University of Arkansas – Fort Smith
5210 Grand Avenue
P. O. Box 3649
Fort Smith, AR 72913−3649
479−788−7000

General Syllabus

GEOL 4406 Summer Field Geology

Credit Hours: 6 **Lecture Hours:** 3 **Laboratory Hours** 6

Prerequisites: GEOL 3404 Structural Geology, GEOL 3504 Petrology, and GEOL 4124 Sedimentary Stratigraphy

Effective Catalog: 2020-21

I. Course Information

A. Catalog Description

Field mapping of sedimentary, igneous, and metamorphic rocks and geologic structures in a variety of settings, using a combination of traditional methods and new technologies. Integration and analysis of geological field data culminating in written reports, geologic maps, cross-sections, and other products suitable for publication.

B. Additional Information

This course is required for the B.S. degree in Geoscience with the professional concentration and comprises several weeks of intensive geological field work.

II. Student Learning Outcomes

A. Subject Matter

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

1. Locate and review published geologic literature pertaining to specific field areas.
2. Set research goals and strategies to guide field work.
3. Develop multiple working hypotheses as an additional guide to field work.
4. Efficiently collect a maximum amount of high-quality field data in the time available.
5. Use computer spreadsheets to organize and efficiently analyze a large amount of field data.
6. Integrate and apply a variety of knowledge and skills from their geoscience education to achieve research goals.
7. Use a variety of field technologies currently employed by professional geologists.

8. Write a geologic report that is well-organized and concisely written, with interpretations and conclusions defended by reproducible field data, and with accurate maps and graphics that meet professional standards.

B. University Learning Outcomes (ULO)

This course will enhance student abilities in the following areas.

Analytical Skills

The student will generate solutions/analysis of problems/issues evaluated and will assess and justify the solutions and/or analysis.

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.

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. Strategic planning and logistics for large field research projects
B. Finding and reviewing published findings in preparation for a field research project
C. Setting research goals and creating multiple working hypotheses
D. Collecting, recording, and organizing large amounts of field data
E. Expectations for professionally prepared geologic reports and maps

New technologies used in geologic field work