

Course Title: Advanced Geographic Information Systems

Course Number: CP6521

Term: Fall 2008

Instructor: Dr. Jiawen Yang

Seats: 25

Course Description:

This course covers topics related to a set of advanced techniques and applications of Geographic Information Systems (GIS). The lectures discuss both conceptual and technical issues in GIS, including object-based vector models, automated data-processing and programming, structured query language, georeferencing, spatial interpolation, spatial measurement and pattern analysis, network analysis, mobile GIS, and open GIS. The practical component, including 14 lab assignments and a student project, will give students hands-on experience in using popular GIS software packages to handle geo-spatial information and to solve relevant problems using advanced GIS techniques.

Textbooks/Readings:

Textbook: Chang, Kang-Tsung, 2008, **Introduction to Geographic Information Systems**, 4th edition, McGraw-Hill

Supplemental: Mitchell, Andy, 2005, **The ESRI Guide to GIS Analysis, Spatial Measurements & Statistics**, ESRI Press: Redland California

Website teaching Structured Query Language: www.w3schools.com/sql/default.asp

Other readings will be distributed in the course website.

Course Requirements:

Prerequisites: CP6514 (Introduction to GIS) or instructor's approval

Class sessions: Class meets three hours each week. For a typical three hour session, the first 1.5 hours are used for a conceptual discussion of data models, data processing or modeling. The second 90 minutes are mainly used for computer exercises. Lab instruction will offer self-paced learning, complemented by instructor's in-lab assistance.

Lab assignments: All students are expected to fulfill all the requirements of lab exercises. Although students will be able to complete some of the lab exercises during class time, they may have to spend time outside class.

Student projects: Students are expected to develop their own projects, either individually or in a group. Project presentation will happen in the final session of the class. Project report should be handed in by the end of the examination week.

