

MASTER OF ECONOMIC GEOLOGY SHORT COURSE

Exploration in Brownfield Terrains

High-technology exploration in data-rich
environments

October 19–30, 2020

Delivery will be in English, and interactive sessions will occur
between 9AM - 5:20PM AEDT (+11UTC)



Exploration in data-rich environments, close to existing mines, has become a preferred method of increasing company resources in recent years. With this exploration philosophy in mind, CODES is proud to present a Masters-level short course designed to bring participants up to date with the latest exploration techniques.

The course will cover cutting-edge technologies in geophysics, geochemistry, hyperspectral reflectance and 3D visualisation, using real data from world-class mineralised districts. The short course is presented by expert teaching staff from CODES and leading minerals industry professionals.



Participants will require a computer capable of running Leapfrog Geo and ioGas in order to facilitate 3D visualisation and analysis of exploration data. Training licences for these software packages will be available if required by participants.

Exploration in Brownfield Terrains
is offered as a unit in the national Minerals Geoscience
Masters program.

MASTER OF ECONOMIC GEOLOGY

THE MOST COMPREHENSIVE MASTER 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 update 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 seven units annually or in rotation over a two-year period. Most units are of two weeks duration.

Courses offered by CODES

- KEA707 Ores in Magmatic Arcs: next offered 2021 *
- KEA708 Volcanology and Mineralisation in Volcanic Terrains (New Zealand, western Tasmania): next offered March 2022
- KEA709 Ore Deposit Geochemistry, Hydrology and Geochronology: next offered 2021 *
- KEA710 Exploration in Brownfield Terrains: next offered 19–30 October 2020
- KEA711 Geometallurgy: next offered 2021 *
- KEA712 Ore Deposit Models and Exploration Strategies: next offered October 2022
- KEA713 Geodata Analytics: next offered October–December 2020
- KEA718 Advanced Field Skills in Economic Geology: next offered 2021 *

* 2021 course schedule yet to be finalised due to uncertainty of COVID19 related border restrictions

Fees

UTAS tuition fees for 2020 are \$2,381 per unit (8 in total) for domestic students and \$8,488 (AUD) per unit for full-fee paying overseas students (FFPOS). Field-based courses have additional costs. Costs will vary for units taught by other MGM partner institutions.

Entry Requirements

A 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.

For further information contact:

Dr Robert Scott
Masters Coordinator, CODES
Private Bag 79, Hobart 7001, Australia
Tel: +61 3 6226 2786
Email: Robert.Scott@utas.edu.au
CODES.Info@utas.edu.au
Website: <http://www.utas.edu.au/codes/masters-short-courses>

CONFIRMED PRESENTERS AND PANELLISTS

John Ashton worked in several roles for Boliden at the Navan Zn-Pb mine in Ireland including Chief Mine Geologist and as Chief Exploration Geologist up to retirement in 2019. Earlier work includes PhD research on Zn-Pb-Au vein geology and litho-geochemistry in Central Wales, and as mine geologist at the Silvermines Zn-Pb orebody in Ireland. Experience and interests include 3D geological modelling, resource estimation, the genesis of carbonate-hosted Zn/Pb deposits and exploration for base metal deposits. Since retirement he has been providing consultancy services to Boliden's exploration JVs in Ireland

Nick Cook is President, Mawson Resources

Kevin Creel is VP North American Discoveries, Barrick.

Kim Denwer is Group Manager of Geoscience, MMG. He oversees mine geology and brownfields exploration at all MMG mine sites, including Las Bambas, Rosebery, Duguld River and Kinsevere.

Bruce Gemmell is Consultant, Gemmell Geoscience and Honorary Research Professor at UTAS. He specialises in volcanic-hosted massive sulfide deposits, low-intermediate and high-sulfidation epithermal deposits and hydrothermal alteration.

Scott Halley is an independent consultant specializing in exploration geochemistry, and the application of multi-element ICP geochemistry and SWIR analysis to mapping alteration mineral zonation patterns around hydrothermal systems. Over the past 10 years, Scott has consulted to more than 130 mining and exploration companies in more than 25 countries.

Jeff Hedenquist is a consulting geologist and one of the world's leading experts on epithermal gold systems. He is also Adjunct Professor at the University of Ottawa, Canada.

