

ArcGIS® 2: Essential Workflows

STUDENT EDITION

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Course version 5.0. Version release date January 2017.

Printed in the United States of America.

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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 Discover, use, make, and share maps

- Lesson introduction
- GIS in your organization
- Discover > use > make > share workflow
- Publishing a web map
- Exercise 1: Publish a map service and make a web map in ArcGIS Online
 - Training Services account credentials
 - Open a map document
 - Select features based on spatial location
 - Export selected points
 - Prepare data for publishing
 - Publish the map as a service
 - Create a web map
 - Save and share the web map
- Lesson review

2 Integrating data

- Lesson introduction
- Where does data come from?
- Layers and data
- Commonly used data in ArcGIS
- Getting data into the geodatabase
- Exercise 2: Integrate and organize GIS data
 - Create a folder connection
 - Add a basemap layer
 - Add CAD data to the map
 - Add a shapefile to the map
 - Search for ArcGIS Online data and add it to the map
 - Identify the location of downloaded data
 - Export a layer's data to a geodatabase
 - Export data using the Catalog window
 - Locate features based on a spatial location
 - Update the item description
- Lesson review

3 Managing map layers

Lesson introduction

Map scale

Displaying map scale

Specifying scale in ArcMap

Controlling the visibility of features

Displaying layers at different scales

Creating predefined display areas

Organizing layers

Exercise 3: Use layers to create optimal map displays

- Use map scales to explore level of detail

- Build an attribute query

- Create a layer from selected features

- Set layer scale ranges

- Use your map scale ranges

- Display data using a definition query

- Set layer scale ranges for lakes

- Create group layers

Lesson review

4 Displaying data

Lesson introduction

Why symbolize your data?

Displaying data categories

Displaying data quantities

Types of attributes

Differentiate between categories and quantities

Surface temperature in degrees Fahrenheit

Crater Lake area slope

Road atlas

Classifying data

Normalizing data

Exercise 4: Symbolize GIS Data

- Evaluate attributes for symbology

- Apply the Natural Breaks classification method

- Apply the Equal Interval classification method

- Compare quantitative maps

Lesson review

5 Working with tabular data

Lesson introduction

Working with tables

Exercise 5A: Explore tables and attributes

- Explore tabular data

- Display points based on geographic coordinates

- Export point locations to create a new feature class

- Symbolize point locations

- Import symbology to match corresponding features

- Change the appearance of the attribute table

- Summarize a table

- Format a field

Table relationships

- Types of table relationships

- Working with table relationships

Exercise 5B: Join and relate tables

- Determine cardinality between tables

- Join two tables

- Calculate values from the joined table

- Relate tables

- Explore the relate

- Change the display expression

- Lesson review

6 Creating and editing data

- Lesson introduction

- Editing GIS data

- What types of data can you edit?

- The ArcGIS editing workflow

- Applying the editing workflow

Exercise 6: Create and update features

- Open an editing map to visualize edits

- Add a new point feature

- Add a new line feature

- Delete a feature

- Create a new polygon feature

- Copy and paste features

- Merge features in the same layer

- Review the editing workflow

- Lesson review

7 Labeling features

- Lesson introduction

- What is missing from this map?

- What is labeling?

- The labeling workflow

- Labeling options in ArcGIS

Introducing Maplex

Workflow: Creating map labels with Maplex

Exercise 7: Label features using the Standard Label Engine

- Prepare your map for labeling

- Set the label symbol

- Label polygons

- Label line features

- Create label classes

- Label features using Python

- Apply a label scale range

- Label another polygon layer

- Assign feature weights

- Apply a reference scale

Lesson review

8 Designing map layouts

Lesson introduction

What is a map layout?

Workflow: Creating a map layout

Working with map elements

Exercise 8: Create a map layout

- Begin the map layout

- Size and position your map

- Add the map title

- Add a subtitle

- Group elements

- Create a map legend

- Adjust the legend properties

- Add an overview map

- Add a scale bar

- Add a north arrow

- Add dynamic text

- Add a map border

- Export your map

Workflow: Creating a map book

Lesson review

9 Evaluating data for analysis

Lesson introduction

Evaluating data quality

Errors in GIS data

Currency and credibility

Completeness

Consistency

- Accuracy
- Aligning geographic data
- Discovering error
- Exercise 9: Evaluate data quality
 - Evaluate data currency and credibility
 - View the list of geographic transformations
 - Transform the geographic coordinate system
 - Create a selection and export transformed data
 - Evaluate data completeness
 - Evaluate data consistency
 - Evaluate data accuracy
- Lesson review

10 Solving spatial problems

- Lesson introduction
- What are spatial problems?
- Using geoprocessing tools for analysis
- Analysis through geoprocessing
- Buffer
- Clip
- Intersect
- Union
- Merge
- Spatial join
- Using geoprocessing tools for analysis
- The spatial analysis workflow
- Exercise 10: Apply the analysis process
 - Frame the question
 - Explore and prepare data: Add census data
 - Explore and prepare data: Combine block groups
 - Explore and prepare data: Integrate demographic data
 - Explore and prepare data: Add customer locations
 - Explore and prepare data: Find total sales per store
 - Explore and prepare data: Find demographic profile of a store
 - Explore and prepare data: Create exclusion zones
 - Explore and prepare data: Create proposed sites
 - Perform the analysis: Find suitable locations
 - Perform the analysis: Locate sites close to highways
 - Perform the analysis: Find demographic profile of candidate locations
 - Examine and refine the results: Forecast future results
- Lesson review

11 Sharing geographic information

Lesson introduction

Creating models with ArcGIS

Sharing geographic information

Choose a sharing method

Exercise 11A: Build and run a model

- Create a new toolbox

- Create a new model and add the Buffer tool

- Select by location

- Select by attributes

- Save the selected features as a new feature class

- Run the model

- Run the model as a tool

Sharing a geoprocessing package

Exercise 11B: Share geographic information

- Author the geoprocessing package

- Share the geoprocessing package

- Use the geoprocessing package

Lesson review

Appendixes

Appendix A: Esri data license agreement

Appendix B: Answers to lesson review questions

- Lesson 1: Discover, use, make, and share maps

- Lesson 2: Integrating data

- Lesson 3: Managing map layers

- Lesson 4: Displaying data

- Lesson 5: Working with tabular data

- Lesson 6: Creating and editing data

- Lesson 7: Labeling features

- Lesson 8: Designing map layouts

- Lesson 9: Evaluating data for analysis

- Lesson 10: Solving spatial problems

- Lesson 11: Sharing geographic information