

## GIS & Mapping: Teaching & Learning Resources

The following is a list of some of the many teaching and learning resources available for self-paced education about GIS and mapping tools. These resources can be helpful in developing your own instructional content, ongoing professional development in this constantly evolving area, and making recommendations to researchers who want to build skills with these tools.

### Esri

#### ArcGIS Documentation

- Searchable directory of reference documentation for ArcGIS enterprise, desktop, and online products
- <http://doc.arcgis.com/en/>

#### Learn ArcGIS Lesson Gallery

- Guided lessons for multiple ArcGIS platforms based on real-world problems and scenarios
- <https://learn.arcgis.com/en/>

#### Esri Training Catalog

- Self-paced web courses, tutorials, and videos covering specific topics, techniques, and functions in the ArcGIS product suite. Many options are freely available, while others require a maintenance subscription. *Note: If your institution has an Esri site license and has set up your My Esri organizational account, all affiliates should also be able to access any resources requiring the maintenance subscription.*
- <https://www.esri.com/training/catalog/search/>

#### Esri MOOCs

- Free online short courses (usually six weeks) on a variety of ArcGIS topics and platforms
- <https://www.esri.com/training/mooc/>

#### Esri Press Catalog

- GIS books and tutorials, including instructional guides. Digital desk copies available for request through the VitalSource platform.
- <https://esripress.esri.com/display/index.cfm>
- <https://esripress.esri.com/offers/deskcopy/index.cfm>

#### Story Map Curriculum Portal

- Assignment templates, instructor and student guidelines, and other helpful materials to leverage Esri Story Maps as a teaching tool. Created at the University of Minnesota.
- <http://storymaps.umn.edu/>

## QGIS

### QGIS Official Training Manual

- [https://docs.qgis.org/3.4/en/docs/training\\_manual/index.html](https://docs.qgis.org/3.4/en/docs/training_manual/index.html)

### FOSS4G Academy Curriculum

- 35 university-level lectures and labs focusing on the use of free and open source GIS software (FOSS4G)
- <http://spatialquerylab.com/foss4g-academy-curriculum/>

### QGIS Map Design (2/e)

- Step-by-step introduction to using QGIS map design tools and techniques, with a focus on cartographic principles and best practices
- <https://locatepress.com/qmd2>

## Google

### Google Earth Education Resources

- Step-by-step guides and tutorials on using Google's Geo Tools, including lesson plans and other instructor resources
- [https://www.google.com/intl/en\\_us/earth/education/resources/](https://www.google.com/intl/en_us/earth/education/resources/)

### Google Earth Outreach

- Step-by-step tutorials covering specific functionality in Google Earth
- <https://www.google.com/earth/outreach/learn/>

### Teaching with Google Earth

- "A complete guide to using Google Earth in the Geoscience classroom"
- [https://serc.carleton.edu/sp/library/google\\_earth/index.html](https://serc.carleton.edu/sp/library/google_earth/index.html)

### My Maps Help

- <https://support.google.com/mymaps/?hl=en#topic=3188329>

## Tableau

### Maps and Geographic Data Analysis in Tableau

- Documentation for getting started with creating maps in Tableau
- <https://onlinehelp.tableau.com/current/pro/desktop/en-us/maps.htm>

### Training Portal

- Tableau training resources, including an 11-video series on mapping
- <https://www.tableau.com/learn/training>

## Carto

### Tutorials

- Step-by-step guides on common functions and tasks in the Carto platform
- <https://carto.com/help/tutorials/builder/>

### DIY

- Guided lessons based on real-world examples
- <https://carto.com/help/diy/builder/>

## Neatline

### Documentation

- <http://docs.neatline.org/>

### Neatline for Historical Maps Tutorial

- <http://www.kristenmapes.com/neatline/>

## Leaflet

### Leaflet Tutorials

- Step-by-step code explanations aimed at beginning to intermediate JavaScript developers
- <https://leafletjs.com/examples.html>

## Other resources

### Spatial Humanities Workshop

- Step-by-step tutorials and lesson plans on a variety of mapping topics
- <https://lincolnmullen.com/projects/spatial-workshop/>

### MIT DUSPviz Web Mapping Tutorial Series

- Workshop series on web mapping with HTML, CSS, JavaScript, and relevant APIs
- <http://duspviz.mit.edu/tutorials/#webmapping>

### Open Education Resources at Penn State University

- Open courseware covering a number of GIS and mapping topics, including geographic information analysis, cartography and visualization, open web mapping, and more
- <https://open.ems.psu.edu/courses>

### Data Carpentry

- Lessons focused on geospatial data formats and using R for analysis and visualization
- <https://datacarpentry.org/lessons/#geospatial-curriculum>