

MASTER OF ECONOMIC GEOLOGY SHORT COURSE

via online delivery

Geometallurgy

A comprehensive overview of practical geometallurgy: From mineral processing fundamentals to deposit characterisation.

Week 1: 18–23 October, 2021

Week 2: 15–19 November, 2021

Online content will be delivered via Zoom between 9am and 5pm AEDT (UTC+11)



CENTRE FOR ORE DEPOSIT AND EARTH SCIENCES



Geometallurgy involves a quantified and comprehensive approach to ore characterisation in terms of critical processing attributes such as blasting, crushing, grinding, liberation, recovery and environmental management. Key outcomes of increased geometallurgical knowledge are improved forecasting, reduced technical risk, enhanced economic optimisation of mineral production, and improved sustainability.

This course introduces a range of techniques for 'early-stage' (e.g., exploration, prefeasibility) collection of geological information that is relevant to mining engineers and metallurgists. The program includes lectures, practical exercises (including a computer-based modelling exercise) and a virtual field trip to a mine in western Tasmania.

Registration fees cover the cost of course notes and access to on-line exercises.

Participants must have access to a computer with Microsoft Excel installed. It is recommended that all participants are familiar with the use of Microsoft Excel. Instruction in the use of other software (e.g. ioGas) will be provided during the course.

Geometallurgy is offered as a unit of the national Minerals Geoscience Masters program.

MASTER OF ECONOMIC GEOLOGY: THE MOST COMPREHENSIVE MASTERS DEGREE IN MINERAL EXPLORATION AND MINING GEOLOGY ANYWHERE IN THE WORLD

This course work-based Masters program is aimed at geoscientists who want to gain a thorough up-date on advances across the spectrum of economic geology applied to mineral exploration. The Master of Economic Geology at UTAS is part of the national Minerals Geoscience Masters program, jointly offered by the University of Tasmania and the University of Western Australia, in conjunction with Curtin Business School at Curtin University.

Course structure

The Masters course can be completed in either of two ways:

Option 1: requires the completion of six coursework units and a minor research thesis. Four of the units must be completed at CODES, while the remainder may be completed at other participating universities. Duration: 18–24 months full-time; up to 30 months part-time (flexible in recognition of industry participants).
Option 2: requires the completion of eight units of coursework, at least four of which must be undertaken at CODES. Duration: up to 30 months part-time (flexible in recognition of industry participants).

Participating universities offer up to six units annually or in rotation over a two-year period. Most units are of two weeks duration.

Fees

UTAS tuition fees are approximately \$1,987 per unit (8 in total) for domestic students (2021 rate for Commonwealth Supported Places) and \$8,636 (AUD) per unit for full-fee paying overseas students (FFPOS) (2021 rate). Field-based courses have additional costs. Costs will vary for units taught by other MGM partner institutions.

Entry Requirements

BSc (Hons), or a BSc (majoring in geoscience) with at least two years industry experience. International students should also refer to <http://www.international.utas.edu.au>. English language proficiency requirements also apply.

Masters units offered by CODES

- 18–23 October & 15–19 November 2021:
KEA711 Geometallurgy
- 21 November – 3 December 2021:
KEA707 Ores in Magmatic Arcs (Tas & NSW) ^
- January–February 2022:
KEA716 Fundamentals of Economic Geology
- February 2022:
KEA718 Advanced Field Skills in Economic Geology ^
- June–July 2022:
KEA712 Ore Deposit Models and Exploration Strategies
- October 2022:
KEA710 Exploration in Brownfield Terrains
- August–October 2022:
KEA713 Geodata Analytics
- November 2022:
KEA708 Volcanology and Mineralisation in Volcanic ^
Terrains (New Zealand, western Tasmania)
- January–February 2023:
KEA716 Fundamentals of Economic Geology
- February 2023:
KEA718 Advanced Field Skills in Economic Geology ^
- June–July 2023:
KEA709 Ore Deposit Geochemistry, Hydrology and Geochronology

^ COVID-19 travel restrictions may impact the running of this unit

For further coursework Masters information contact:

