



ECONOMIC EVALUATION OF MINERAL DEPOSITS

SHORT COURSE

PRESENTER - MATT MULLINS

24 & 25 MAY 2018 | VENUE:
CSIR - MINING PRECINCT
Cnr Carlow & Rustenburg
Roads, Melville



ABOUT THE COURSE



This short course will be of interest to Geologists, Mining Engineers and Project Managers who would like to understand financial modelling, how to apply the principles to their mine or project and how to make more efficient decisions.

CPD POINTS QUALIFICATION

Attendance and completion of this short course qualifies the attendee for 16 GSSA-CPD Points or 2 SACNASP-CPD Points



COURSE OUTLINE

- Summary of Global Valuation Codes, focusing on SAMVAL, VALMIN and CIMVAL. Their similarities and differences. The concept of a Competent Valuator. Their relationship to their relevant exchanges. The three valuation approaches and common valuation methodologies within these approaches.
- The project pipeline – from exploration to feasibility, and how valuation approaches change.
- A simple valuation model demonstrating the four cash flow streams: Revenue, Operating Costs, Capital Costs and Taxes/Royalties. Calculation of NPV, IRR and Payback. Worked hands-on example.
- The inputs. Detailed examination of each cash flow stream. Revenue – what price, discount rate and exchange rate to use, Operating costs – production, recoveries and different products, Capex – how to estimate capex, contingency and escalation, taxes and royalties – focusing on South Africa.
- Grape Expectations – a practical example. Using a vineyard, various development options will be investigated.
- Detailed calculation, uses, strengths and weaknesses of valuation metrics – mainly NPV, IRR, Payback, and others (illustrated in the above worked example).
- Case study – Listed PGM-Cr producer. A detailed worked example of a multi-commodity PGM/Ferrochrome operation.
- Risk and uncertainty – deterministic and probabilistic approaches.
- Decision analysis – sources of poor decisions; analysis of bias in decision making; how to overcome biases; a structured approach to decision making.



Delegates will be provided with: Course notes, spreadsheet templates and worked examples, and electronic copies of background papers
Each delegate will need a laptop with Excel

DAY 1

Economic Evaluation of Mineral Deposits Day 1: Thursday 24th May

Time	Topic	Key Areas Covered
08h00 – 08h30	Welcome	
08h30 – 10h00	Valuation Codes and Approaches	SAMVAL, VALMIN and CIMVAL – similarities and differences; the three valuation approaches; common methodologies; relationship between valuation approaches and project phases; valuation of exploration properties; comparative valuations
10h00 – 10h30	Morning Tea	
10h30 – 12h30	Discounted Cash Flow Analysis: Case Study 1	Fundamentals of spreadsheet modelling; easy to follow; fit-for-purpose; transparent; rigorous; auditable; use of tabs and colour coding; a worked example
12h30 – 13h30	Lunch	
13h30 – 15h00	The four cash flow streams	Estimate revenue, capital costs, operating costs, and taxes/royalties; using a worked example
15h00 – 15h30	Afternoon Tea	
16h00 – 17h00	NPV, IRR and other valuation metrics	Theory and computation; payback period; discount rate; glossary of financial terms

DAY 2

Economic Evaluation of Mineral Deposits Day 2: Friday 25th May

Time	Topic	Key Areas Covered
08h00 – 08h30	Review of Day 1	
08h30 – 10h00	Grape Expectations Case Study 2	Using a worked example, model the setup and operation of a vineyard; investigate various options for enhancement and their effect on the valuation
10h00 – 10h30	Morning Tea	
10h30 – 12h30	Listed Chrome/PGM Operation Case Study 3	Populate the template provided with the input parameters; calculate the value and value per share; investigate expansion alternatives and their valuation
12h30 – 13h30	Lunch	
13h30 – 15h00	Decision Analysis	Making the decision to invest; biases in decision making and how to avoid them; a structured approach to decision analysis
15h00 – 15h30	Afternoon Tea	
16h00 – 17h00	Risk and Uncertainty	Traditional, deterministic and probabilistic modelling
17h00 – 17h30	Wrap-up and refreshments	

PRESENTER: MATT MULLINS **DIRECTOR - TECOMA STRATEGIES**



Matt Mullins has 38 years' experience in the Minerals Industry, as a Mining and Exploration Geologist with Gold Fields of South Africa, as Consulting Geologist (Mines) for Rand Mines, as a Consultant, a Researcher, a Mining Analyst on the JSE, and as global Vice President for Mineral Resource Development for BHP Billiton. Matt has detailed knowledge of Resource and Reserve Estimation, Valuation and Reporting in a number of commodities, such as Iron Ore, Copper, Bauxite, Nickel, Zinc, Heavy Minerals, Coal, Manganese, Diamonds, Gold and Platinum in jurisdictions such as Canada, the USA, Suriname, Colombia, Peru, Chile, Mali, the DRC, Zambia, Angola, Mozambique, South Africa, Indonesia, China and Australia. Practical examples will be drawn from his experience. Matt is Chairperson of the SAMCODES Standards Committee, is a GSSA Past President and Fellow, SAIMM Fellow, and a AusIMM Fellow.