

Spring 2020

# Python Workshop: Intermediate

# General Topics we'll cover

- Python Environments
  - Anaconda
  - Installing packages
- ArcGIS API for Python
  - Querying data
  - Spatial Dataframes
    - pandas syntax
  - Editing data
- Cleaning your code
  - Commenting
  - Documenting
  - Creating your own package
- And more...

# Python Environments

ArcGIS Pro comes with a default environment

- Has arcpy installed
- Cannot be changed/upgraded
- Can be “cloned”

When to create a new environment?

- Upgrading packages
- Adding new packages

# Anaconda Outside ArcGIS Pro

Free download

Comes with

- Jupyter Notebooks
- Spyder (IDE)

No arcpy

# What Creating a New Environment Does

- Makes a new unique installation of python
- Allows you to modify the environment without harming your root environment

| Name                  | Date modified     | Type          |
|-----------------------|-------------------|---------------|
| intermediate-workshop | 4/13/2020 5:45 PM | File folder   |
| spring2020            | 4/7/2020 6:47 PM  | File folder   |
| proenv.txt            | 4/13/2020 6:09 PM | Text Document |

> dcraw > AppData > Local > ESRI > conda > envs > spring2020 >

| Name                              | Date modified      | Type                  |
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| api-ms-win-crt-utility-l1-1-0.dll | 4/20/2018 5:37 AM  | Application Extension |
| concr140.dll                      | 9/3/2019 10:29 AM  | Application Extension |
| LICENSE_PYTHON.txt                | 7/2/2019 1:25 PM   | Text Document         |
| msvc140.dll                       | 9/3/2019 10:29 AM  | Application Extension |
| msvc140_1.dll                     | 9/3/2019 10:29 AM  | Application Extension |
| msvc140_2.dll                     | 9/3/2019 10:29 AM  | Application Extension |
| python.exe                        | 7/30/2019 12:03 PM | Application           |
| python.pdb                        | 7/30/2019 12:03 PM | PDB File              |
| python3.dll                       | 7/30/2019 12:01 PM | Application Extension |

