

## MASTER OF ECONOMIC GEOLOGY UNIT

*via blended delivery (in-person and virtual)*

# Ore Deposit Models and Exploration Strategies

Including a 3 day Critical and Strategic Metals Symposium

Week 1: 3—8 June, 2024

Week 2: 8—12 July, 2024

Content will be delivered in-person and online via Zoom between 9am and 6pm AEST (UTC+10)



CODES, Centre for Ore Deposit and Earth Sciences, University of Tasmania

CRICOS Provider Code 00586B





*CODES' Master of Economic Geology unit Ore Deposit Models and Exploration Strategies, presented by a range of CODES and invited experts, provides an up-to-date synopsis of key ore deposit types including porphyry, epithermal, and skarn deposits, IOCG deposits, magmatic sulfide deposits, orogenic and Carlin-type gold deposits, volcanic-hosted massive sulfide and sea-floor hydrothermal deposits, sediment-hosted-Cu, Zn-Pb, Broken Hill-type deposits and critical and strategic metal resources. Most deposit types receive the equivalent of a full day of lectures and practical exercises, addressing the location, characteristics, genesis and exploration strategies.*

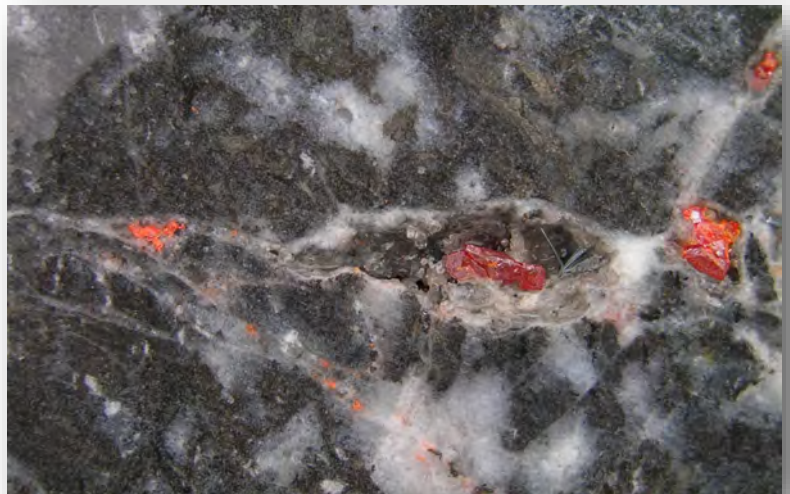
## PRESENTERS

### Invited Presenters

**Michael Anenburg** (Australian National University)  
**Stephen Barnes** (CSIRO)  
**Evgeniy Bastrakov** (Geoscience Australia)  
**John Bishop** (Mitre Geophysics)  
**Phil Blevin** (Geological Survey of NSW)  
**Yanbo Cheng** (Geoscience Australia)  
**Jonathan Cloutier** (Geoscience Australia)  
**Kathy Ehrig** (BHP)  
**Arianne Ford** (Geoscience Australia)  
**Denis Fougereuse** (Curtin University)  
**Ignacio Gonzalez-Alvarez** (CSIRO)  
**Anthony Harris** (Newmont)  
**Scott Halley** (Mineral Mapping)  
**Terry Hoschke** (Alterrex)  
**Ned Howard** (Evolution Mining)  
**Tim Ireland** (First Quantum Minerals)  
**Ryan Manton** (CSIRO)  
**Adi Maryono** (J Resources)  
**Cam McCuaig** (BHP)  
**Indrani Mukherjee** (University of NSW)  
**Jacob Mulder** (University of Adelaide)  
**Josh Phillips** (Stellar/Consulting)  
**Maria Rodriguez-Mustafa** (University of British Columbia)  
**Penny Sinclair** (Sinclair Geoscience)  
**Jeneta Wellard** (Godolphin Resources)  
**Noel White** (Independent)

