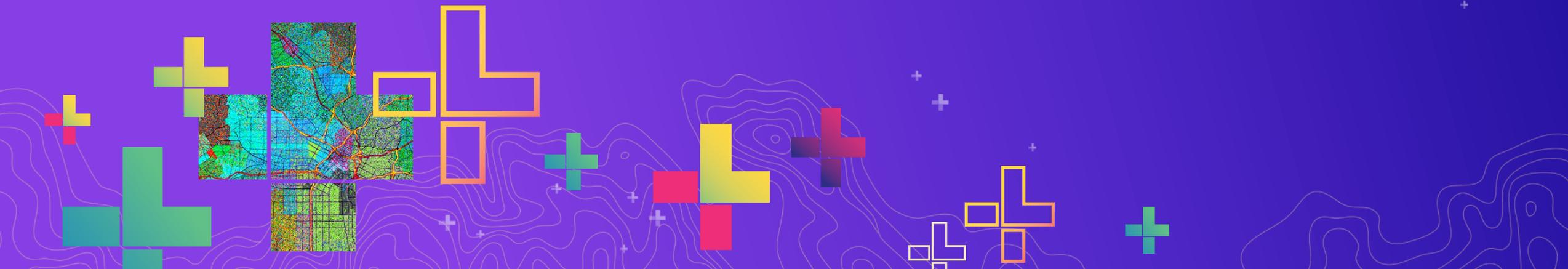




Teaching with ArcGIS Notebooks



Presenters



Shannon Kalisky
Product Manager,
Analytics and Data Science
Esri



Gregory Brunner
Scientist at Esri
Adjunct Professor
Saint Louis University



Canserina Kurnia
Solution Engineer for
Education
Esri



Agenda

- Introduction to Notebooks
- Example from the education community - Saint Louis University
- Patterns and ideas for using ArcGIS Notebooks
- Licensing, access and resources
- Q/A session

All attendees are in listen only mode, write your question in Questions window, Session is recorded

Introduction to Notebooks

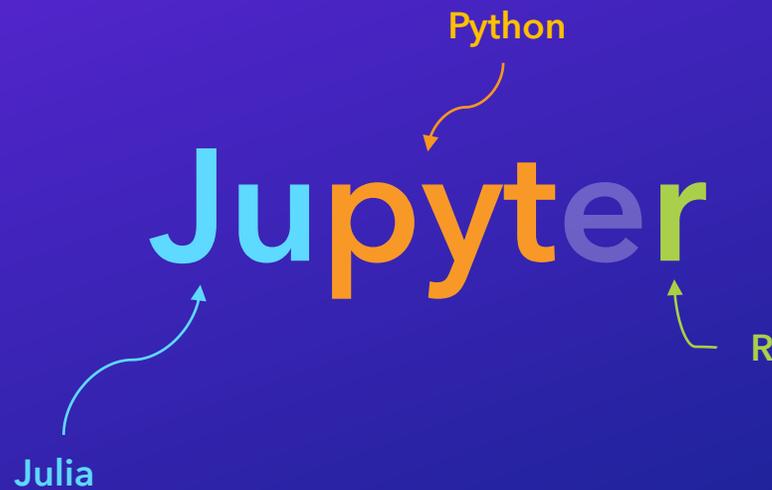
Shannon Kalisky



Jupyter Notebooks

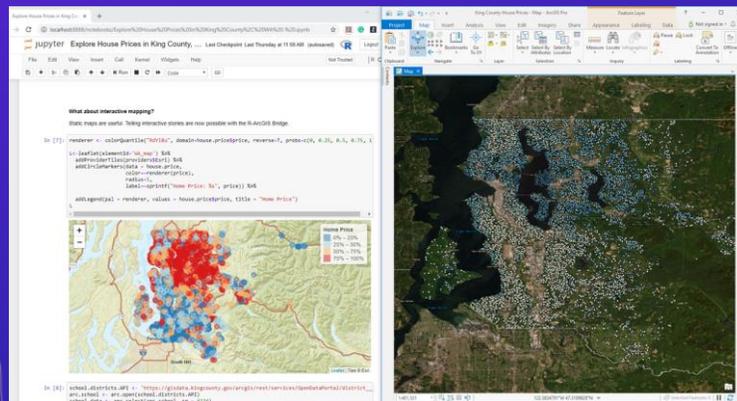
A common thread in the data science community

- A way to write code, document it, and run it – all in one place
 - Designed for interactive data science & scientific computing
- Open source - over 7 million public Jupyter notebooks shared on GitHub
- Browser-based, but usually runs on your local machine or is hosted

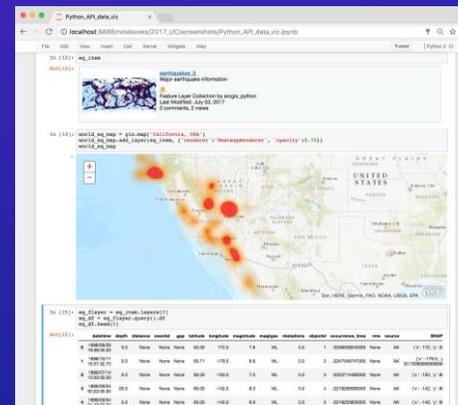


Jupyter and ArcGIS

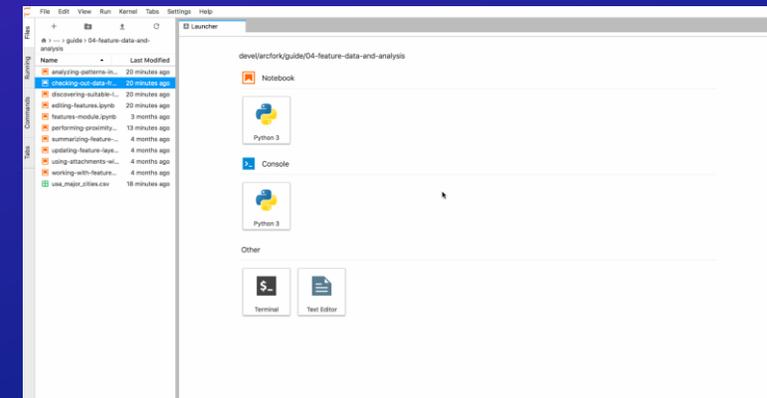
- Esri has included Jupyter *alongside* ArcGIS Pro for several years
- The ArcGIS API for Python was developed to make the most of Jupyter's functionality.
- The R-ArcGIS Bridge can also be used within Jupyter notebooks



