



Online and Continuing Education
University of Alberta, Edmonton, Alberta, CANADA

Citation Program in Applied Geostatistics

Introduction And Exercises



Centre for Computational Geostatistics (CCG)
University of Alberta, Edmonton, Alberta, CANADA

April 2025, August 2025
Presented at Maptek in Denver

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University of Alberta



Citation Program in Applied Geostatistics (CPAG)

The principles of geostatistics will be covered in lectures, hands-on exercises and a project. Each participant will gain an appreciation for the variety of geostatistical techniques and tools available to address problems of heterogeneity modeling and uncertainty quantification. A minimum average grade of 80% is required for successful completion of the program. The exercises for each week are due at the start of the following week and the exercises for the last week are due with the project (see below). The solutions can be submitted in PDF – scanned from hardcopy or from another app. Each participant must submit their own exercise solution, but participants are encouraged to work together. A small independent project is required. Instructions will be provided during the course. Participants should work on their project in any spare time. A brief report/presentation must be submitted by 5 PM on Friday September 26. The MAPTEK Vulcan software can be used, or all required software tools are provided (primarily to be executed in python jupyter notebooks); however, any software may be used for the exercises and project. Clayton V. Deutsch (cdeutsch@ualberta.ca) will instruct the class with assistance in the afternoons and some lectures. Contact the instructor with any questions about the course material or exercises.

In person instruction will be held, but the class will be available remotely. All sessions will be available synchronously and they will be recorded for those in other time zones.

8:00 - 9:30	Lecture
9:45 - 10:45	Lecture
11:00 - 12:00	Lecture
13:00 - 16:30	Exercises and Project

	Day	Lectures	Subjects
Week One	T	101, 102	Introduction and basic mathematics
April 22 - 25	W	114, 116	Coordinates, running GSLIB and basic scripting
	T	103, 104, 105	Stationarity, probability and statistics
	F	106, 111, 112	Declustering, correlation and PCA
	Week Two	M	201, 202
April 28 - May 1	T	203, 204	Variogram interpretation and modeling
	W	211, 212	Special topics and volume variance relations
	T	211, 301	Simple Kriging
Week Three	T	301, 302	Variants of kriging
August 19 - 22	W	311, 312	More on kriging including setup
	T	401, 402	Multivariate Gaussian distribution for uncertainty
	F	403, 04, 411	Gaussian simulation, checking
Week Four	M	501, 502	Multivariate and cokriging
August 25 - 28	T	503, 504	More cokriging and stepwise conditional trans
	W	601, 602, 604	Indicators for rock type modeling
	T	605, 612, 70X	Post processing

Contact the instructor with any questions about the course material or exercises: cdeutsch@ualberta.ca