: GLY 201 and 211L or permission

# Course Objectives/Methods of Assessment

|  |  |  |
| --- | --- | --- |
| **Course Objective** | **Student Activity** | **Assessment Tool** |
| Students will be able to describe the lithology and sedimentary structures of sedimentary rocks and interpret the physical, biological and chemical processes responsible for their origin; | Reading, homework, lectures,  class discussion; hands-on lab experience (optional) | Exams, Class Participation, Homework |
| Identify, describe, and interpret sedimentary facies, the basic building blocks of stratigraphic sequences; | Reading, homework, lectures,  class discussion, labs, field project | Exams, Lab Reports  Project Report |
| Understand and utilize various types of stratigraphic correlation; | Lectures,  class discussion,  field trips | Exams, Lab Reports  Field Project Report |
| Describe and analyze sedimentary strata in the field and in the subsurface | Lecture, labs, field trips,  Field Project | Class Participation, Exams,  Homework |
| Integrate relevant geologic literature into research projects | Field Project and Labs | Reports |
| Develop/Improve technical writing skills | Field Project, Labs | Reports for Labs and Project |
| Develop an understanding of interaction of climate, tectonics, and sea level changes in the development of sedimentary sequences | Field Project, Field Trips | Reports, Exams |

# Grading Procedure

Lecture Lab

Exams 1, 2 : 33 % each 50 % Exercises

Final Exam: 34 % 50 % Lab Final

Final Grade in Course =

40 % lecture, 25 % lab, 25% Field Project, 10% Attendance/Participation

Any form of academic dishonesty\* that occurs will result in dismissal from the course and an automatic final grade of “F” . A letter outlining the offense will be forwarded to the academic dean for consideration of further action (\*see p. 71-82, Undergraduate Catalog: http://www.marshall.edu/catalog/files/UG\_15-16\_published\_rev.pdf.

# Attendance/Participation Policy

Attendance will be kept by taking roll at the beginning of each class. If a student comes in late, it is their responsibility to notify the instructor at the end of class. Attendance during exams is mandatory. Only legitimate and verifiable excuses will be considered (serious medical, legal, or military reasons, or death in the immediate family).

Students should complete the assigned reading prior to coming to class or lab and be prepared to answer questions and participate in class and lab discussions.

# Lab Exercises

There will be approximately 7 lab exercises during the semester. They will involve collection and presentation of data, as well as analysis and interpretation. The writing portion will typically include 2‑3 pages. The objectives of these exercises will be to familiarize students with various methods of data acquisition and to develop the ability to analyze and interpret these data in a logical manner.

**Course Outline (Tentative)**

Week No. Lecture Topic Assignment

1 Sedimentary Textures C. 3

2 Transport & Deposition of Clastic Sediments C. 2

3-4 Sedimentary Structures C. 4

5 Siliciclastic Sedimentary Rocks C. 5

6 **EXAM # 1**,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6 Carbonate Sedimentary Rocks C. 6

7-8 Continental (Terrestrial) Environments/Facies C. 8+

9-10 Marginal Marine Environments/Facies C. 9

11 Siliciclastic Marine Environments/Facies C. 10

12 \_\_**EXAM # 2**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13 Carbonate and Evaporite Environments/Facies C. 11

14-15 Stratigraphy C. 12 +

\_\_\_\_\_**FINAL EXAM (comprehensive) \_\_ Dec 13 @ 10:15\_\_\_\_\_\_\_**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# *TENTATIVE* LIST OF LAB TOPICS/ACTIVITIES

Week Topic

1. Sieve Analysis of Sand

2 Identification & Interpretation of Sedimentary Rocks, Structures

3 Paleocurrent Analysis

4 Measuring/Describing/Interpreting Stratigraphic Section (outcrop) w/

Component Facies

5-6 Core Logging & Geophysical Logs

7-14 Field Project

15 Lab Final

+ Field Trips (2 all day trips)

Supplementary References:

Sedimentary Rocks in the Field: A Practical Guide, 4th Edition, [Maurice E. Tucker](http://www.wiley.com/WileyCDA/Section/id-302475.html?query=Maurice+E.+Tucker) January 2011, ©2010

Facies Models 4 – 2010, Geological Association of Canada by [Noel P. James](http://www.amazon.com/s/ref=dp_byline_sr_book_1?ie=UTF8&field-author=Noel+P.+James&search-alias=books&text=Noel+P.+James&sort=relevancerank) and [Robert W. Dalrymple](http://www.amazon.com/s/ref=dp_byline_sr_book_2?ie=UTF8&field-author=Robert+W.+Dalrymple&search-alias=books&text=Robert+W.+Dalrymple&sort=relevancerank) (editors)

**University Policies**

By enrolling in this course, you agree to the following University Policies:

Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment

Please read the full text of each policy by going to www.marshall.edu/academic-affairs/policies/.