



GEOGRAPHIC INFORMATION SYSTEM (GIS) RESOURCES FOR GRADUATE STUDENTS



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Agenda

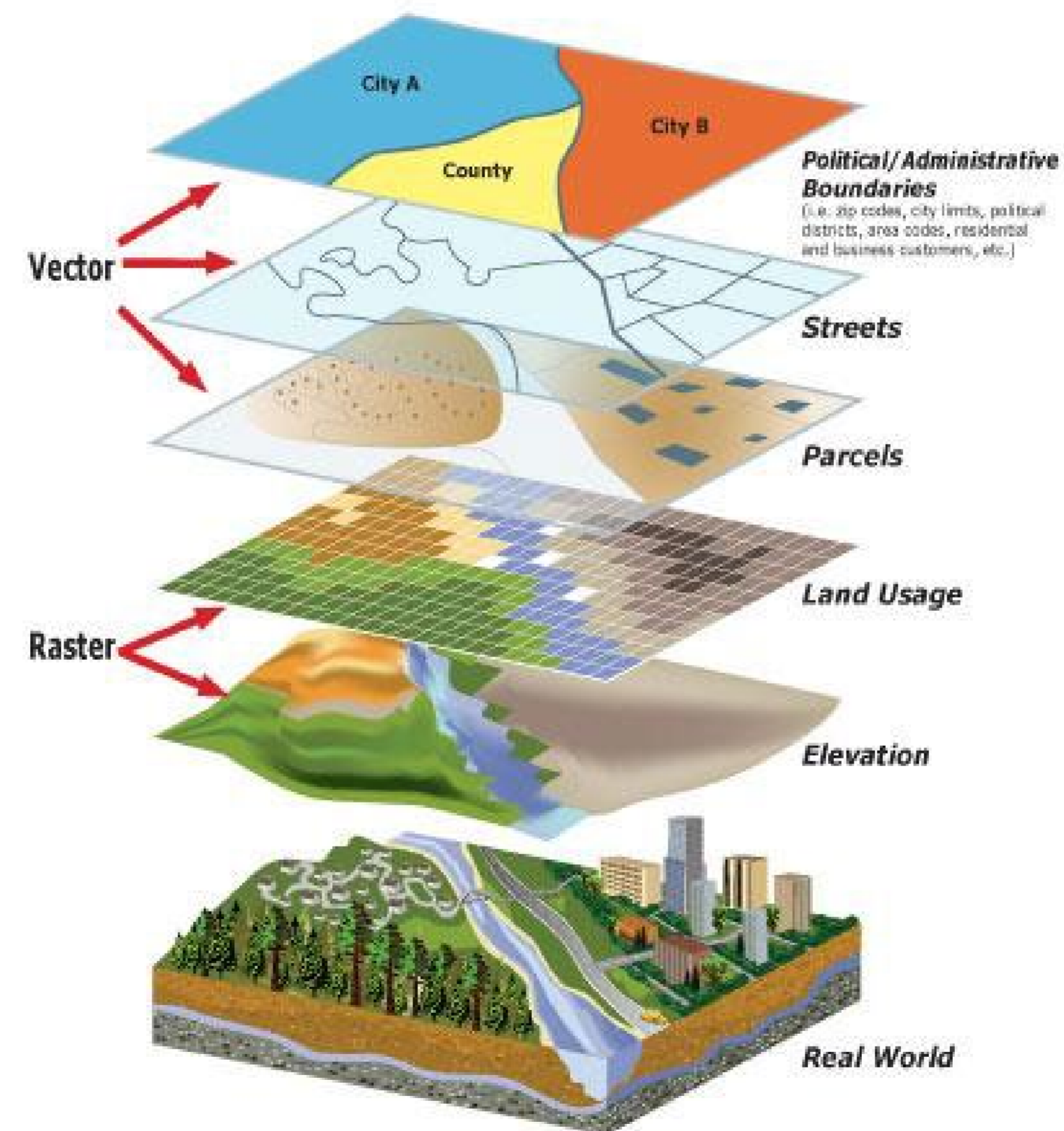
- GIS fundamentals
- GIS software
- GIS support services and learning resources
- Navigating the U of I Teaching & Scholarly Research ArcGIS Online Portal

GIS fundamentals

- GIS – geographic information systems
- Framework for gather, analyzing, managing data
- Foundations in the science of geography
- Provides a way to create, manage, visualize, analyze, and interpret geospatial data
- Can uncover information from data such as spatial relationships and patterns to enable informed decision making
- This technology plays an important role in many aspects of our lives

