ArcGIS® 1: Introduction to GIS

Student Edition

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Course introduction

Introduction
Course goals
Additional resources
Installing the course data
Icons used in this workbook
Understanding the ArcGIS Platform

1 The ArcGIS platform

Lesson introduction
The ArcGIS platform
Using GIS
Getting to know the ArcGIS platform
Components used in this course
Lesson review

2 The basics of GIS

Lesson introduction
What is GIS?
The geographic approach
What can you do with GIS?
Think of ways to apply GIS
Exercise 2: Create and share a map with ArcGIS Online
    Training Services account credentials
    Sign in to ArcGIS Online
    Choose a basemap
    Add a data file to your map
    Save and share your map
    View a classmate's version of the map
    (Optional) Locate a user group related to your work or area of interest
Lesson review

3 Understanding GIS data

Lesson introduction
Turning geographic information into GIS data
GIS data models
Explore GIS data models in ArcMap
Which data model fits better?
Working with tables
Documenting your data
Exercise 3A: Explore GIS data using ArcMap
    Open ArcMap and create a folder connection
    View data in a GIS

Identify various file types
View an item description
Correct an error in an item's metadata
Preview a dataset's geography and table
Add data to the map
ArcGIS Online content
GIS services and web maps
Web mapping applications and mobile apps
Tools and data from ArcGIS Online
Exercise 3B: Explore GIS content using ArcGIS Online
Browse ArcGIS Online for web content
Browse ArcGIS Online for desktop content
View an item's details
Examine options for opening ArcGIS Online items
Lesson review

4 The importance of coordinate systems

Lesson introduction
What is location?
How spatial data stores location
Geographic coordinate systems
Working with data in different geographic coordinate systems
Projected coordinate systems
Spatial properties and distortion
Understanding distortion
Exercise 4: Work with coordinate systems
Identify the coordinate system for a dataset
Identify the coordinate system for another dataset
Identify a dataset with a different coordinate system
Identify a dataset with an unknown coordinate system
Assign a coordinate system to a dataset without a spatial reference
Change the coordinate system for a dataset
Three key concepts
Lesson review

5 Acquiring and selecting GIS data

Lesson introduction
Methods for obtaining GIS data
Accessing GIS data
Considerations for creating GIS data
Creating data
Considerations for choosing GIS data
Evaluating GIS data

Exercise 5: Gather and evaluate GIS data
Consider the data you need
Examine the data you have
Add data from another organization
Add data from ArcGIS Online
Transfer files from one geodatabase to another
Import shapefiles into the geodatabase
Lesson review

6 Interacting with a map

Lesson introduction
Symbology and visualization
Finding, identifying, and selecting features
Asking questions and getting answers
Getting information from a GIS map
Exercise 6A: Explore a map using ArcMap
Navigate the map
Modify symbology
Identify features
Find features
Export selected features from a file to a geodatabase
Select features
Examine an attribute table
View data change over time
Exercise 6B: Explore a map using ArcGIS Online
Navigate the map
Modify symbology
Identify features
Locate addresses and features
Select features and view an attribute table
Lesson review

7 Performing spatial analysis

Lesson introduction
The geographic approach - revisited
Questions you can answer with GIS
What is spatial analysis?
Geoprocessing in analyses
Common analysis tasks
Perform spatial analysis with common analysis tools
Exercise 7: Analyze hurricane storm surge data
Open ArcMap and examine the map document
Extract features in your area of interest
Identify vulnerable facilities in Lee County

Overlay the Cat3 layer with Lee County
Identify hospitals close to the storm surge inundation polygon
Lesson review

8 Sharing results

Lesson introduction
The importance of sharing results
Sharing content through ArcMap
Sharing content through ArcGIS Online
Exercise 8: Share hurricane analysis results
Export the map as a PDF
Create a map package and upload it to ArcGIS Online
Create a web map
Customize map symbology and save the map
Create a web mapping application
(Optional) Access the web mapping application on a mobile device
Lesson review

Appendixes

Appendix A: Esri data license agreement
Appendix B: Suitable projections
Appendix C: Course roadmap
Appendix D: Answers to lesson review questions
Lesson 1: The ArcGIS platform
Lesson 2: The basics of GIS
Lesson 3: Understanding GIS data
Lesson 4: The importance of coordinate systems
Lesson 5: Acquiring and selecting GIS data
Lesson 6: Interacting with a map
Lesson 7: Performing spatial analysis
Lesson 8: Sharing results