

# ArcGIS® Pro: Essential Workflows

STUDENT EDITION

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Course version 6.0. Version release date August 2018.

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 Getting started with ArcGIS Pro

- Lesson introduction
- Sign in to ArcGIS Pro
- Exercise 1: Locate and use common functionality
  - Create an ArcGIS Pro project and add a new map
  - Add a folder connection and add data
  - Use ArcGIS Pro Help to find tools
  - Use the Explore tool to navigate the map
  - Explore feature attributes
  - Select features interactively
  - Modify project properties
  - Locate features
- Lesson review

## 2 Creating data

- Lesson introduction
- Common GIS data sources
- Data properties to consider
- Explore data sources
- Geoprocessing in ArcGIS Pro
- Getting data into the geodatabase
- Exercise 2A: Convert data into a geodatabase format
  - Copy and paste feature classes from one geodatabase to another
  - Convert a shapefile into a geodatabase feature class
  - View data in ArcGIS Pro
- Importing subsets of data
- Creating spatial and attribute queries
- Exercise 2B: Create and export subsets of data using queries
  - Create an attribute query and export features
  - Create a spatial query and export features
- Lesson review

## 3 Working with spatial reference

Lesson introduction

Shape of the earth

Datums

Setting vertical datums

Two types of coordinate systems

Exercise 3A: Set the spatial reference of a map

- Add a layer to a map

- Examine the coordinate system of a layer

- Enable the geographic transformation warning

- Apply a geographic transformation

Map projections

Distortion and spatial properties

Game of distortions

UTM and national coordinate systems

Exercise 3B: Apply a new spatial reference to a feature class

- Add additional layers to a map

- Prepare reproject parameters

- Reproject a feature class

- Turn off the transformation warning

Lesson review

## 4 Using ModelBuilder for data conversion

Lesson introduction

Uses of ModelBuilder

Exploring a model

Using models to automate processes

Exercise 4: Build a model to convert multiple shapefiles

- Create a model and set its properties

- Add an iterator to the model and set its parameters

- Add a conversion tool to the model and set its properties

Lesson review

## 5 Visualizing data

Lesson introduction

Symbolizing layers

Viewing symbolized data

Classifying numeric data

Exercise 5A: Symbolize vector data

- Symbolize data using unique values

- Symbolize data using graduated colors

- Symbolize points using graduated symbols

- Symbolize features by density

Setting scale dependencies and definition queries

Exercise 5B: Control the visibility of features

- Add a map to a project, and then add layers

- Set scale dependencies

- Create definition queries

Showing raster symbology options

Lesson review

## 6 Adding text to the map

Lesson introduction

Labeling basics

Exercise 6A: Add and modify labels

- Create a map and add a layer

- Label the features

- Change the label field

- Modify the label font

- Change the label position

Label classes

Exercise 6B: Create label classes and scale dependencies

- Explore attributes

- Create label classes

- Set scale dependencies on label classes

Geodatabase annotation feature classes

Standard or feature-linked annotation

Characteristics of annotation

Exercise 6C: Convert labels to annotation

- Add new layers

- Add new labels

- Convert labels to annotation

- Modify annotations

- Create new annotations

Lesson review

## 7 Visualizing data in 3D

Lesson introduction

Why should you use 3D?

Local and global scenes

Scene elevation source

Ground elevation surface

Custom elevation surface

Extruding features

Exercise 7: Work with 3D scenes

- Open a map file

- Set the vertical coordinate system

- Convert a map to a scene
- Set elevation properties for the scene
- Create a hillshade layer and set elevation properties
- Set the display properties
- Extrude the damaged buildings
- Display the earthquakes in 3D
- Link a 2D view and a 3D scene

Lesson review

## 8 Create features from tabular data

Lesson introduction

Ways to create points from tabular data

Adding x,y event data

Exercise 8A: Display x,y coordinate data

- Explore tabular data

- Create point features from a table containing x,y coordinates

Geocoding addresses

Geocoding steps

Address locators

Exercise 8B: Geocode address locations

- Add and explore data

- Create an address locator

- Geocode addresses

- Explore output data

Lesson review

## 9 Relating tabular data

Lesson introduction

Associating tables

Cardinality

Joins

Relates

Creating a relate

Exercise 9: Join and relate tabular data

- Add a table and explore its attributes

- Convert an Excel file to a geodatabase table

- Add and calculate a field

- Join the tables

- Use the joined fields

- Export the joined layer

- Create a relate

Choose join or relate

Lesson review

## 10 Creating new features

Lesson introduction

Creating features and attributes

Exercise 10: Edit features and attributes

- Modify a feature template

- Digitize a polygon feature

- Update attributes

- Digitize line features

Lesson review

## 11 Modifying existing features

Lesson introduction

Why modify features?

Feature modification tools

Exercise 11: Use feature modification tools

- Modify vertices

- Reshape a feature

- Split a polygon

- Merge polygon features

Lesson review

## 12 Using ModelBuilder for analysis

Lesson introduction

Types of analysis

ModelBuilder and analysis

Selecting by attributes and buffering

The Clip and Intersect tools

Exercise 12: Create a model to analyze robberies

- Insert a map and create a model

- Query robberies

- Add the Buffer tool to the model and set parameters

- Add the Clip tool to the model and set parameters

- Add the Intersect tool to the model and set parameters

- Run the model and view the results

- Modify parameters and rerun the model

- Prepare the model for sharing

Lesson review

## 13 Sharing a static map

Lesson introduction

Overview of sharing in ArcGIS Pro

What is a map layout?

- Map layout objectives
- Layout design
- An improved map design
- Creating a layout and adding map elements
- Exercise 13: Create and share a map
  - Create a layout
  - Add a map frame to the layout
  - Add map elements to the layout
  - Create another layout in the project
  - Export the map to PDF
- Lesson review

## 14 Sharing dynamic maps

- Lesson introduction
- Dynamic sharing
- Sharing roles and permissions
- Sharing content to ArcGIS Online
- Exercise 14: Package data using ArcGIS Pro
  - Share a map package
  - Share a web map
  - Access shared content
- Lesson review

## Appendixes

- Appendix A: Esri data license agreement
- Appendix B: Answers to lesson review questions
  - Lesson 1: Getting started with ArcGIS Pro
  - Lesson 2: Creating data
  - Lesson 3: Working with spatial reference
  - Lesson 4: Using ModelBuilder for data conversion
  - Lesson 5: Visualizing data
  - Lesson 6: Adding text to the map
  - Lesson 7: Visualizing data in 3D
  - Lesson 8: Create features from tabular data
  - Lesson 9: Relating tabular data
  - Lesson 10: Creating new features
  - Lesson 11: Modifying existing features
  - Lesson 12: Using ModelBuilder for analysis
  - Lesson 13: Sharing a static map
  - Lesson 14: Sharing dynamic maps