### CODES Presenters

**Sheree Armistead, Mike Baker, Jose Barillas, Stuart Bull, Yamila Cajal, David Cooke, Vinicius da Cruz, Wei Hong, Ross Large, Owen Missen, Paula Montoya, Jaime Osorio, Rob Scott, Jeff Steadman, David Selley, Lejun Zhang**



***Ore Deposit Models and Exploration Strategies***  
*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 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 (MGM) 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: Option 1 (research pathway):* requires the completion of six coursework units (worth 75% of total credit points) and a minor research thesis (worth 25%). Five of the units must be completed at CODES including thesis units KEA724 and KEA725, core units KEA712, KEA716 and at least one field-based unit, while the remainder may be completed at other participating universities. Duration: 18–24 months full-time; up to 36 months part-time (flexible in recognition of industry participants).

*Option 2 (professional pathway):* requires the completion of eight units of coursework, at least five of which must be undertaken at CODES including core units KEA712, KEA716 and

at least one field-based unit. Duration: up to 36 months part-time (but flexible in recognition of constraints on 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.

#### Fees

UTAS tuition fees are approximately \$2,237 per unit (8 in total) for domestic students (2024 rate for Commonwealth Supported Places) and \$9,313 (AUD) per unit for full-fee paying overseas students (FFPOS) (2024 rate). Field-based units 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, or a Graduate Certificate in Economic Geology (K5F). International students should be aware that English language proficiency requirements also apply.

#### Masters units offered by CODES

- 8 – 13 April & 6 – 10 May 2024:  
KEA716 Fundamentals of Economic Geology \*
- 3 – 8 June & 8 – 12 July 2024:  
KEA712 Ore Deposit Models and Exploration Strategies #
- 5 August – 27 October 2024 (Intensive Part 2: 16 – 20 September):  
KEA713 Geodata Analytics \*
- 28 October – 2 November & 18 – 22 November 2024:  
KEA710 Exploration in Brownfield Terrains #
- February 2025:  
KEA718 Advanced Field Skills in Economic Geology ^
- March 2025:  
KEA707 Ores in Magmatic Arcs (Indonesia) ^
- April – May 2025:  
KEA716 Fundamentals of Economic Geology \*
- June – July 2025:  
KEA709 Ore Deposit Geochemistry, Hydrology and Geochronology #
- August – October 2025 (Intensive Part 2: September):  
KEA713 Geodata Analytics \*
- September – October 2025:  
KEA707 Ores in Magmatic Arcs (South America) ^
- October 2025:  
KEA711 Geometallurgy ^
- February 2026:  
KEA718 Advanced Field Skills in Economic Geology ^
- March 2026:  
KEA708 Volcanology and Mineralisation in Volcanic Terrains (New Zealand, western Tasmania) ^

\* **online delivery**

# **blended delivery (face to face and online)**

^ **face to face delivery**

#### **For further information contact:**

Dr Robert Scott &/or CODES Info  
Masters Coordinator, CODES  
Private Bag 79, Hobart 7001, Australia  
Tel: +61 3 6226 2786  
Email: [CODES.Info@utas.edu.au](mailto:CODES.Info@utas.edu.au)  
[Robert.Scott@utas.edu.au](mailto:Robert.Scott@utas.edu.au)  
Web: [utas.edu.au/codes/masters-short-courses](http://utas.edu.au/codes/masters-short-courses)



