University of Arkansas - Fort Smith
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General Syllabus

GEOS 41004 Sedimentary Deposition

Credit Hours: 4 **Lecture Hours**: 3 **Laboratory Hours**: 2

Prerequisite(s): GEOS 30134 Geological Field Methods or Consent of Instructor

Effective Catalog: 2020-2021

I. Course Information

A. Catalog Description

Fundamental principles of sedimentological deposition, including the physical, chemical, and biological characteristics of sedimentary rocks. Emphasizes the study of sedimentary rocks to interpret depositional environments, changes in ancient sea level, and other aspects of Earth's history.

B. Additional Information

This course is required for the B.S. degree in Geoscience.

II. Student Learning Outcomes

A. Subject Matter

Upon successful completion of this course, the student will be able to:

1. Explain the formation and weathering of soils and the transport and deposition of siliciclastic sediment.
2. Identify sedimentary rock textures and structures.
3. Discuss and interpret Paleoclimates.
4. Compare and contrast the composition, classification, and diagenesis of siliciclastic, carbonate, chemical/biochemical, and carbonaceous sediments.
5. Identify and describe continental, marginal-marine, siliciclastic marine, carbonate, and evaporate environments.
6. Compare and contrast modern and ancient carbonate reef depositions
7. Apply facies models

B. University Learning Outcomes (ULO)

This course will enhance student abilities in the following areas.

Analytical Skills
Critical Thinking Skills

Students will identify a problem or issue and will research, evaluate, and compare information from varying sources in order to evaluate authority, accuracy, recency, and bias relevant to the problems/issues. The student will generate solutions/analysis of problems/issues evaluated and will assess and justify the solutions and/or analysis.

Communication Skills (written and oral)
Students will communicate proficiently. The student will compose coherent documents appropriate to the intended audience and effectively communicate orally in a public setting.

Ethical Decision Making
Students will model ethical decision-making processes. The students will identify ethical dilemmas and affected parties and will apply ethical frameworks to resolve a variety of ethical dilemmas.

Global & Cultural Perspectives
Students will reflect upon cultural differences and their implications for interacting with people from cultures other than their own. The students will demonstrate understanding or application of their discipline in a global environment and will demonstrate how their discipline impacts or is impacted by different cultures.

III. Major Course Topics

A. Origin and transport of sedimentary materials
B. Physical properties of sedimentary rocks
C. Composition, classification, and diagenesis of sedimentary rocks
D. Depositional environments
E. Sea level changes in the rock record
F. Introduction to facies models
G. Ancient carbonate reef systems