

Intermediate ArcGIS Pro

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Before we start

GIS has a lot of terminology and technical quirks, so can be frustrating. That's normal!

We often say that it's not a learning *curve*, but a *brick wall*.



Quick recap of *Introduction to ArcGIS Pro*

- Creating a new map project
- Adding shapefiles & viewing attribute tables
- Selecting features
 - By attribute
 - By location
- Joining layers
 - By attribute
 - By location (spatial join)

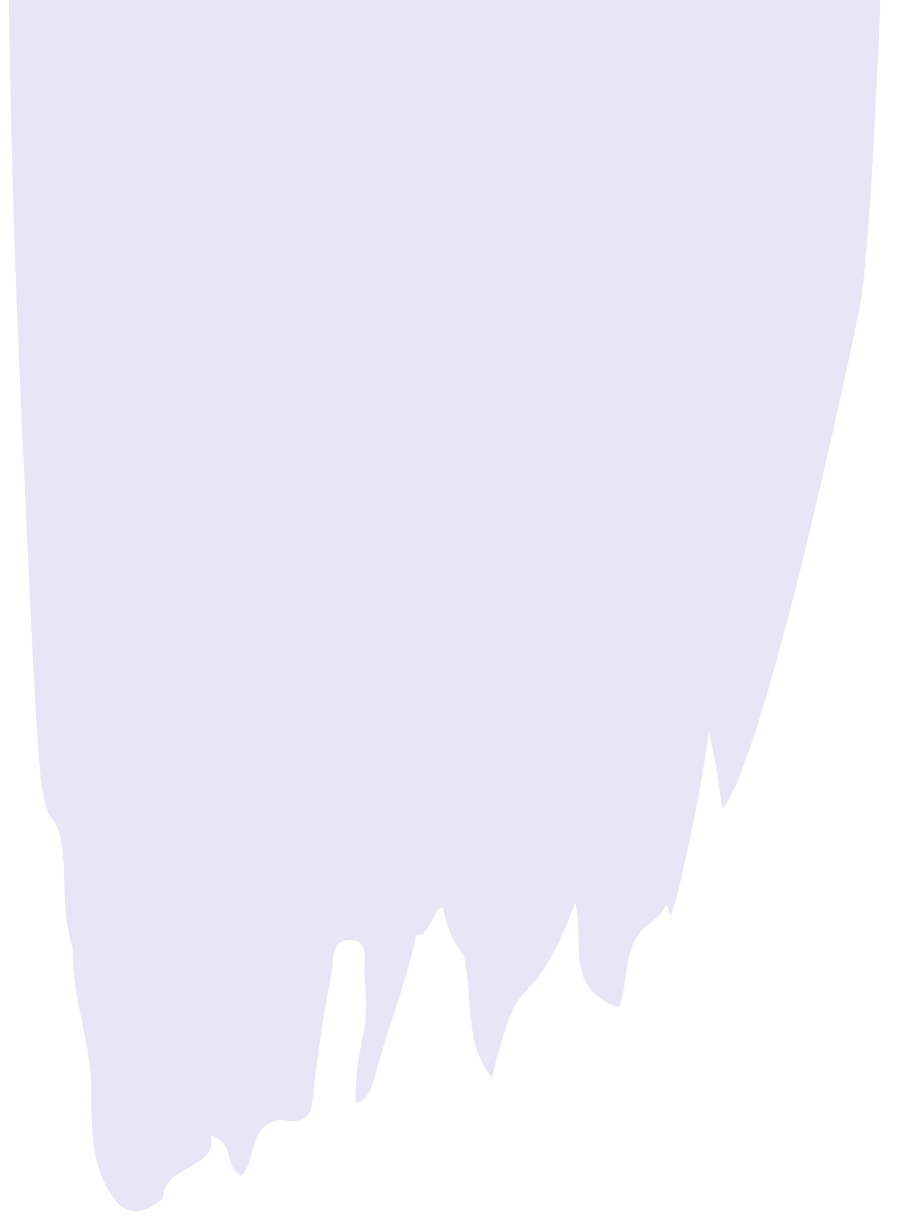
Learning outcomes for today's session

- Working with a geodatabase
- Adding a CSV (spreadsheet) with latitude & longitude coordinates to a map
- Geoprocessing functions
 - Buffer
 - Erase
 - Merge
 - Summarize Within
 - Near
- Creating a map layout