R-ArcGIS Bridge

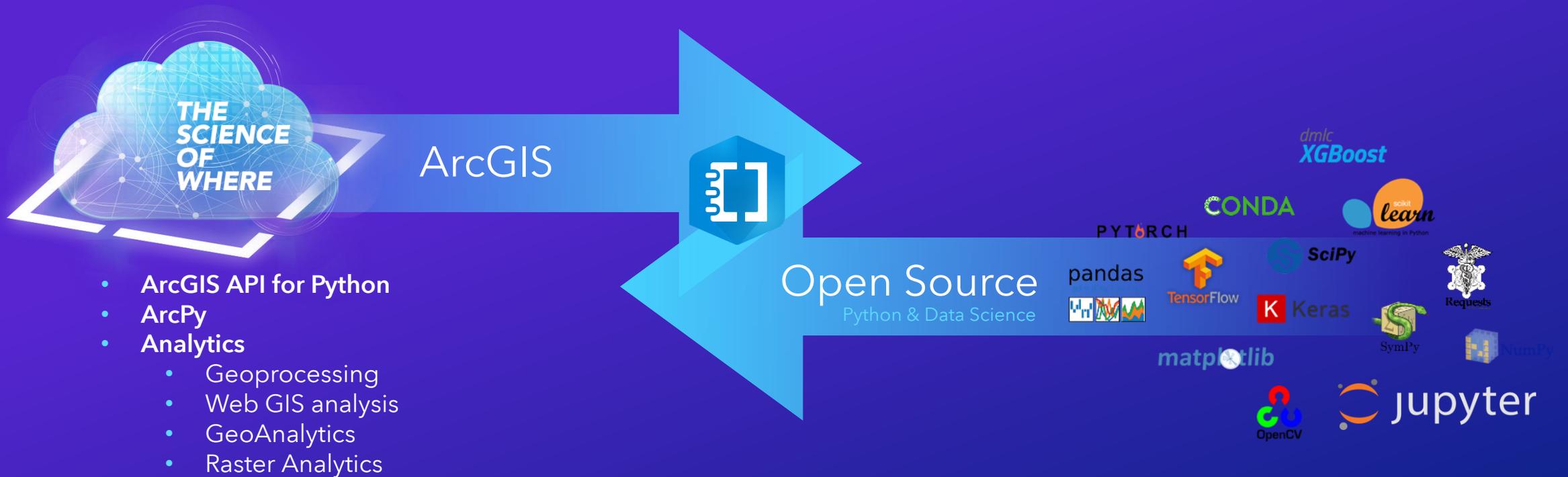


ArcGIS API for Python



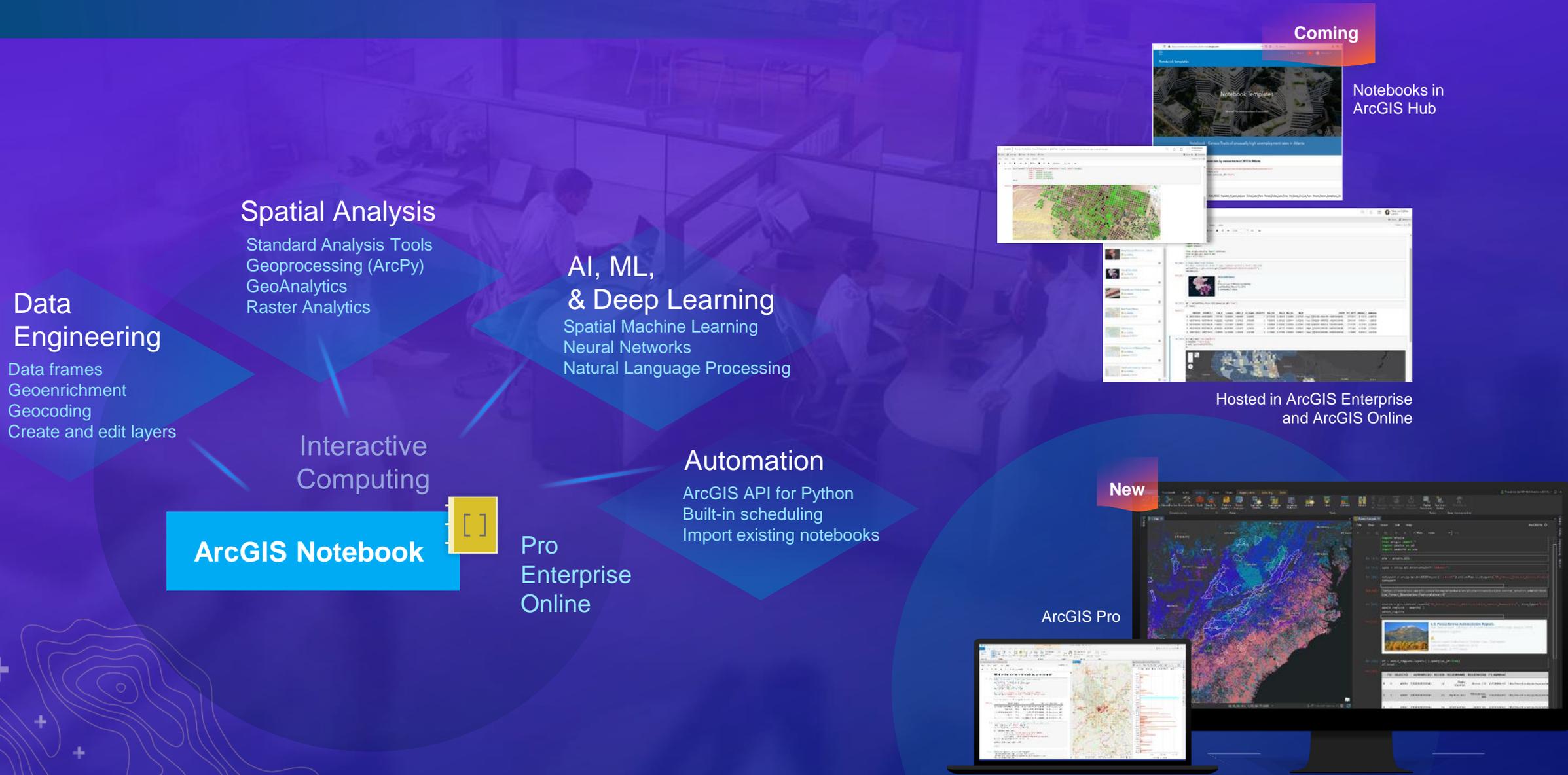
Open source - Jupyter lab

ArcGIS Notebooks sits at the intersection of ArcGIS and open data science



ArcGIS Notebooks

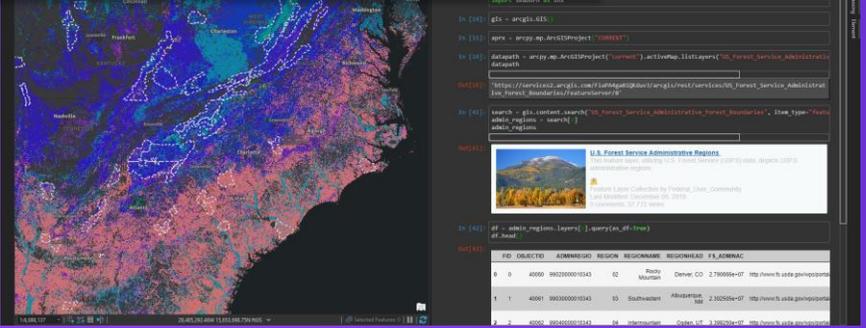
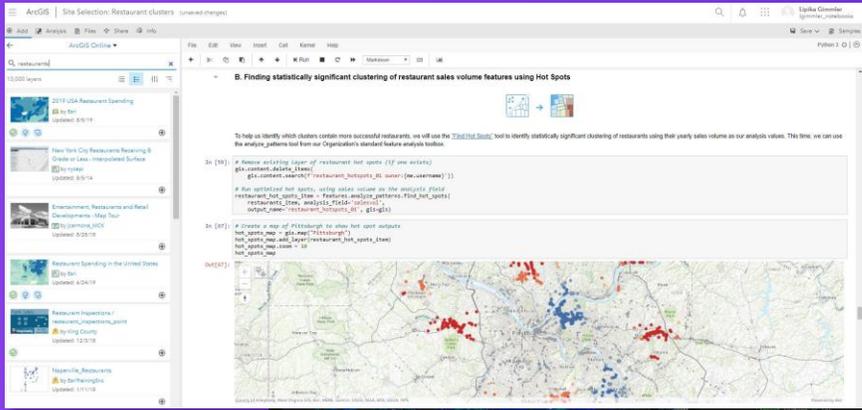
Jupyter Notebook Integration for Modeling and Automation



How is ArcGIS Notebooks different than “traditional” Jupyter?

- **Built within ArcGIS rather than sitting beside it**
- **Leverages an integrated UI**
 - Automatically insert Python snippets
 - Quickly access a gallery of samples
- **Notebooks as items**
- **Use ArcPy without ArcGIS Pro**
- **Centrally manage libraries and packages**





Experiencing ArcGIS Notebooks

Demo



Teaching with ArcGIS Notebooks at Saint Louis University

Gregory Brunner, Adjunct Professor



Background

- **Adjunct Professor at Saint Louis University since spring 2017**
- **GIS 4090\5090 – Introduction to Programming for GIS and Remote Sensing**
 - **Emphasis on basic Python and Arcpy**
 - **Using Python 3, ArcGIS Pro, and Jupyter Notebooks**
 - **Offered every year**
- **GIS 4091\5091 – Advanced Programming for GIS and Remote Sensing**
 - **Javascript: Leaflet and ArcGIS JSAPI**
 - **Advanced topics in Python: Conda, ArcGIS API for Python, and special topics**
 - **Offered every other year**

This Past Semester...

- Teaching ArcGIS Pro, Python 3, and Jupyter in a designated lab space on campus
- On March 10, during spring break, in person classes were suspended till March 23
- Instructors were given from March 16 – March 22 to restructure course
- On March 23, class went online

My biggest concern was that not every student would have a laptop or PC to run ArcGIS Pro

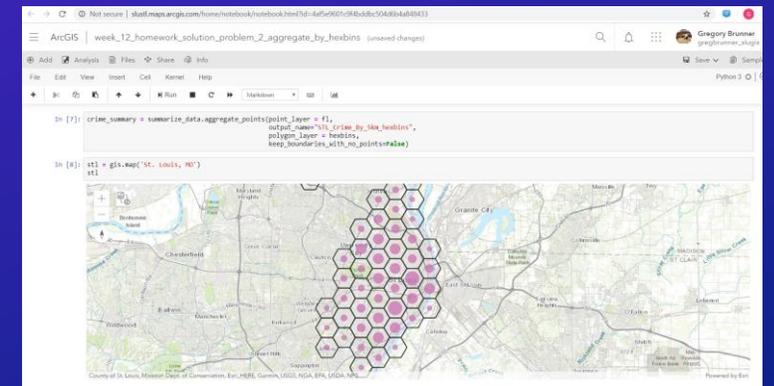
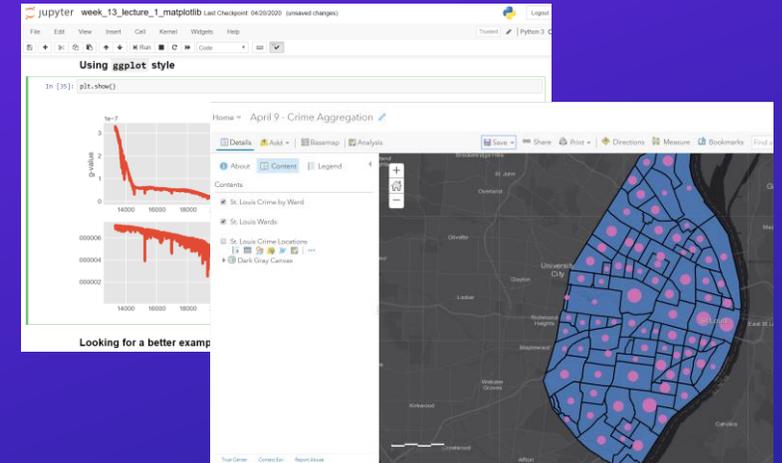
How Did I Adjust?

