Overview

ESM 267 comprises intensive lab sessions focused on advanced GIS tools and techniques, with an emphasis on using open-source tools and scripting languages to ingest and manage real-world data, orchestrate complex analyses, and communicate spatial information.

The course assumes a level of GIS experience equivalent to successful completion of ESM 263—if, for example, you don't know the difference between a geodatabase and a shapefile, or if you've never implemented a multi-step analysis in ModelBuilder, then you probably aren't prepared for this course. Previous programming experience is helpful, but not required. (If you've taken ESM 206; you're fine.)

The course is divided into 3 broad topic areas:

- scripting ArcGIS with Python
- open-source GIS
- online interactive maps

There are no physical textbooks for the class—all readings will be online, linked to the relevant topics.

Each topic area will have an assignment, which will be submitted via GauchoSpace—**all** other course information will be found on the course website.

Administrivia

- **Venue:** Fridays 09:00–11:30 in Bren 3035 (the GIS Lab)
- **Instructor:** James Frew
  - office hours by appointment, or just drop by Bren 4524
    - I often leave the door closed when I'm in my office—it's OK to knock!

Syllabus

week	date	topics
1	Sep 28	workspace setup

		iterative ArcGIS models
2	Oct 05	scripting ArcGIS with Python
3	Oct 12	scripting ArcGIS with Python (cont'd) Python references
4	Oct 19	open-source GIS: GDAL and OGR command-line GIS references
5	Oct 26	
6	Nov 02	• open-source GIS: QGIS
7	Nov 09	
8	Nov 16	• Interactive Web Mapping: Overview (slides)
HOLIDAY	Nov 23	• MassGIS Geospatial Web Mapping Services
9	Nov 30	• qgis2web
10	Dec 07	(overflow or bonus topics)

The syllabus is a work-in-progress—watch for topics to become live links, and/or to move backward/forward in time, depending on how long it takes us to get through them.

Assignments

1. Global wind power potential
   - ○ solution

2. Satellite data subsetting
   - ○ solution

3. Interactive web map