

## **SYLLABUS**

### **STAT 8530: Spatial and Spatio-Temporal Statistics (3 credit hours) Autumn Semester 2016**

#### **Instructor**

Professor Kate Calder

Office: 429 Cockins Hall

Email: calder@stat.osu.edu \*please only send emails from an OSU address\*

Office Hours: TTh 11-noon and by appointment

#### **Course Description**

Covers statistical methodology for continuously-indexed and discrete spatial and spatial-temporal data. Topics include geostatistics, likelihood methods, hierarchical models, Markov random fields, spatial autoregressive models, dynamic spatio-temporal models, and disease mapping. Intended primarily for students in the PhD program in Statistics or Biostatistics.

#### **Prerequisites**

6802 (622) and 6950 (645), or permission of instructor. Not open to students with credit for 829.

#### **Class Meetings** TTh 9:35am-10:55am in Cockins Hall 228

Class meetings will consist of a mix of lectures, in-class exercises, and informal student-led discussions on homework exercises. Students are expected to attend all class meetings and actively participate in discussions.

#### **Course Materials**

All course materials will be available in the course Buckeye Box folder. Please contact the instructor for access.

#### **Textbook**

Gelfand, A.E, Diggle, P.J., Fuentes, M., and Guttorp, P. (2010). *Handbook of Spatial Statistics*. CRC Press. (available as a free eBook from the OSU Library)

#### **Assignments and Assessment**

Homework assignments will be given approximately every 1.5 weeks. Students are expected to complete all homework assignments prior to their due date. Instead of handing in homework, a subset of students (designated when homework is given) will be assigned to certain problems. On the day the assignment is due, one student in the group will be selected to present his/her solution to the class and another student will be selected to upload his/her solution to the course Buckeye Box folder.

In addition to the regular homework assignments, students will complete a manuscript review towards the middle of the semester. Details on this assignment will be distributed during class.

Students will also give individual presentations on an advanced topic in spatial and spatial-temporal statistics during the last two weeks of class. Details on the requirements for the presentation will be given at a later date.

- **Homework** (30% of final grade) – includes oral presentations and written solutions
- **Manuscript Review** (20% of final grade)
- **Oral Presentation** (35% of final grade)
- **Participation** (15% of final grade)

### **Special Accommodations**

If you need any accommodations based on the impact of a documented disability, contact the instructors 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 Misconducts website for details: <http://oaa.osu.edu/coam.html>