ArcGIS® 1: Introduction to GIS

Student Edition
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
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