

Math 586: Spatial variability and geostatistics

Spring 2009

Instructor: Dr. Oleg Makhnin

Office: Weir 223

Office Hours:

M, W, F 1:30 -3 R 10-12 or by appointment

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Catalog description:

"Introduction to spatial and temporal variability. Stationary and intrinsic random fields, variograms and estimation. Kriging, co-kriging and simulation of random fields. Conditioning and conditional simulation. Indicator kriging and simulation. Applications from hydrology, mining, petroleum engineering and other fields."

Textbook: Kitanidis *Introduction to Geostatistics*, Cambridge, 1997

COURSE POLICY

Your course grade will be determined on the basis of combined scores from Homework, Labs, Midterm and a Final Project. In order to make up any assignment, a valid excuse should be documented. The instructor decides if an excuse is a valid one.

You are encouraged to seek help from the instructor.

Homework: All homework is due at the beginning of the lecture. One lowest score will be dropped.

Grading is based on the percentage of total points earned (the individual tests, homework etc. are not assigned a letter grade).

Distribution of points:

Homework 100 Labs 50 Midterm 100 Final project 100

Grading Scale (tentative): A: 90-100%; B: 80-89; C: 70-79; D: 60-69; F: 0-59

Course outline:

- review of probability/statistics
- methods for variability of independent observations (ANOVA, regression)
- random fields and variograms
- kriging (spatial prediction)
- stochastic simulation