# PROVISIONAL PROGRAM

## WEEK 1: June 3—8

Monday June 3	<b>Introduction, using models in exploration; exploration strategies forum</b>	Session leader: David Cooke Speakers: Noel White, Terry Hoschke, Cam McCuaig, Penny Sinclair, Ned Howard, Jeneta Wellard, Tim Ireland, Adi Maryono
Tuesday June 4	<b>Porphyry and epithermal deposits</b>	Session leaders: David Cooke, Lejun Zhang Speakers: Noel White, Terry Hoschke, Jaime Osorio
Wednesday June 5	<b>Epithermal and skarn deposits</b>	Session leaders: Lejun Zhang, David Cooke Speakers: Noel White, Terry Hoschke
Thursday June 6	<b>VHMS deposits</b>	Session leader: Mike Baker Speakers: Ross Large
Friday June 7	<b>Orogenic gold deposits</b>	Session leader: Rob Scott Speakers (PM): students
Saturday June 8	<b>Carlin-type gold deposits</b>	Session leader: Rob Scott Speakers (PM): students



## WEEK 2: July 8—9

Monday July 8	<b>IOCG deposits</b>	Session leader: Jeff Steadman Speakers: Maria Rodriguez-Mustafa
Tuesday July 9	<b>Sediment-hosted Cu deposits</b>	Session leader: David Selley Speakers: Stuart Bull, Jonathan Cloutier, Alex Farrar, Scott Halley, Jacob Mulder, Rob Scott
Wednesday July 10—Friday July 12	<b>Critical and Strategic Metals Symposium</b>	See next page

# Critical and Strategic Metals Symposium

## Introduction to critical metals

*Session leader:* Owen Missen

Wednesday July 10

AM

*Speakers:* David Cooke (CODES, University of Tasmania)  
 Denis Fougere (Curtin University)  
 GA Representative  
 Owen Missen (CODES, University of Tasmania)  
 Vinicius da Cruz (CODES, University of Tasmania)

*Opening to symposium*  
*Diversity of by-product critical elements distribution in ore minerals at the nanoscale*  
*National critical metals initiatives*  
*A holistic approach to Critical Metals—Introduction to the RRC project*  
*Critical metals at the Rosebery VHMS deposit, western Tasmania*

## Lithium

*Session leader:* Paula Montoya

PM

*Speakers:* Evgeniy Bastrakov (Geoscience Australia) \*  
 John Bishop (Mitre Geophysics)  
 Wei Hong (CODES, University of Tasmania)  
 Ryan Manton (CSIRO)

*Lithium in Australia: geochemistry and deposits*  
*Exploration strategies for Li brines*  
*Greisen-hosted Li mineralisation in eastern Tasmania*  
*Remote sensing to drill core recognition of Li pegmatite mineralisation*

## Granite-related Sn and W

*Session leader:* Lejun Zhang

Thursday July 11

AM

*Speakers:* Phil Blevin (Geological Survey of NSW) \*  
 Yanbo Cheng (Geoscience Australia)  
 Lejun Zhang (University of Tasmania)  
 Josh Phillips (Stellar/Consulting)

*Sn-W deposits in eastern Australia*  
*Sn-W deposits: South China and North Queensland*  
*Sn-W deposits in Tasmania and beyond*  
*New Sn discovery: Scamander*

## Rare earth elements

*Session leader:* Wei Hong

PM

*Speakers:* Ignacio Gonzalez-Alvarez (CSIRO) \*  
 Kathy Ehrig (BHP) \*  
 Arianne Ford (Geoscience Australia)  
 Michael Anenburg (Australian National University)

*Discussing the REE Ecosystem: Global context and Australian views on challenges and opportunities*  
*REE in Olympic Dam*  
*Carbonatite-related REE mineral potential of Australia*  
*Formation of REE deposits in carbonatites*

## Cobalt and copper

*Session leader:* Sheree Armistead

Friday July 12

AM

*Speakers:* David Selley (CODES, University of Tasmania) \*  
 Indrani Mukherjee (University of NSW)  
 Jeff Steadman (CODES, University of Tasmania)  
 Owen Missen (CODES, University of Tasmania)

*Cu-Co exploration in the Central African Copperbelt*  
*Sediment-hosted Cu in the Stuart Shelf, South Australia*  
*Cobalt deportment in IOCG systems*  
*Cu in regolith environments*

