

Department: SPACE SCIENCE

Batch: MS-8 (RSGS)

Semester: 1st Semester

Session Year: SPRING-2019

Section: A

Faculty : DR. ASAD ALI

Submit Date: 18/03/19

Course: 820405 Geostatistics

Credit Hour: 3

COURSE DESCRIPTION

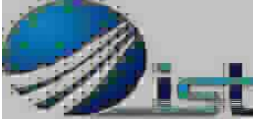
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TEXT AND MATERIALS

Textbook:

References:

Chapter & Topic Detail	
Chapter	Topic
Geo-statistical computing	What is geostatistics?
	The added value of geostatistics
	Feature and geographic spaces
	Geostatistical computing: inventory of packages
	The R Project for Statistical Computing: what and why?
	Exercise: Introduction to the R environment and S language
Exploring and visualizing spatial	Visualizing spatial structure: point distribution, postplots, quantile plots
	Visualizing regional trends
	Visualizing local spatial dependence: h-scatterplots, variogram cloud, ex-
	Visualizing anisotropy: variogram surfaces, directional variograms
Modelling spatial structure from	Trend surfaces
	Theory of random fields
	Models of spatial covariance
	Variogram analysis; variogram model fitting
Spatial prediction from point samples (I)	A taxonomy of spatial prediction methods
	Non-geostatistical prediction
	Introduction to Ordinary Kriging
	Note: the derivation of the kriging equations is deferred to the next lecture.
Spatial prediction from point sam	Derivation of the Ordinary Kriging (OK) system: (1) regression (2) minimization
	Simple Kriging (SK)
	Block Kriging
	Universal Kriging (UK)
	Derivation of the Universal Kriging system: (1) regression (2) minimization
	Kriging transformed variables
	Kriging with External Drift (KED) and Regression Kriging (RK)
	Stratified Kriging (StK)
Assessing the quality of spatial	Assessment of model quality: overview
	Model evaluation with an independent data set



Chapter & Topic Detail

Chapter	Topic
Assessing the quality of spatial	Cross-validation
	Kriging prediction variance
	Spatial simulation