

Geo 577

Algorithms for Geographic Information Science

Spring Term 2015

Monday and Wednesday, 10:00 – 11:50

This course teaches essential methods, algorithms, and data models for building geospatial software. Students are introduced to raster and vector data models and algorithms for the manipulation and visualization of geospatial data. The first part of this course introduces students to the Java programming language and concepts of object-oriented programming with a focus on geographic data. In the second part of this course, algorithms for modeling, analyzing and visualizing geographic information are discussed and programmed, such as terrain coloring and shading, spatial interpolation for heat maps, raster filter operations, object oriented modeling of points, lines and polygons, space partitioning, or clustering. During the third part of this course, students work on individual projects, applying the concepts of object-oriented programming and the Java programming language to develop software and algorithms preferably related to their thesis research.

Students completing this course will be able to:

- Describe models and algorithms for geospatial vector and raster data.
- Understand object-oriented programming principles and tools. Know the features of the Java programming language, and apply Java for the development of algorithms for geospatial data.
- Analyze geospatial software problems, and apply programming methods to solve these problems.
- Evaluate, combine and adapt existing algorithms to solve problems involving geospatial data.

Contact Bernie Jenny at jennyb@geo.oregonstate.edu for more information or see <http://cartography.oregonstate.edu/teaching.html>.