



Teaching Modern GIS: Faculty Panel

Brian Baldwin – Esri

Nicole Ernst – Harrisburg Area Community College

Dan Farkas, PhD – Pace University

Damien Mansell, PhD – University of Exeter



Esri's Education Program

Enabling, Encouraging, and Equipping

... future decision makers to think spatially and critically, solve problems, and use geotechnologies effectively to build a resilient world and become the change agents of tomorrow.

- 7,000+ universities globally
- Free licenses for all K-12 (Esri Schools)
- Education, research, and operations



Housekeeping

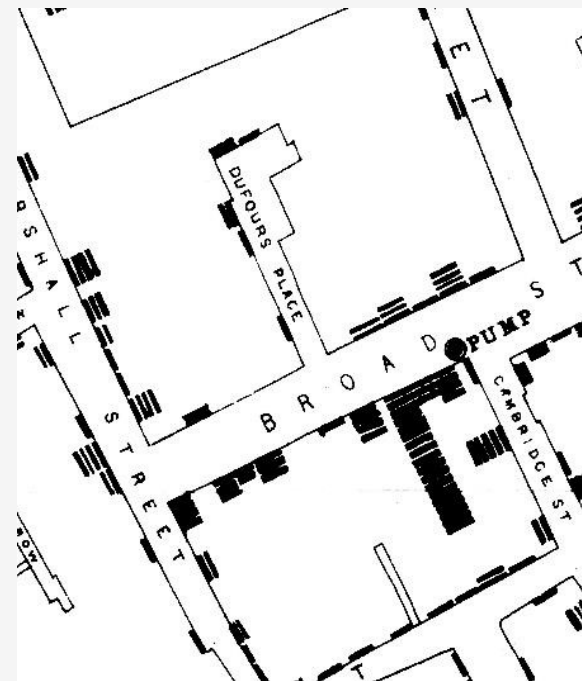
- Please enter your questions in the chat box
- Microphones will be muted
- Q&A session at the conclusion of the webinar
- Webinar & slides will be available
- Survey following the webinar



Onur Binay @unsplash

Agenda

- Brian Baldwin – Modern GIS
- Nicole Ernst – Harrisburg Area Community College
- Dan Farkas, PhD – Pace University
- Damien Mansell, PhD – University of Exeter
- Panel Discussion / Q&A