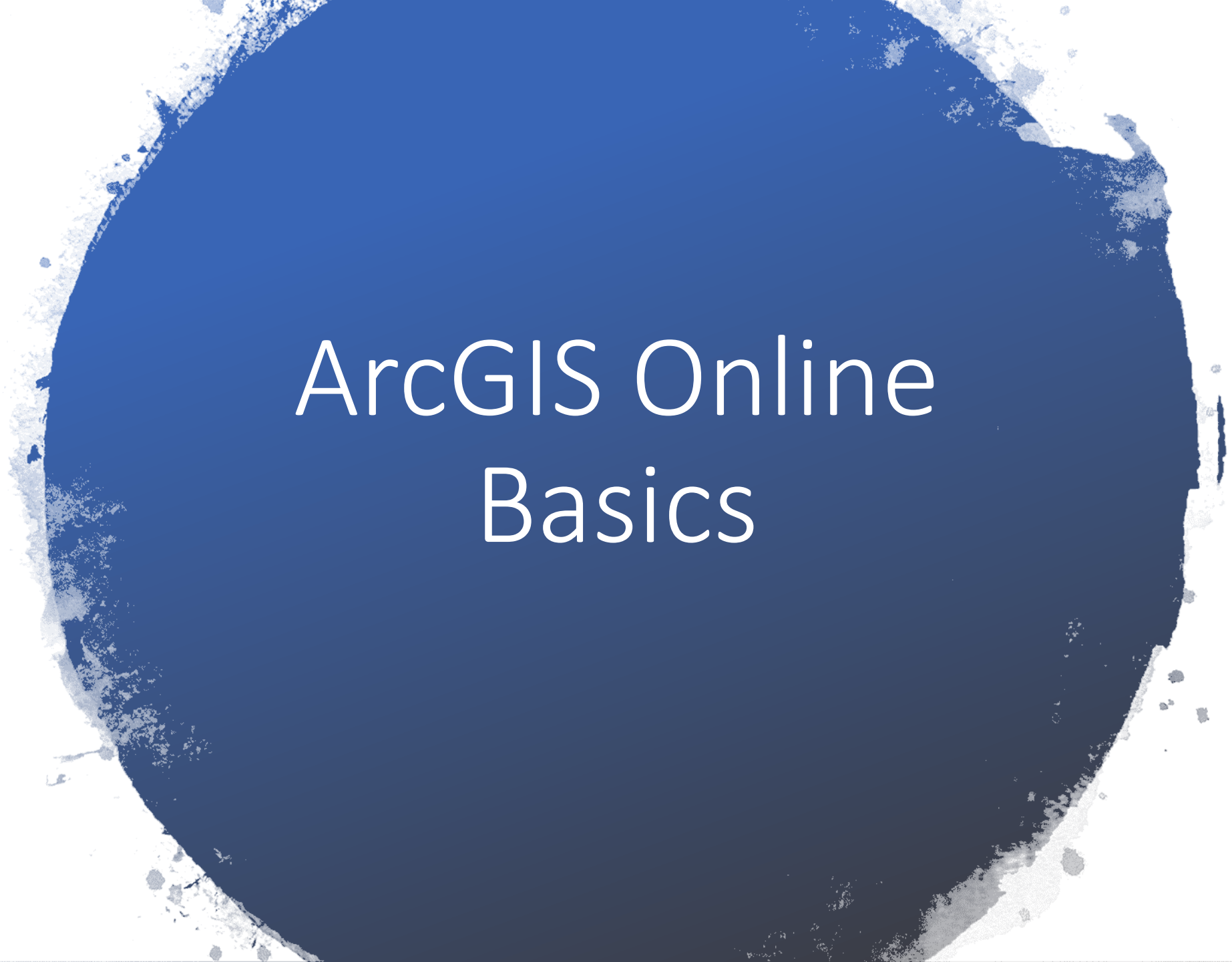
# Extra Fun



Create your own environment  
in ArcGIS Pro



Sign up for an ArcGIS Online  
Developer Account



# ArcGIS Online Basics

# ArcGIS Online Basics

[Home](#) [Gallery](#) [Map](#) [Scene](#) [Groups](#) [Content](#) [Organization](#)

Search

Notifications

App List

Dave Crawford  
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Content

My Content

My Favorites

My Groups

My Organization

Living Atlas

Add Item

Create

Search dancranford

Table

Date Modified

Filter

Folders

Filter folders

All My Content

dancranford

DanCranford Source Data

DanCranford View Data

dashboarding

Demo for DevSummit

Output Maps at

1 - 11 of 11 in dancranford

| Title                                     | Modified           |
|---|--------------------|
| Dutch Topographic Basemap-Copy Web Map    | ☆ ... Feb 13, 2020 |
| Hazards Dan Cranford Web Map              | ☆ ... Feb 13, 2020 |
| mlsdb Hub Site Application  + M           | ☆ ... Jan 22, 2020 |
| Hazard_DanCranford QuickCapture Project   | ☆ ... Jan 7, 2020  |
| Hazard_DanCranford Feature Layer (hosted) | ☆ ... Jan 7, 2020  |





# ArcGIS Online Basics

- Items
  - Data
    - Feature Layers
    - Tile Layers
  - Web Maps
  - Web Mapping Applications
  - Dashboards
- Users
- Groups

# ArcGIS API for Python

- Created in 2016
- Specifically geared for ArcGIS Online
- Administration
  - User Management
  - Group Management
  - Item Management
- Analysis
  - Quick analysis with vector data
  - Built-in Notebook widgets
  - Geared toward data scientists
  - Rapidly expanding raster and machine-learning/AI functionality

# arcpy vs. arcgis

- arcpy
  - Has licensing
  - Only exists with ArcGIS Desktop/ArcGIS Pro
  - Good for complex geoprocessing
  - Good for desktop datasets
  - Available in Python 2.7 and Python 3.x
  - Mostly functions
- Arcgis API for Python (arcgis)
  - Free to use
  - Frequently updated
  - Mostly for ArcGIS Online data
  - Does not require ArcGIS Pro\* or ArcGIS Desktop
  - Only available in Python 3.x
  - Very object-oriented