Dr Robert Scott

Masters Coordinator, CODES

Private Bag 79, Hobart 7001, Australia

Tel: +61 3 6226 2786

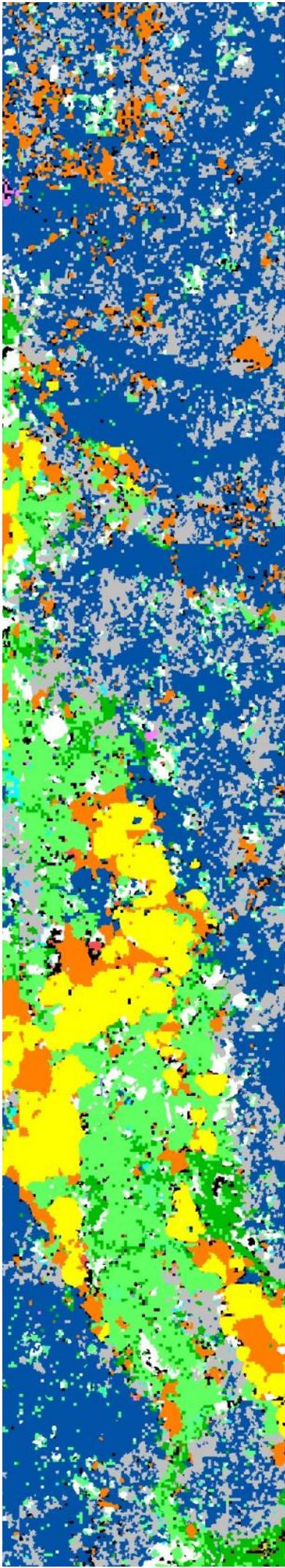
Email: CODES.Info@utas.edu.au

Robert.Scott@utas.edu.au

Website: <http://www.utas.edu.au/codes/masters-short-courses>



INVITED PRESENTERS



Toni Kojovic is a highly accomplished and recognized leader in the field of mining and mineral processing. Toni is the managing director of SimSAGe and a comminution consultant with more than 30 years of experience, both as a Senior Researcher with the JKMRC and as Manager of Technical and Applied Research at Teck Cominco's Red Dog Mine in Alaska.

Scott Halley is a highly regarded consultant specialising in applied litho-geochemistry for geochemical exploration and mineral mapping. Scott has consulted to over 100 mining and exploration companies. He is an expert in the application of SWIR and whole-rock geochemical data to understand deposit mineralogy.

Sefton Darby leads Voconiq's advisory and consultancy function working with clients to improve performance in trust, social impacts and community sentiment. He has previously worked on public policy and natural-resource governance issues for a variety of NGOs, governments, corporations and international organisations.

Laurence Dyer is a senior lecturer and Discipline Lead - Metallurgical Engineering at Curtin University. His research interests lie in leaching, adsorption and precipitation and he has worked extensively in precious metal, rare earth, nickel and copper extraction as well as iron chemistry. Laurence is currently investigating precious metal tellurides and identifying alternative treatment methods for rare earth minerals.

Industry case studies will be presented from specially selected geometallurgists and ore body knowledge representatives. Case studies will provide examples of best practice approaches to the industry application of geometallurgical studies to mitigate risk, solve problems and realise opportunity.

Teresa McGrath is a Senior Research Fellow at WA School of Mines, Curtin University and Manager of the Gold Technology Group and AMIRA P420 Gold Processing Technology Project. Teresa has experience in conducting and reporting plant surveys, modelling plant optimisation, designing and implementing laboratory test work programs and delivering technology transfer workshops.

Naomi Boxall is a microbiologist at CSIRO with research interests in industrial and environmental biotechnology. She researches innovative waste management technologies, recovery of metals from secondary sources, biomining, bioremediation, sustainability in mining and synthetic biology for mining and waste bioprocesses.

Joe Pease is a consultant to the minerals industry with Mineralis where he provides expert support for operations, researchers, technology suppliers and financiers. Based on 35 years experience in metallurgical analysis, operations management, directing research, technology development and commercialisation, Director and CEO roles

Luke Keeney is a technical specialist in mineral concentration with Anglo American with global experience in geometallurgy and process optimisation. Luke has worked in a variety of roles covering open pit slope design, geometallurgical research and consulting and has extensive practical and laboratory experience.