Modern GIS

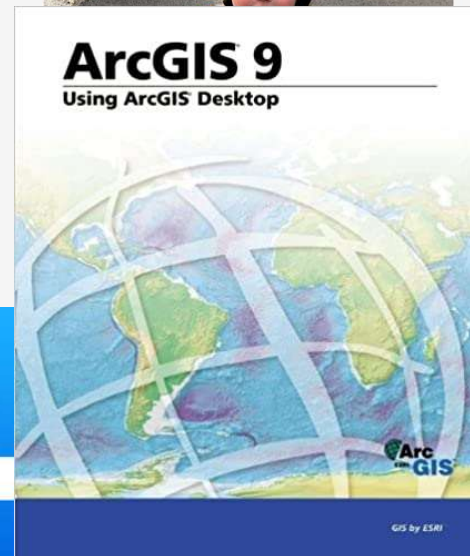
Brian Baldwin

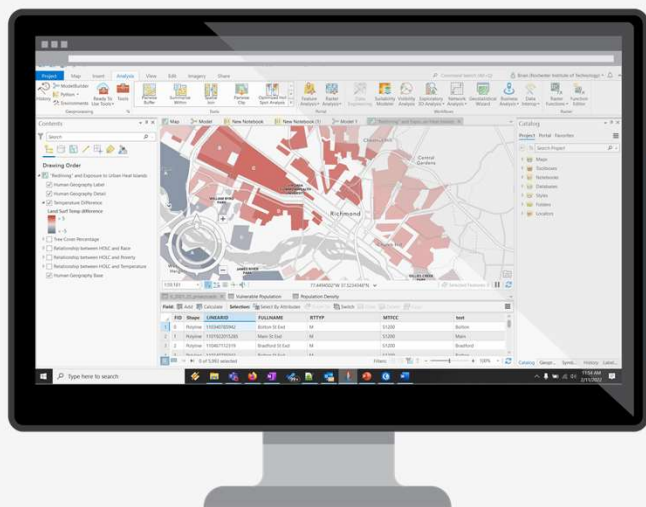


Time travel to 2004... **18 years ago.**

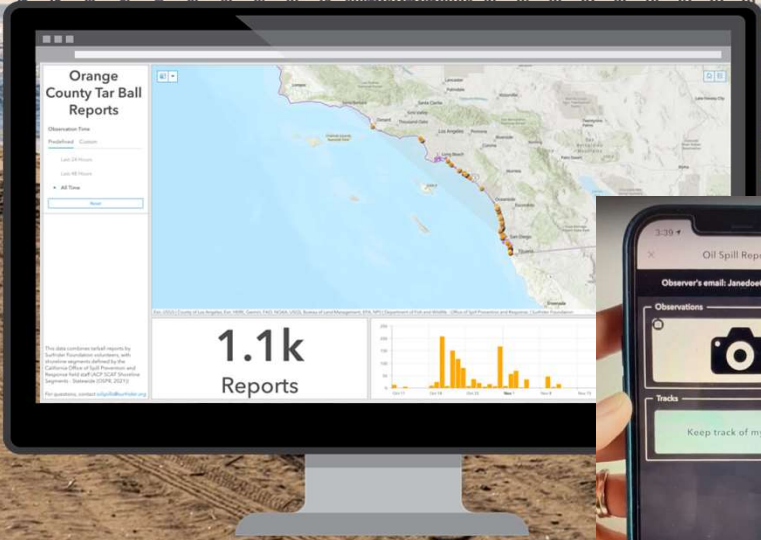


Harry Cunningham @unsplash





Within a week, the Surfrider Foundation registered 10,000 participants ... who used a mobile map to drop pins where onshore oil removal was needed.



Last Updated at (M/D/YYYY)
11/30/2021, 6:22 PM

Total Cases
262,699,410

Total Deaths
5,214,403

Total Vaccine Doses Administered
7,991,686,124

Cases | Deaths by Country/Region
/Sovereignty

US
28-Day: 2,315,554 | 30,148
Totals: 48,530,447 | 779,923

Germany
28-Day: 1,235,611 | 5,512
Totals: 5,661,432 | 101,474

United Kingdom
28-Day: 1,194,803 | 4,155
Totals: 10,285,447 | 145,414

Russia
28-Day: 1,019,345 | 33,387
Totals: 9,468,440 | 269,900

Turkey
28-Day: 710,706 | 5,807
Totals: 6,797,558 | 76,842

Ukraine
28-Day: 522,285 | 18,271
Totals: 3,606,622 | 91,268

Poland
28-Day: 490,810 | 6,043
Totals: 3,540,061 | 83,583

Netherlands
28-Day: 482,537 | 936
Totals: 2,684,420 | 19,863

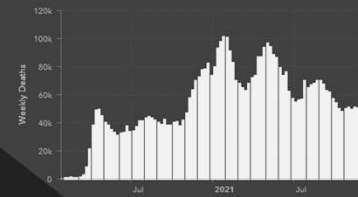
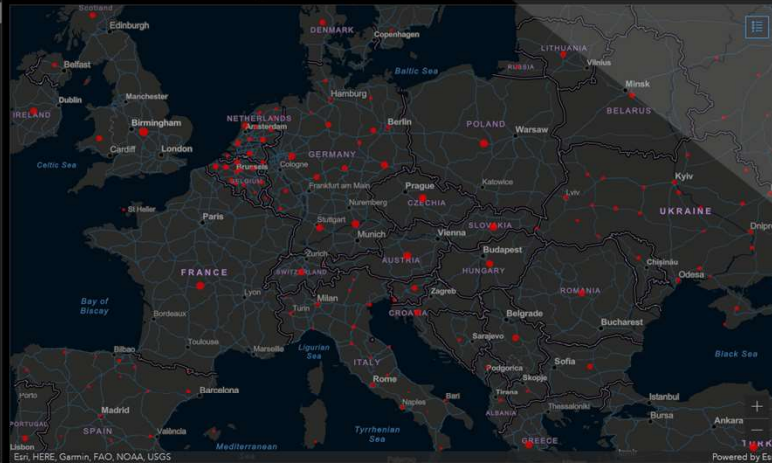
France
28-Day: 460,941 | 1,365
Totals: 7,780,070 | 120,116

Belgium
28-Day: 388,816 | 972
Totals: 1,749,469 | 26,966

28-Day Cases
14,595,130

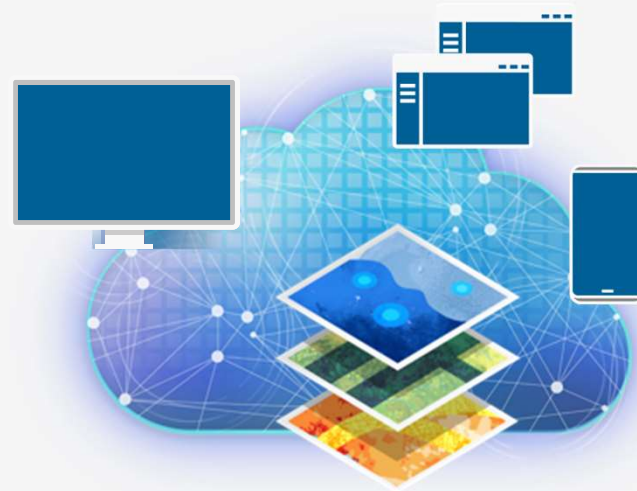
28-Day Deaths
200,420

28-Day Vaccine Doses Administered
1,137,450,023



What skills are required?

