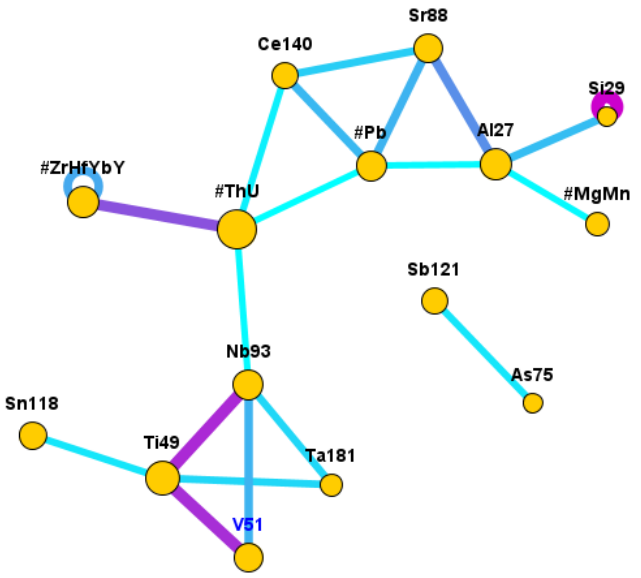

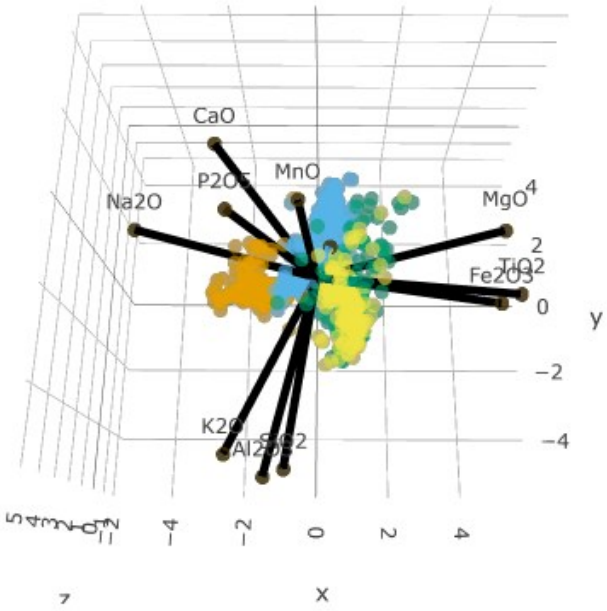

MASTER OF ECONOMIC GEOLOGY UNIT

via online delivery

Geodata Analytics

5 August—27 October 2024

Delivery will be in English, and interactive sessions (Part 2: 16-20 September) will occur between 9AM - 5PM AEST (UTC+10)

CODES
CENTRE FOR ORE DEPOSIT AND EARTH SCIENCES

UNIVERSITY of TASMANIA
CODES

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

CRICOS Provider Code 00586B

Geodata Analytics
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 (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 (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 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, or a Graduate Certificate of Economic Geology (K5F). International students should be aware that English language proficiency requirements also apply.

Masters units offered by CODES

- 1 – 14 March 2024:
  KEA708 Volcanology and Mineralisation in Volcanic Terrains (New Zealand, western Tasmania) ^
- 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 ^

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

For further 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
Web: utas.edu.au/codes/masters-short-courses

PRELIMINARY PROGRAM

PART 1 - FUNDAMENTALS

Online self-directed & self-paced learning

5 August—13 September 2024 (6 weeks)

Basic statistics, databases and exploratory data analysis, data formats and data preparation such as filtering and transformation, classification and database queries, image analysis and segmentation. Assessment via online quiz and short literature review video.

Lesson topics:

- Data analytics and basic statistics
- Databases and data wrangling
- Data transforms, dimensionality reduction and text processing
- Unsupervised learning
- Supervised learning
- Image processing

PART 2 - METHODS AND TOOLS

Online lectures and practicals– intensive delivery

16—20 September 2024 (1 week)

Identify, integrate and process relevant data to produce models, carry out analysis and visualization with an emphasis on building editable, functional and reproducible data analysis workflows. Datasets will focus on mineral exploration or mining-related problems.