GIS fundamentals

- Layers



GIS fundamentals

- Two primary data models

- Vector

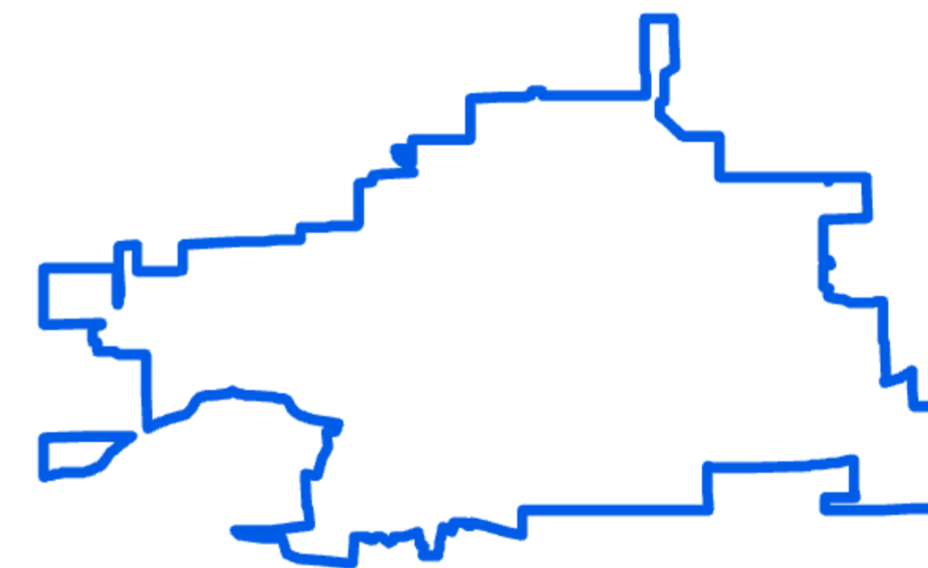
- Point



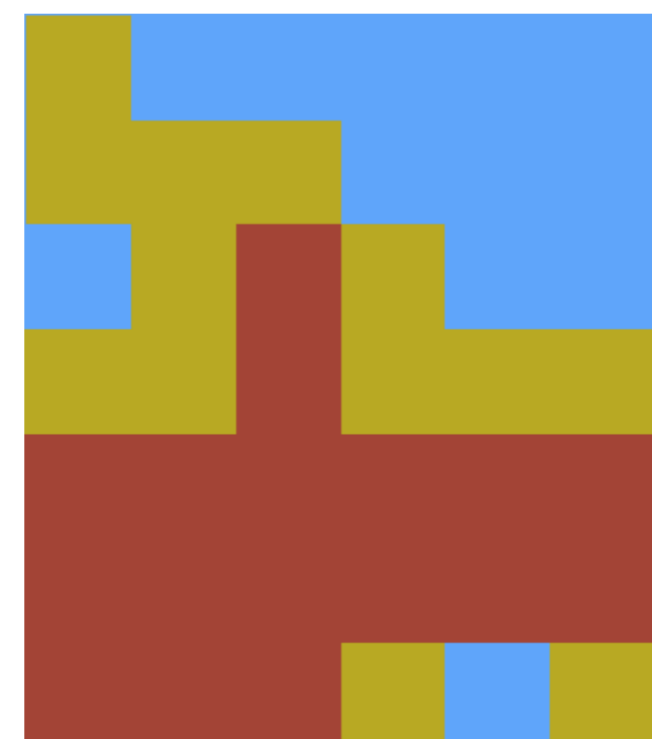
- Line



- Polygon



- Raster

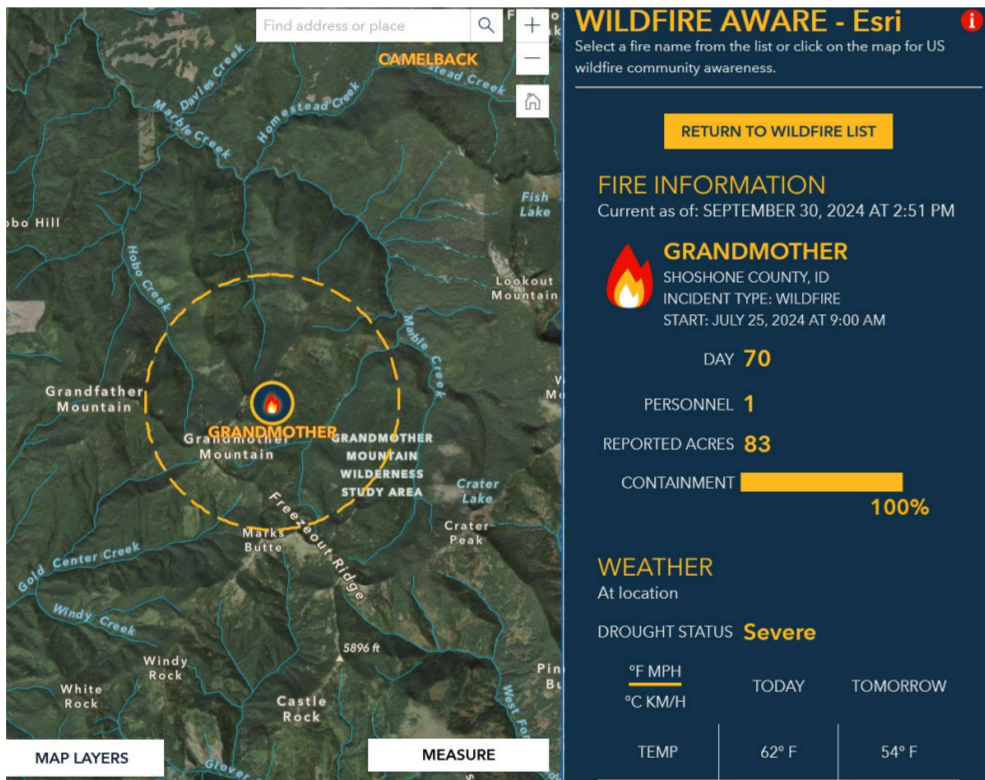


GIS fundamentals

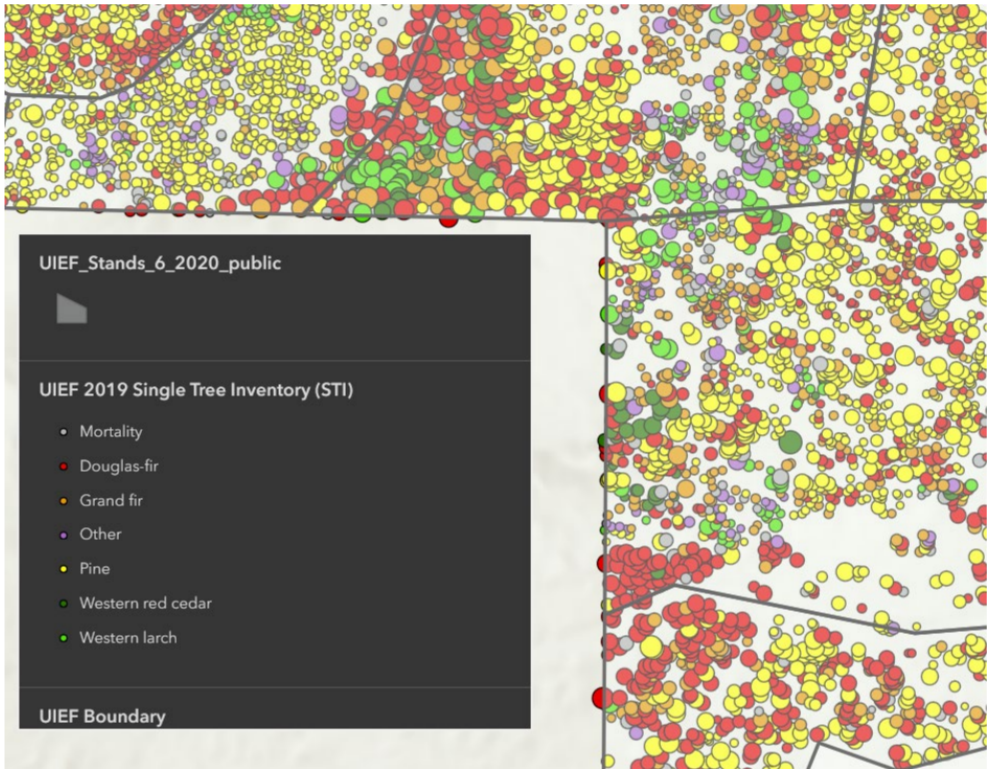
- Data file formats (download data)
 - Vector (Shapefile, GeoJSON, Esri File Geodatabase, other)
 - Raster (GeoTIFF, JPEG2000, NetCDF, other)
 - Can also import tabular (CSV, Excel, other)
- Web service formats (streaming data)
 - Vector (Feature layer, Web Feature Service (WFS), other)
 - Raster (Imagery layer, Web Coverage Service (WCS), other)

