

## PROFESSIONAL DEVELOPMENT TRAINING COURSES

1-day Professional Development Courses : Vancouver

# Successful Sampling QAQC of Assay Data Reporting Resources and Reserves Introduction to Geostatistics Practical Variography

Training course:	Location:	Date:
SUCCESSFUL SAMPLING	VANCOUVER	13 September 2010
QAQC OF ASSAY DATA	VANCOUVER	14 September 2010
REPORTING RESOURCES & RESERVES	VANCOUVER	15 September 2010
INTRODUCTION TO GEOSTATISTICS	VANCOUVER	16 September 2010
PRACTICAL VARIOGRAPHY	VANCOUVER	17 September 2010

## Course Content: SUCCESSFUL SAMPLING

This one-day course provides a hands-on guide to designing and running effective sampling programs. Every aspect is thoroughly explained with case studies and practical exercises. Participants will:

- Learn how to critically assess and design sampling and sample preparation systems
- Understand the importance of good sampling practice and the cost of poor sampling
- Learn correct sampling practice and gain an awareness of sources of potential sampling error
- Understand and apply Gy's sampling theory to sample size selection and the design of sampling protocols

This course is designed for all those involved in and affected by the sampling process.

## Course Content: QAQC OF ASSAY DATA

This one-day course tackles the issue of best practice and presents a set of practical guidelines for ensuring highest data quality. Participants will:

- Understand the principles of QAQC
- Learn how to design QAQC programmes and achieve best practice in data quality
- Gain an overview of drilling and assaying technology
- Understand basic statistical theory and the fundamentals of quality management statistics
- Learn techniques for reviewing assaying results
- Learn how to design and develop QAQC systems

This course is designed for resource and exploration geologists, laboratory and metallurgical personnel and anyone associated with project evaluation.

## Course Content: REPORTING RESOURCES & RESERVES

### How to achieve best practice in public reporting

This one-day course will show you how to produce competent and responsible reports for the public. It includes a thorough examination of the relevant reporting code (e.g. JORC), as well as practical tools and techniques for classification. Participants will:

- Learn how to interpret and apply the relevant code for your area of operation
- Gain an understanding of the responsibilities and authority of the Competent Person
- Be able to put the code into practice and produce reports and press releases with confidence
- Learn about assessment and public reporting criteria
- Acquire a knowledge of practical tools and techniques for resource classification

This course is highly recommended for anyone involved in the process of classifying and reporting resources & reserves.

## Course Content: INTRODUCTION TO GEOSTATISTICS

This one-day workshop unravels the mystery of the concepts and applications of geostatistics in mining. Each aspect is examined using presentations, practical exercises and activities. This is an excellent course for managers, miners, engineers and geologists needing a refresher course in geostatistics.

- Overview of where geostatistics fits into mining
- Importance of assumptions, data integrity and geology
- Tools for statistical data analysis
- What is variography?
- Statistical inputs to estimation

## Course Content: PRACTICAL VARIOGRAPHY

This one-day course provides practical and relevant advice for preparing and analysing variograms. The quality of variography analysis impacts on kriging, conditional simulation, neighbourhood search strategies, block size studies, volume-variance correction for selective reporting and classification using kriging variance. Participants will improve their analytical skills for variography, increase awareness of variograms pit falls, & pick up hints & case studies for a relevant and practical reference.

### Participants will:

- Improve their analytical skills for variography
- Increase awareness of variograms pit-falls
- Pick up tips, hints and case studies for a relevant and practical reference

### Course content:

- Applications and issues
- Preparing for variography
- Calculating variograms
- Interpreting for directions of continuity
- Interpreting 'interesting' variograms
- Modelling variograms
- Relevance of variograms for Inverse Distance methods
- Practical application of variograms for kriging and conditional simulation

## Presenters

The course presenters will be chosen from Snowden's most experienced consultants.