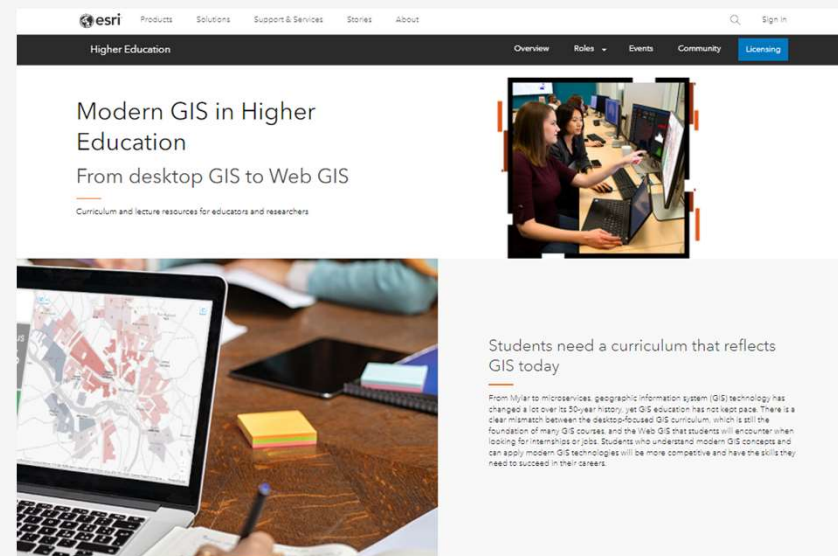
- **Requirements gathering**
- **Data as services**
- **Application configuration**
- **Automation & scripting**
- **Enterprise / Cloud**





Resources

- MOOCs
- Learn.ArcGIS.com
- Esri Academy
- Doc, videos, blogs
- Esri Community
- Events! (EdSummit/UC)



The screenshot shows the Esri Higher Education page. The header includes the Esri logo and navigation links for Products, Solutions, Support & Services, Stories, and About. Below the header, the page title is "Modern GIS in Higher Education" with the subtitle "From desktop GIS to Web GIS". A navigation bar contains links for Overview, Roles, Events, Community, and Licensing. The main content area features a large image of students working at computers, a smaller image of a laptop displaying a map, and a text block titled "Students need a curriculum that reflects GIS today" with a short paragraph of text.

esri Products Solutions Support & Services Stories About

Higher Education Overview Roles Events Community Licensing

Modern GIS in Higher Education

From desktop GIS to Web GIS

Curriculum and lecture resources for educators and researchers

Students need a curriculum that reflects GIS today

From Mylar to microservices, geographic information system (GIS) technology has changed a lot over its 50-year history, yet GIS education has not kept pace. There is a clear mismatch between the desktop-focused GIS curriculum, which is still the foundation of many GIS courses, and the Web GIS that students will encounter when looking for internships or jobs. Students who understand modern GIS concepts and can apply modern GIS technologies will be more competitive and have the skills they need to succeed in their careers.



Nicole Ernst

Harrisburg Area Community College



Teaching Modern GIS

Professor Nicole Ernst, nlernst@hacc.edu

HACC- Central Pennsylvania's Community College/GeoTech Center

Link to the StoryMap presentation: <https://arcg.is/1buKju0>



Dan Farkas, PhD

Pace University

Teaching Modern GIS

Dan Farkas, PhD

Pace University, Pleasantville, NY

Seidenberg School of CS and IS

dfarkas@pace.edu

GIS at Pace (10+ years)

- Graduate and Undergraduate Introductory Courses (ArcMap)
 - Computing School (Seidenberg)
 - Environmental Science and Studies (Liberal Arts)
- Originally Desktop Based (ArcMap)
 - 1 week on ArcGIS Online
- No Site license
 - University Labs, VM-Concurrent License
 - Esri Press Textbooks, 180 day license
- Seidenberg – 50 user Departmental License
 - Limited IT support (we administer the accounts)
- Goal: Attract both majors and non-majors (e.g. Business, ESS)

**LOCATION ANALYTICS AND GIS LAB
FOR EDUCATION AND RESEARCH**

ABOUT THE GIS LAB
Location Analytics and GIS focuses on using spatial and geographical data.

WHO WE ARE
Meet the people behind the Location Analytics and GIS Lab.

EDUCATION: LEARNING LOCATION ANALYTICS AND GIS
The GIS Lab offers undergraduate and graduate courses as well as webinars and workshops.

RESEARCH: COLLABORATION
Providing opportunities to work together on real world situations with people from multiple disciplines.

RESOURCES
Resources pertaining to GIS and Location Analysis.

CONTACT
Get in contact and learn how to get involved.

