Hands-On Learning Lab Lessons

Get Started with ArcGIS

Getting Started with GIS

ArcGIS is a complete Web GIS platform used by individuals and organizations to manage and apply geographic information. In this lesson, you will explore the ArcGIS platform by first using ArcGIS Online to create a web map. You will then use ArcGIS Pro to learn the basic principles of GIS, where you will explore spatial relationships between geographic features. Finally, you will learn to use the tools for displaying and querying GIS data.

Getting Started with ArcGIS Pro

This lesson introduces you to the fundamental workflows necessary for becoming productive using ArcGIS Pro, including mapping and visualization, GIS data editing, and geoprocessing. You will learn to manage and display content in simultaneous 2D and 3D layouts. Sharing GIS Content Using ArcGIS Online

Getting Started with ArcGIS Online

ArcGIS Online is a collaborative web portal that you use to create and share maps, scenes, apps, layers, analytics, and data. In this lesson you will use ArcGIS Online to evaluate hurricane evacuation routes, plan evacuation strategies, then share your findings in a web map shared with the people who make decisions.

Learning the Fundamentals of ArcMap

ArcMap is a desktop application used by GIS professionals to make and share maps, maintain data, and perform analysis.In this lesson, you will learn some of the fundamental aspects of using ArcMap, such as working with symbology, performing analysis, and creating map layouts.

Using Business Analyst Web

Esri Business Analyst Web App is a web-based GIS application that leverages Esri's extensive demographic, lifestyle, behavioral, consumer spending, and business data for mapping, reporting, and location-driven analytics. In this lesson, you will use Business Analyst Web App to find the most suitable location for a new fitness center.

Explore a Focused Topic

Discovering Patterns Using Insights for ArcGIS

Learn to use Insights for ArcGIS to explore data, discover patterns, and derive insights.

Monitoring Activity Using Operations Dashboard

Esri Dashboards provide a view of geographic information that helps users monitor events or activities. Dashboards are designed to offer a comprehensive and engaging view of geographic data to provide key insights for at-a-glance decision making.

Storing Data in the Geodatabase

This lesson will cover the key elements of the geodatabase model, including the geodatabase structure, feature classes, subtypes, relationship classes, and topologies.

Constructing Points from Address Data

In this lesson, you will learn to create a point feature class from a table of street addresses.

Importing CAD Data

GIS workflows often rely on CAD datasets generated by outside survey, engineering, and architectural sources. In this lesson, you will learn to convert an existing CAD dataset into features stored in the Esri geodatabase model.

Finding the Best Location

Finding the best location for new facilities is a common task for GIS analysts. In this lesson, you will utilize cell-based raster data to find the most appropriate space to locate a vineyard.

Spatial Reference and Data Alignment

To ensure data alignment and to mitigate distortions, a common spatial reference system must be established as you accumulate GIS data from various sources. In this lesson, you will ensure that both the geographic coordinate system (GCS) and the projected coordinate system (PCS) of your data are correct. You will then perform any necessary operations to line up your data.

Editing GIS Data

In this lesson, you will use the Edit tab and its tools to create and modify features stored in a geodatabase. You will explore the snapping environment, feature templates, and construction methods.

Maintaining Land Records Using Parcel Fabric

Parcel data is the foundation of a local government's land records database. In this lesson, you will learn about the parcel fabric data model, explore the parcel fabric editing environment, and learn to add a new parcel to a fabric.

Modeling Transportation Networks

ArcGIS Network Analyst helps you dynamically model network conditions and solve vehicle routing problems. In this lesson, you will explore the functionality of Network Analyst, learn the key concepts, and discover how the various network solvers can be used to solve transportation problems.

Performing Image Classification

Image classification is an incredibly useful and important task. ArcGIS Pro has a wizard-driven tool that simplifies image classification. In this lesson, you will use the Image Classification Wizard, which provides a simple user experience and will guide you through the classification process.

Examining Patterns in Your Data

Interpreting distribution and patterns within your data is important for understanding how geographic phenomena behave. In this lesson, you will use a variety of analysis tools available in ArcGIS Pro to examine the spatial pattern and distribution of a dengue fever outbreak.

Displaying Data in 3D

In this lesson, you will get familiar with the ArcGIS Pro 3D environment and learn a variety of techniques to create and enhance 3D scenes.

Visualizing Transit Data Using 3D Scenes

With ArcGIS Pro, it is easy to create and share realistic 3D visualizations that engage viewers and support informed decision making. In this lesson, you will earn to symbolize subway transit lines and stops in 3D.

Creating and Sharing a Map Layout

A map layout is a collection of map elements organized on a virtual page designed for map printing. In this lesson, you will use ArcGIS Pro to create a map layout that illustrates the change in dissolved oxygen in Chesapeake Bay from 2014-2015.

Generating Custom Web Applications

The ArcGIS platform provides a rich set of ready-to-use and configurable applications (also known as apps) that are used to quickly share maps and generate highly focused solutions that meet various application requirements. In this lesson, you will learn to generate, configure, and share web applications both by using a template and by using Web AppBuilder for ArcGIS.

Telling Your Story with Story Maps

Story maps provide an exciting way of combining multiple forms of media—such as maps, text, pictures, and video—into an engaging form of communication. In this lesson, you will follow a typical workflow for creating a story map, from deciding on a ready-to-use template to sharing the finished product.

Performing Analysis with ModelBuilder

ArcGIS Pro has hundreds of analysis and geoprocessing tools that can help you solve real-world problems with your data. Using ModelBuilder can automate, create, repeat, share, and document your analysis workflow. In this exercise, you will learn the basics of using ModelBuilder to model and carry out workflows.

Using Tasks in ArcGIS Pro

Sharing your work is often considered in terms of maps, data, layers, and so on. However, your workflows can also be shared in ArcGIS Pro by using tasks. A task is a series of preconfigured steps that guide users through a workflow or business process. In this lesson, you will create and share a custom task.

Automating Workflows Using Python

This lesson is an introduction to the Python scripting language and its usefulness for accessing the power of GIS.

Analyzing Imagery Using Raster Functions

Use the Raster Minus function to calculate the change in Sub-Saharan African malaria from 2000 to 2015. Then, classify that data into categories highlighting the highs and lows of the data.

Discover more ArcGIS learning resources at

esri.com/training