AMEC Advantage Training: 
Practical Geostatistics for Mineral Resource Estimation

This five-day course will give you a clear understanding of geostatistics, exploratory data analysis and validation tools to facilitate and improve resource estimation. Guidance will be provided with respect to resource classification and reporting in compliance with international standards such as the PERC Reporting Standard 2013.

Through in-depth presentations, discussion and practical exercises, participants will learn state-of-the-art resource estimation procedures, such as:

- Dealing with data of variable quality, e.g. legacy data
- Contact plots to test the character of geological boundaries
- Top-cutting procedures
- Swath plots as an EDA and validation tool
- Spatial analysis including the correlogram
- Block model validation including selectivity checks
- Drill spacing studies as a guide for classification
- Regulatory compliance
About the instructors

Georges Verly, Ph.D., P.Eng., is Chief Geostatistician at AMEC based out of Vancouver, Canada. Georges has more than 30 years of experience in geostatistics, specializing in practical applications to the mining industry. Before joining AMEC, Georges was a Consulting Geostatistician with Placer Dome/Barrick, where he developed practical applications of simulations to resource estimation and grade control for a number of operations and projects. He has taught geostatistics courses at the University of Nevada’s MacKay School of Mines, UBC, Concordia University and Université de Québec à Chicoutimi, as well as to a number of private-sector organizations. He also teaches an annual course sponsored by AUSIMM and McGill University. Georges has authored and co-authored more than 20 technical papers in the industry.

Edmund Sides, Ph.D., P.Geo., EurGeol., is Principal Resource Geologist at AMEC, based in the UK. Ed has over 25 years of experience in mineral exploration and mining, primarily for volcanic-hosted massive sulphide (VHMS), porphyry copper and carbonate-hosted lead-zinc deposits; with lesser experience on a variety of other mineral commodities including heavy mineral sands, cement, iron, manganese and diamonds. He specializes in the incorporation of geological controls into mineral resource estimates, and the management of the transition of geological and resource estimation studies from advanced exploration to feasibility stage. He is skilled in 3D geological modelling; and the use of geostatistical software, including a variety of commercial and proprietary (in-house) software packages.

Matthew Field, Ph.D., PrSciNat., is a Principal Resource Geologist at AMEC, based in the UK. Matthew has over 25 years of experience in the mining and exploration industry. His work has ranged from grass-roots exploration to production and reconciliation. He is a recognized expert in kimberlite geology and has led research initiatives to improve the understanding of kimberlite geology. He is also experienced in a variety of other deposits including gold and REE deposits. Matthew joined AMEC's UK geology and mining team in January 2012 where he continues to provide consulting services to diamond mining and exploration companies, as well as on gold and rare earth element projects.
Who Should Attend
This course is for mine geologists, resource analysts, mining engineers and those in the mining industry acting in a Qualified or Competent Person role. Previous experience in geostatistics or resource estimation is an asset, but not a prerequisite.

Course Content
This course will instruct attendees on the principles of geostatistics for mineral resource estimation including:

Day 1
Overview, Statistics & Exploratory Data Analysis: overview of resource estimation, univariate statistics, concept of stationarity, EDA working envelopes, geological modelling methods, contact plots, compositing, and declustering.

Day 2
Statistics, Exploratory Data Analysis & Sampling and QA/QC: bivariate statistics, top-cutting, comparing different sample types and pairs of values, sampling, QA/QC and legacy data.

Day 3
Structural Analysis & Block Grade Distribution: variograms, covariance, correlograms, spherical and exponential models, impact of block size on recoverable tonnes and grade, change of support corrections including affine, indirect lognormal, and discrete Gaussian model.

Day 4
Estimation: traditional methods of estimation, estimation error and variance, ordinary kriging, indicator kriging (time permitting), overview of some advanced estimation techniques, and an introduction to simulation.

Day 5
Model Validation, Resource Classification & Disclosure Regulations: methods for validating estimations including selectivity check, reasonable prospect of economic extraction, quantifying geological and grade continuity for classification, presentation of securities regulations including PERC, NI 43-101 and CIM Definition Standards.

Throughout the course, guidance will be provided with respect to relating the course content to the requirements for public reporting of Exploration Results, Mineral Resource and Reserves as defined under the Pan-European Reporting Standard (PERC Reporting Standard 2013).

Please note: A full syllabus is available upon request.

Exercises
It is recommended to bring a laptop computer with MS Excel or a scientific calculator to help illustrate the concepts and principles that are presented.
Venue Details

Ballsbridge Hotel,
Pembroke Rd
Ballsbridge, Dublin 4, Ireland

Special accommodation rate available for delegates (€105 single per night, €120 double/twin per night)

Date: 17 – 22nd June 2013
Sign-in: 8.30am – 9.00am, first day
Course Presentation:
9.00am – 5.00pm on all days

Fees
This five-day course costs £2,000 (pounds sterling) + VAT (UK rate) where applicable. A discount of 10% is available for IGI and IAEG members.

Fees include prepared manuals, refreshments and lunches.
Payment is required at time of registration.

Cancellations: No refunds or cancellations will be made within two weeks of the course or for ‘no shows’. Course delegates can be substituted. If the minimum number of delegates is not achieved, course delegates will be notified one week prior to course start date and fees will be refunded.
Registration Details
To register, please complete the following form and email it to julian.aldridge@amec.com
Early registration is advised. Your registration will be confirmed by email. Personal information will be used for internal purposes only.

Name: __________________________________________________________

Position: _______________________________________________________

IGI/IAEG membership status: ______________________________________
(Paid up members of the IGI or IAEG will be entitled to a 10% discount on the course fee)

Company/Organization name: ______________________________________

VAT registration number: _________________________________________
(VAT will be charged for delegates from UK registered companies and from other EU based companies for which a VAT registration number is not provided)

Address: __________________________________________________________________

City, Province/State: ________________________________________________
Postal Code: _______________________________________________________

Phone: __________________________________________________________________
Email: __________________________________________________________________

Note:
On receipt of your application we will send you an invoice for the course fee taking into account any discounts and the specific tax rate applicable to your booking. Payment details will be provided on the invoice. Payment will be required two weeks before the course starts in order to confirm your place on the course.