

University of Arkansas - Fort Smith
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General Syllabus

GEOS 35903 Introduction to Geodatabases

Credit Hours: 3

Lecture Hours: 2

Laboratory Hours: 2

Prerequisite: GEOS 11003 Introduction to Geographic Information Systems

Effective Catalog: 2026 - 2027

I. Course Information

A. Catalog Description

This course explores the geodatabase, a spatial data framework that supports modern GIS mapping and analysis. It focuses on using spatial data modeling as an extension of conventional relational database design. Topics include design principles, creation, modification, properties, and structures of relational and object-orientation, and documentation for geodatabase design. This course provides a theoretical foundation upon which more advanced concepts can be learned. It also provides students with advanced applied skills using GIS applications for creation and modifying geodatabase design.

C. Additional Information

This course is an elective 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. Define concepts and terminology associated with geodatabase design.
2. Demonstrate and use the structure of geodatabases.
3. Examine issues and develop solutions during data preparation associated with geodatabases.
4. Compare the fundamental elements of spatial databases and their design.
5. Apply geoprocessing and analytical functions of GIS applications.
6. Design and develop a geodatabase that supports GIS analysis and produces a digital product.

B. University Learning Outcomes

Introduction to Geodatabases enhances student abilities in the following areas:

Analytical Skills

Critical Thinking - Students will identify problems/issues and develop and modify GIS geodatabases and workflows.

III. Major Course Topics

- A. Designing a logical model geodatabase schema
- B. Creating a geodatabase and adding components
- C. Populating and sharing a geodatabase
- D. Extending data formats for online sharing and creating 3D scenes
- E. Creating and modifying new features and feature templates
- F. Exploring creation tools
- G. Working with map topology and geodatabase topology
- H. Structuring geographic data
- I. Designing Geodatabases