Stellenbosch UNIVERSITY IYUNIVESITHI UNIVERSITEIT

ARM African Rainbow Minerals

GEOMETALLURGY IN PRACTICE SHORT COURSE

About Geometallurgy

The field of Geometallurgy plays a pivotal role in bridging geology and metallurgy to optimize resource extraction and processing. Mining and process planning decisions aim to maximise output, retain shareholder and investor confidence, improve environmental performance, extend the life of mine (LOM) associated with an economic ore body and minimize risk associated with poor planning and ore body variations.

External factors situated in the macroeconomic environment that include the legal climate, geopolitics and commodity prices affect mine planning decisions. In this regard, intimate knowledge of the ore body and mineralogy must be combined with a knowledge of viable process options to maximise output, extend the LOM and net present value (NPV) associated with any project capital outlay.

In this regard, Geometallurgy enables industry practitioners to effectively exploit ore body knowledge against the backdrop of varied contextual pressures. Geometallurgy combines the knowledge of ore body, ore geochemical and physical data, host rock and the metallurgical processes to create a 3-dimensional model, to optimize mining and processing of the ore body. Geometallurgical models are useful for strategic and tactical planning optimising production planning hence it functions as a decision-making tool at the operational level.

ARM African Rainbow Minerals GeoMetallurgy Research Chair

Dates: 11- 13 June 2025 (3 full days course)

Course Mode: Physical Only

Programme Schedule

The Geometallurgy course is a 3-day programme. In addition, the ARM Research Chair 1- day Symposium will take place on the 10th of June 2025. ARM research Chair Symposium is FREE for everyone who has paid to attend the three days' Geometallurgy Course. However not compulsory. Should you wish to attend, please send an email to the coordinator once your course registration has been submitted.

Who should attend

Industry professionals (geologists, metallurgists etc.), academics and all who are inquisitive about geometallurgy are encouraged to attend.

Course registration

To register for this course,
Click on the link below:

https://shortcourses.sun.ac.za/courses/6313/

The expected outcomes for attendees include developing:

- An appreciation of the role and purpose of geometallurgy towards efficient resource utilisation.
- To realise the value and structure of geometallurgical workflows.
- Derivation of geometallurgical and proxy variables from empirical test work.
- Application of the use of relevant data and software for development of geometallurgical block models.
- Understand the relevance of geometallurgy in contributing towards achieving mining company sustainability goals

COURSE CONTENT

Introduction

What is geometallurgy, types and roles of geometallurgical programs

- The business case incorporating ESG parameters into a geometallurgical Program
- Market wrap: supply-demand-price dynamics for the base metals

Minerals and ore deposits

- Introduction to minerals, rocks and the rock cycle
- The mineral systems approach applied to selected base metal sulphide deposit classes

Characterisation techniques

- Sampling Protocols (QAQC)
- Quantitative analyses of rock chemistry, mineralogy and texture

Mining

- Relationship between rock properties and blast parameters

Metallurgical testing

- Mineral processing - Comminution and separation processing
- Hydrometallurgy
- Pyrometallurgy

Data management and application

- Basic data management skills
- Data science techniques

Geometallurgical Block Modelling

- The value of block model
- Building a geometallurgical block model in Leapfrog

Synopsis and course objectives

A foundational course introducing geometallurgy, its workflows, and practical tools for optimising resource efficiency through data-driven block modelling and empirical test work

- To introduce the concept and purpose of geometallurgy.
- To provide a comprehensive appreciation of geometallurgical workflows and inter-disciplinary systems-thinking approaches to the minerals sector.
- To develop competence in determining relevant test work for determination of geometallurgical variables.
- To introduce data management and data processing techniques.
- To introduce tools and processes for developing geometallurgical block models.

Registration fee

Participants registration cost

Industry & other - **R10 000.00**

Students (Proof of registration confirmation will be required) - **R 2 500.00**

All delegates should bring a laptop capable of running Windows 10 with user rights to install new software

Course fees include

- Tea / Coffee / Refreshments
- Light Lunches
- Full set of course material, notes & solutions to in-class problems

Course location

University of Stellenbosch

Banghoek Street

Department of Chemical Engineering

Annex 229—230: Faculty of Engineering

Qualification and accreditation

- The course and course material will be provided in English language only.
- The course is accredited for Continuous Professional Development (CPD) credits.
- Attendees will obtain a certificate of attendance from Stellenbosch University.

Closing Date

Registration and payments should be made by the **27th May 2025.**

We have limited seats.

Cancellations

- To cancel your short course attendance, submit a written request at least seven days before the course starts to receive a refund, minus 5% administration fee.
- If you cancel less than seven days before the start of the course, a 15% cancellation fee will be deducted.
- And if you cancel less than 24 hours prior to the course's start, you will be responsible for 90% of the fees.
- Deductions may apply if your employer or institution paid the fees.

Method of payment & enquiries

An invoice will be sent after receiving the registration Form, and payment is required upon receipt of the invoice. Ensure to include the company's VAT and registration numbers for invoicing purposes. Please email proof of payment to Farah Loggenberg,

Email:farahl@sun.ac.za

Terms and conditions

In the case of unforeseen circumstances Stellenbosch University will make reasonable effort to provide alternative course dates, failing to do so, all fees will be reimbursed in full on request.

Presenters

Prof Bjorn von der Heyden
Associate Professor in Economic Geology,
Department of Earth Sciences
Stellenbosch University

Dr Margreth Tadie
Senior Lecturer,
Department of Chemical Engineering
Stellenbosch University

Dr Corne Koegelenberg
Principal Geoscientists
TECT Global

Prof Lidia Auret
Senior Data Scientist
Stone 3

Dr Nils Backeberg
Founder & Director
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Mr Felix Manyanga
Mining Manager, Ferrous
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Group Research & Development Manager, Metallurgist
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