WESTCHESTER CAMPUS
861 Bedford Rd, Goldstein Academic Center, Rm 323, Pleasantville, NY 10570
(914) 773-3793
DFarkas@pace.edu

NYC CAMPUS
163 William St, Rm 323, New York, NY, 10038
(212) 346-1067
nshin@pace.edu

Modern GIS Evolution at Pace/Seidenberg

- 1 grad/ugrad course
 - ArcMap only for 10+ years
 - Added 1 week/module on ArcGIS Online 5 years ago (“Basic Map Viewer”)
 - Spring 2021 – Add 2 credit, Online WebGIS course
 - Fall 2021 –Convert to Pro
 - Spring 2022 – Add 2 credit, WebGIS Analytics (BAO, StoryMaps)
-
- John Snow Cholera Map, 1854
 - http://www.rtwilson.com/images/OSColor_Points.png

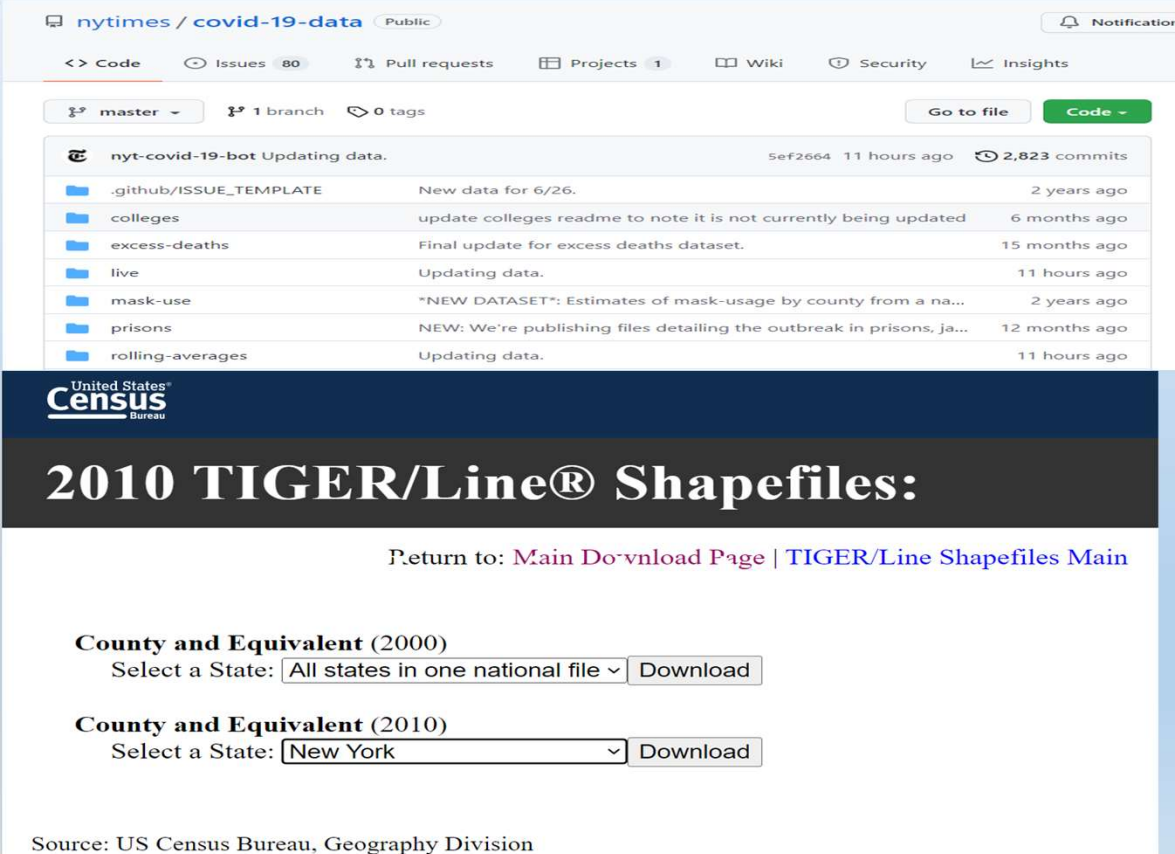


Fall, 2021 – Transition to ArcGIS Pro

- Took the tutorials at every ESRI conference (multiple times)
- For me, too broad, too many features - didn't "get it"
- Best resource:
 - <https://pro.arcgis.com/en/pro-app/latest/get-started/pro-quickstart-tutorials.htm>
- Best Takeaways:
 - Interface (Ribbon, Use of Panels (Symbology, Catalog, etc.)
 - "Projects" integrate Maps (Data View), Layouts and the Catalog to manage them
- All my exercises for ArcMap, transitioned nicely to Pro
- [Introducing ArcGIS Pro](#)
- [Navigate maps and scenes](#)
- [Create a project](#)
- [Add data to a project](#)
- [Explore your data](#)
- [Create a project template](#)
- [Import an ArcMap document](#)
- [Author a map](#)
- [Share a web map](#)
- [Author and share a local scene](#)
- [Share a web tool](#)
- [Convert a map to a scene](#)
- [Symbolize map layers](#)
- [Label your map](#)
- [Make a layout](#)
- [Visualize temporal data](#)
- [Use geoprocessing tools](#)
- [Make a geoprocessing model](#)
- [Manage data](#)
- [Create points on a map](#)
- [Create points from a table](#)