ArcGIS Pro

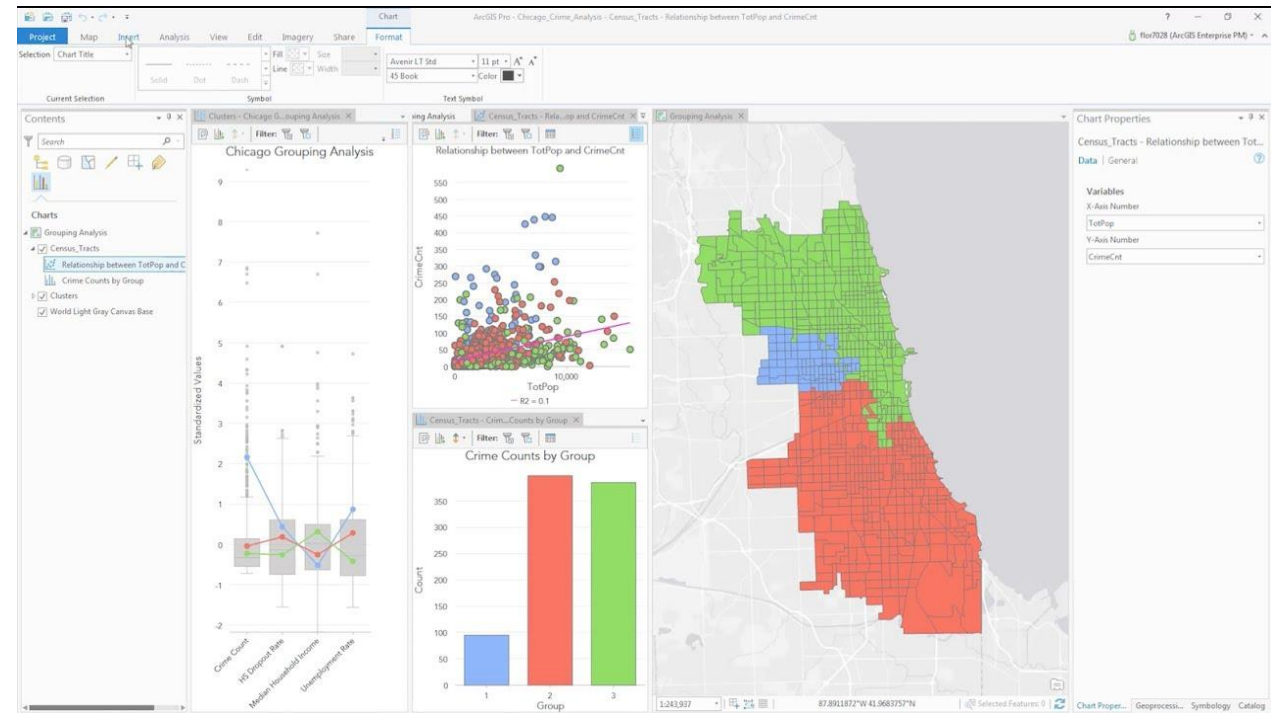
GEODATABASES

ANALYSIS TOOLS



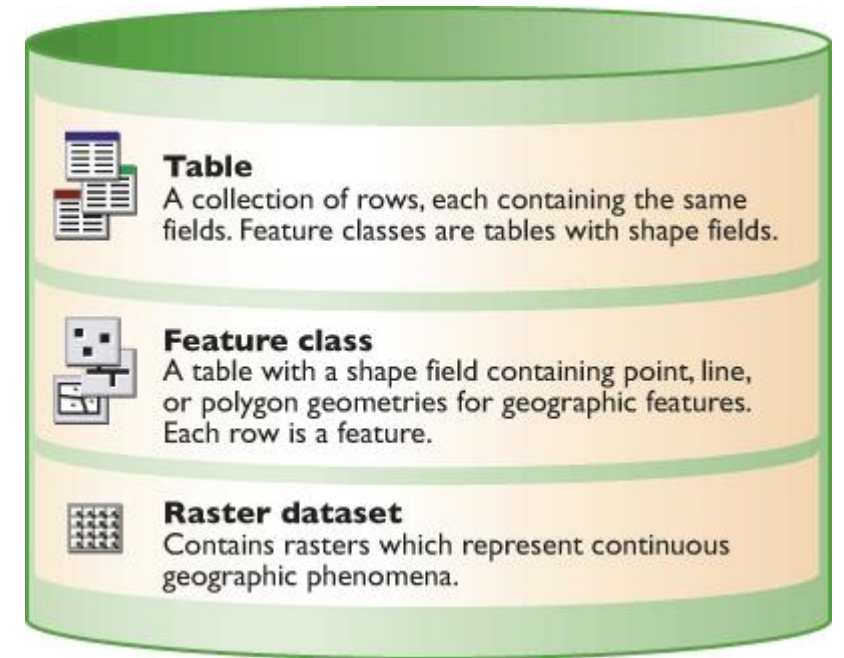
What is ArcGIS Pro?

- ArcGIS Pro is Esri's flagship desktop GIS application. It provides users with professional 2D and 3D mapping capabilities that supports viewing, editing, and analysis of geospatial data



What's a geodatabase?

