

University of Arkansas – Fort Smith
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General Syllabus

GEOL 11331 Historical Geology Laboratory

Credit Hours: 1

Lecture Hours: 0

Laboratory Hours: 2

Prerequisite or corequisite: GEOL 11343 Historical

Geology Effective Catalog: 2018~2019

I. Course Information

A. Catalog Description

Identification and interpretation of minerals and rocks, stratigraphic columns, sedimentary depositional environments, paleogeography, relative and absolute dating, and fossil identification.

B. Additional Information

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

II. Student Learning Outcomes

A. Subject Matter

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

1. Analyze and differentiate minerals, igneous rocks, sedimentary rocks, and metamorphic rocks.
2. Analyze the processes in forming different minerals and rocks and how these processes relate to different environments.
3. Identify major Era's and Periods on the geologic time scale along with the dates they occurred in the geologic past.
4. Evaluate stratigraphy and explain the causes of marine transgressions and regressions.
5. Analyze physical stratigraphy, biostratigraphy, and chronostratigraphy and apply each to the correlation of rocks.
6. Evaluate plate tectonic theory and list the major tectonic boundaries and plates found on the Earth.
7. Evaluate relative and absolute dating of rocks and demonstrate each by determining the ages of rocks.
8. Determine the different types of fossilization.
9. Identify some commonly found fossils in sedimentary rocks.

10. Evaluate different types of folds and faults in structural cross sections and map view.
11. Identify and measure strike and dip of rocks and faults in structural cross sections and map view.

B. University Learning Outcomes

This course will enhance students' 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. Students 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. Students 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. 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. 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. Minerals
- B. Igneous rocks
- C. Sedimentary rocks
- D. Metamorphic rocks
- E. Stratigraphic principles (physical stratigraphy, biostratigraphy, and chronostratigraphy)
- F. Geologic Time- relative and absolute dating
- G. Fossils
- H. Plate Tectonics
- I. Structural Geology J. Geologic maps