Spring 2021: Web GIS (Ugrad), 7 Weeks, 2 credits, online

- ArcGIS Online/Applications
 - GIS Concepts
 - Web Maps
 - 3D Scenes
 - Web Applications (Instant/Builder)
 - Analytics: Dashboards
 - Field Collection: Survey123
- Introduce Data Sources/Types
 - Shapefiles
 - US Census Bureau
 - Tigerline
 - American Community Survey
 - ESRI (Data Enrichment)
 - NYT Github Covid Data
 - <https://github.com/nytimes/covid-19-data/>



The image shows two screenshots. The top one is a GitHub repository page for 'nytimes / covid-19-data'. It displays a list of folders and files with their commit dates and commit counts. The bottom screenshot is a webpage from the US Census Bureau titled '2010 TIGER/Line® Shapefiles:'. It provides options to download shapefiles for 'County and Equivalent (2000)' and 'County and Equivalent (2010)', with a dropdown menu for selecting a state (currently set to 'New York').

nytimes / covid-19-data (Public)

<> Code Issues 80 Pull requests Projects 1 Wiki Security Insights

master 1 branch 0 tags Go to file Code

File/Folder	Description	Commit Date	Commits
nyt-covid-19-bot	Updating data.	5ef2664 11 hours ago	2,823
.github/ISSUE_TEMPLATE	New data for 6/26.		2 years ago
colleges	update colleges readme to note it is not currently being updated		6 months ago
excess-deaths	Final update for excess deaths dataset.		15 months ago
live	Updating data.		11 hours ago
mask-use	*NEW DATASET*: Estimates of mask-usage by county from a na...		2 years ago
prisons	NEW: We're publishing files detailing the outbreak in prisons, ja...		12 months ago
rolling-averages	Updating data.		11 hours ago

United States Census Bureau

2010 TIGER/Line® Shapefiles:

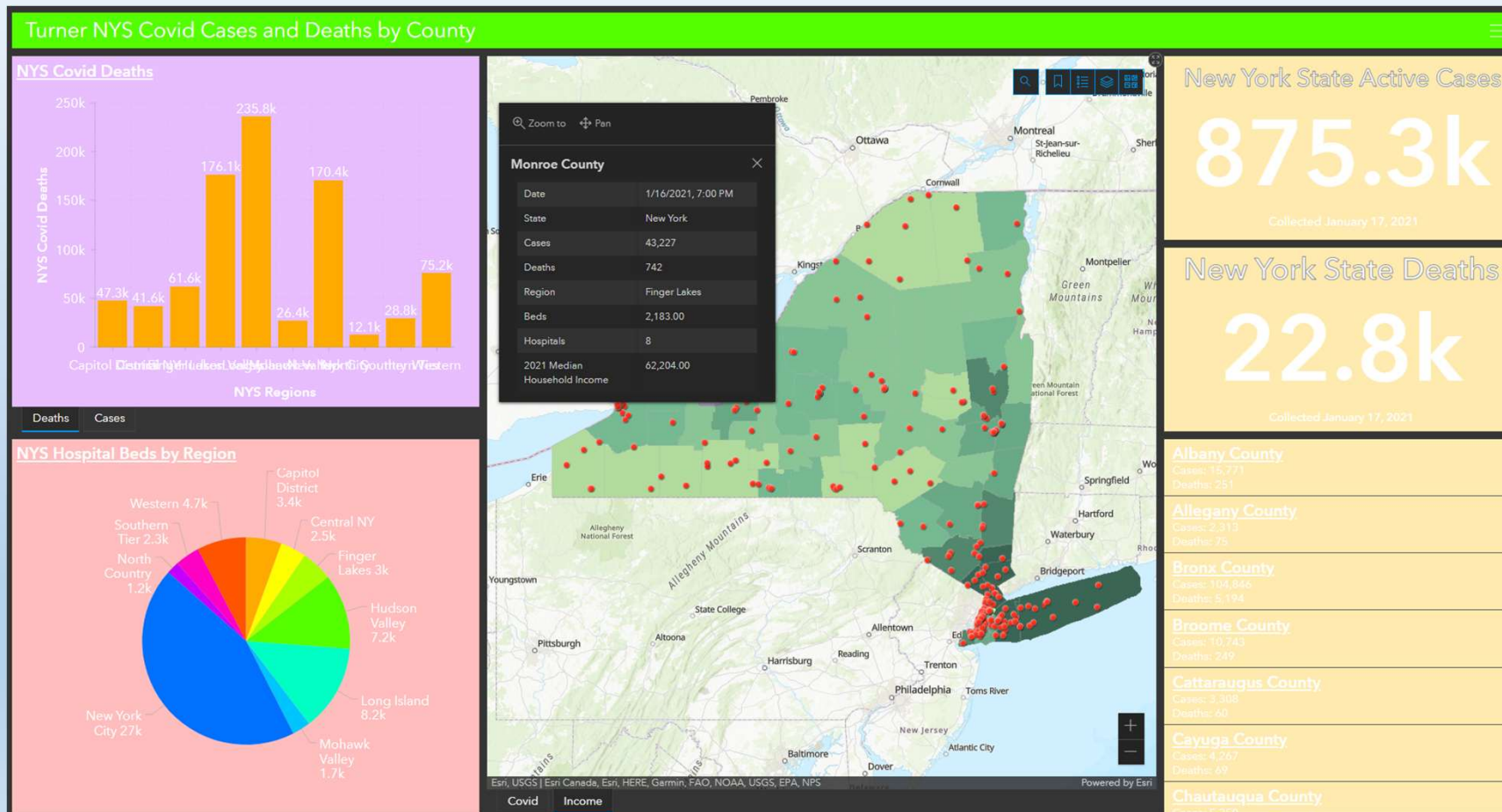
Return to: [Main Download Page](#) | [TIGER/Line Shapefiles Main](#)

