
Course Catalog

Comelio



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a. Locations



Our trainings take place at various locations in the German-speaking countries.

Public trainings:

You can enroll for public trainings at our training centers across Germany like in Berlin, Dresden, Hamburg, München / Munich, Düsseldorf, Frankfurt, and Stuttgart. Not all public trainings will be organized in all cities but you can still book a particular training for your team in one of our training and conference centers.

In Austria you can attend seminars and trainings in Wien / Vienna while we offer training dates in Switzerland in Zürich / Zurich.

On-site trainings:

We have mobile and flexible trainers / lecturers who like to visit you and your team for an on-site training or a training in a conference center or hotel near you.

USA

Chicago	Tel: Fax:
Miami	Tel: +1.305.395.7962 Fax: +1.305.395.7964
New York	Tel: +1.212.380.1181 Fax: +1.305.395.7964

1. Geostatistics

A. R



(i) Geostatistics and the Analysis of Spatial Data



Overview

Course ID	1000029
Language	en
Duration	2 D ys
Delivery mode	Classroom
Course Type	
Target Group	Data Analysts
Prerequisites	Basics in R and Statistics
Method	Presentation with examples and hands-on labs.
Course level	Beginning



Course Dates

Chicago	Miami	New York
1,750.00 USD	1,700.00 USD	1,750.00 USD
03-04 Sep 29-30 Oct 24-25 Dec	20-21 Aug 15-16 Oct 10-11 Dec	27-28 Aug 22-23 Oct 17-18 Dec

Prices plus local taxes.



Course Description

Geostatistics is a branch of statistics focusing on spatial or spatiotemporal datasets. Such spatial and spatio-temporal data are everywhere. Beyond creating and viewing maps, spatial data analysis is concerned with questions not directly answered by looking at the data themselves. These questions refer to hypothetical processes that generate the observed data. Statistical inference for such spatial processes can be done using the statistical programming language and environment R. This training show beginners in geostatistics and participants working in the various domains of geoscience how to use R for their geostatistical analyses, visualization and plotting, model fitting, and inferential statistics. The first part of the training covers diverse techniques for handling spatial data in R, functions for import and exports of spatial data and creating diagrams and maps. The second part introduces time as a second dimension for spatio-temporal data. The third part shows you how to analyze spatial data and presents methods and functions for the analysis of spatial point patterns and spatial point processes, interpolation, spatial prediction, the analysis of correlation, the variogram analysis as well as kriging, filtering or smoothing. This part also deals with modeling areal data and the analysis of spatial autocorrelation or fitting models.



A. Handling Spatial Data in R

(0.5 Days) Classes for Spatial Data in R - Visualising Spatial Data: The Traditional Plot System, Trellis/Lattice Plots, Interactive Plots, Colour Palettes and Class Intervals - Spatial Data Import and Export: Coordinate Reference Systems, Vector File Formats, Raster File Formats, Google Earth, Google Maps, Geographical Resources Analysis Support System (GRASS) - Map Overlay or Spatial Join - R-Packages: rdgal, spplot and ggplot, latticeExtra, raster, rgeos

B. Spatio-Temporal Data

(0.25 Days) Types of Spatio-Temporal Data - Handling Time Series Data - Selection, Addition, and Replacement of Attributes - Overlay and Aggregation - Visualization: Multi-panel Plots, Space-Time Plots, Animated Plots, Time Series Plots - R-Packages: xts, spacetime

C. Analyzing Spatial Data

(0.5 Days) Preliminary Analysis of a Point Pattern: G Function (Distance to the Nearest Event), F Function (Distance from a Point to the Nearest Event) - Statistical Analysis of Spatial Point Processes: Homogeneous and Inhomogeneous Poisson Processes, Estimation of the Intensity, Likelihood of an Inhomogeneous Poisson Process - Applications in Spatial Epidemiology: Case–Control Studies, Binary Regression, Accounting for Confounding and Covariates - R-Packages for the Statistical Analysis of Spatial Data: spatial, maptools, splancs, spatstat,

D. Interpolation and Geostatistics

(0.5 Days) Exploratory Data Analysis - Non-geostatistical Interpolation Methods - Estimating Spatial Correlation using the Variogram: Exploratory Variogram Analysis, Cutoff, Lag Width, Direction Dependence, Variogram Modelling, Multivariable Variogram Modelling - Spatial Prediction: Universal, Ordinary, and Simple Kriging, Kriging in a Local Neighbourhood, Multivariable Prediction: Cokriging, Trend Functions and Their Coefficients, - Kriging, Filtering, Smoothing - Model Diagnostics: Cross Validation Residuals, Cross Validation z-Scores, Multivariable Cross Validation - Geostatistical Simulation

E. Modelling Areal Data

(0.25 Days) Spatial Neighbours and Spatial Weights - Testing for Spatial Autocorrelation - Fitting Models of Areal Data

b. Disclaimer



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