CEE/STATS/CSYS 369 Applied Geostatistics
Homework #5(a) Semivariograms

1) Read Chapter 7 of your text. It's not the best description of semivariograms, but I will provide notes and an additional handout from DeMarsily.

2) This homework uses the same Berea sandstone data set from homework assignments 3 and 4 to understand how to calculate a semivariogram based on lag distance that is independent of direction (i.e., **omni-directional** semivariograms).

   Feel free to work with a partner. But create your own code (preferably a function) to generate and plot a semivaraiogram for a given data set.

   Email a copy of the working code (called Driver_last_names.m), the semivariogram function and the associated data file(s) including the Berea data set to your grading group and copy me.

   I will discuss each of the following in more detail in class; but your code should eventually;) allow a user to compute semivariograns for:

   i) An equal number of data points in each bin (i.e., N=sqrt(all paired distances)).

   ii) A user-specified bin width (i.e., fixed).

   iii) An interactive, user-specified (i.e., use the MatLab function ginput) bin width.

3) Add in the option to best fit (by eye) semi-variogram models

   Note: The cubic model has an error in the de Marsily handout. The first term (7*(h/a)) should be (7*(h/a)^2).