



Welcome to the College of Forestry at OSU! Many graduate students find that geographic information systems (GIS) and remote sensing (RS) become a significant part of their course of study while at OSU. In the past, students have sometimes had difficulty finding resources (training, consultation, data, etc.) associated with GIS/RS. We hope that this short introduction to resources available across the college and at OSU will help you direct you during your time here. This handout can also be accessed through the SDMG website at <http://sdmg.forestry.oregonstate.edu/gisrs-graduate-student-handout>.

### Who we are

The Spatial Data Management Group (SDMG) is a loosely organized group of researchers distributed across the College of Forestry (COF), the College of Earth, Oceanic, and Atmospheric Sciences (CEOAS), and federal agencies (USGS, USFS, EPA) who specialize in geographic information science and its application to other disciplines. Most of us have no formal teaching or advising roles, but often help graduate students with spatial analysis and data management. We are sometimes “hard to find” as we’re typically either employed by federal agencies or on grant-funded research projects. However, when we’re available, we enjoy helping graduate and undergraduate students with their projects. The best way to contact us is through the Forestry GIS listserv at [forgis@cof.orst.edu](mailto:forgis@cof.orst.edu). You can subscribe to this list by sending an email to [majordomo@cof.orst.edu](mailto:majordomo@cof.orst.edu) with “subscribe forgis” (without quotes)

in the body of the message. Once subscribed, you will be able to post messages to the group. We also host a monthly meeting that anyone is welcome to attend and that we announce on COF Today. Finally, the COF helpdesk maintains a list of SDMG members and our areas of expertise if you would like to contact one of us directly.

### Software

The most prevalent GIS software on campus is Esri’s ArcGIS. ArcGIS is a suite of desktop programs including ArcMap (cartography, spatial editing, and geovisualization), ArcCatalog (data management and metadata), ArcToolbox (spatial analysis), and ArcGlobe/ArcScene (3-D visualization and analysis). OSU has a site license for ArcGIS and it is installed in all COF computer labs as well as many computer labs across campus<sup>1</sup>. Many of the courses at OSU use the ArcGIS suite of tools in teaching GIS.

Esri also offers ArcGIS Online which is an online, collaborative web GIS platform for creating and sharing geographic content. Recently, a new desktop program called ArcGIS Pro has become available to OSU students which is geared toward more advanced use of GIS tools (please contact [matt.gregory@oregonstate.edu](mailto:matt.gregory@oregonstate.edu) if you are interested in using ArcGIS Online or ArcGIS Pro for your research). ArcGIS Pro is not installed in COF computer labs.

For remote sensing applications, most students use ENVI + IDL which is installed in COF computer labs.

ArcGIS, ArcGIS Pro, and ENVI+IDL are available for installation on OSU owned computers through the COF Helpdesk.

There are also many free and open-source software packages that are used by researchers across campus, although these typically require a bit more training and/or programming experience. These include QGIS (desktop GIS much like ArcGIS), Fusion (lidar processing), Google Earth Engine (planetary-scale platform for data and analysis), and GDAL/OGR (programming library for raster and vector data formats). Most GIS analysts use programming languages in their workflows and the most popular of these are Python, R, and Javascript. Helpdesk will be able to connect you with researchers to help get you started if you are interested in using these tools.

### Coursework and other training

There are a number of courses available to graduate students across a range of subjects associated with geospatial science. We have listed a subset of these courses on the SDMG website (<http://sdmg.forestry.oregonstate.edu/gisrs-graduate-level->

<sup>1</sup> Currently, computer labs across campus have different versions of ArcGIS installed. If you will be working on ArcMap documents (\*.mxd files) and plan to work in many different labs, it is advisable to save these documents using the earlier version (currently 10.3.1) as these documents are not backwards-compatible.

[courses-2016-2017](#)). Please note that these courses are subject to change and may have prerequisites, so it's always good to check with professors before registering for these courses.

All students, faculty and staff at OSU have free access to a number of web-based courses offered through Esri, a major provider of GIS software known for its ArcGIS products. You will first need to create an Esri account (<https://accounts.esri.com/signup>) and then contact one of the below OSU training administrators to link your Esri account with training resources. Once authorized, you'll have access to over 100 self-paced training modules.

- Matt Gregory, COF, [matt.gregory@oregonstate.edu](mailto:matt.gregory@oregonstate.edu)
- Cory Langhoff, CEOAS, [langhofc@oregonstate.edu](mailto:langhofc@oregonstate.edu)

There are also workshops occasionally offered in COF that explore software related to GIS/RS (<http://helpdesk.forestry.oregonstate.edu/training>). If you would like to propose specific workshop topics associated with GIS/RS, please contact Jerry Mohr ([jerry.mohr@oregonstate.edu](mailto:jerry.mohr@oregonstate.edu)). Jerry will work with SDMG to identify a trainer and will work with them to schedule times and lab space based on interest.

Many of us in SDMG rely on Google to find help when we're stuck on a question or programming problem. One of the best sites we've found is the GIS section of Stack Exchange (<http://gis.stackexchange.com/>) where you can post a GIS question or find that your question has already been answered. For Esri specific questions, GeoNet is a similar forum (<https://geonet.esri.com/>).

### **Geospatial data**

A great resource for Oregon geospatial data is the Oregon Explorer project (<http://oregonexplorer.info/>). The project hosts many different types of data particularly relevant for natural resource applications. Data is available for download through a web interface. For those students who will be working with lidar data, the College of Civil Engineering hosts a large collection of data available at [\\lidar.engr.oregonstate.edu\lids](http://lidar.engr.oregonstate.edu/lids) on the OSU computer network, which should be copied to the user's machine rather than streamed directly from their servers.

Esri also hosts many useful basemaps for use in ArcMap. Basemaps include aerial imagery, street maps, terrain data and topographic maps. In ArcMap, click the arrow next to the Add Data button (📌) and choose "Add Basemap". From this same location, you are also about to add geospatial data from the ArcGIS Online community to your ArcMap document by choosing the "Add Data from ArcGIS Online" option. Esri hosts many useful natural resource, demographic and cartographic reference datasets through ArcGIS Online.

If none of these resources are helpful in locating your data, try posting a message to the Forestry GIS listserv ([forgis@cof.orst.edu](mailto:forgis@cof.orst.edu)) and we should be able to help direct you.

### **Individual consulting**

Graduate students will often have questions that go beyond the basics of learning software or finding data. In those instances, talking through your analysis with someone from SDMG can be helpful. We are available to consult with students, but we ask that you demonstrate that you've spent time looking for a solution to your problem and are willing to collaboratively work on a solution. Many times this is a quick consultation session, but if the consultation becomes a large portion of your research, the student and GIS/RS analyst should agree upon issues such as co-authorship from resulting products. As noted above, COF helpdesk maintains a list of SDMG members and their specialties – they will connect you with one or more researchers that should be able to help answer your questions.

### **Questions / comments?**

While we hope this document helps to familiarize you with some of the GIS/RS resources available to you, we recognize that this is just one more piece of information that you'll receive as you begin your time here. If there are better or different ways that we can communicate with you, we welcome your suggestions to improve this information and keep it up to date. To that end, please email comments or questions to the listserv ([forgis@cof.orst.edu](mailto:forgis@cof.orst.edu)) and we'll do our best to make those changes.