## Nickel and PGEs

*Session leader:* Yamila Cajal

PM

*Speakers:* Stephen Barnes (CSIRO) \*  
 Jose Barillas (CODES, University of Tasmania)  
 Adi Maryono (J Resources)

*Magmatic Ni-Cu-PGE sulfide ores: genetic models and exploration strategies*  
*The Avebury Ni deposit, western Tasmania*  
*Laterite nickel deposits of Indonesia*

\* keynote presentation

For updates, please visit: <https://bit.ly/CODES-CSMS>



# REGISTRATION FORM

## Ore Deposit Models and Exploration Strategies

Week 1: 3 – 8 June, 2024

Week 2: 8 – 12 July, 2024

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):.....

Dietary requirements / allergies / other health issues: .....

### 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 unit (free)- University of Tasmania enrolled

Full unit (free)- University of Western Australia enrolled

#### Industry/Professional Participants:

Full unit (\$3,900) in-person attendance

\_\_\_ days at \$685/day in-person (max charge \$3,900, circle days below)

Full unit (\$3,600) virtual attendance

\_\_\_ days at \$650/day virtual (max charge \$3,600, circle days below)

#### Other Full-time Students:

A limited number of discount places may be available for full-time students from other institutions. Please contact [CODES.Info@utas.edu.au](mailto:CODES.Info@utas.edu.au) to inquire about availability, together with proof of current full-time enrolment.

### ADDITIONAL SYMPOSIUM-RELATED OPTIONS

Symposium dinner (\$100)

Core viewing (Saturday 13th July) (\$50)

3 day field trip to W Tas mines (Sunday 14th—Tuesday 16th) (\$800)

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

Week 1: 3 4 5 6 7 8 June

Week 2: 8 9 10 11 12 July

### PAYMENT

Registrations are due by 3<sup>rd</sup> of May, 2024. Full payment must be received by 17<sup>th</sup> of May, 2024.

Preferred payment method. Please indicate

Credit Card

Upon receipt of your registration form 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.

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](mailto:CODES.Info@utas.edu.au)**

# REGISTRATION FORM

## CODES Critical and Strategic Metals Symposium

10 – 12 July, 2024

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):.....

Dietary requirements / allergies / other health issues: .....

### REGISTRATION FEES

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

Please indicate

#### Industry/Professional Participants:

- Full symposium early bird (\$1,900) in-person attendance ^
- Full symposium (\$2,050) in-person attendance
- \_\_ days at \$685/day in-person (circle days below)

- Full symposium early bird (\$1,800) virtual attendance ^
- Full symposium (\$1,950) virtual attendance
- \_\_ days at \$650/day virtual (circle days below)

#### Other Full-time Students (proof of full-time enrolment required):

- Full symposium early bird (\$380) in-person attendance ^
- Full symposium (\$420) in-person attendance
- \_\_ days at \$140/day in-person (circle days below)

- Full symposium early bird (\$330) virtual attendance ^
- Full symposium (\$375) virtual attendance
- \_\_ days at \$125/day virtual (circle days below)

### ADDITIONAL SYMPOSIUM-RELATED OPTIONS

- Symposium dinner (\$100)
- Core viewing (Saturday 13th July) (\$50)
- 3 day field trip to W Tas mines (Sunday 14th—Tuesday 16th) (\$800)

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

July 10 11 12

### PAYMENT

Registrations are due by 14<sup>th</sup> of June, 2024. Late registrations (June 15<sup>th</sup>–28<sup>th</sup>) will incur a late penalty of \$150 for industry/professional, and \$50 for students. Full payment must be received by 28<sup>th</sup> of June, 2024. ^ Please note the early bird payment deadline is midnight April 30<sup>th</sup> (AEST).

Preferred payment method. Please indicate

- Credit Card  
Upon receipt of your registration form 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.

- 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**

**^ early bird payment deadline is midnight April 30<sup>th</sup> (AEST)**