- The curriculum

- Shifted to teaching more non-GIS related python packages
- Focused more on using ArcGIS Online
- Aligned content with **Intro to GIS** materials

- Computer resources

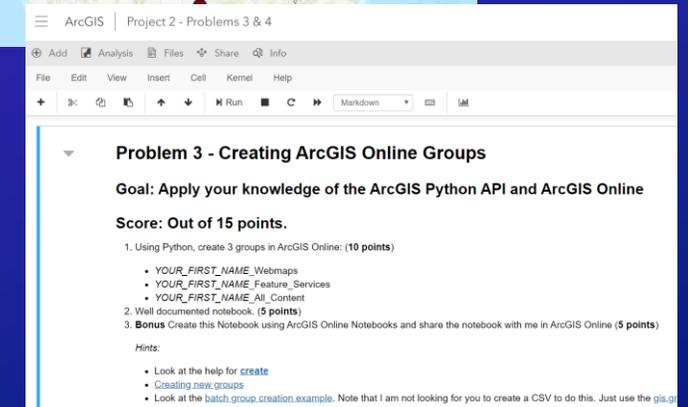
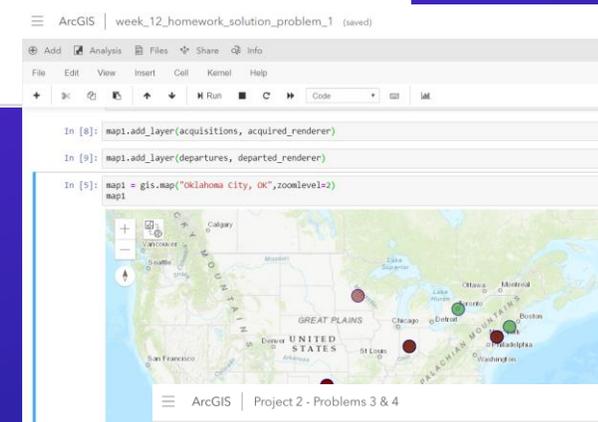
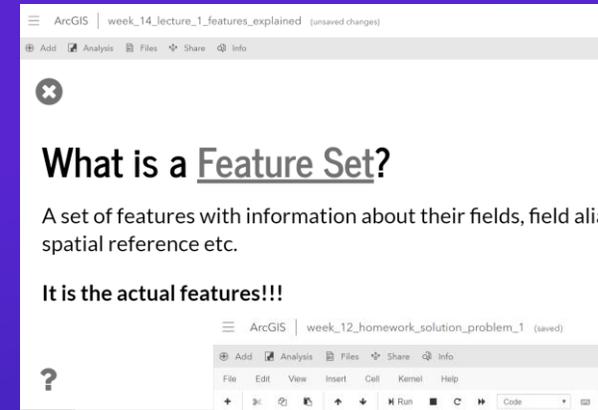
- Helped a few students get setup again with Pro and Jupyter
- Introduced students to ArcGIS Notebooks



On March 30, 10 weeks into the semester, I introduced students to ArcGIS Notebooks

Easing into ArcGIS Notebooks

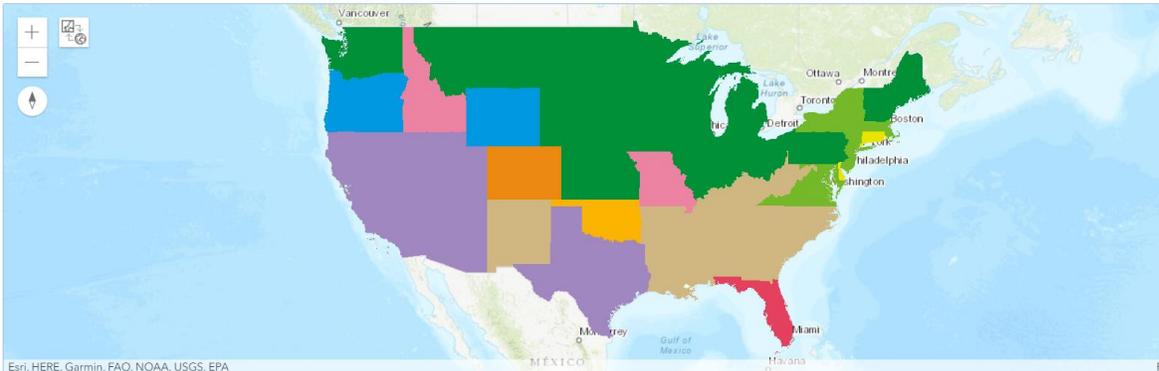
- Used it for lectures
- Shared homework and project solutions
- Incentivized students to use it for their final project



GIS | week_14_lecture_1_features_explained (unsaved changes) Gregory gregbrun

Analysis | Files | Share | Info Save

```
[12]: flc_map1 = gis.map('USA')
      flc_map1.add_layer(tapestry_segmentation.layers[0])
      flc_map1
```



Esri, HERE, Garmin, FAO, NOAA, USGS, EPA

How I Used ArcGIS Notebooks

Gregory Brunner

LIVE DEMO -> My GIS 4090\5090 Notebook Folder

1 - 20 of 24 in GIS 4090/5090 Notebooks

<input type="checkbox"/>	Title				Modified
<input type="checkbox"/>	week_14_lecture_1_features_explained	Notebook	+	...	May 7, 2020
<input type="checkbox"/>	Project 2 - Problem 2 with Intersect	Notebook	+	...	May 6, 2020
<input type="checkbox"/>	Project 2 - Problems 3 & 4	Notebook	+	...	May 6, 2020
<input type="checkbox"/>	Project 2 - Problem 1 Solution	Notebook	+	...	May 6, 2020
<input type="checkbox"/>	Project 2 - Problem 2	Notebook	+	...	May 6, 2020
<input type="checkbox"/>	week_13_supplemental_matplotlib_styles	Notebook	+	...	May 6, 2020
<input type="checkbox"/>	week_13_lecture_4_plotting_with_plotly	Notebook	+	...	May 6, 2020
<input type="checkbox"/>	week_13_lecture_3_csv_to_spatialdataframe	Notebook	+	...	May 6, 2020
<input type="checkbox"/>	week_13_lecture_2_intro_to_spatialdataframes	Notebook	+	...	May 6, 2020
<input type="checkbox"/>	week_13_lecture_1_matplotlib	Notebook	+	...	May 6, 2020
<input type="checkbox"/>	week_12_lecture_3_feature_layers	Notebook	+	...	May 6, 2020
<input type="checkbox"/>	week_12_lecture_1_publishing_zipped_shapefile	Notebook	+	...	May 6, 2020

LIVE DEMO -> Notebooks Shared To Groups

The screenshot shows the ArcGIS Groups web interface. The browser address bar displays the URL: `slustl.maps.arcgis.com/home/groups.html?sortOrder=asc&sortField=title&owner=me`. The page title is "Not secure | slustl.maps.arcgis.com/home/groups.html?sortOrder=asc&sortField=title&owner=me".

Filters: 1 - 8 of 8. Filtered by: Owned by: Owned by Me. Clear filters.

Left Panel (Filters):

- Only show groups with new membership requests:
- Owner: Clear
 - Owned by Me (selected)
 - Owned by Others
- Date Created
 - Today
 - Yesterday
 - Last 7 Days
 - Last 30 Days
 - Custom Range...

Group List:

Group Name	Owner	Created	Last Updated	Viewable by	Action
APRIL LECTURE_DEMO	gregbrunner_slugis	Apr 6, 2020	Apr 6, 2020	Organization	Delete Group
GIS 4090\5090 Final Project Solutions	gregbrunner_slugis	May 4, 2020	May 4, 2020	Organization	Delete Group
GIS 4090\5090 Lecture Notebooks	gregbrunner_slugis	May 6, 2020	May 6, 2020	Organization	Delete Group
GREGORY_BRUNNERS_FEATURE_SERVICES	gregbrunner_slugis	Aug 12, 2018	Aug 12, 2018	Everyone (public)	Delete Group
GREGORY_BRUNNERS_OTHER_CONTENT	gregbrunner_slugis				Delete Group

Taskbar: Windows 10 taskbar with icons for File Explorer, Chrome, Teams, Outlook, Firefox, Edge, and ArcGIS. System tray shows the time as 4:12 PM on 5/7/2020.

LIVE DEMO -> Lecture Notebooks

The screenshot displays the ArcGIS Online interface for a group named "GIS 4090\5090 Lecture Notebooks". The browser address bar shows the URL: slustl.maps.arcgis.com/home/group.html?id=5cb6d826462b427d83aeca497fedbbde#overview. The user is logged in as Gregory Brunner (gregbrunner_slugis).

Navigation: Home, Gallery, Map, Scene, Notebook, Groups, Content, Organization. The "Notebook" tab is active.

Group Overview: GIS 4090\5090 Lecture Notebooks. Overview, Content, Members, Settings.

Group Information: Group containing the notebooks used for GIS 4090\5090 lectures, owned by gregbrunner_slugis.

Description: Add an in-depth description of the group.

Recently added content: View All Group Content

- week_14_lecture_1_features_... by gregbrunner_slugis. Created: Apr 27, 2020. Updated: May 7, 2020.
- week_14_lecture_2_working_... by gregbrunner_slugis. Created: Apr 27, 2020. Updated: May 6, 2020.
- week_14_lecture_3_extractin... by gregbrunner_slugis. Created: Apr 27, 2020. Updated: May 6, 2020.
- week_10_lecture_1_map_wid... by gregbrunner_slugis. Created: May 6, 2020. Updated: May 6, 2020.

Details: Created: May 6, 2020. Viewable by: Organization. Contributors: Members. Members list: Visible to all group members. 2 members, 20 items.

Owner: gregbrunner_slugis. Change Owner.

Tags: GIS 4090, GIS 5090.

