Lab 1 Introduction to ArcGIS Pro

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# 1. Starting a Project in ArcGIS Pro

1. Open ArcGIS Pro.

2. Click 'Map' to start a new project.

3. Give your project a name and choose a storage location.

Note: Changing the location of your project or data can lead to complications.

For now, keep it all at the default location. (If you work with large data sets it can lead to storage problems.)

4. Click 'Create'.

You will see the interface with three main areas: the top toolbar, the Contents pane on the right, and the Catalog pane on the left. The left pane also shows what is possibly to be done.

# 2. Setting Up Your Project

Click Project > Options to customize your settings

Tip: with time you will see which tools you need more frequently and customize your ArcGIS Pro setup).

Key Options:

- Current Settings: View/edit project name and location.

- Units: Set preferred units (meters, kilometers, etc.).

- Map and Scene: Choose default basemaps.

Once configured, click Insert > New Map or New Global Scene to see the default basemap.

# 3. Adding and Managing Data

1. Click 'Add Data' on the top toolbar and choose from shapefiles, GeoPackages, raster files, etc.

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KI-generierte Inhalte können fehlerhaft sein.

2. In the Catalog pane, go to Project > Folders.

- Right-click and select Add Folder Connection to link your data folder.

Note: People call it crowbar in Germany

Note 2: If you ever close panes by mistake you can reopen them at the tab View > Windows or for geoprocessing at the tab Analysis > Geoprocessing

Tip: ArcGIS Pro additionally has multiple Import tools to import special/rare kinds of data

3. For adding KMZ google earth file, do this: Tool > Search “kmz to layers” > run.

4. For adding hdf5 and netcdf4 files, choose “multidimensional data” from “Add data”.

Note: simply dragging data to the map may cause mistakes. For example, only the first layer will be loaded when you upload the hdf5 file.

In our sample data, the MODIS is in hdf5 (.hdf).

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# 4. Symbolizing and Labeling Layers

To change symbology:

1. Right-click a layer in the Contents pane.

2. Click 'Symbology'. Choose symbol styles, color ramps, and classification methods.

To add labels:

1. Right-click the layer > Labeling > Add Label.

2. In Labeling > Choose a label “Field” (from the top section, left) and adjust font and placement settings.

You can move your mouse to the layer to see the pop-up values.

# 5. Using Raster Functions

1. Click Imagery > Raster Functions from the top toolbar.

2. Search for 'Contour'.

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3. Set input raster, contour interval, and output options.

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Click Basemap and choose from options like Topographic, Streets, or Satellite (Map > Layer).

# 7. Make a map:

# 7.0 Creating a Layout for Export

1. Click Insert > New Layout and choose a page size

Note: A bigger size increases the output’s resolution.

2. Insert > Map Frame, choose the map to place

Note: Keep in mind, if you want to create an overview map using multiple layers of depth, you will need separate map frames to insert.

3. Use Insert (Inser > Map Surrounds) to add north arrows, scale bars, legends

Note: If your legend is reduced to red dots, you need to increase its size

and text such as title and subtitles (in Symbology).

Note: Try to add dynamic text.

4. Resize (text can only be resized via font size) and arrange elements as needed.

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# 7.1. Adding a 3D scene (optional)

1. Click Insert > New Local Scene (via Map) or Global Scene.

2. Add your study area boundary layer.

3. Return to the layout and insert a Map Frame for the 3D view.

4. Adjust the scene perspective or tilt as needed.

# 7.2. Exporting Your Map

1. In Share tab Click 'Export Layout'.

2. Set file name, output format, and resolution

be aware higher resolution in dpi means longer export configuration time (300 is usually enough.

3. Click 'Export' to save your map

if you exported a .pdf and there are lines on it export it as a picture format (JPEG, PNG, …) which has a different compression type.

# 8. A simple Geoprocessing example: Select by Attribute

1. Go to Analysis > Tools > Geoprocessing Pane.

2. Search 'Select Layer by Attribute'.

Easier way: Open attribute table > select by attributes.

3. Choose the input layer and build an expression (e.g., In place layer choose, Population > 100000).

4. Click 'Run' to execute the selection. See the highlighted (selected).

# Lab Exercise:

- Use your own dataset

- Import and symbolize

- Label features using an attribute field.

- Generate elevation contours from a raster.

- Create a layout with legend, scale, north arrow, and title.

- Export the map as a PNG or JPEG.