University of Arkansas - Fort Smith
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General Syllabus

GEOS 38303 Environmental Geology

Credit Hours: 3 **Lecture Hours:** 3 **Laboratory hours:** 0

Prerequisite: GEOL 11331/11343 Historical Geology/Lab or consent of the instructor

Effective Catalog: 2020-21

I. Course Information

A. Catalog Description

The study of Earth based on geologic concepts relevant to current environmental issues. Geologic principles are used to define underlying problems related to water resources, pollution, natural hazards, waste disposal, energy and mineral resources.

II. Student Learning Outcomes

A. Subject Matter

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

1. Evaluate the risk for natural disasters such as landslides, earthquakes, volcanic eruptions, and floods and suggest measures to avoid or mitigate damage.
2. Apply fundamental groundwater flow models.
3. Compare and contrast different climatic regimes.
4. Evaluate potential sources of environmental contaminants to water and air, fate and transport of contaminants, and their potential to damage ecosystems.
5. Analyze human population dynamics in terms of growth and resource demand.

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. Rock and chemical cycles
B. Rock types
C. Running water
D. Groundwater
E. Earthquakes
F. Volcanoes and their hazards
G. Climate change
H. Influence of climate on shoreline features
I. Human impact on geological processes
J. Hazard and urban planning