GIS fundamentals

- Uses



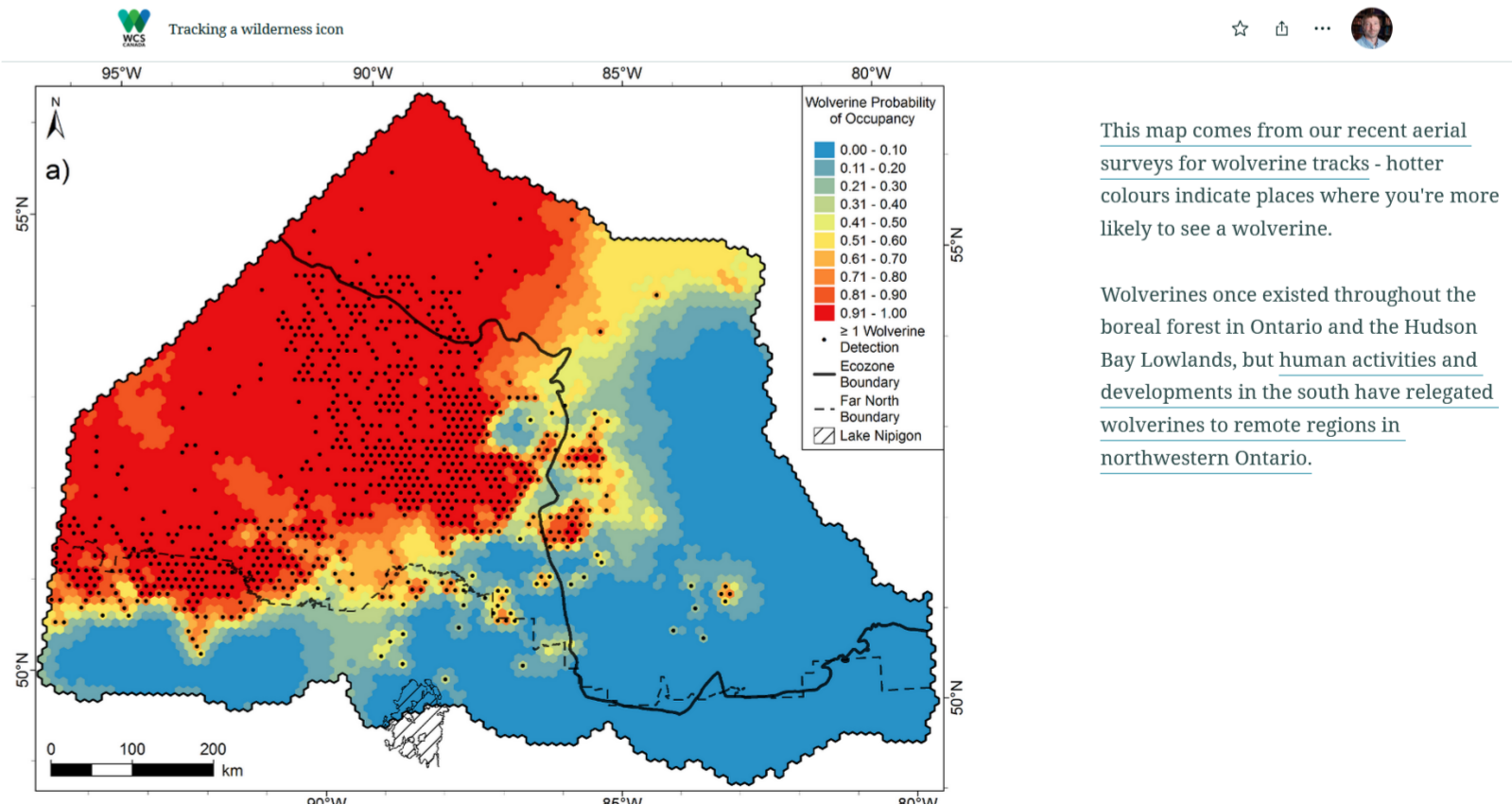
Wildfire



Forest management



Market analysis/
site selection



This map comes from our recent aerial surveys for wolverine tracks - hotter colours indicate places where you're more likely to see a wolverine.

Wolverines once existed throughout the boreal forest in Ontario and the Hudson Bay Lowlands, but human activities and developments in the south have relegated wolverines to remote regions in northwestern Ontario.

Studying wildlife

GIS software

- [University of Idaho Library | GIS Software \(uidaho.edu\)](https://uidaho.edu/library/gis-software)



Open Source GIS Tools

There are numerous desktop GIS software programs such as **QGIS**. There are also many web-based options such as **Mapbox** and **Carto**. Take a look at the **OSGeo projects** to help you find an open source technology to meet your needs.

Also, take a look at a list of **Open-Source GIS Software** put together by Syracuse University or **The History of Open Source GIS** by makepath.

Open source

Proprietary

Esri GIS Software



The University of Idaho participates in the **Education Institution License Program** with **Environmental Systems Research Institute, Inc. (Esri)**. Many products are available for teaching, research, and administrative uses; others are available only for teaching and research. Commercial use of the software is not a **permitted use** under the License.

Along with software, U of I students, faculty, and staff have access to Esri no-cost, self-paced online learning opportunities. **Sign in** using your U of I Account.

