

Statistics 6530: Introduction to Spatial Statistics - Spring Semester 2015

Instructor

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Course Description

This course provides an introduction to spatial statistics, with an emphasis on methods, applications, and computation. Among the topics considered are visualization of spatial data, spatial covariance functions, prediction/kriging, spatial (simultaneous and conditional) autoregressive models, intensity functions, and K functions.

Prerequisites

Stat 6450 (645), 6950, or Geog 883.02, or permission of instructor. Not open to students with credit for 8530 (829) or 631. Students who do not have the prerequisites or do not have permission from the instructor are not permitted to enroll in the course.

Carmen

The class schedule, important announcements, lecture notes, homework problems and solutions, and other information about the course will be posted on Carmen (<http://www.carmen.osu.edu>).

Lectures TTh 10:20-11:15am in 369 Dreese Laboratory

Lecture notes will be posted on Carmen before class. Please read the sections of the textbook that will be covered, and print out a copy of the lecture notes before each class. There may be parts of the notes that you should fill in during lecture, and you may need to take separate notes on examples that are not in the lecture notes. Unless instructed otherwise, you are responsible for all of the material in the sections of the book that are covered in lecture even if some of the material in the book section is not covered in class. If you are unsure if you are responsible for a particular topic, be sure to ask the instructor.

Required Textbook

Waller, L.A. and Gotway, C.A. *Applied Spatial Statistics for Public Health Data*. Wiley, 2004.

Supplement Textbook

Bivand, R.S., Pebesma, E.J., and Gómez-Rubio, V. *Applied Spatial Statistics with R*. Springer, 2008.

*The ebook version of the textbook can be assessed for free through the OSU Library.

Midterm

There will be an in-class midterm (tentatively) given on Thursday, March 5th.

Project

There will be a final project, which will involve a project proposal and an in-class presentation. A detailed

description of the requirements for the project proposal will be distributed in class and on Carmen.

Homework Assignments

There will be six homework assignments for the course. You are encouraged to work together on the problems, but each student must hand in his or her own work. DO NOT COPY any part of another student's homework including computer output.

Solutions to the homework problems will be posted on Carmen. Late homework assignments will be accepted until the solutions have been posted on Carmen. Once the solutions have been posted, late homework will not be accepted. If you are unable to come to class the day a homework assignment is due, please contact the instructor. Re-grade requests on the homework problems must be submitted in writing to the course grader within one week of the day homeworks are returned.

Attendance

Regular attendance and class participation is required. Please let the instructor know by email if you will miss any lectures.

Grading

The following is a breakdown of your final course grade:

Participation 5% Midterm 25% Project 40% Homework 30%

Final course grades may be curved if necessary.

Computing

We will be using the R statistical computing package. No prior knowledge of R is necessary, although previous experience may be helpful. R is available in the Department of Statistics computing laboratory and to download for free. Links to the website where R can be downloaded and reference manuals are available on Carmen. Most homework assignments will require some computing. Please cut and paste your computer output and graphs into your homework solutions or provide them in a clearly referenced appendix.

Special Accommodations

If you need any accommodations based on the impact of a documented disability contact the instructor privately to discuss your specific needs. You should also contact the Office of Disability Services to coordinate special accommodations.

Academic Misconduct

Academic misconduct *will not be tolerated* and will be dealt with procedurally in accordance with university policy. Please see the Committee on Academic Misconduct's website for details: <http://oaa.osu.edu/coam.html>