Invited: Dave Green is a geologist and HyLogger specialist, Mineral Resources Tasmania

CODES presenters: Julie Hunt, Angela Escolme, Ron Berry, Leonid Danyushevsky, Sebastien Meffre, Matthew Cracknell, Michael Roach, Clare Miller, Lejun Zhang, Javier Merrill, Nathaly Guerrero

CSL (Central Science Laboratory), UTAS presenters: Thomas Rodemann, Sandrin Feig

PRELIMINARY PROGRAM

WEEK 1

Monday 18th October

Introduction to geometallurgy — Angela Escolme, Julie Hunt

Participant introductions

Sample selection and preparation — Julie Hunt

Characterisation tools and techniques — Leonid Danyushevsky, Sebastien Meffre

Tuesday 19th October

Comminution — Toni Kojovic (SimSAGe)

Gold processing — Teresa McGrath (WASM)

Wednesday 20th October

Statistics — Toni Kojovic (SimSAGe)

Gold processing — Teresa McGrath (WASM)

Thursday 21st October

Base metal recovery — Joe Pease (Mineralis)

Project introduction — UTAS staff

Friday 22nd October

Hydrometallurgy and pyrometallurgy — Laurence Dyer (Curtin)

Mineralogy from geochemistry — Scott Halley (Mineral Mapping), Angela Escolme

Saturday 23rd October

Characterisation tools and techniques — Thomas Rodemann, Sandrin Feig, Angela Escolme, Michael Roach, Lejun Zhang, Dave Green (MRT)

WEEK 2

Monday 15th November

Pre-concentration — Luke Keeney (Anglo American)

Virtual tour of Savage River mine and processing plant — Michael Roach

Project tutorial — UTAS staff

Tuesday 16th November

Mine waste characterisation and management — Clare Miller

Geomicrobiology — Naomi Boxall (CSIRO)

Wednesday 17th November

Image analysis and data analytics — Ron Berry, Matthew Cracknell, Javier Merrill

Sustainability and social licence — Sefton Darby (Voconiq)

Thursday 18th November

Industry case studies (TBC)

Friday 19th November

Advances in geometallurgy — Julie Hunt

Student presentations



REGISTRATION FORM

Geometallurgy

Week 1: 18-23 October, 2021

Week 2: 15-19 November, 2021

Please complete and return to:

CODES

University of Tasmania, Private Bag 79

Hobart, Tasmania, Australia 7001

Ph: +61 3 6226 2472

Email: CODES.Info@utas.edu.au

PERSONAL DETAILS

Title—Please highlight (Prof / Dr / Mr / Mrs / Ms / Miss)

First Name: Last Name: (surname / family name):

Preferred Name:

Position:

Company / University / Affiliation:

Address:

City: State: Postcode: Country:

Email: Phone (mobile / cell):

Dial-in Location (ie City): Dial-in Timezone (e.g. UTC+5):

REGISTRATION FEES

All fees are in Australia dollars (AUD) and include GST.

Please indicate

Minerals Geoscience Masters Program (MGM) Students:

(Excludes UTAS tuition fee)

- Full course (free) - University of Tasmania enrolled
- Full course (free) - University of Western Australia enrolled

Industry Participants:

- Full course (\$3,300)*
- __ days at \$550/day (maximum charge 6 days)

CODES Staff/Students:

- Short course classes (free, indicate days below)

Other Full-time Students (proof of current student status required):

- Full course (\$550)*

PLEASE NOTE: Participants *NOT* attending entire course, please circle selected days

Week 1: 18 19 20 21 22 23 October

Week 2: 15 16 17 18 19 November

* Participant numbers are capped, with preference to enrolled MGM students. Other interested parties will be advised if they have secured a place on the course by 11th October, 2021.

PAYMENT

Registrations are due by 8th October, 2021. Full payment must be received by 15th October, 2021.

Preferred payment method. Please indicate

- Credit Card
Upon receipt of your registration from you will be provided with a payment reference number and web address for online payments. Please note: Credit card details cannot be accepted by email.
- Cheque or Bank Draft
Please make cheques and bank drafts payable to "The University of Tasmania". Bank drafts must be made out in Australian currency (AUD).
- Invoice
Name, address and email address for person responsible for payment of invoice:
.....
.....
.....

Please retain a copy of this form for your records and email to CODES.Info@utas.edu.au