Lecturer expertise:

- Geological databases and online data access
- Compositional data analysis
- Text processing and mining
- Network analysis
- Unsupervised learning and segmentation
- Supervised image classification
- Deep learning

PART 3 - COLLABORATION, INTERPRETATION AND COMMUNICATION

Online self-directed & collaborative self-paced learning

23 September—27 October 2024 (5 weeks)

Using a variety of geoscience datasets and working both individually and in groups, students will carry out a series of data analyses to, for example, identify prospective areas in mineral exploration environment, or predict rock properties around a mine. Students will be required to integrate their analyses and findings in small groups and contribute to an online seminar.

In the geosciences, as in all areas of human endeavour, the amount and availability of digital data is increasing exponentially. Increasingly, industry-based geoscientists will be expected to use sophisticated, cost-effective and innovative methods to process and interpret large amounts of multivariate digital data to enhance insight, decision making, and process automation. This rapid and ongoing shift from manual to automated methods for modelling complex geological phenomena has resulted in a knowledge gap. This limits the possible degree of understanding and knowledge to be gained from data or in the worst case, poor choices for analyses may lead to erroneous interpretations.

The Geodata Analytics unit will focus on rigorous and reproducible methods for extracting and visualising meaningful information from geological data. Participants will learn data science fundamentals, how to design and construct automated workflows and communicate resultant models to aid collaborative interpretation and facilitate decision making.

This unit is divided into three parts delivered online and in succession.

UNIT PRESENTERS

Matthew Cracknell is a Lecturer and Researcher at CODES. He is an expert in geoscience data analysis, modelling and visualisation.

Guest presenters for the unit will be confirmed soon.

UNIT INFORMATION

Participants should ensure they have admin rights on their computer. Those completing Parts 2 and 3 will also need to be able to access/use various platforms/ software packages such as YouTube and Zoom in order to complete assessment items. More information will be provided in an FAQ document once registration is complete.

FEEDBACK

"The learning material … was really impressive and I appreciated having so much detail and further reading … and the guest speakers were excellent across the board"

"The lecturer put a tremendous amount of his time into the unit with great tutorials and made himself available for questions and feedback"

"Just an excellent example of how to deliver an online unit and engage students of different experience levels."

"I am now able to build a workflow to reduce workload when performing repetitive data compilation and wrangling tasks."

"For somebody with zero background in coding or machine learning I found Part 1 a positive, providing a sufficient background in the subject matter at a manageable pace"

REGISTRATION FORM

Geodata Analytics

5 August—27 October 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: .....

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. Fees do not include tuition costs for enrolled students.

Please indicate ☑

Minerals Geoscience Masters Program (MGM) Students:

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

Industry Participants:

☐ Full course ($3,600)
☐ Part One ($1,100)
☐ Part Two (requires completion of Part One) ($1,800)
☐ Part Three (requires completion of Part Two) ($1,800)

Other Full-time Students:

☐ Full course ($600)
☐ Part One ($180)
☐ Part Two (requires completion of Part One) ($300)
☐ Part Three (requires completion of Part Two) ($300)

MGM STUDENTS: THIS FORM DOES NOT CONSTITUTE AN OFFICIAL UNIVERSITY ENROLMENT—YOU MUST ALSO ENROL VIA ESTUDENT AND ENSURE TUITION FEES ARE PAID BY THE PAYMENT DEADLINE (AUGUST 2ND) OR IMMEDIATELY UPON ENROLMENT IF ENROLLING AFTER AUGUST 2ND.

PAYMENT

Registrations are due by the 19th of July, 2024. Full payments for external participants are due by the 26th of July, 2024.

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.

☐ Invoice (payment can be made by credit card or bank transfer)

Invoice to (name/company): .....
Attention to (optional): .....
Reference (e.g. order number (optional)): .....
Address: .....
.....
.....
Email address: .....

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