**University of Arkansas - Fort Smith**
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**General Syllabus**

# GEOS 21203 GIS Geodatabase Design

Credit Hours: 3 Lecture Hours: 2 Lab Hours: 2

Prerequisite(s): GEOS 11003 Introduction to Geographic Information Systems and GEOS 20103 GIS Analysis
Prerequisite(s) or Corequisite(s): ELTE 12433 Introduction to Programming

Effective Catalog: 2021-2022

## I. Course Information

### A. Catalog Description

Explores the spatial data framework that supports modern GIS mapping and analysis. Discussion focuses on spatial data modeling as an extension of conventional relational database design. Topics include design principles, initial creation, modifications, workflow and documentation of the geodatabase design.

### B. Additional Information

Extend student's knowledge and skills in the area of GIS database design for use to address issues of relevance to local communities, the nation and the world. This course will provide a theoretical foundation upon which more advanced concepts can be learned. It will also provide students with advanced applied skills using GIS applications for creation and modifying geodatabase design.

## 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**

This course enhances student abilities in the following areas:

**Analytical Skills**

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

**Quantitative Reasoning** - The student will develop spatial data framework and geodatabase designs.

## 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