- A geodatabase is a collection of geographic datasets collected in one place
- The types of datasets in a geodatabase are
 - Tables (like a CSV)
 - Feature classes (vector layers like shapefiles)
 - Raster datasets



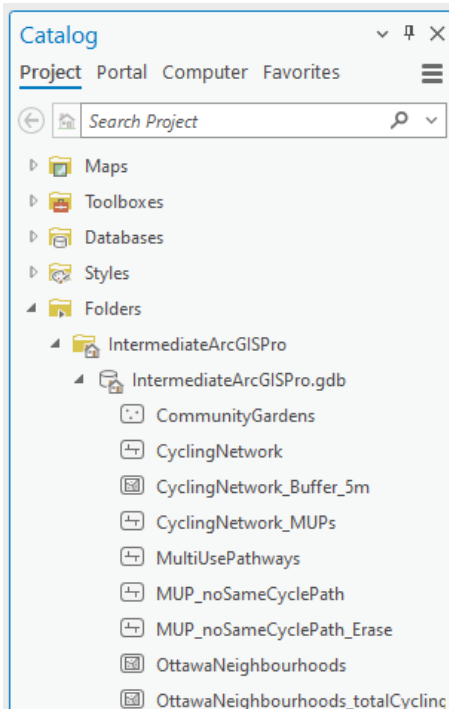
[Image source](#)

Why bother with a geodatabase?

- Many ArcGIS Pro tools will only work with geodatabase layers, either as input or output
 - **Pro tip:** if you're using non-geodatabase files and a tool/process isn't working, try putting the files in a geodatabase and giving it another try. It sometimes works!
- It's possible to create relationships between geodatabase datasets
- Geodatabases can be used for permissions, versioning, distribution, archiving, and other features
- [Much more information from Esri](#)

What a geodatabase looks like

In ArcGIS Pro



In Windows Explorer

IntermediateArcGISPro > IntermediateArcGISPro.gdb

Name	Date modified	Type	Size
a0000000a.gdbindexes	2024-03-19 2:04 PM	GDBINDEXES File	1 KB
a0000000a.gdbtable	2024-03-19 2:04 PM	GDBTABLE File	664 KB
a0000000a.gdbtblx	2024-03-19 2:04 PM	GDBTABLX File	16 KB
a0000000a.horizon	2024-03-19 2:04 PM	HORIZON File	1 KB
a0000000a.spx	2024-03-19 2:04 PM	SPX Audio File (VL...	45 KB
a0000000b.gdbindexes	2024-03-19 2:06 PM	GDBINDEXES File	1 KB
a0000000b.gdbtable	2024-03-19 2:06 PM	GDBTABLE File	1,343 KB
a0000000b.gdbtblx	2024-03-19 2:06 PM	GDBTABLX File	56 KB
a0000000b.horizon	2024-03-19 2:06 PM	HORIZON File	1 KB
a0000000b.spx	2024-03-19 2:06 PM	SPX Audio File (VL...	165 KB
a0000000c.gdbindexes	2024-03-19 2:07 PM	GDBINDEXES File	1 KB
a0000000c.gdbtable	2024-03-19 2:07 PM	GDBTABLE File	90 KB
a0000000c.gdbtblx	2024-03-19 2:07 PM	GDBTABLX File	6 KB
a0000000c.horizon	2024-03-19 2:07 PM	HORIZON File	1 KB
a0000000c.spx	2024-03-19 2:07 PM	SPX Audio File (VL...	5 KB
a0000000d.freelist	2024-03-19 3:13 PM	FREELIST File	33 KB
a0000000d.gdbindexes	2024-03-19 2:25 PM	GDBINDEXES File	1 KB
a0000000d.gdbtable	2024-03-19 3:13 PM	GDBTABLE File	38 KB
a0000000d.gdbtblx	2024-03-19 3:13 PM	GDBTABLX File	6 KB
a0000000d.horizon	2024-03-19 2:25 PM	HORIZON File	1 KB

Some vector analysis tools

- Proximity toolset
 - Buffer
 - Near
- Overlay toolset
 - Erase
- Statistics toolset
 - Summarize Within
- General toolset
 - Merge

ArcGIS Pro access and training

- ArcGIS Pro is free for current Carleton students, staff & faculty
 - <https://library.carleton.ca/services/arcgis-pro>
- Accessible on library computers and from off-campus via VMWare
 - <https://library.carleton.ca/services/gis-software-and-workstations>
- Esri Online Training
 - [Free online courses are available to Carleton faculty and students](#)
- Consult the [course catalog](#) and/or try the list of suggested courses below:
 - [Getting Started with the Geodatabase](#)
 - [ArcGIS Pro Fundamentals learning plan](#)
 - [Getting Started with Geoprocessing](#)
 - [Getting Started with Spatial Analysis](#)

We'll be using City of Ottawa open data to answer this question:

I'm looking for a place to live in Ottawa and will be using my bicycle to get around.

I want to know which Ottawa neighbourhoods have the most bike lanes and paths, and are any bike paths within 50 metres of places I need to get to?

Download the data & instructions

<http://tinyurl.com/TrajectoriesGIS>

Project management tips

<https://library.carleton.ca/guides/help/gis-project-tips>

- **Keep all data files together** in one project folder
 - When saving your map project, make sure it is saved in the same folder as the data (makes it easy to zip everything up and share it if needed)
 - If you move your data from one folder location to another, the GIS software may not be able to find the path to the data and consequently will not display the data layers
- **Keep raw data saved and untouched** in a separate folder and save copies of it or any newly created files in a "working data" folder
- When saving data files or layers, **don't use spaces or characters in the file names**. Try using underscore for spaces or CamelCase

Questions?

DON'T HESITATE TO EMAIL US AT
GIS@CARLETON.CA