

STAT 696, Spring 2011  
Homework 7 Problems  
due Thursday April 14

2 Problems. Please follow the Lab report directions off the homework web page.

1. Perform indicator kriging on the **Soil pH data**. Data on soil pH comes from an observational study in which samples of soil were collected at the nodes of a grid with 11 rows  $\times$  11 columns. The pH of the samples were measured in a laboratory.

The data is available off the class web page:

`http://www.rohan.sdsu.edu/~babailey/stat696/soilph.dat`

Use the R `read.table` command with the `header=T` option. (You do not need to make your own labels!)

(a) We are interested in indicator kriging when the soil pH values are large and are above the 95th percentile of the distribution of the pH values. Make plots of the indicator kriging predictions and the prediction variances. What do you conclude?

(b) Repeat (a) but this time we are interested indicator kriging for the 50th percentile. Compare this to the standard universal kriging predictions and prediction variances.

2. In R, after loading the `gstat` library. Run the demo for cokriging, using the command:

```
> demo(cokriging)
```

Explain what the demo is demonstrating and what you conclude after examining the code and output. You may also consult the handout from class and the tutorial linked off Lab6.