

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

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