### George Gilchrist - Consultant Resource Geologist - Applied Geosciences

*BSc Hons (Geology), University of the Witwatersrand; PDM, Wits Business School, MGSSA, Pr.Sci.Nat*



George's experience in the African mining industry was primarily on Witwatersrand gold deposits. Since joining Snowden, George has focussed on projects in West and southern Africa, with the main focus areas being orebody modelling, sampling, QAQC and resource evaluation. George's projects have focussed on gold, platinum, copper, nickel, uranium, magnetite and limestone deposits across a range of different geological and geographical settings. George has also been responsible for the development of a comprehensive geological training programme for technicians on the Witwatersrand gold mines and the development and presentation of Snowden's technical training courses.

### Eric Chapman - Consultant Resource Geologist - Applied Geosciences

*MSc (Mining Geology), Camborne School of Mines, UK, 2003; BSc (Hons) (Geology), University of Southampton, UK, 1996*



Eric has over 8 years of experience in applied geological modelling and geostatistical analysis, most recently providing consultancy for a variety of metal and industrial mineral resources ranging from cement and talc deposits to epithermal gold veins in Turkey, VMS resources in the USA and porphyry copper deposits in Kazakhstan. Eric has provided specialist training to industry experts on subjects such as geological modelling, applied geostatistics, unfolding of deposits and risk analysis through conditional simulation. Eric has practical experience of a range of resource evaluation techniques including ordinary kriging, indicator kriging and conditional simulation.

### Bob McCarthy - General Manager - Vancouver

*BAppSc (Mining - Honours), PEng, MBA*



Bob has over 23 years of technical and managerial experience in the mining industry encompassing engineering, operations, maintenance, and technology solutions. He has provided in-house mine engineering expertise on several mine development, expansion, extension, and acquisition projects. Bob possesses competencies in mine planning, mine licensing, project management, asset management, technology development, technology implementation, and business consulting. Bob develops and presents Snowden's mining engineering courses.

### Pamela De Mark - Senior Consultant- Applied Geosciences

*BAppSc (App Geo)(Hons), University of Technology, Sydney, P.Geo., MAusIMM*



Pamela has more than 15 years experience in the mining industry, particularly in underground gold mines. During this time she gained a range of experience including diamond drill hole planning, management, logging, interpretation, and resource evaluation; underground face and backs mapping; face, stockpile, and stope sampling; dilution control, stope design, QAQC management, and mine reconciliation. Since joining Snowden in 2006, she has performed Mineral Resource estimates, technical due diligence studies, technical resource audits, and prepared NI43-101 compliant technical reports for clients in the Americas. Pamela is Snowden's Reconciler domain expert for the North Americas.

### Jeremy Vincent -Senior Resource Geologist - Applied Geosciences

*BSc (Hons) Earth and Ocean Science, University of Victoria*



Jeremy has experience in exploration, geological project management, QA/QC review, and resource estimation. Jeremy's background includes a wide range of experience acquired during university as a part of the Earth and Ocean Science Co-op programme, which prepared him for successful positions in exploration for gold and silver in a variety of geological environments in northern Canada, Mexico, and Peru. Jeremy is fully conversational in Spanish and has advanced computer training in GemcomSurpac and Datamine software packages. Jeremy's consulting experience comprises a variety of commodities including gold, silver, lead, zinc, copper, and nickel.

## Delegate feedback

### Successful Sampling

"I liked the activities throughout to reinforce concepts and ideas"

"The sample nomograms were really interesting and applicable"

"The hands-on practical exercise was the most valuable as it put things into perspective" "The best part was finding out there is more to sampling than putting dirt in bags"

### QAQC of Assay Data

"The excel spreadsheets were awesome!!"

"It was a reminder that parts of our companies QAQC procedures could be improved"

"A good exposure to the wide variety of QAQC available to be used and what impact it has"

"Gave insight into the operations of the lab from sample preparation and how to audit the labs"

### Reporting Resources and Reserves

"The most valuable part of the course was the open discussion of aspects of the code and the limits of its application"

"It was good going over actual public reports of resources and reserves"

"The entire course was very informative and prepared delegates well for work in the area"

"The course was well structured giving adequate time to put learned theory into practice"

### Introduction to Geostatistics

"A well organised and presented course. Lots to take in!"

