



THE GEOSTATISTICAL ASSOCIATION OF SOUTHERN AFRICA • P.O. BOX 62285 MARSHALLTOWN 2107

The Geostatistical Association of Southern Africa in conjunction with the School of Mining Engineering, University of the Witwatersrand is pleased to present a 5 day short course:

MINN 7057:

Resource Estimation and Project Risk Implications

John Vann

15th -19th March 2010

University of the Witwatersrand

Course Objectives

This 5 day short course will provide participants with fundamental insight into the logic behind good resource estimation and evaluation practices, including recent developments in geometallurgical modelling. Some of the latest innovations around risk and financial modelling to generate and evaluate risk mitigation strategies will also be discussed.

Course outline

Day 1 - Fundamentals

**Introduction & Business Framework
Value Chain and NPV
Overview of Resource Estimation and Classification
Crash Course on Sampling
Statistical Primer**

Day 2 - Spatial Variation

**Domaining and Stationarity
Building Geological Models
Variograms and Variography**

Day 3 - Kriging and Recoverable Resources

**Drill Spacing and Estimation Variance
Estimation Variance and Drill Spacing
Ordinary Kriging
Recoverable Resources – A Primer**

Day 4 - Project Risk Modelling and Simulation

**What is Risk Modelling/ How Does it Add Value?
Pros and Cons of Traditional NPV Approaches
Conditional Simulation – A Primer
Spatial Versus Non-Spatial Risk Modelling**

Day 5 - Financial Risk Evaluation and Geometallurgy

**Integrated Risk Evaluation Model
The Idea of Real Options as a Framework
Geometallurgy
Non-Additivity and Geometallurgical Modelling
Wrap Up in the Context of the Mining Value Chain.**

Course Leader:



John Vann is a geologist and geostatistician with over 20 years experience of base metal, coal, nickel, iron, gold, bauxite, manganese and copper projects. John has taught nearly 200 short courses and seminars on resource estimation, geostatistics, sampling and risk topics since 1993 in Australia, the USA, Canada, UK, Indonesia, Zimbabwe, Laos, South Africa, New Zealand, Turkey and Papua New Guinea.

He has been working on geometallurgical projects for copper and iron in the past several years. John is a Director of Quantitative Group (QG), a consulting firm specialising in resource evaluation and project risk.

He studied geology at the Royal Melbourne Institute of Technology and the University of New England, geostatistics at the University of Leeds and business at The Australian School of Business (the University of New South Wales). John is Adjunct Professor of Geology at the University of Western Australia and Adjunct Senior Lecturer in Geostatistics at the University of Adelaide. John also has taught 11 advanced programs for senior Rio Tinto personnel in Australia, Africa and North America as invited faculty for Duke Corporate Education, Duke University, North Carolina, USA.

Some examples of recent courses John has presented:

June 2009: Resource Estimation and Geometallurgical Modelling (Koza Gold Co., Ovaçek Mine, Turkey).

April 2009: *Geometallurgical Modelling Workshop* (Xstrata Nickel, Perth, Western Australia)

November 2008: Resource Evaluation for Exploration Geologists (Rio Tinto, Santiago, Chile)

August 2008: *Applied Geostatistics for Geologists and Engineers* (Resolution Copper Company, Arizona, USA)

July 2008: *Applied Geostatistics for Mining and Exploration Geologists* (Goldfields, St. Ives Gold, Kambalda, Western Australia)

June 2008: *Geometallurgical Modelling Workshop Course* (BHP Billiton Olympic Dam Expansion Project, Adelaide, South Australia)

May 2008: *Applied Geostatistics for Mining Geologists* (BHP Billiton, Olympic Dam Mine, South Australia)

March 2008: Applied Geostatistics for Coal Geologists and Mining Engineers (Anglo Coal, Brisbane, Queensland)

February 2008: *Sampling and Resource Evaluation* (Rio Tinto Iron Ore, Perth, Western Australia)

Registration form on the next page

Registration: MINN 7057 Resource Estimation and Project Risk Implications.

Title (Prof/Dr/Mr/Mrs/Ms)			
Surname			
First Name			
Company or Organisation			
VAT registration number			
Your position in the company			
Postal address			
Telephone			
Mobile			
Fax			
Email (please print clearly)			
Accounts contact person			
Accounts Tel number			
Accounts email address			
GASA Member?			
GDE Student? ¹		Student Number	

Registration Fees

Industry delegate (CEE) R 12 500
 GASA Member R 12 000
 Wits GDE Student¹ Check with the university

Note

Fax the completed registration form to 011 728 1675 or email to robbie@rca.co.za / register@rca.co.za

Please pay the course fee into the GASA account before 5th March 2010 and fax confirmation of payment to 011 728 1675 or email robbie@rca.co.za / register@rca.co.za. **If GASA does not receive a confirmation of payment by this date your registration will be cancelled.**

Cancellations within 3 weeks of the course commencement will incur a 20% cancellation fee and cancellations within 2 weeks a 50% cancellation fee. No refund for cancellations made less than a week before the course commences. As spaces are space is limited, registration delegates will be accommodated on a first come first served basis.

Signature: _____ Date _____

GASA Banking details:

Account Name : Geostatistical Association of Southern Africa. Bank : Standard Bank
 Branch : Johannesburg. Branch Code : 00 0205 Account No : 001431889

¹ GDE students must be currently registered for this course at the University of the Witwatersrand. These forms must be completed and sent to GASA even though the student is registered at the university