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
   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
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?
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