South Central College

GIS 2840 Introduction to Geographic Information Systems (GIS)

Common Course Outline

Course Information

Description
This course covers the theory and use of computer software for the collection, analysis, and communication of geographic information. This course will use ArcGIS software, which was developed by Environmental Systems Research Institute, Inc. (ESRI) as a tool to create, manage and manipulate spatial data within a GIS. (Prerequisite: None)

Career Cluster
Engineering, Manufacturing & Technology

Total Credits
4.00

Total Hours
96.00

Types of Instruction

Instruction Type
Credits/Hours
Lecture
2/32
Lab
2/64

Pre/Corequisites

Prerequisite
None

Course Competencies

1  Explore ArcGIS

Learning Objectives
Describe GIS data concepts.
Describe the structure of ArcGIS desktop software.
Find and connect to spatial data.
Search for spatial data and maps.

2  Manipulate ArcMap

Learning Objectives
Preview maps in ArcMap.
Insert layers in maps.
Add features from a database.
Modify the way features are drawn.
Add labels to a map.

3  Examine ArcCatalog
Learning Objectives
Describe GIS data management.
Find and connect to data.
Document database with metadata.
Create GIS project and data shortcuts.

4 Evaluate Spatial Data
Learning Objectives
Investigate spatial data integrity.
Investigate attribute data integrity.
Manage raster datasets in a geodatabase.
Add specialized datasets to a geodatabase.

5 Create Geodatabases
Learning Objectives
Create and modify features.
Utilize projected and geographic coordinate systems.
Add and edit attribute data, annotation, and dimensions.
Check data for errors.

6 Create Features
Learning Objectives
Add data to a map.
Organize layers.
Set spatial extents and scale.
Identify and locate features.
Use attributes to symbolize features.
Create custom symbols.

7 Modify Features
Learning Objectives
Utilize the editor toolbar.
Clip features.
Merge features.
Enhance features.
Correct geometric feature deficiencies.

8 Review Cartographic Techniques
Learning Objectives
Utilize standard cartographic practices.
Compare map scale to reference scale.
Use a variety of colors during map development.
Utilize standard cartographic symbology.

9 Create Reports, Graphs and Maps
Learning Objectives
Create customized graphs.
Create customizable reports using Crystal Reports.
Create perspective views.
Insert Graphs and Reports into map layouts.

10 Join and Relate Tables
Learning Objectives
Join MS Access data to feature class data.
Join MS Excel tables to feature class data.
Add fields and calculate attribute values.
Relate attribute tables to feature class data.
11 Select Features by Location

Learning Objectives
Select subset features by attribute value.
Select features based on location.
Select features by multivariable queries.
Select features based on other features.

12 Examine Methods to Analyze Spatial Data

Learning Objectives
Create paths and corridors.
Allocate areas to centers.
Model flow.
Prepare raster surfaces.
Prepare TIN surfaces.

13 Prepare Data for Analysis

Learning Objectives
List data preparation tasks.
Extract a portion of a dataset.
Overlay geographic datasets.
Use standard SQL syntax.

14 Analyze Spatial Data

Learning Objectives
Measure distances between features.
Query spatial data by specific values.
Report spatial data relationships.
Calculate spatial distances and areas.

15 Practice Georeferencing

Learning Objectives
Add raster data to maps.
Fit raster to known spatial references.
Assign coordinate system to raster data.
Rectify raster data.

16 Prepare Feature Class Symbology

Learning Objectives
Manipulate feature class symbology.
Create Custom feature symbology.
Convert feature symbology to feature class annotation.
Reference feature class annotation to map scale.

SCC Accessibility Statement

If you have a disability and need accommodations to participate in the course activities, please contact your instructor as soon as possible. This information will be made available in an alternative format, such as Braille, large print, or cassette tape, upon request. If you wish to contact the college ADA Coordinator, call that office at 507-389-7222.

Disabilities page http://southcentral.edu/academic-policies/disability-rights.html