Kate Hine is the Principal Consultant for, and a Director of, Mitre Geophysics which has been advising the mining industry since 1980, and has worked on projects across the globe including both Antarctica and the Arctic. Kate has 18 years experience working on a wide variety of commodities in a range of different geological settings, with some of the most interesting and exciting discoveries in Australia and worldwide. In Kate's portfolio of discoveries, several are more than 400m below surface with no surface indications. Her particular specialty is high quality EM processing and interpretation, but she also has unrivalled expertise in MMR methods, used to detect and define weakly conductive mineralisation. Kate is also active in research and publication and has won two 'Best Paper' awards from the Australian Society of Exploration Geophysicists. She is also regularly invited to speak at industry events. Kate graduated in 2002 from the University of Tasmania.

Terry Hoschke is Consultant Geophysicist, Alterrex. He has extensive global experience in gold and base metal exploration, and is author of 'Geophysical signatures of copper-gold porphyry and epithermal gold deposits, and implications for exploration'.

Ned Howard is Principal Geologist, Technical at Evolution Mining. After graduating from UTAS with BSc Hons in 2004, Ned worked as an exploration geologist with Barrick and junior companies in Australia, Indonesia, PNG and Canada, before joining Evolution Mining in 2013. With Evolution, he has held geoscience and project generation roles supporting their near-mine and greenfields exploration efforts. He specializes in geochemical and spectral applications and has worked on a number of gold deposit styles, predominately Archean greenstone and epithermal.

David Isles is an Exploration Consultant, TGT Consulting. He offers consulting and training services focused on interpretation of aeromagnetics, gravity and radiometrics in mineral and oil exploration applications.

Andrew McNeill is Geological Survey Manager, Mineral Resources Tasmania. Following the completion of his PhD at CODES in 1998, Andrew spent many years as an exploration geologist in both Tasmania and mainland Australia, as

well as six years at CODES working on VHMS and magmatic Ni.

Gustav Nortje is Regional Chief Geologist—Americas at Newmont. He has over 16yrs experience in regional to near-mine exploration and structural geology.

Dave Rhys is a Consulting Structural Geologist, Panterra Geoservices. He has extensive experience in gold deposits, having worked globally on numerous gold districts of various types for a variety of clients including both major and junior companies.

Shaun Schneider is Director of Near-Mine Exploration at Newmont

Ian Scrimgeour is Executive Director, Northern Territory Geological Survey

David Selley is a structural geologist, with a research history of ore formation and location in sedimentary basin settings. He has led major multi-disciplinary research projects on the Central African Copperbelt, held senior technical roles in the minerals industry, and presently works as an independent consultant.

Michael Vande Guchte is VP Exploration, Constantine Metal Resources.

Tony Webster is Principal Structural Geologist, GeoDiscovery Group. He specialises in the application of structural geology to problems in mining and exploration geology. He has extensive expertise in Broken Hill-Type (BHT) Pb-Zn-Ag deposits, and in unravelling the litho-structural architecture of complexly deformed ore deposits.

Lesley Wyborn is Honorary Professor, Australian National University. Her geoscience research focuses on improving the understanding of major Proterozoic Granite Systems and in developing the concepts for national to regional controls on major Mineral Systems.

