**GLY 325 STRATIGRAPHY & SEDIMENTATION F-14**

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

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

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

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**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

**Desired Learner Outcomes**: Students should be able to:

1. describe the lithology and sedimentary structures of sedimentary rocks and interpret

the physical, biological and chemical processes responsible for their origin;

2) recognize, describe, and interpret sedimentary facies, the basic building blocks of

stratigraphic sequences;

3) understand and utilize various types of stratigraphic correlation;

4) describe and analyze sedimentary strata in the field and in the subsurface;

5) use the geologic literature in research projects;

6) improve technical writing skills;

7) develop an understanding of the interaction of climate, tectonics, and sea level

changes in the development of sedimentary sequences.

Learning activities for objectives 1-7 will include readings, lectures, class discussions, review questions, lab exercises, a field project, literature review, report writing, field trips and exams. Student achievement will be assessed through exams, reports, class participation and class preparation.

# Grading Procedure

Lecture Lab

Exams 1, 2, 3: 22 % each 50 % Exercises

Final Exam: 34 % 50 % Lab Final

Final Grade in Course =

45 % lecture, 25 % lab, 25% Field Project, 5% 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. 70-81, Undergraduate Catalog: <http://www.marshall.edu/ucomm/files/web/UG_14-15_published.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 Sedimentary Structures C. 4

4 **EXAM # 1** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_

5 Siliciclastic Sedimentary Rocks C. 5

6 Carbonate Sedimentary Rocks C. 6

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

\_9 \_\_\_**EXAM # 2**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10 Marginal Marine Environments/Facies C. 9

11 Siliciclastic Marine Environments/Facies C. 10

12 Carbonate and Evaporite Environments/Facies C. 11

13 \_\_**EXAM # 3**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14-15 Stratigraphy C. 12 +

\_\_\_\_\_**FINAL EXAM (comprehensive) \_\_ Dec 9 @ 10:15\_\_\_\_\_\_\_**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# *TENTATIVE* LIST OF LAB TOPICS/ACTIVITIES

Week Topic

1. Sieve Analysis of Sand

2 Hydrometer Analysis of Mud

3 Identification & Interpretation of Sedimentary Rocks, Structures, Trace Fossils

4 Paleocurrent Analysis

5 Measuring/Describing/Interpretation of Stratigraphic Section (outcrop) w/

Component Facies

6-12 Field Project

13 Core logging

14 Geophysical Logs

15 Lab Final

+ Field Trip (includes a 2‑day field trip w/ camping out, Oct 24-25 (tentative)

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 University Policies listed below. Please read the full text of each policy be going to [www.marshall.edu/academic-affairs](http://www.marshall.edu/academic-affairs) and clicking on “Marshall University Policies.” Or, you can access the policies directly by going to <http://www.marshall.edu/academic-affairs/?page_id=802>

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