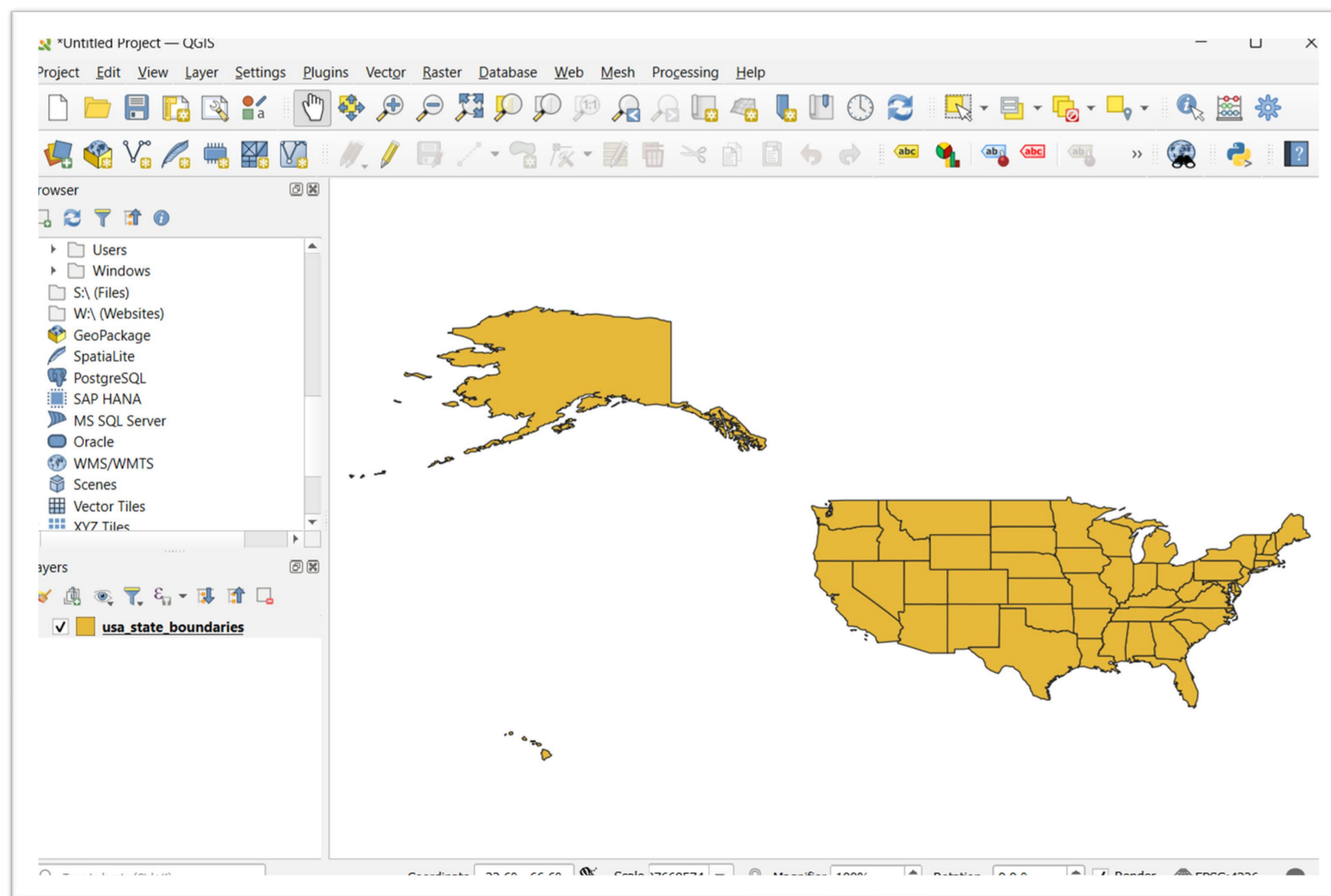
Have questions? Contact **Bruce Godfrey**, GIS Librarian.

GIS software



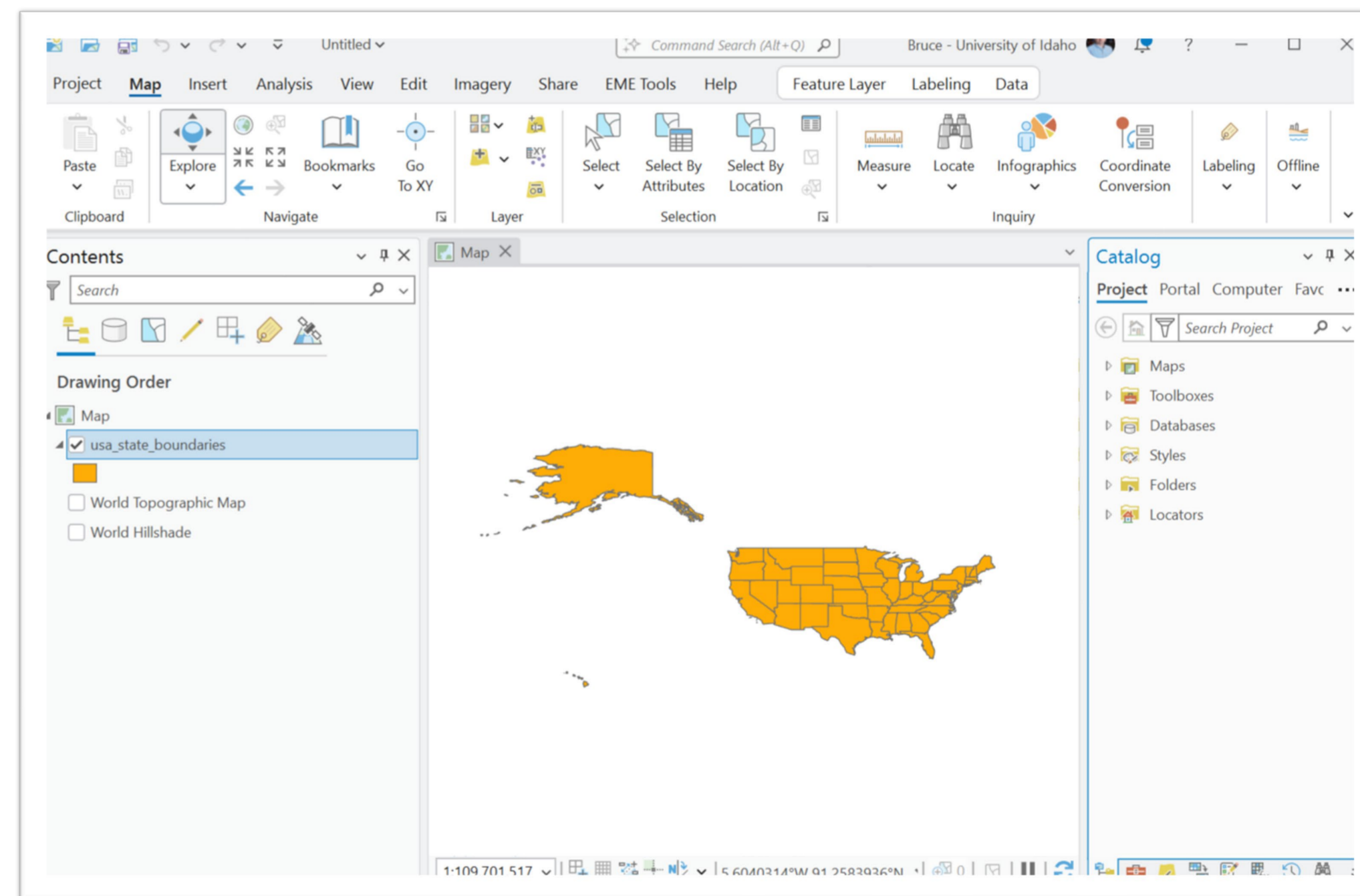
- Same downloadable file format – different desktop software

