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Course introduction

Introduction
Course goals
Additional resources
Installing the course data

1 The ArcGIS system

Lesson introduction
The ArcGIS System
Author-share-use
Getting to know the ArcGIS system
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
  (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
ArcMap and data models
Which data model fits better?
Working with tables
Documenting your data
Exercise 3: Identify data types and examine metadata
  - Open ArcMap and set up a connection to the data
  - 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
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 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 ArcGIS Online
   Add data from another organization
   Transfer files from one geodatabase to another
   Import shapefiles into the geodatabase
   Export select features from a file to a geodatabase
Lesson review

6 Using ArcGIS Online resources
Lesson introduction
What are GIS services and web maps?
What is a web mapping application?
What is a mobile application?
Tools and data from ArcGIS Online
Accessing content through ArcGIS Online
Exercise 6: Explore maps, services, and data on ArcGIS Online
Search ArcGIS Online for web content
Search ArcGIS Online for desktop content
Use a web mapping application template
Examine a web mapping application
Lesson review

7 Interacting with a map in ArcGIS for Desktop

Lesson introduction
Symbology and visualization
Finding, identifying, and selecting features
Asking questions and getting answers
Getting information from a GIS map
Exercise 7: Explore a map using ArcMap
  Navigate the map
  Modify symbology
  Identify features
  Find features
  Select features
  Examine an attribute table
  View data change over time
Lesson review

8 Performing spatial analysis

Lesson introduction
The geographic approach - revisited
Questions you can answer with GIS
What is spatial analysis?
Common analysis tasks
Analyze crime data
Exercise 8: 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

9 Sharing results

Lesson introduction
The importance of sharing results
Common ways to share results
Exercise 9: Share hurricane analysis results
   Export the map as a PDF
   Create a map package and upload it to ArcGIS Online
   Create a web map
   Create a presentation
   (Optional) Remove the content you created

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 system
   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: Using ArcGIS Online resources
   Lesson 7: Interacting with a map in ArcGIS for Desktop
   Lesson 8: Performing spatial analysis
   Lesson 9: Sharing results