LIVE DEMO -> Sample Lecture

slustl.maps.arcgis.com/home/notebook/notebook.html?id=63be65d8dc0e48f784ac1ea9fa1b9dd7

ArcGIS | week_14_lecture_3_extracting_ocean_temp_profiles_from_image_service (unsaved changes)

Gregory Brunner
gregbrunner_slugis

Add Analysis Files Share Info Save Samples

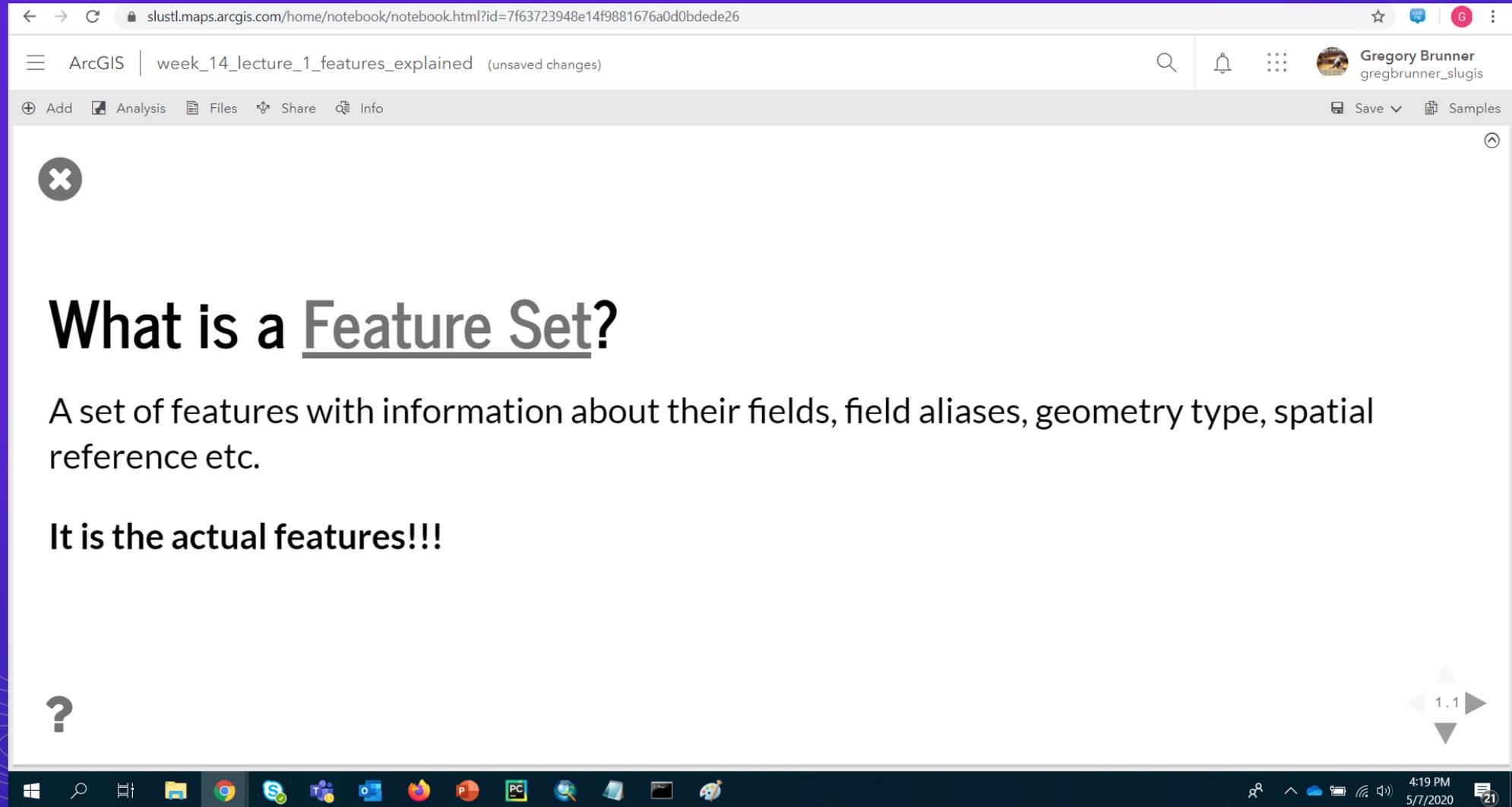
File Edit View Insert Cell Kernel Help Python 3

Run Markdown

How does ocean temperature vary with location, depth, and time of year?

The figure consists of three panels, A, B, and C, each showing a temperature profile (Temperature in °C vs. Depth in m) for a different latitude zone. Panel A (Tropics) shows a warm surface layer (Summer: ~28°C, Winter: ~25°C) that deepens in winter, with a sharp drop to ~5°C at 1000m. Panel B (Mid-Latitudes) shows a seasonal mixed layer that deepens significantly in winter, reaching ~1000m. Panel C (Polar) shows a very cold surface layer (Summer: ~5°C, Winter: ~0°C) that deepens in winter, reaching ~1000m. Below the graphs is a globe with latitude lines labeled: North Pole, 45°N (Mid-Latitudes), Equator (Tropics), 45°S (Mid-Latitudes), and South Pole.

LIVE DEMO -> Sample Lecture using ArcGIS Notebooks and Slides



The screenshot shows a web browser window displaying an ArcGIS Notebook. The browser's address bar shows the URL: `slustl.maps.arcgis.com/home/notebook/notebook.html?id=7f63723948e14f9881676a0d0bdede26`. The notebook's title bar indicates the current slide is `week_14_lecture_1_features_explained` with `(unsaved changes)`. The notebook interface includes a top navigation bar with options like `Add`, `Analysis`, `Files`, `Share`, and `Info`, along with `Save` and `Samples` buttons. The main content area features a slide with a close button (X) in the top left and a back button (C) in the top right. The slide content is as follows:

What is a Feature Set?

A set of features with information about their fields, field aliases, geometry type, spatial reference etc.

It is the actual features!!!

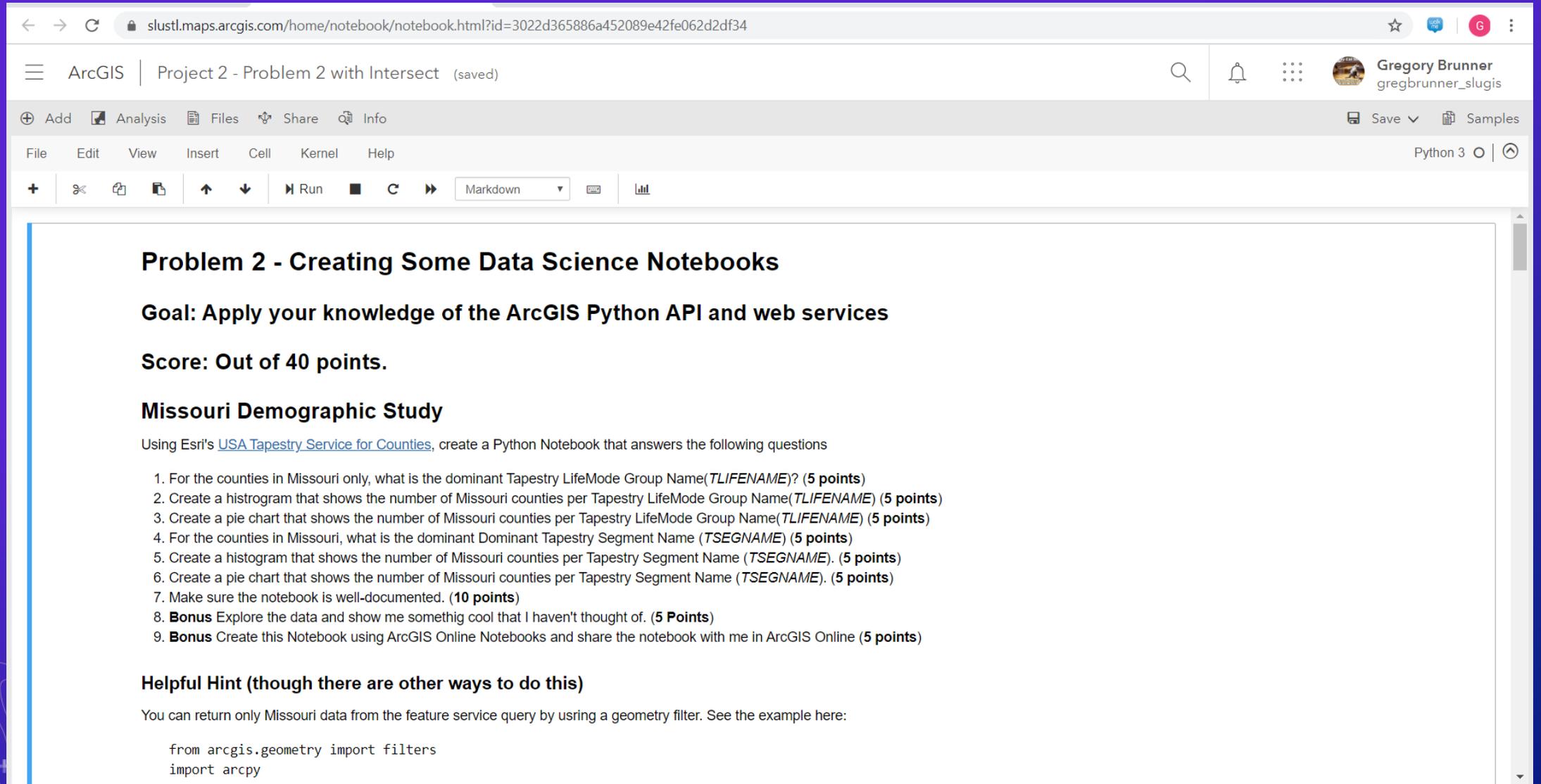
At the bottom left of the slide content, there is a question mark icon (?). At the bottom right, there is a navigation control with a diamond shape and the number `1.1`.

The Windows taskbar is visible at the bottom of the screen, showing the time as `4:19 PM` on `5/7/2020`.

LIVE DEMO -> My Project Solutions Group

The screenshot displays the ArcGIS Online interface for a group named "GIS 4090\5090 Final Project Solutions". The browser address bar shows the URL: slustl.maps.arcgis.com/home/group.html?id=b32501c2b0474cbc8d54e4b346e0ca18#overview. The page has a blue header with the group name and navigation tabs for Overview, Content, Members, and Settings. Below the header, there is an "Edit Thumbnail" section with a green "G" icon, the group name, and the owner "gregbrunner_slugis". To the right, there are buttons for "Invite users" and "Share", and a "Membership Requests" indicator showing 0 requests. The "Description" section contains the text "Add an in-depth description of the group." Below this is the "Recently added content" section, which lists four items, each with a thumbnail icon and metadata: "Project 2 - Problem 1 Solution" (created May 3, 2020, updated May 6, 2020, view count 5), "Project 2 - Problems 3 & 4" (created May 1, 2020, updated May 6, 2020, view count 16), "Project 2 - Problem 2 with Int..." (created May 2, 2020, updated May 6, 2020, view count 11), and "Project 2 - Problem 2" (created Apr 26, 2020, updated May 6, 2020, view count 18). On the right side, the "Details" section shows the group was created on May 4, 2020, is viewable by the organization, and has 2 members and 4 contributors. It also includes social media icons for Facebook and Twitter, and a "Change Owner" button. The "Owner" section shows the profile of "gregbrunner_slugis". The "Tags" section includes the tag "Final Project, Solutions". The Windows taskbar at the bottom shows the time as 4:13 PM on 5/7/2020.