"The course gave me a good understanding of problems to look out for and put concepts into perspective"

"The most valuable part of the course was being able to understand what kriging is and how it works"

"Being able to work with your own data was the best part of the course"

### Practical Variography

"The best parts were the practical examples and the explanations of real data and how the issues were identified and overcome"

"There were numerous tips"

"Good mix of theory and practical, well prepared and knowledgeable instructor"

"It was very interesting to deal with real data (our own) to demonstrate practical variography"

## Fees

Payment required at time of registration

Each course costs C\$1100 incl GST per person. This fee includes comprehensive course notes, refreshments and lunch.

### PLEASE NOTE:

- A 10% discount is offered for booking on 3 or more courses.

## Laptops for practical exercises

PLEASE NOTE: Attendees are please to bring their own laptops for courses.

## Mentoring

Learn while working on your own data.

Snowden provides one-on-one technical mentoring to help develop your knowledge, skills and experience. Take advantage of Snowden's 23 year knowledge and skills base to help:

- build your competence
- fast-track your technical knowledge
- assess your current capabilities
- set your professional development goals
- increase your confidence

## On-site customised courses

All our courses can be customised to suit your specific training requirements and presented either on-site or at a venue of your choice. Please contact Diana Titren, Training Manager, on +61 8 9211 8670 or [training@snowdengroup.com](mailto:training@snowdengroup.com) for further information.

## Contact and registration

For more information on Snowden's Training and Mentoring programmes, please contact Diana Titren, Training Division Manager, on +61 8 9213 9670 or [training@snowdengroup.com](mailto:training@snowdengroup.com)

To register, please complete the following form and either fax it to Shannon Aitken, Training Coordinator, on +61 8 9322 2576 or email to [training@snowdengroup.com](mailto:training@snowdengroup.com)

Please visit [www.snowdengroup.com](http://www.snowdengroup.com) for more information about our training courses.

### Snowden Office Contact Details

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## REGISTRATION FORM

### 5 One-day Professional Development Courses - Vancouver - September 2010

To: Snowden Vancouver Suite 600, 1090 West Pender Street, Vancouver BC V6E 2N7

**PLEASE FAX YOUR REGISTRATION FORM TO: +61 8 9322 2576  
OR EMAIL TO: training@snowdengroup.com**

Please tick the course/s you will be attending	<input type="checkbox"/> Successful Sampling	13 September 2010	C\$1,100 incl GST
	<input type="checkbox"/> QAQC of Assay Data	14 September 2010	C\$1,100 incl GST
	<input type="checkbox"/> Reporting Resources & Reserves	15 September 2010	C\$1,100 incl GST
	<input type="checkbox"/> Introduction to Geostatistics	16 September 2010	C\$1,100 incl GST
	<input type="checkbox"/> Practical Variography	17 September 2010	C\$1,100 incl GST
	Total, less 10% discount for booking on 3 or more courses		C\$_____
			TOTAL including GST_____
PLEASE NOTE: Delegates must please bring their own laptops to the training courses			
Delegate Name			
Position (in company)			
Company Name			
Address			
Tel			
Fax			
Email			
How did you hear about the course?	<input type="checkbox"/> Email <input type="checkbox"/> Snowden Website <input type="checkbox"/> Snowden Newsletter <input type="checkbox"/> The Northern Miner <input type="checkbox"/> Other Advert _____ <input type="checkbox"/> Other, please specify _____		

## PAYMENT OPTIONS

**Payment required at time of registration - payment confirms your registration.  
A tax invoice will be issued on receipt of payment.**

1) Please enclose a cheque payable to **Snowden Mining Industry Consultants**

OR

2) Pay by wire transfer to TD Canada Trust, 1055 Dunsmuir Street, Vancouver, BC V7X 1P3. Account number: 95120-004-0910-0325278 Snowden M.I.C.

### PLEASE NOTE

Registration closes 2 weeks prior to the course starting date.

No refunds for cancellations made within 2 weeks of the course or for 'no shows'. Delegates can be substituted.

If the minimum number of delegates is not achieved, delegates will be notified 1 week before the course start date and fees will be refunded.