

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

### **BSAT 3013 3D Spatial Analysis**

Credit Hours: 3

Lecture Hours: 2

Lab Hours: 2

Prerequisite: CGT 2204 Land Surveying and Information Systems or consent of department head.

Prerequisite or corequisite: BSAT 3003 GIS Analysis

Effective Catalog: 2018-2019

#### **I. Course Information**

##### **A. Catalog Description**

Focuses primarily be on the representation of data and spatial areas in three dimensions that can then be graphically analyzed. Projects will include problems from the field of civil engineering, statistics, mapping, environmental, and manufacturing.

##### **B. Additional Information**

3D terrain modeling will be introduced in conjunction with spatial analysis.

#### **II. Student Learning Outcomes**

##### **A. Subject Matter**

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

1. Examine three-dimensional visualization of GIS data for data exploration and synthesis.
2. Demonstrate interactive navigation tools to explore, display and query three-dimensional data.
3. Create and analyze surface data for sophisticated modeling, viewing, and analysis.
4. Create advanced fly-through and animations for better communication and presentation of important concepts.

##### **B. University Learning Outcomes**

This course enhances student abilities in the following areas:

**Analytical Skills**

**Critical Thinking Skills:** All students will be required to solve problems and justify those solutions.

**Quantitative Reasoning:** Students will apply math and science knowledge when reading and analyzing models. Applied animation projects will require quantitative reasoning

**Communication Skills (written and oral)**

Strong communication skills will be required from all students in the form of written and oral presentations.

**Global & Cultural Perspectives**

Students will reflect upon cultural differences and their implications for interacting with people from cultures other than their own when developing their applied animation projects. Students will deal with methods of communication and/or world where cultural issues must be addressed.

**III. Major Course Topics**

- A. Create three-dimensional views
- B. Analyze three-dimensional data
- C. View your data using a global-to-local perspective
- D. Navigate terrain data and develop 3D terrain models
- E. Visualize modeling or analysis results in three dimensions
- F. Export data to video clips