LIVE DEMO -> Project 2 Instructions



The screenshot shows a web browser window displaying an ArcGIS Online Notebook. The browser address bar shows the URL: `slustl.maps.arcgis.com/home/notebook/notebook.html?id=3022d365886a452089e42fe062d2df34`. The notebook title is "Project 2 - Problem 2 with Intersect (saved)". The user is identified as Gregory Brunner (gregbrunner_slugis). The notebook content includes a title, goal, score, and a list of tasks for a Missouri Demographic Study.

Problem 2 - Creating Some Data Science Notebooks

Goal: Apply your knowledge of the ArcGIS Python API and web services

Score: Out of 40 points.

Missouri Demographic Study

Using Esri's [USA Tapestry Service for Counties](#), create a Python Notebook that answers the following questions

1. For the counties in Missouri only, what is the dominant Tapestry LifeMode Group Name(*TLIFENAME*)? (5 points)
2. Create a histogram that shows the number of Missouri counties per Tapestry LifeMode Group Name(*TLIFENAME*) (5 points)
3. Create a pie chart that shows the number of Missouri counties per Tapestry LifeMode Group Name(*TLIFENAME*) (5 points)
4. For the counties in Missouri, what is the dominant Dominant Tapestry Segment Name (*TSEGNAME*) (5 points)
5. Create a histogram that shows the number of Missouri counties per Tapestry Segment Name (*TSEGNAME*). (5 points)
6. Create a pie chart that shows the number of Missouri counties per Tapestry Segment Name (*TSEGNAME*). (5 points)
7. Make sure the notebook is well-documented. (10 points)
8. **Bonus** Explore the data and show me something cool that I haven't thought of. (5 Points)
9. **Bonus** Create this Notebook using ArcGIS Online Notebooks and share the notebook with me in ArcGIS Online (5 points)

Helpful Hint (though there are other ways to do this)

You can return only Missouri data from the feature service query by using a geometry filter. See the example here:

```
from arcgis.geometry import filters
import arcpy
```

LIVE DEMO -> Sample Student Project Notebook

ArcGIS | Final_Project_Problem_2_SEM (saved)

⊕ Add Analysis Files Share Info

File Edit View Insert Cell Kernel Help

+ 🔍 📄 ⬆️ ⬆️ ▶️ Run 🛑 ↺ ▶️ Markdown 📄 📊

▼ **Part 3: Create a pie chart that shows the number of Missouri counties per Tapestry LifeMode Group Name(TLIFENAME)**

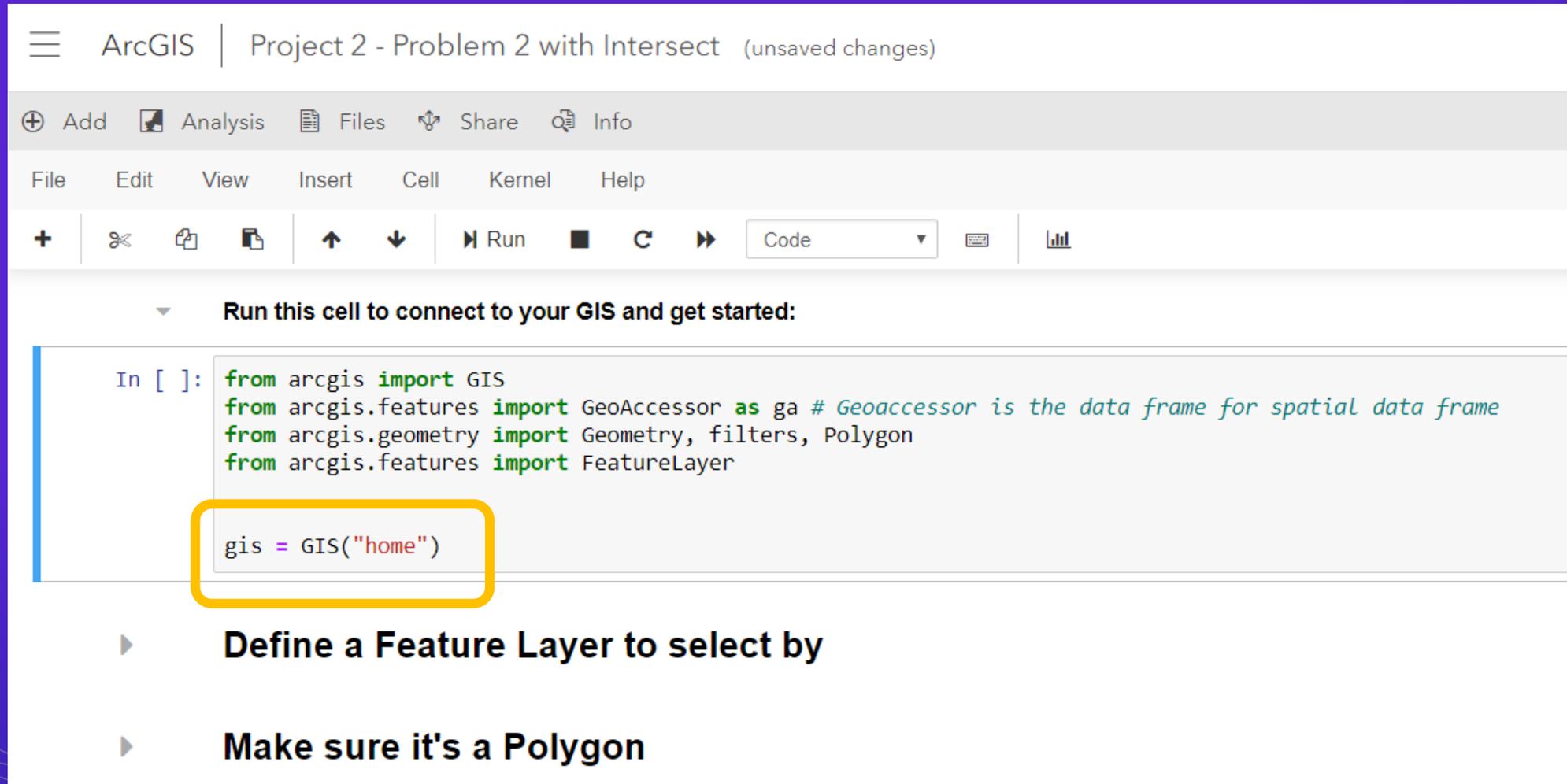
In [47]: *# Creating a pie chart taking in the occurrences/frequency of the TLIFENAME.
since the lower frequencies are much smaller, they are hard to read on a regular pie chart: I exploded the chart a bit morefor the
In addition to the visual, a percent of the frequency was added (to the tenth)*

```
figure(num=None, figsize=(8, 6), dpi=80, facecolor='w', edgecolor='k')  
plt.pie(frequency, labels=TLIFename, startangle=45, explode=(0.1, 0.1, 0.1, 0.1, 0.2, 0.2, 0.4, 0.5), autopct='%1.1f%%')  
  
plt.title('Number of Missouri counties per Tapestry LifeMode Group Name')  
plt.show()
```

Number of Missouri counties per Tapestry LifeMode Group Name

LifeMode Group Name	Percentage
Cozy Country Living	42.6%
Rustic Outposts	32.2%
Family Landscapes	7.8%
Hometown	7.8%
Middle Ground	3.5%
GenXurban	3.5%
Scholars and Patriots	1.7%
Senior Styles	0.9%

Benefits of ArcGIS Notebooks – The Notebooks Just Work



ArcGIS | Project 2 - Problem 2 with Intersect (unsaved changes)

⊕ Add Analysis Files Share Info

File Edit View Insert Cell Kernel Help

+ 🔍 📄 ⬆️ ⬆️ ▶️ Run ■ ↺ ▶️ Code 📊

▼ Run this cell to connect to your GIS and get started:

```
In [ ]: from arcgis import GIS
from arcgis.features import GeoAccessor as ga # Geoaccessor is the data frame for spatial data frame
from arcgis.geometry import Geometry, filters, Polygon
from arcgis.features import FeatureLayer

gis = GIS("home")
```

- ▶ Define a Feature Layer to select by
- ▶ Make sure it's a Polygon

And I didn't need to worry about students installing additional software.

Benefits of ArcGIS Notebooks – Sharing Notebooks

May 4

Build Content ▾ Assessments ▾ Tools ▾ Partner Content ▾

Final Project Solutions

Attached Files:

- Project 2 - Problem 1.ipynb (9.892 KB)
- Project 2 - Problem 2 with Intersect.ipynb (365.284 KB)
- Project 2 - Problem 2.ipynb (280.489 KB)
- Project 2 - Problems 3 and 4.ipynb (24.343 KB)

What's Next? Javascript!

What's Next? Conda!

Esri GeoDev Hacker Labs

Advanced Class Outline
I will update this in light of changes I made to the Intro Class Content.

Using Blackboard

GIS 4090\5090 Final Project Solutions

Edit Thumbnail

G Solutions for the GIS 4090\5090 Final Project
owned by gregbrunner_slugis

Description

Add an in-depth description of the group.

