ArcGIS® 2: Essential Workflows

STUDENT EDITION

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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

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Appendix B: Answers to lesson review questions
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- 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