University of California, Los Angeles
Department of Statistics

Statistics C173/C273 **Instructor: Nicolas Christou**

Homework 7

Exercise 1
Consider ordinary lognormal kriging. Note: We predict $Y(s_0)$, where $Y(s_0) = ln[Z(s_0)]$. Show that the unbiased predictor of $Z(s_0)$ is given by $\check{Z}(s_0) = e^{\frac{1}{2}\sigma^2_{OK} - \lambda + \hat{Y}(s_0)}$.

Exercise 2
Consider simple lognormal kriging. We discussed in class that the unbiased predictor of $Z(s_0)$ is given by $\check{Z}(s_0) = e^{\hat{Y}(s_0) + \frac{1}{2}\sigma^2_{SK}}$. Find $E[Z(s_0) - \check{Z}(s_0)]^2$.

Exercise 3
Show that using the simple kriging weights plus the generalized least squares estimate of μ we obtain the ordinary kriging weights.

Exercise 4
Show that kriging is an exact interpolator. It means that if the location of the point to be predicted is the same with the location of one of the observed values the predicted value will be equal to the observed value.