

Unit Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Unit Title: ECONOMIC GEOLOGY

Unit ID: SCGEO3116

Credit Points: 15.00

Prerequisite(s): SCGEO1103

Co-requisite(s): Nil

Exclusion(s): (SCGEO2105)

ASCED: 010703

Description of the Unit:

This unit provides students with a solid grounding in the fundamental concepts and skills they will need to put their work in the minerals industry into its geological context. The unit describes the formation and occurrence of the major ore deposit styles in both space and time, and gives students the opportunity to improve their rock and mineral identification skills through observing samples from a range of world-class deposits. Students will also work in a multidisciplinary team to examine an important ore deposit.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Learning Outcomes:

This unit aims to provide students with a solid grounding in the fundamental concepts and skills they will need to work effectively in the minerals industry. The unit describes the formation and occurrence of the major ore deposit styles in both space and time, and gives students the opportunity to improve their rock and mineral identification skills through observing samples from a range of world-class deposits. At the completion of this unit, student will be able to:

Knowledge:

- K1.** Describe common ore deposit models and appreciate their significance in mineral exploration
- K2.** Describe the variety of ore minerals and textures and relate to ore deposit models and formation
- K3.** Define the relationship between plate tectonics and the distribution of mineral deposits in space and time
- K4.** Categorise and compare a range of world-class mineral deposits and explain their importance to humans

Skills:

- S1.** Review a mineral deposit and mining operation with integration of financial, mining, metallurgical and geological components
- S2.** Identify and differentiate a range of key minerals and describe associated ore deposit styles, and relate to commodities of use
- S3.** Demonstrate research and communication skills

Application of knowledge and skills:

- A1.** Identify and describe mineral and rock samples from a range of ore deposit styles
- A2.** Interpret likely ore deposit styles based on lithological and tectonic relationships
- A3.** Collaborate with others in a multi-disciplinary team and report the findings of an investigation

Unit Content:

Topics may include:

- Mineral Economics and human population
- Plate tectonics and metallogeny
- Ore deposit types including rock suites, alteration, host rocks, grade characteristics and mining methods
- Exploration practice related to specific deposit types
- Mining in a modern world - legislation, native title and environmental practice

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**tttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.*

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	<p>Students will demonstrate the ability to effectively communicate, inter-act and work with others both individually and in groups. Students will be required to display skills in-person and/or online in:</p> <ul style="list-style-type: none"> • Using effective verbal and non-verbal communication • Listening for meaning and influencing via active listening • Showing empathy for others • Negotiating and demonstrating conflict resolution skills • Working respectfully in cross-cultural and diverse teams. 	K1-K4, S1, S2, S3, A1, A3	AT1
FEDTASK 2 Leadership	<p>Students will demonstrate the ability to apply professional skills and behaviours in leading others. Students will be required to display skills in:</p> <ul style="list-style-type: none"> • Creating a collegial environment • Showing self-awareness and the ability to self-reflect • Inspiring and convincing others • Making informed decisions • Displaying initiative 	S1, S3, A3	AT3
FEDTASK 3 Critical Thinking and Creativity	<p>Students will demonstrate an ability to work in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in:</p> <ul style="list-style-type: none"> • Reflecting critically • Evaluating ideas, concepts and information • Considering alternative perspectives to refine ideas • Challenging conventional thinking to clarify concepts • Forming creative solutions in problem solving. 	K3, K4, S1, A2, A3	AT3

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 4 Digital Literacy	<p>Students will demonstrate the ability to work fluently across a range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in:</p> <ul style="list-style-type: none"> Finding, evaluating, managing, curating, organising and sharing digital information Collating, managing, accessing and using digital data securely Receiving and responding to messages in a range of digital media Contributing actively to digital teams and working groups Participating in and benefiting from digital learning opportunities. 	S1, A3	AT3
FEDTASK 5 Sustainable and Ethical Mindset	<p>Students will demonstrate the ability to consider and assess the consequences and impact of ideas and actions in enacting ethical and sustainable decisions. Students will be required to display skills in:</p> <ul style="list-style-type: none"> Making informed judgments that consider the impact of devising solutions in global economic environmental and societal contexts Committing to social responsibility as a professional and a citizen Evaluating ethical, socially responsible and/or sustainable challenges and generating and articulating responses Embracing lifelong, life-wide and life-deep learning to be open to diverse others Implementing required actions to foster sustainability in their professional and personal life. 	K1, K4, S1, A3	AT3

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1-K4, S2, A1-A2	Examine a range of mineral deposits as examples of those studied in class. Examine the importance, and social and ethical implications of our use of earth resources. Examine and describe samples from those deposits, and answer questions relating to their formation, geological and tectonic setting, alteration, and mineralogy.	Practical assignments	30-40%
K1, K4, S1, S2, S3, A3	Work in groups to research and report back on a particular commodity of economic value, using a specific nominated deposit as a case study.	Team-based research report	20-30%
K1-K4, S2, S3, A2	Students will be tested on their comprehension of concepts explored during the semester	Theory test	30-50%

Adopted Reference Style:

APA

Refer to the [library website](#) for more informationFed Cite - [referencing tool](#)