Recently added content

Project 2 - Problem 1 Solution by gregbrunner_slugis Created: May 3, 2020 Updated: May 6, 2020 View Count: 5	Project 2 - Problem 2 with Int... by gregbrunner_slugis Created: May 2, 2020 Updated: May 6, 2020 View Count: 13	Project 2 - Problems 3 & 4 by gregbrunner_slugis Created: May 1, 2020 Updated: May 6, 2020 View Count: 18

Using ArcGIS Online

Benefits of ArcGIS Notebooks – Following Students' Progress

<input type="checkbox"/>	Title				▲ Modified
<input type="checkbox"/>	 Acquired Player	CSV	 + 	 ...	Apr 9, 2020
<input type="checkbox"/>	 Basketball_Players_WorkInProgress	Notebook	 + 	 ...	Apr 9, 2020
<input type="checkbox"/>	 Final_Project_Problem_1_SEM	Notebook	 + 	 ...	Apr 26, 2020
<input type="checkbox"/>	 Final_Project_Problem_2_SEM	Notebook	 + 	 ...	Apr 25, 2020
<input type="checkbox"/>	 Final_Project_Problem_3_SEM	Notebook	 +  	 ...	Apr 25, 2020
<input type="checkbox"/>	 Final_Project_Problem_4_SEM	Notebook	 +  	 ...	Apr 25, 2020
<input type="checkbox"/>	 Fragile State Index2006	Feature Layer (hosted)	 + 	 ...	Apr 26, 2020
<input type="checkbox"/>	 Fragile State Index2006	CSV		 ...	Apr 26, 2020

Benefits of ArcGIS Notebooks – Compliments WebGIS Courses

Home ▾ April 9 - Crime Aggregation ✎

Details Add ▾ Basemap Analysis Save Share Print Direct

Aggregate Points

- Choose layer containing points to aggregate into areas
St. Louis Crime Locations
- Choose layer containing aggregation areas
Polygon Square **Hexagon**
Select the size for the hexagon bins
5 Kilometers
 Keep areas with no points
- Add statistics (optional)
Field Statistic
- Choose field to group by (optional)
Field
 Add minority, majority
 Add percentages

Trust Center Contact Esri Report Abuse

Aggregating features using AGOL

Not secure | slustl.maps.arcgis.com/home/notebook/notebook.html?id=4af5e9601c9f4bddbc504d6b4a848433

ArcGIS | week_12_homework_solution_problem_2_aggregate_by_hexbins (unsaved changes)

Add Analysis Files Share Info

File Edit View Insert Cell Kernel Help

+ % Copy Paste Run Stop Refresh

Markdown

```
In [7]: crime_summary = summarize_data.aggregate_points(point_layer = f1,
output_name="STL_Crime_By_5km_hexbins",
polygon_layer = hexbins,
keep_boundaries_with_no_points=False)
```

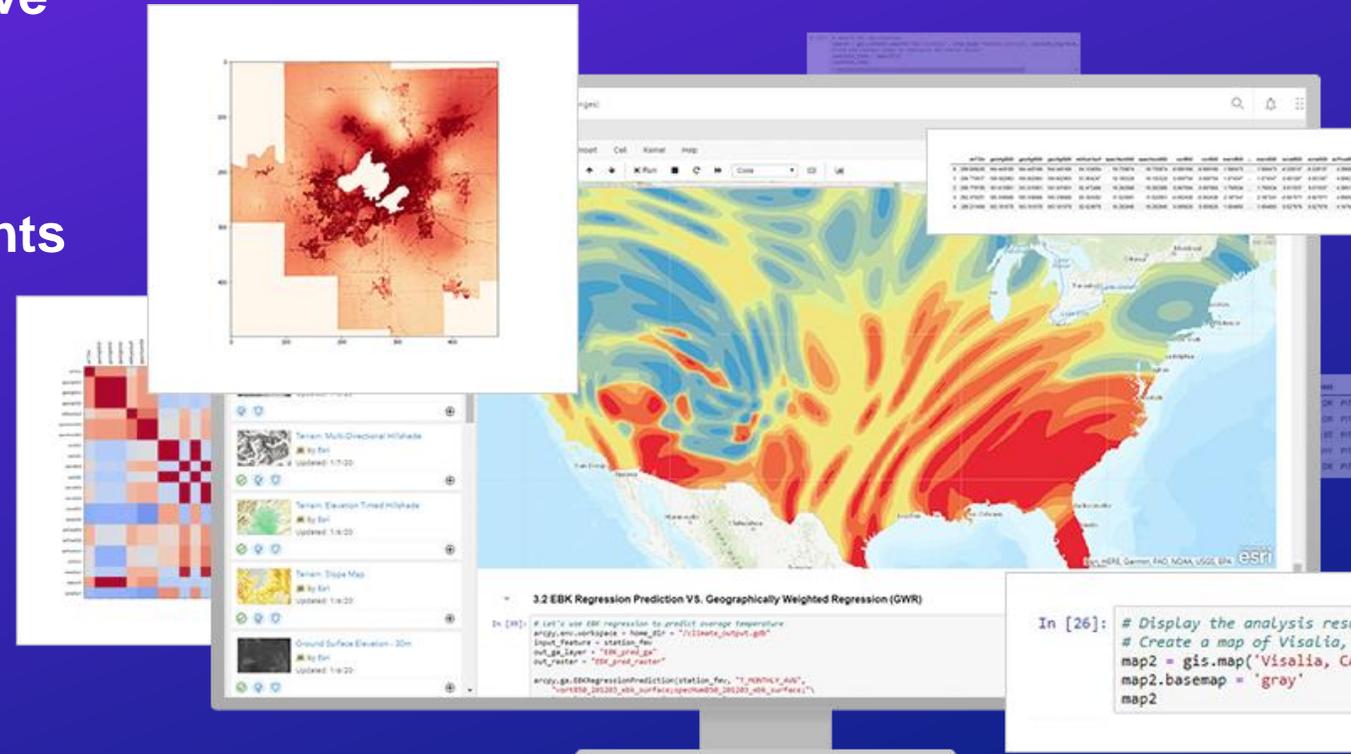
```
In [8]: stl = gis.map('St. Louis, MO')
stl
```

County of St. Louis, Missouri Dept. of Conservation, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS

Using ArcGIS Notebooks

Understand New Technology and Tools

- How can you use technology to improve your courses?
- How can you improve how your students learn?
- How do you make programming more approachable?

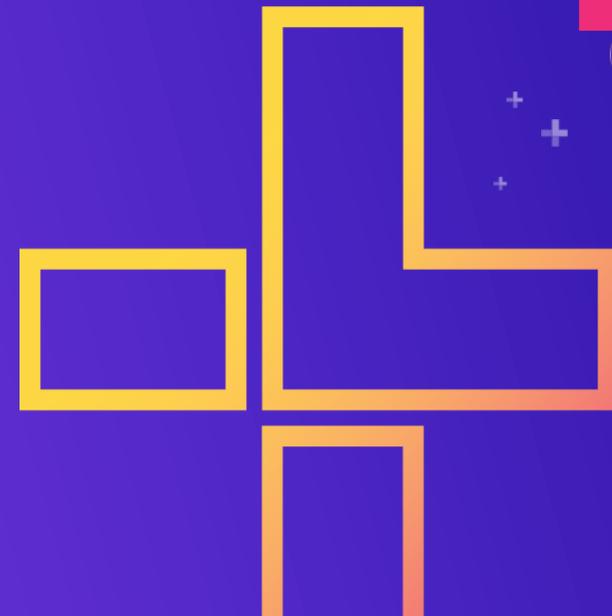
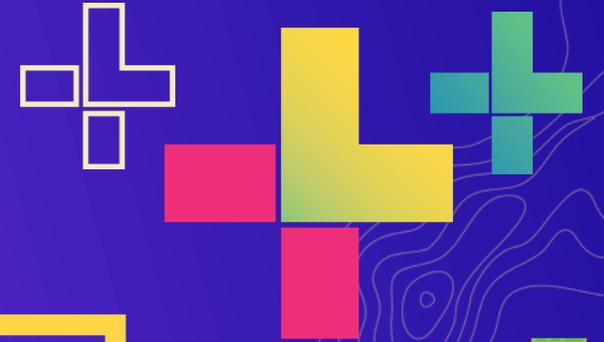
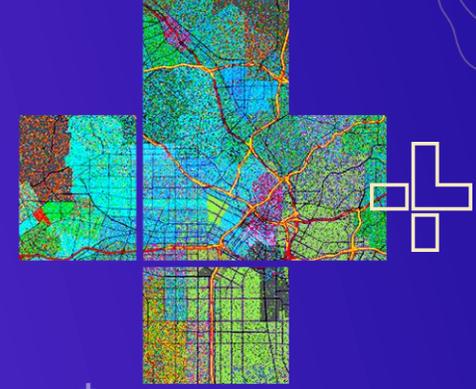


“Tell me and I forget, teach me and I may remember, involve me and I learn.”

Benjamin Franklin



What can you do with notebooks?



ArcGIS Notebooks Integrates Open Science, Tools, and Experiences



Use Spatial Science to Transform Data into Action

Work with a wide range of data

Integrate All
Types of Data

Create Maps, Apps,
Layers, and Models



The background features a complex network of thin, light blue lines connecting various sized circular nodes, also in light blue. The nodes and lines are scattered across the frame, creating a sense of connectivity and data flow. The overall color scheme is a gradient of blue, from a darker shade at the bottom to a lighter shade at the top.

arcgis.learn

Explore AI, machine learning, and deep learning



Damaged Structures



Land Cover



Building Footprints



Swimming Pools



Brick Kilns



Roads



Palm trees



Oil Pads



Refugee Camps



Sinkholes

Even more...