QGIS



Windows/Linux/MacOS

Esri ArcGIS Pro

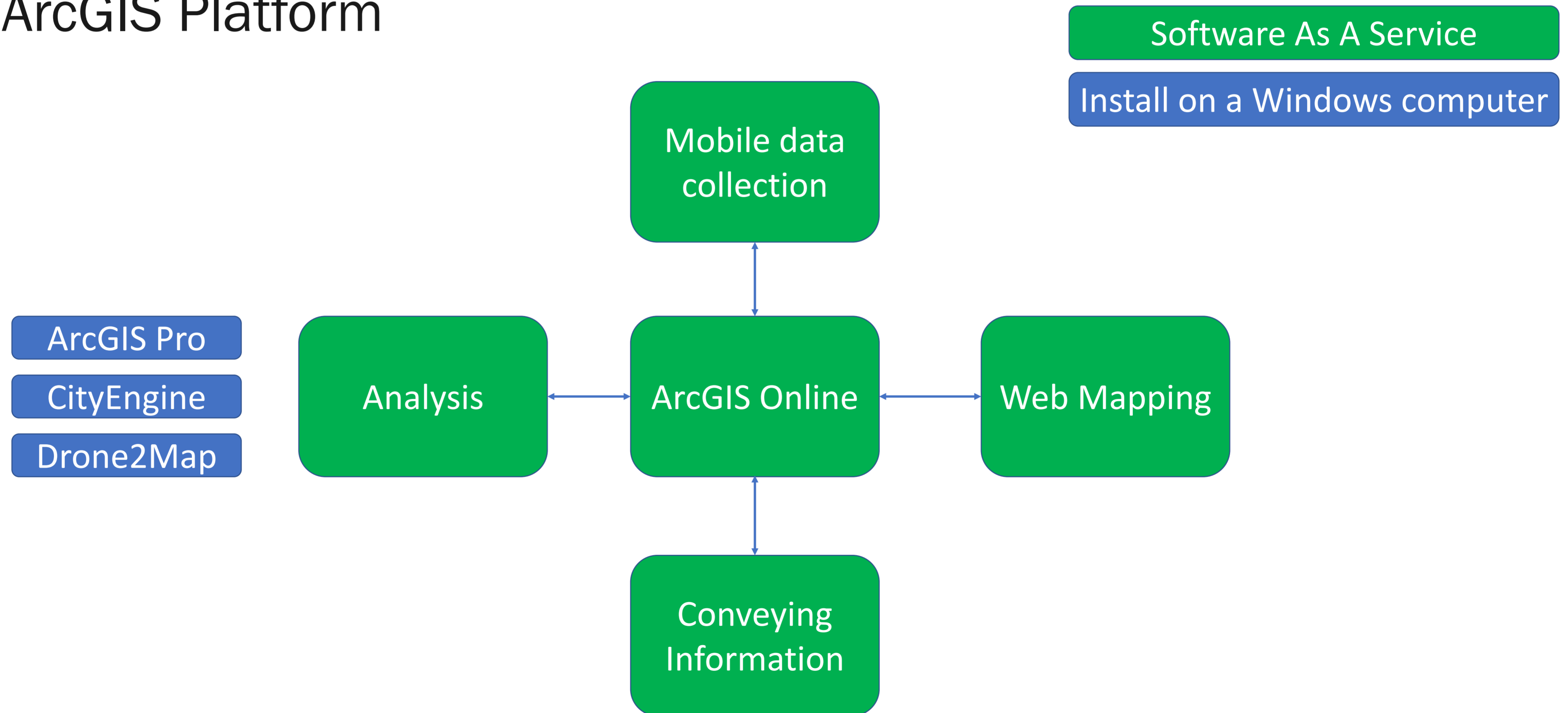


Windows

GIS software

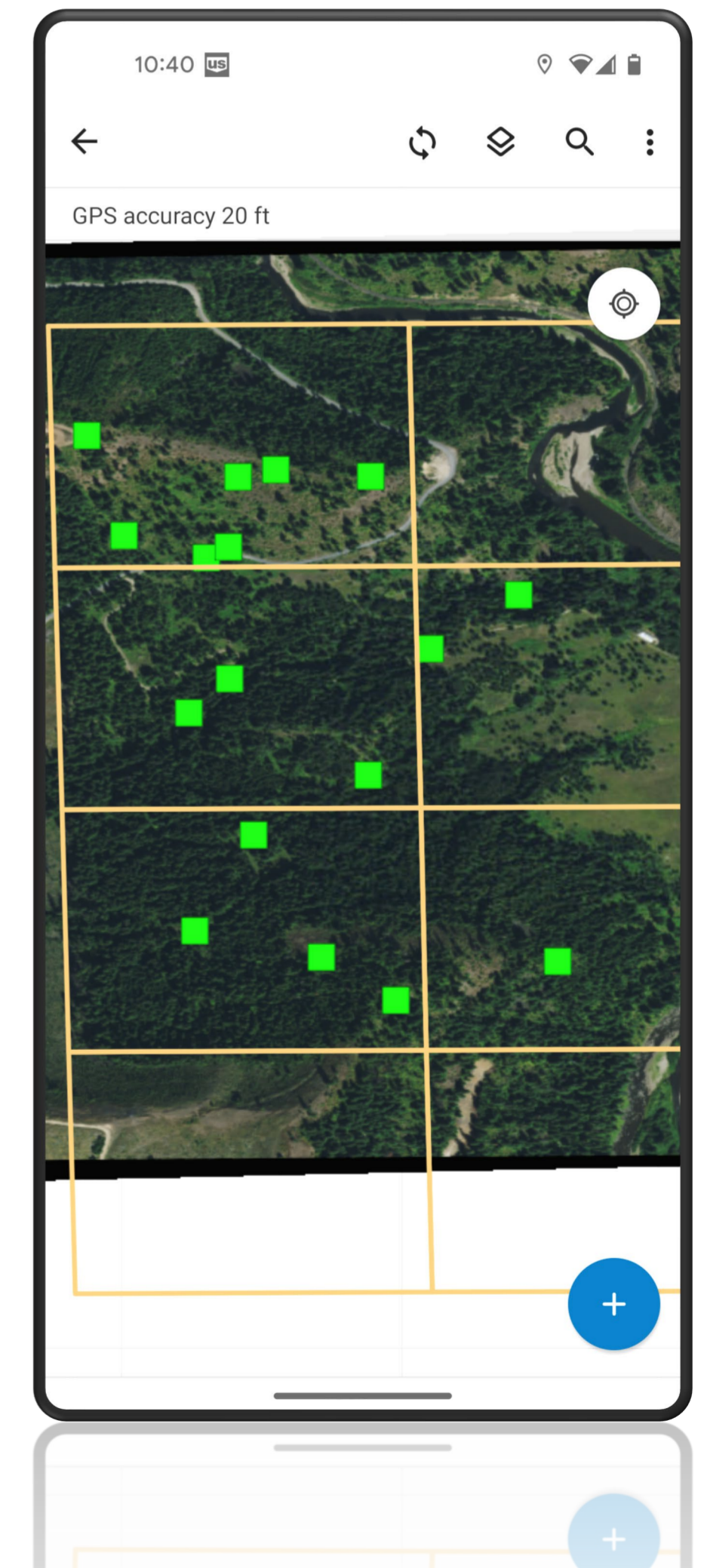


- ArcGIS Platform



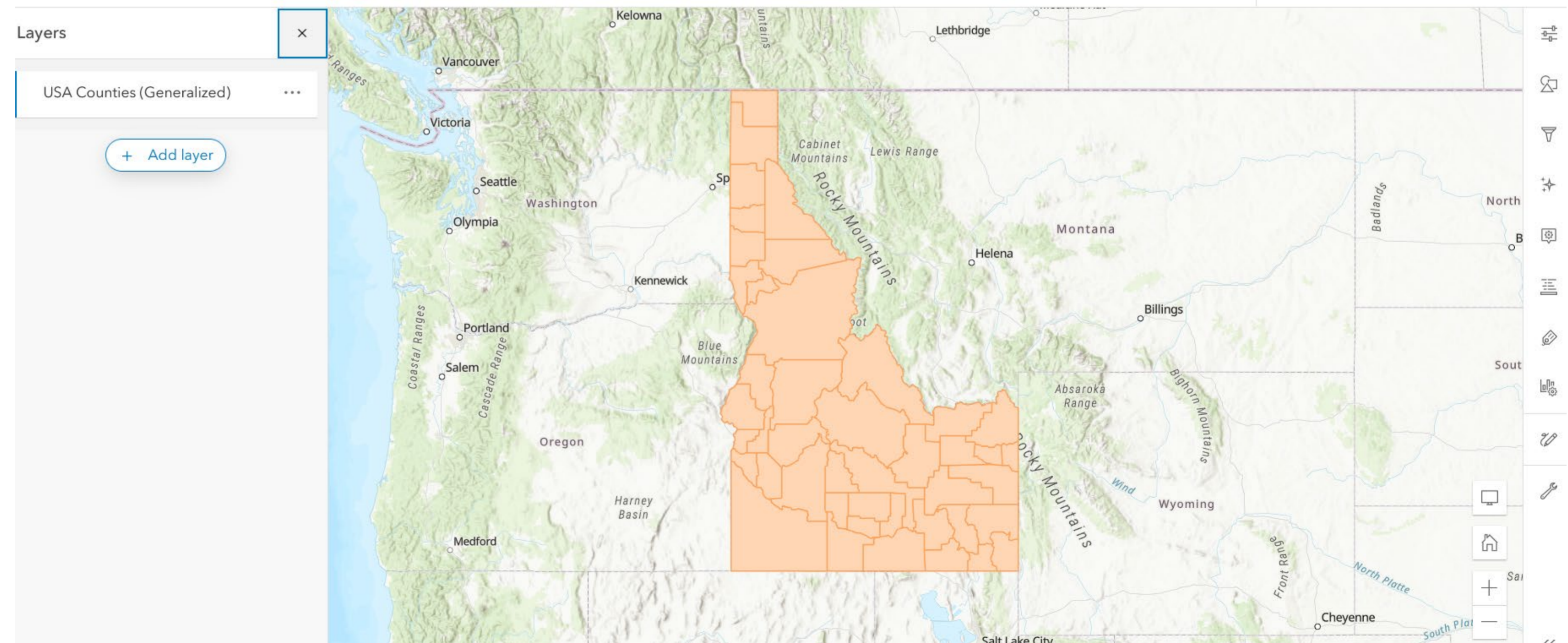
Apps for mobile data collection

- [ArcGIS Field Maps](#) - map-centric app for mobile data collection
- [ArcGIS Survey123](#) - form-centric app for collecting survey data
- [QuickCapture](#) – quickly collect field observations



Apps for web mapping

- [Scene Viewer](#) – create 3D web maps
- [Map Viewer](#) – create 2D web maps



Apps for analysis

- [ArcGIS Pro](#) – desktop GIS (Windows)
- [CityEngine](#) – desktop 3D city design software (Windows/Linux)
- [Drone2Map](#) – desktop GIS drone mapping (Windows)
- [ArcGIS Maps for Office](#) – add-in to make maps in Excel
- [Insights](#) - location analytics
- [Notebooks](#) – spatial analysis & visualization

Apps for analysis

- [Business Analyst](#) – site selection & market analysis
- [ArcGIS Urban](#) – city planning

Apps for the conveying information

- [StoryMaps](#) - digital storytelling
 - Embed text, maps, pictures, video, audio to tell a story
- [Dashboards](#) - information at-a-glance
- [Hub](#) - community engagement initiatives
- [Instant apps](#) – choose a template -> embed a web map in a web app
- [Experience Builder](#) – drag-and-drop web app building

App for developers

- [AppStudio](#) – develop apps for mobile devices
- [APIs & SDKs](#) – use Esri services in your own applications
- [ArcGIS API for Python](#) - script and automate across the ArcGIS product suite

What is ArcGIS Online?

