GIS Workshops

The date and time of GIS workshops (Click on the link to register for a workshop)

1. **Introduction to GIS** *(February 12 and March 6)*
   https://wass.princeton.edu/pages/viewcalendar.page.php?cal_id=843
   A Geographic Information System (GIS) combines software and digital geographic data to generate maps, tables and interactive analyses of spatial information. Princeton faculty, students and staff use GIS technology to manage resources, explore spatial relationships, and visualize change. The class, intended for those with no previous GIS experience, describes the technology and includes simple exercises to introduce its capabilities.

2. **How to Create and Collect Geographic Data** *(February 17 and March 24)*
   https://wass.princeton.edu/pages/viewcalendar.page.php?cal_id=1158
   In this class students will learn how to collect geographic data from Google maps and Google Earth, how to add GPS data to GIS software, and how to georeference a scanned map. The exercise will also show how to extract points, lines, and areas from the georeferenced map.

3. **Vector Analysis in GIS** *(February 18 and March 25)*
   https://wass.princeton.edu/pages/viewcalendar.page.php?cal_id=839
   ArcGIS 10.2 has a powerful set of software tools to visually explore and analyze spatial information. Vector GIS data includes point, line and polygon features, which can be selected by proximity or by attributes features have in common. Intended for students who have taken the previous class or have explored GIS software casually, this class will provide hands-on examples of the most common vector analytical tasks in GIS

4. **Raster Analysis in GIS** *(February 19 and March 26)*
   https://wass.princeton.edu/pages/viewcalendar.page.php?cal_id=851
   GIS raster datasets are geographic phenomena stored as grid cells or as images. Each cell or pixel contains information that can be modified to generate new raster data. ArcGIS 10.2 has many tools to manage and manipulate raster data information. Intended for students who have taken the class on vector analysis or have explored GIS software in some detail, this class will give hands- on examples of various raster analysis tools.

5. **Supervised Image Classification using ArcGIS** *(February 25 and March 27)*
   https://wass.princeton.edu/pages/viewcalendar.page.php?cal_id=2377
   ArcGIS 10.2 has many tools to classify satellite images and air photos into land use and land cover categories. This session will introduce the Image Analysis window and the Image Classification toolbar, and work with Landsat images of New Jersey to conduct a supervised land use/land cover classification.

6. **Using Tables and Maps together in ArcGIS** *(February 26 and March 31)*
   https://wass.princeton.edu/pages/viewcalendar.page.php?cal_id=853
   ArcGIS 10.2 has many different ways to access data sets, display them in a map, and analyze relationships over time and space. US Census data can be integrated with GIS boundary files to analyze the spatial relationships of poverty, ethnicity, environmental risk, and other parameters. Hands-on examples will show how to find and download demographic data, how to combine the data with GIS files, and how to view the data in ArcMap. The session will assist any GIS user who wants to include tabular data in an spatial analysis.

7. **Making Maps and Presentations using ArcMap in ArcGIS** *(February 27 and April 1)*
   https://wass.princeton.edu/pages/viewcalendar.page.php?cal_id=854
   Maps can be extremely effective in communicating knowledge about an area. ArcGIS ArcMap has a variety of tools and techniques to design maps. Hands-on exercises will show how to use map-making tools within the software, and introduce common cartographic techniques. The session will discuss how to design maps for a variety of presentation formats.

8. **Introduction to QGIS** *(March 7 and April 2)*

   https://wass.princeton.edu/pages/viewcalendar.page.php?cal_id=1857

   QGIS is an open-source GIS desktop software package. It has many features found in other desktop GIS software, runs on Linux/Unix, MacOS and Windows operating systems, and is available at no cost. Intended for anyone new to GIS technology, this training uses QGIS 2.0.1 on Windows to show how to load geospatial data, add on-line map services, extract selected data, and make simple maps. The training may also be useful to users of other desktop GIS software.

9. **Essential GIS tools for research** *(March 4 and April 3)*

   https://wass.princeton.edu/pages/viewcalendar.page.php?cal_id=2376

   In this class students will learn how to use GIS tools to calculate distances between two features, road and river lengths within administrative units, the percentage of shared boundaries between two areas, extract information on polygon neighbors between two areas, and will explore many other analysis tools.

10. **Using ModelBuilder and Python scripts in ArcGIS** *(March 5)*

    https://wass.princeton.edu/pages/viewcalendar.page.php?cal_id=1159

    GIS users often want to run a process multiple times, changing the inputs, parameters or summaries generated. ArcGIS has many ways to help users automate processes. The exercises show users how to use graphic tools in ModelBuilder, how to run models iteratively, and how to export models to Python scripts.

The classes will be held in the Lewis Library Electronic Classroom 225 from 1:30 to 3:00 p.m.