CODES PRESENTERS

Shaun Barker

Ross Large

Robert Scott

Jonathan Cloutier

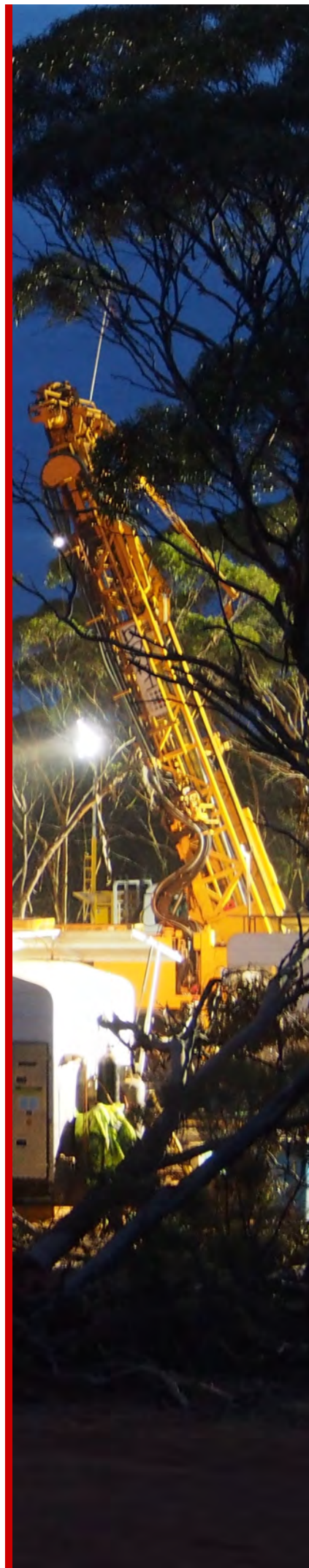
Michael Roach



PROGRAM

Monday 19 October	Introduction to Brownfield Exploration: Perspectives and Case Histories (Jonathan Cloutier, Ned Howard, Shaun Schmeider, John Ashton) Panel 1: Brownfield Philosophies: Past, Present and Future (Ned Howard, Shaun Schmeider, John Ashton)
Tuesday 20 October	Brownfield exploration in VHMS districts: Geology (Jonathan Cloutier, Michael Vande Guchte) Panel 2: Exploration in Mature Terrane: The Mount Read Volcanics (Kim Denwer, Scott Halley, Ross Large)
Wednesday 21 October	Brownfield exploration in VHMS districts: Geochemistry (Scott Halley) Brownfield exploration in VHMS districts: Hyperspectral Reflectance (Jonathan Cloutier)
Thursday 22 October	Brownfield exploration in VHMS districts: 3D Modelling (Jonathan Cloutier)
Friday 23 October	Panel 3: Exploration for Low-Sulfidation Deposits: Techniques and Challenges (Bruce Gemmell, Ned Howard, David Selley, Jeff Hedenquist) Brownfield exploration in LS Epithermal Districts (Shaun Barker)
Saturday 24 October	Panel 4: Success and Challenges in the Coromandel Goldfields, New Zealand (Terry Hoschke, Gustav Nortje, Dave Rhys) Brownfield exploration in LS Epithermal Districts (Shaun Barker)
Sunday 25 October	Private Study
Monday 26 October	Panel 5: An Introduction to the Pine Ck Inlier, Northern Territory (Ian Scrimgeour, David Isles, Lesley Wyborn) Brownfield exploration in Proterozoic Au Districts (Robert Scott, Michael Roach)
Tuesday 27 October	Brownfield exploration in Proterozoic Au Districts (Robert Scott, Michael Roach) Panel 6: Working with Old Data: Challenges and Opportunities (Tony Webster, Kate Hine, Andrew McNeill)
Wednesday 28 October	Brownfield exploration in Proterozoic Au Districts (Robert Scott, Michael Roach)
Thursday 29 October	Panel 7: Case Studies of Brownfields Exploration (Kevin Creel, Nick Cook, TBC x 1) Brownfield exploration in Proterozoic Au Districts (Robert Scott, Michael Roach)
Friday 30 October	Student Presentations and Wrap-Up

** An option to register for just the Panel sessions is available. Please see CODES social media, or email CODES.Info@utas.edu.au for more information



REGISTRATION FORM

Exploration in Brownfield Terrains

19—30 October, 2020

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+10):

REGISTRATION FEES

All fees are in Australian 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), 6 or more days
 __ days @ \$550/day

Other Students (must provide proof of student status):

- Full course (\$550)

PLEASE NOTE:

Participants **NOT** attending entire course, please circle selected days

Week 1: 19 20 21 22 23 24 October

Week 2: 26 27 28 29 30 October

TOTAL AMOUNT DUE: \$

* Participant numbers for this course are capped, with preference to enrolled MGM students. Other interested parties will be advised whether their preferred participation option is available by October 8th.

PAYMENT

Registrations are due by the 6th October, 2020. Full payment must be received by the 15th of October, 2020.

Preferred payment method. Please indicate

- Credit Card
Upon receipt of your registration form and confirmation of your place, 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 or post original to CODES.Info@utas.edu.au

MGM STUDENTS: THIS FORM DOES NOT CONSTITUTE AN OFFICIAL UNIVERSITY ENROLMENT – YOU MUST ALSO ENROL THROUGH YOUR HOME INSTITUTION