- A cloud-based global collaborative platform hosted by Esri that allows you to use, create, manage, analyze, and share maps, apps, and data.
 - <https://arcgis.com>
 - Web GIS
 - U of I ArcGIS Online Portal for Teaching & Scholarly Research
 - <https://uidaho.maps.arcgis.com>
 - Sign in using your U of I Vandal NetID
 - Items are not backed up by the U of I

Sharing content between apps and the portal

- Example
 - Collect data in the field with Field Maps, sync those data with the portal, then access those data from Pro
 - ArcGIS Field Maps ↔ ArcGIS Online ↔ ArcGIS Pro
 - Create a map in Pro, share it as a web map in ArcGIS Online, then use that map in a story
 - ArcGIS Pro → ArcGIS Online → ArcGIS StoryMaps
 - Or Field Maps to ArcGIS Online to Story Maps

Sharing content with others

- All items are 'private' by default
- Users choose to make them available more broadly
- Groups can include members of other ArcGIS Online organizations (e. g. governmental or other academic institutions) unless it is a shared update group
- An item can have multiple editors from the same organization if it's in a group having shared update enabled

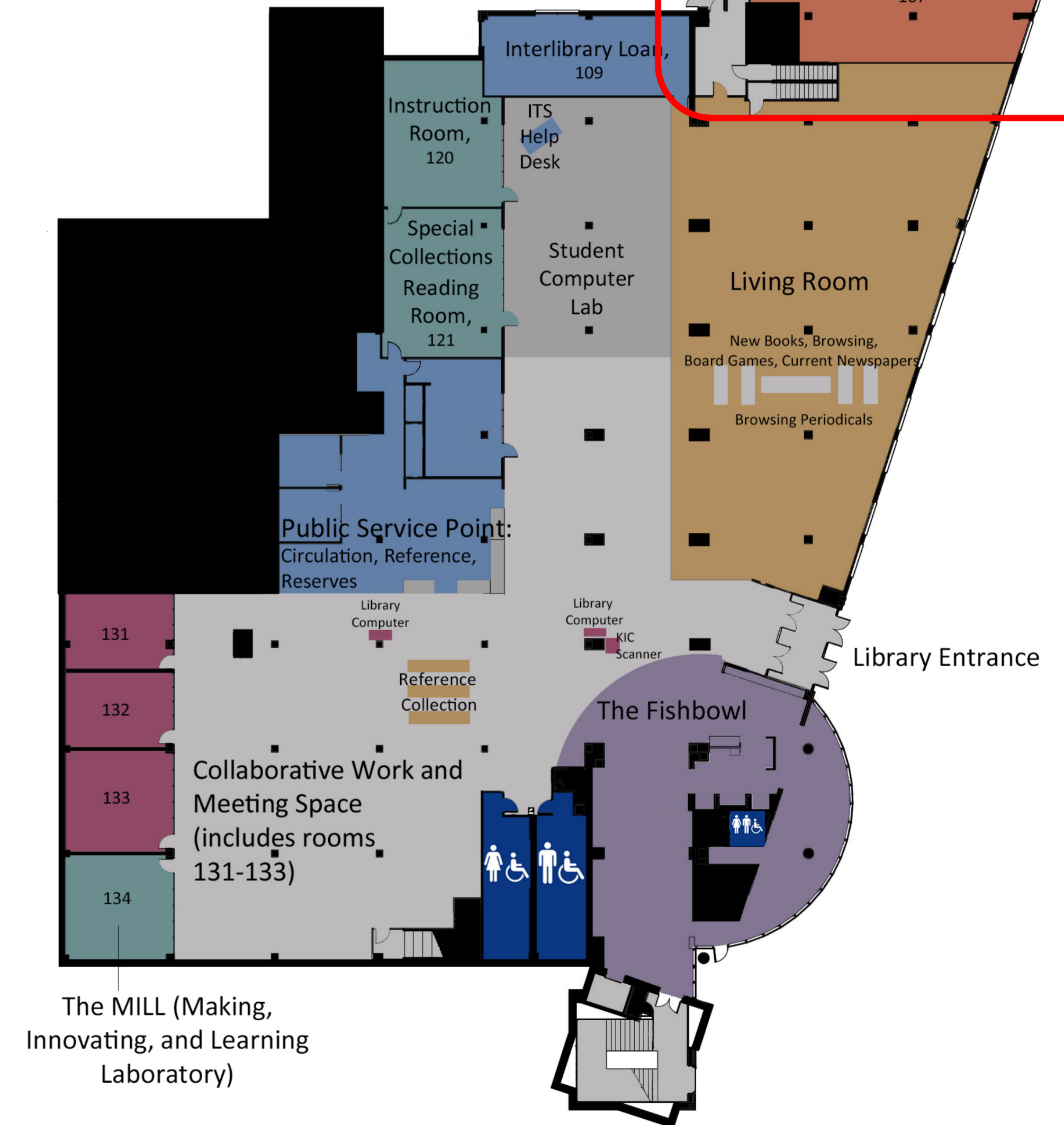


Support - Services

- [University of Idaho Library | Data Hub: Geospatial and Data Sciences Support \(uidaho.edu\)](https://uidaho.edu/library/data-hub-geospatial-and-data-sciences-support)
 - Room 107 - 1st floor of the library (NW corner)

First Floor

Reference, Computer Help Desk,
Circulation and Reserve
Group and Individual Study Areas



Support - Services

- [University of Idaho Library | Data Hub: Geospatial and Data Sciences Support \(uidaho.edu\)](https://uidaho.edu/library/data-hub)
 - Space and service point providing co-curricular and research support in the areas of geographic information systems, data sciences, data analysis and visualization, and research data management.

Map Room

The Map Room is home to the physical portion of the University of Idaho's map collection. If you have any questions about finding a map, contact the Reference Desk.

Data Hub

Located in the Map Room, the Data Hub is a space in the library, staffed by librarians and partners from around campus, to assist with mapping and GIS (geographic information systems), data sciences, quantitative analysis and visualization, and research data management.



University of Idaho
Library

Support - Services

- [University of Idaho Library | Data Hub: Geospatial and Data Sciences Support \(uidaho.edu\)](https://uidaho.edu/library/datahub)

Data Hub Semester Hours

Librarian assistance is available:

- Monday - Friday, 12pm - 3pm

Visit in the Map Room (Library 107), chat online (icon in lower right), email **lib-datahub@uidaho.edu**, or call (208) 885-7724.