- Automate analyses and data pulls
- Share notebooks as reproducible research
- Perform analysis:
 - Suitability modeling
 - Prediction
 - Pattern detection
 - Time series forecasting
 - ...
- Use notebooks to manage your ArcGIS organization (Online, Enterprise, or Hub)
- Engage in community/citizen science*
 - *As the study designer/researcher



Licensing, access and Resources

Canserina Kurnia

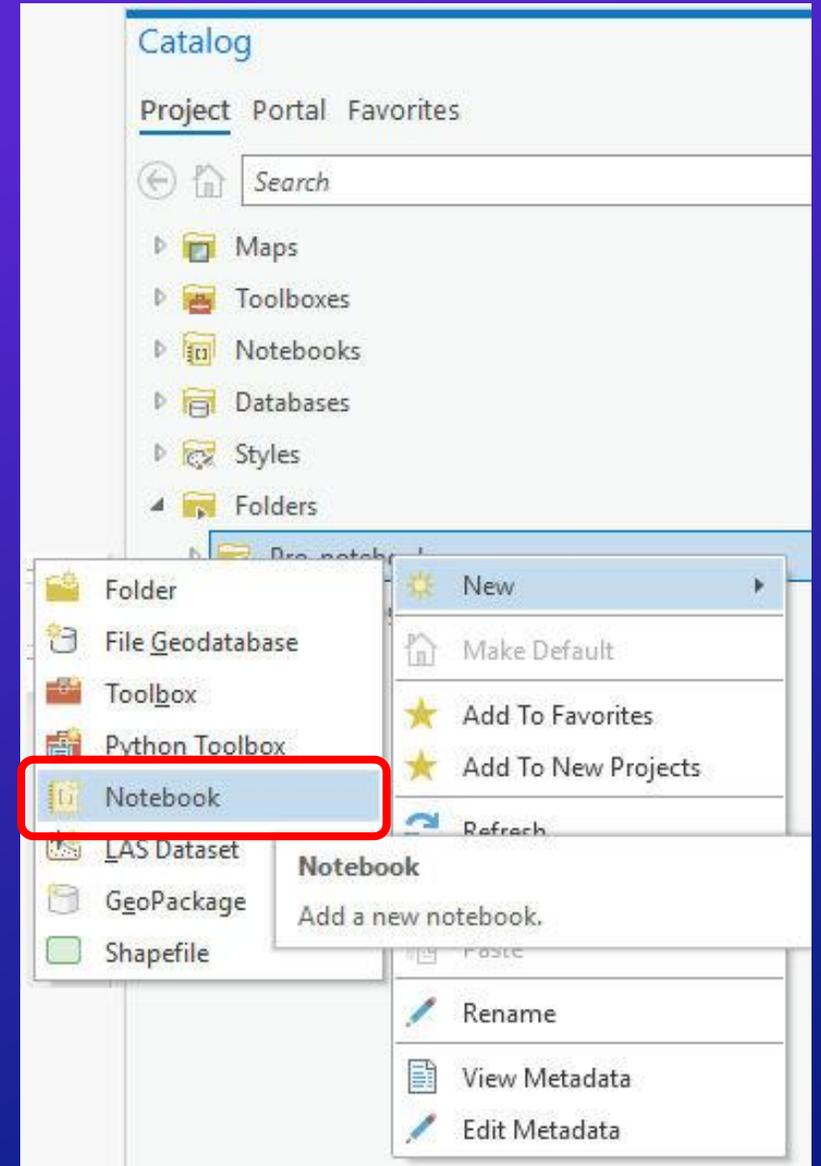
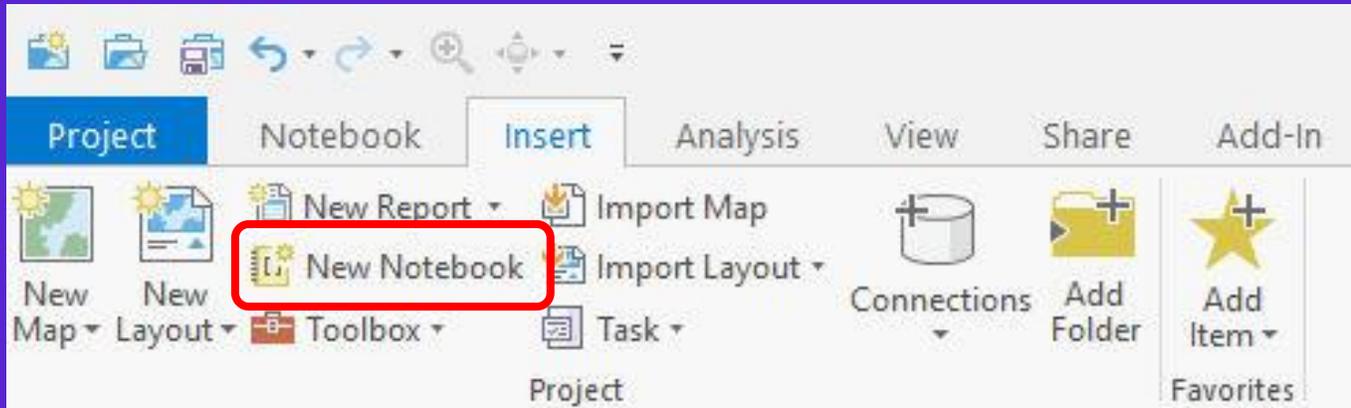


Licensing

- ArcGIS Notebooks licenses are included in Higher Education Institutional Agreement
- In ArcGIS Pro
 - No additional license
 - Part of the core product
- In ArcGIS Online
 - Create a custom role to include privileges to work with Notebooks
- In ArcGIS Enterprise
 - Server role
 - 10.7 or later
 - Requires Docker images (available from MyEsri)



Notebooks in ArcGIS Pro



Access setup in ArcGIS Online (by Administrator)

- Create a custom role or edit an existing custom role

Create role

Role name
StudentPlus

Description
Publisher role plus access to ArcGIS Notebook

Privilege compatibility

View View and edit View, edit, create and manage

Compatible with Advanced user type and 4 others

Role privileges [Set from existing role](#) [Expand all](#)

General privileges Enabled: 0/27 [Enable all](#)

Members Enabled: 0/1 [Enable all](#)

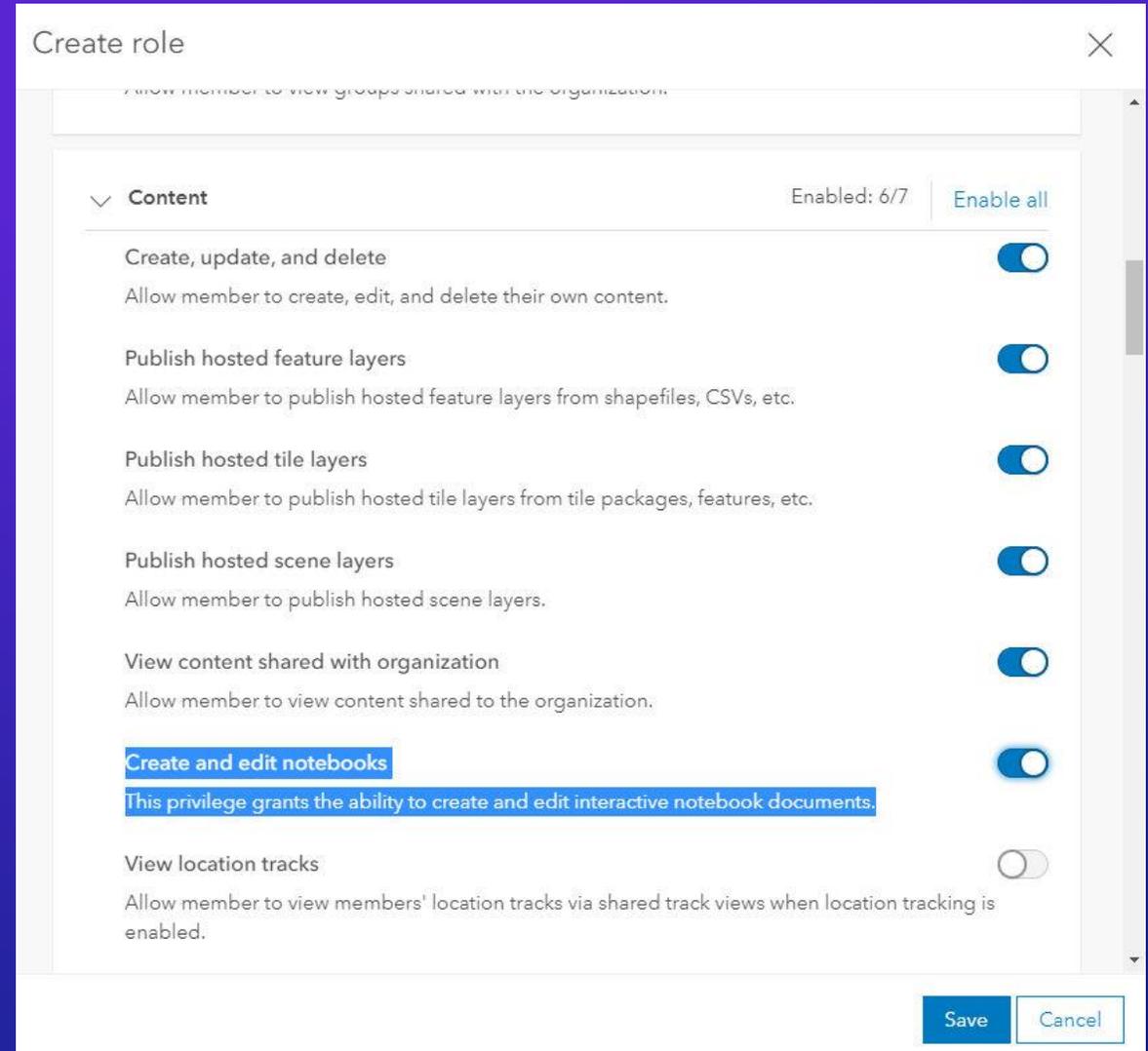
Groups Enabled: 0/4 [Enable all](#)

Content Enabled: 0/7 [Enable all](#)

[Save](#) [Cancel](#)

Access setup in ArcGIS Online (by Administrator)

- Create a custom role or edit an existing custom role
- Enable Create and edit notebooks
 - Basic access



Create role

Allow member to view groups shared with the organization.