County and Equivalent (2000)
Select a State:

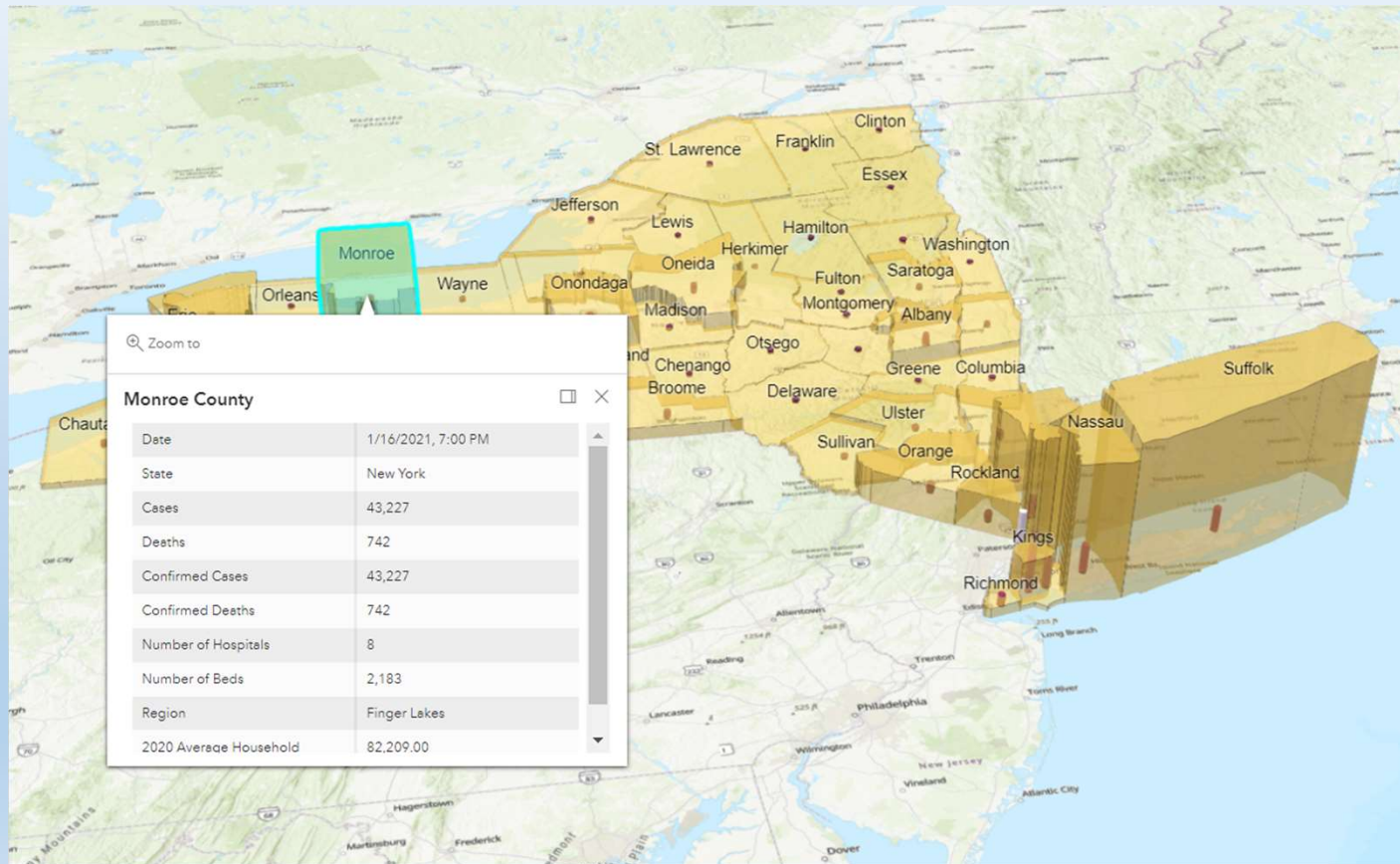
County and Equivalent (2010)
Select a State:

Source: US Census Bureau, Geography Division

Dashboards utilizing: Symbology, Filtering/Selection, Enrichment, Joins, Aggregation



3D Scene: Comparing Cases and Beds:



Survey123: Restaurant Reviews

Ricci Sp22 Restaurant Review Survey

WebGIS SP22 Restaurant Review Survey

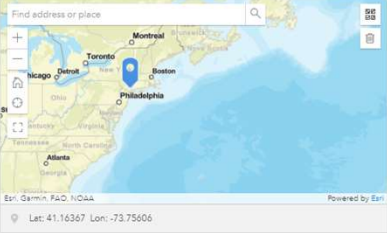
Enter your last name*

What is the name of the restaurant?*

What is the location of the restaurant?