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Support – Resources

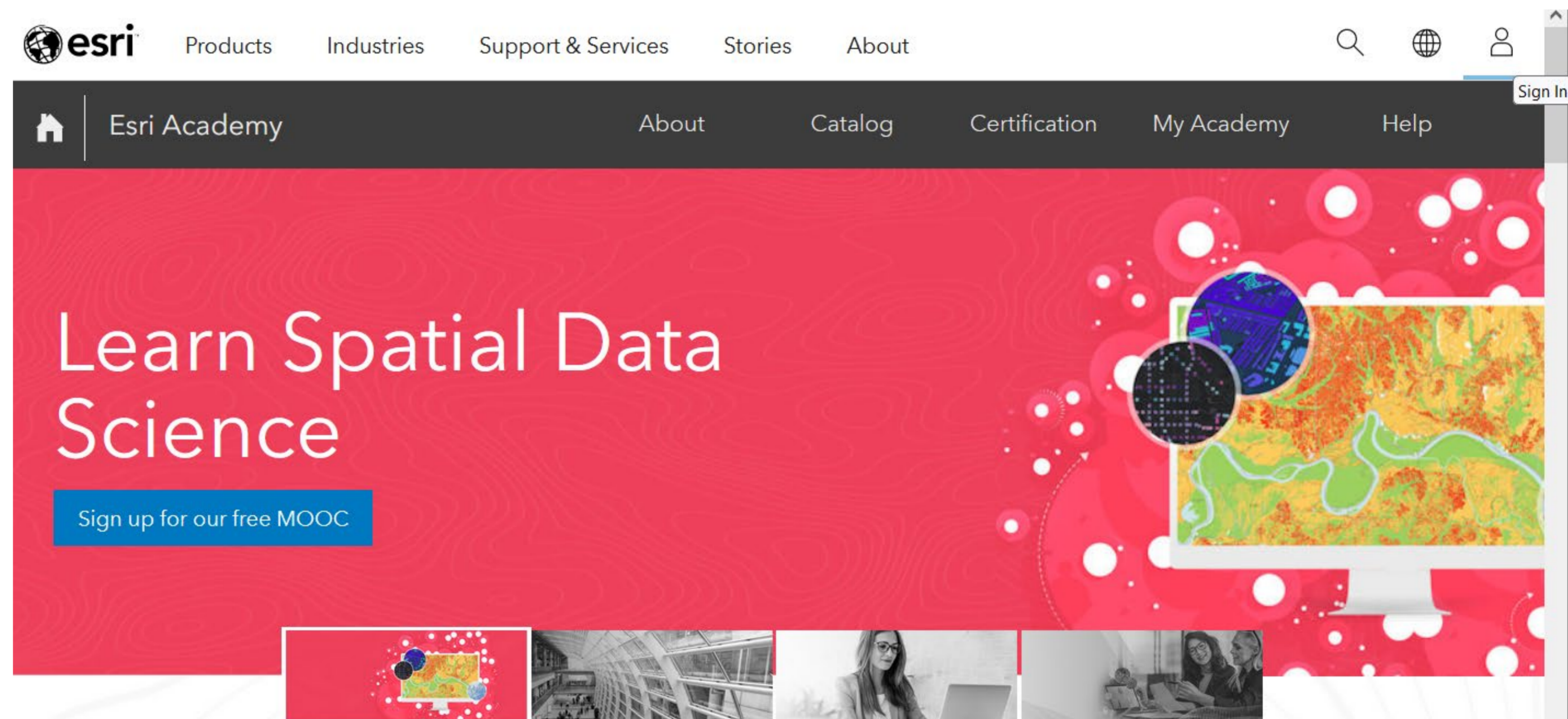
- See the ‘Resources’ button on a product web page

[Mapping Products | GIS Software Products - Esri](#)

- [ArcGIS Pro Resources | Tutorials, Documentation, Videos & More \(esri.com\)](#)
- [Learn How to Be a Storyteller | ArcGIS StoryMaps Resources, Blog, Help](#)

Support – Resources

- Esri Self-Paced E-Learning Courses (Esri Training)
Access to no-cost self-paced e-learning resources.



Search for the training you need



Support – Resources

- <https://esri.com/training>
- [Sign in](#) using your U of I Account
- Explore the course catalog

Sign in with



ArcGIS login

Your ArcGIS organization's URL

Udaho

[Enter another organization](#)

About Catalog Certification My Academy Help

Course Catalog
Explore our learning resource collection.

Courses by Schedule
View upcoming classes and online training events.

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View classes offered at Esri training centers.

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View the latest training options available and what is scheduled to be retired.

Learning Plans
Master a focused topic with one of our plans.

Cost



Prefer Custom to One Size Fits All?
Copy an Esri learning plan and add or remove courses to make it your own.

[View Learning Plans](#)

Support – Resources

- <https://esri.com/training>
- [Sign in](#) using your U of I Account
- Explore the course catalog

The screenshot displays the 'Explore Our Courses' section of the Esri Training website. At the top, a dark blue banner with a bokeh effect contains the text 'Explore Our Courses'. Below this is a search bar with the placeholder text 'Search Courses', a magnifying glass icon, and a share icon. A link for 'Search Tips' is located below the search bar. The 'Browse by Topic' section features nine topic cards, each with an icon and a title: 'Getting Started' (cloud and server icon), 'ArcGIS Products' (map and building icon), 'Data Management' (database cylinder icon), 'Mapping' (map and laptop icon), 'Spatial Analysis & Data Science' (network diagram icon), 'Field Operations' (person and smartphone icon), 'Scripting & Development' (wrench and code icon), 'Imagery & Remote Sensing' (satellite and map icon), and '3D Visualization & Analytics' (3D bar chart icon).

Explore Our Courses

Search Courses

[Search Tips](#)

Browse by Topic

- Getting Started
- ArcGIS Products
- Data Management
- Mapping
- Spatial Analysis & Data Science
- Field Operations
- Scripting & Development
- Imagery & Remote Sensing
- 3D Visualization & Analytics

Support - Services

- Esri Technical Support
 - Contact Bruce Godfrey (bgodfrey@uidaho.edu) to submit a case on your behalf

Support - Events

- [University of Idaho Library | GIS Day 2025 @ University of Idaho](#)
 - In person (ISUB) & online
 - Wednesday November 19
 - Call for lightning talk presentations coming in October

Demo

- Take a look at ArcGIS Pro & QGIS
- Navigating the U of I Teaching & Scholarly Research ArcGIS Online Portal

PREVIOUS WORKSHOPS

<https://www.lib.uidaho.edu/services/workshops/resources.html>



FALL 2025 LIBRARY WORKSHOPS

WHEN: Mondays from 1:30pm – 2:30pm

WHERE: Library Data Hub (Room 107) and live via Zoom

- **Sept. 8: Geographic Information System (GIS) Resources for Graduate Students (GSE)**
- **Sept. 15: Creating Geographic Animation Using Google Earth Studio (Tech Talk)**
- **Sept. 22: Markdown and Pandoc for Academic Writing (GSE)**
- **Sept. 29: Introduction to Citation Managers (GSE)**
- **Oct. 6: Introduction to ModelBuilder in ArcGIS Pro (Tech Talk)**
- **Oct. 13: Managing Research Data (GSE)**
- **Oct. 20: Introduction to Version Control with Git and GitHub (Tech Talk)**
- **Oct. 27: Generative-AI Capabilities and Ethics in Qualitative Research (Tech Talk)**
- **Nov. 3: Finding and Using Print and Online Government Information Resources in the U of I Library (GSE)**
- **Nov. 10: Introduction to Building Autonomous AI Agents (Tech Talk)**



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THANK YOU!