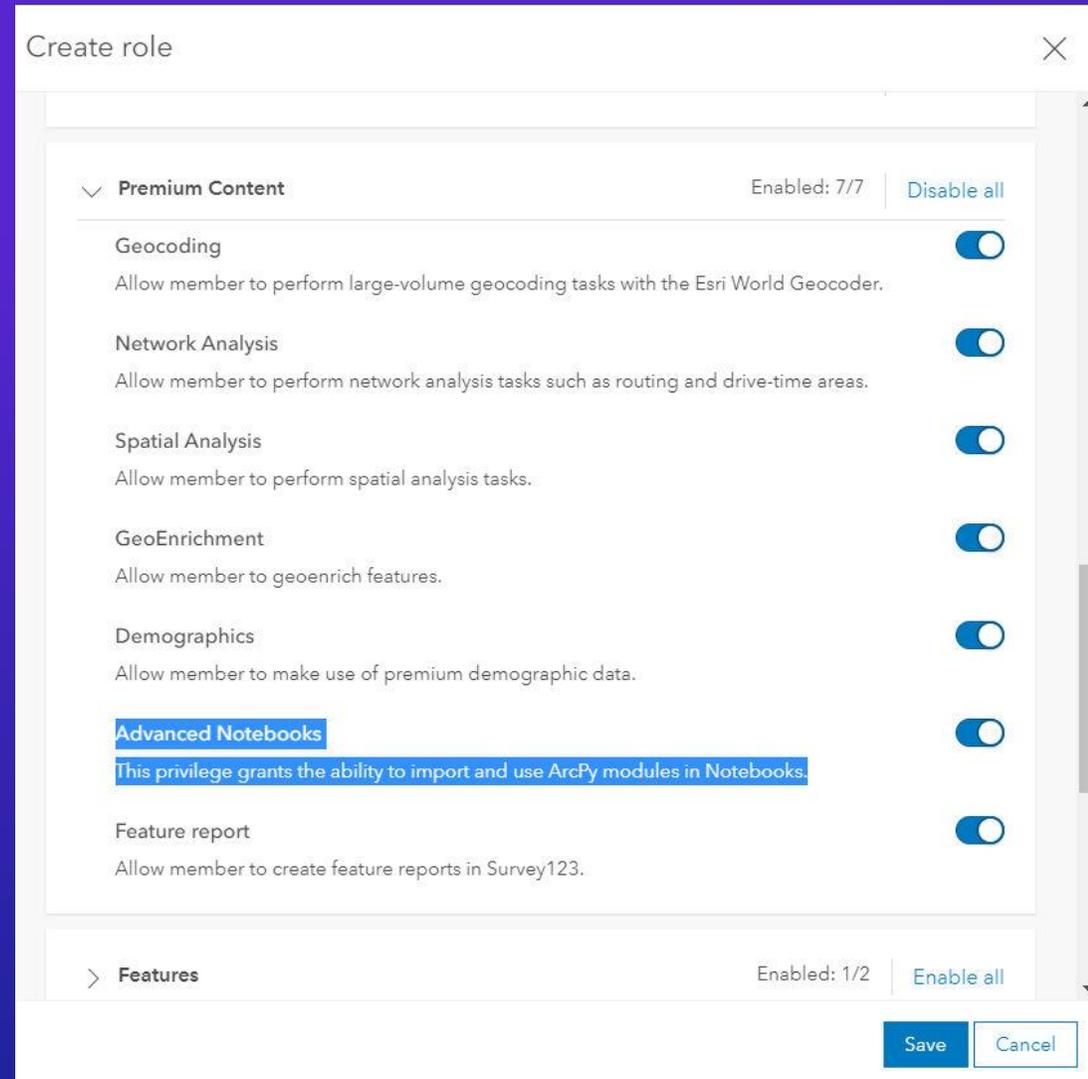
Content Enabled: 6/7 Enable all

- Create, update, and delete
Allow member to create, edit, and delete their own content.
- Publish hosted feature layers
Allow member to publish hosted feature layers from shapefiles, CSVs, etc.
- Publish hosted tile layers
Allow member to publish hosted tile layers from tile packages, features, etc.
- Publish hosted scene layers
Allow member to publish hosted scene layers.
- View content shared with organization
Allow member to view content shared to the organization.
- Create and edit notebooks**
This privilege grants the ability to create and edit interactive notebook documents.
- View location tracks
Allow member to view members' location tracks via shared track views when location tracking is enabled.

Save Cancel

Access setup in ArcGIS Online (by Administrator)

- Create a custom role or edit an existing custom role
- Enable Create and edit notebooks
 - Basic access
- Enable Advanced Notebooks
 - Access to ArcPy modules
 - Access the GPU-enabled runtime



The screenshot shows the 'Create role' dialog box in ArcGIS Online. The 'Premium Content' section is expanded, showing a list of features with their respective toggle switches. The 'Advanced Notebooks' feature is highlighted with a blue box and a description: 'This privilege grants the ability to import and use ArcPy modules in Notebooks.' The 'Features' section is partially visible at the bottom, showing 'Enabled: 1/2' and an 'Enable all' button. The 'Save' and 'Cancel' buttons are located at the bottom right of the dialog.

Feature	Description	Status
Geocoding	Allow member to perform large-volume geocoding tasks with the Esri World Geocoder.	Enabled
Network Analysis	Allow member to perform network analysis tasks such as routing and drive-time areas.	Enabled
Spatial Analysis	Allow member to perform spatial analysis tasks.	Enabled
GeoEnrichment	Allow member to geoenrich features.	Enabled
Demographics	Allow member to make use of premium demographic data.	Enabled
Advanced Notebooks	This privilege grants the ability to import and use ArcPy modules in Notebooks.	Enabled
Feature report	Allow member to create feature reports in Survey123.	Enabled

Access setup in ArcGIS Online (by Administrator)

- Create a custom role or edit an existing custom role
- Enable Create and edit notebooks
 - Basic access
- Enable Advanced Notebooks
 - Access to ArcPy modules
 - Access the GPU-enabled runtime
- Assign the custom role as Role in the New User Defaults

New member defaults

User type and role

Select the user type and role members are assigned by default when adding or inviting new members.

User type

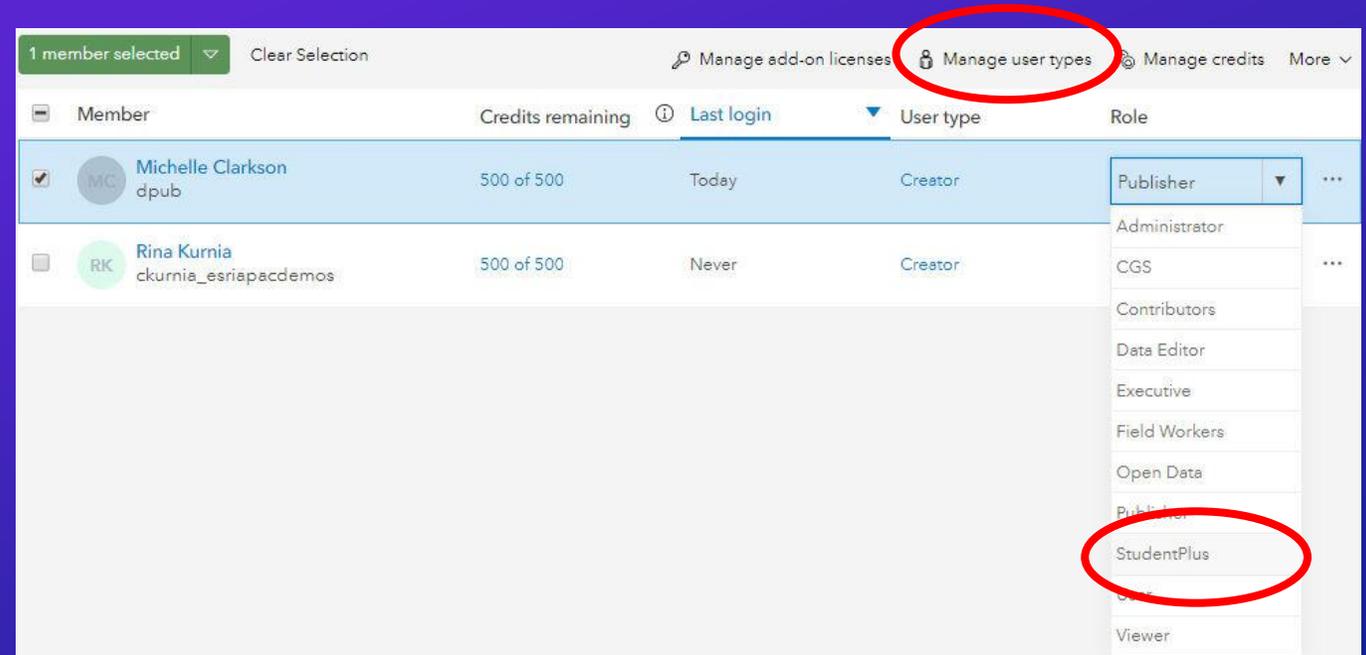
Creator 

Role

StudentPlus 

Access setup in ArcGIS Online (by Administrator)

- Create a custom role or edit an existing custom role
- Enable Create and edit notebooks
 - Basic access
- Enable Advanced Notebooks
 - Access to ArcPy modules
 - Access the GPU-enabled runtime
- Assign the custom role as Role in the New User Defaults
- Assign the custom role to existing users
 - Change to the custom role at once



Resources

- [ArcGIS Notebooks Official Webpage](#)
- [Introducing ArcGIS Notebooks](#)
- [ArcGIS Notebooks beta in ArcGIS Online](#)
- [ArcGIS Notebook Server in ArcGIS Enterprise](#)
- [Using Jupyter Notebooks from within ArcGIS Pro environment](#)
- [Spatial Analysis and Data Science Recorded Webinar](#)

...You will receive a follow up email with these resources



Resources

- Esri Press new books for Python (e-book and print will be available in July 2020)
 - Python Scripting for ArcGIS Pro
 - Advanced Python Scripting for ArcGIS Pro
 - Get faculty sampling copy from vitalsource.com
- Pythons and ArcGIS Notebooks lessons
 - [Learn lessons](#)
 - [Esri training](#)
- MOOC
 - [Spatial Data Science: The New Frontier in Analytics](#)
 - Start Oct 28, 2020. Open for Registration





Q/A Sessions

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Thank you for attending