- Tap the map to set the point.
- For current location, use the "Find my location" icon/button at the left of the map.
- Use the Address Bar at the top of the map to enter the city, state (if there is one) and country (or type in an address).
- You can also navigate the map (move or zoom with swipe motions). Center the point at your restaurant location.

Find address or place



Lat: 41.16367 Lon: -73.75606

Powered by Esri

Type of Cuisine*

-Please select-

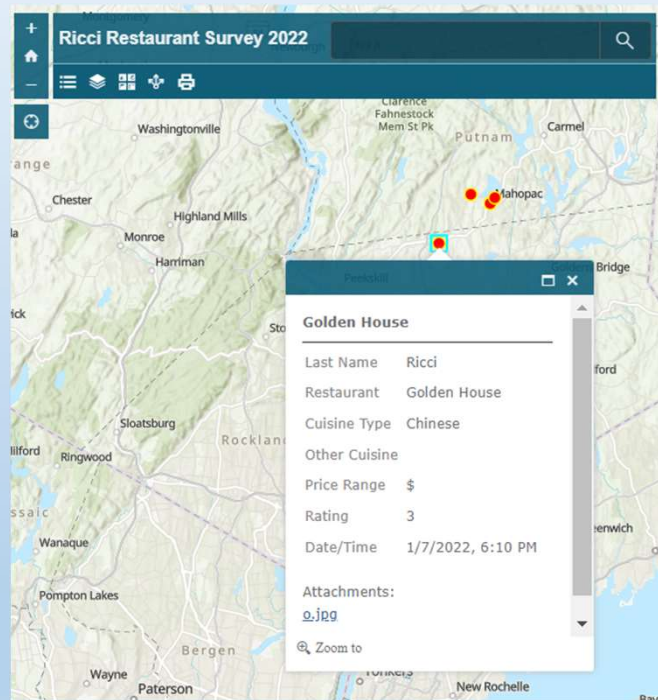
American

Indian

Chinese

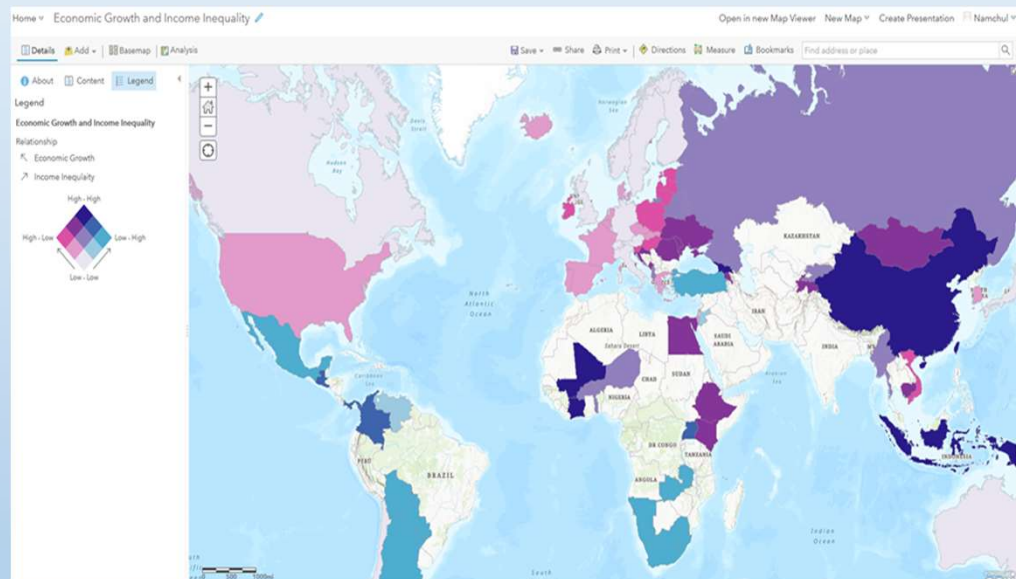
Restaurant?

3 person including tax and tip?



New and in Development

- **Spring 2022: Location Analytics (Ugrad), 7 Weeks, 2 credits, online**
 - Mapping UN SDG data using ArcGIS Online
 - Business Analyst Online
 - Building Infographics and Story Maps
 - Site Selection: understanding market opportunities
- **Spring 2022: WebGIS and Location Analytics (Grad) Online**
- Acknowledgement: Dr. Namchul Shin



Thank You

Questions??



