Geospatial Data Science Applications

Course summary:
This course introduces students to emerging geospatial data science methods for addressing important environmental challenges in the western USA. The course will be taught as a series of short lectures and longer computer labs in which students will learn how to use Python to process (e.g. resampling, manipulating, interpolating), analyze (e.g. machine learning), and visualize (e.g. plotting, mapping) geospatial data. Students will apply these newly developed skills to real world applications (e.g. water management, renewable energy, agriculture, hazards, and climate change). In doing so, students will become familiar with a variety of data sources including those derived from satellite remote sensing, climate models, weather stations, census bureau, crowdsourced maps, and GPS. The course will be best suited for students who already have some programming (e.g. CIS 122) and GIS (e.g. 481) experience. The skills developed during this course will be directly applicable to a career in (geospatial) data science.

Labs include:
- Public service redistricting
- Wildfire smoke/air quality
- Land-use change
- Flood risk mapping