Damien Mansell, PhD
University of Exeter



Damien Mansell

d.t.mansell@Exeter.ac.uk

BSc: Geography with Applied GIS

MSc: Geographical Information Science



@DamienMansell

Outline

E-portfolios / Story maps for skills showcase
Story Maps / OD for assessment
Field data collection / data sharing

JOURNAL OF GEOGRAPHY IN HIGHER EDUCATION
2021, VOL. 45, NO. 2, 279-297
<https://doi.org/10.1080/03098265.2020.1827375>



Student authored atlas tours (story maps) as geography assignments

Richard Treves^a, Damien Mansell^b, and Derek France ^c

^a Wolfson Institute, Queen Mary University London, London, UK ^b College of Life and Environmental Sciences, University of Exeter, Exeter, UK ^c Department of Geography and International Development, University of Chester, Chester, UK

ABSTRACT

Atlas Tours consist of collections of animated maps and other elements woven together to make a narrative, they are a commonly used format on the web. Recent developments in software platforms such as Esri Story Maps have made producing them possible by Geography students. The study uses student written feedback and focuses groups about a module where students produce an Atlas Tour as an assignment. This is used to advocate the use of student-produced Atlas Tours in Geography teaching, the main argument proposed is that Atlas Tours are an excellent format to enable students to learn and practise graphical literacy (graphicacy). Despite this educational opportunity, Atlas Tours can cause practical problems for students and suggestions are made to mitigate this issue. Two other pedagogical strands are also advocated: Students being empowered to exercise creativity in creating Atlas Tours and how Atlas Tours are particularly well suited to fieldwork assignments.

ARTICLE HISTORY

<https://www.tandfonline.com/doi/epub/10.1080/03098265.2020.1827375?needAccess=true>

E-Portfolio Story Map assessment a student example:

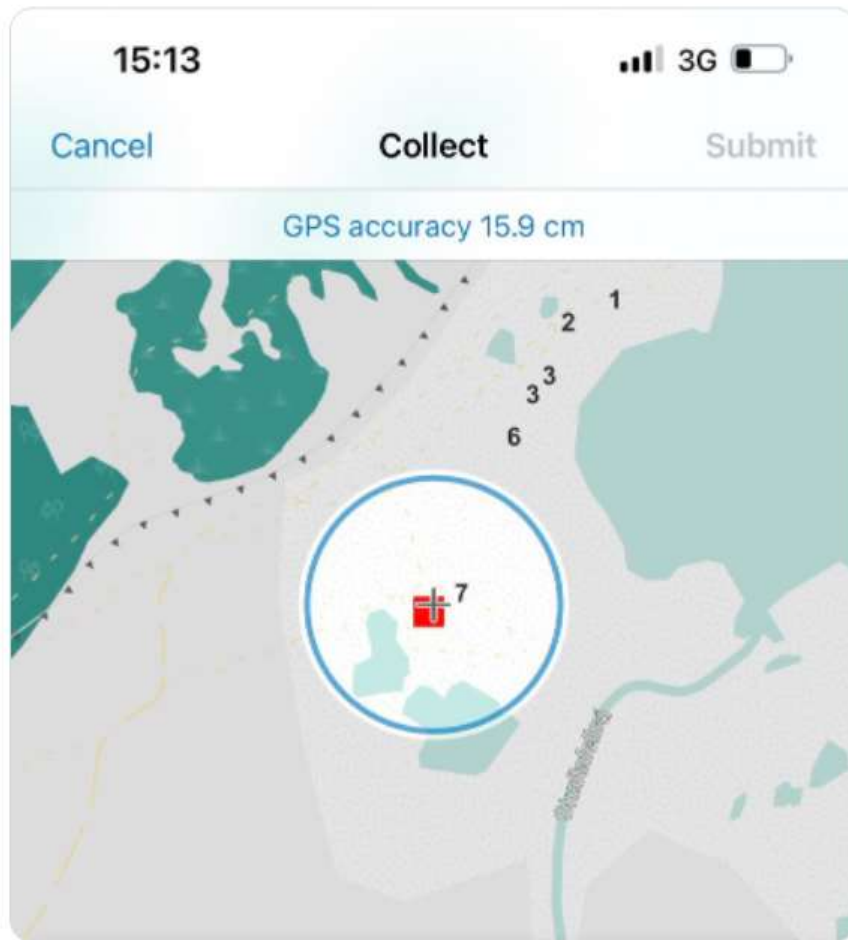
<https://arcg.is/0Oviin>



• REAL-TIMESUB-METER GNSS RECEIVER



That accuracy 📶 15.9cm. We mapped each individual rock we assessed



7:24 PM · Mar 29, 2022 from Iceland · Twitter for iPhone



Summary

- **WebGIS is great introduction to desktop GIS**
- **Does not replace desktop GIS (yet?)**
- **Allows students to showcase their skills to prospective employers**
- **Offers data collection advantages**
 - **Customised feature classes**
 - **Can be used with high precision GNSS**
 - **Geotagged photos and attachments**
- **Great way to support peer learning / group work**
- **Offers ability to include new learning objectives**
 - **Data security / sharing / ownership / authority**
 - **Web cartography**

Q & A



esri®

THE
SCIENCE
OF
WHERE®

Copyright © 2022 Esri. All rights reserved.