

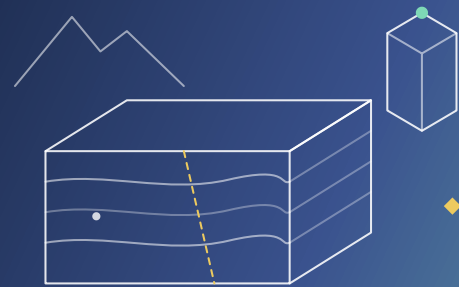
Module code

SPG-3407

Type of module

Undergraduate: Geosciences – Elective

Ore Deposits and Economic Geology



Modular credits

4

Total student
engagement

56 hours

Prerequisite

**SPG-1203 Introduction
to Geology**

Anti-requisite

None

Aims

To provide students with a comprehensive understanding of ore deposit types, their geological formation processes, and exploration techniques, whilst developing skills in mineral identification, data interpretation, and applying economic geology knowledge to real-world problems.

Module learning outcomes (MLO)

On successful completion of this module, a student will be expected to be able to:

MLO 1

Analyse the geological processes and settings that form the major types of ore deposits.

MLO 2

Evaluate and classify the main ore and gangue minerals using macroscopic and microscopic techniques.

MLO 3

Interpret and evaluate geochemical and mineralogical data relevant to economic geology.

MLO 4

Apply exploration methods to real-world case studies in prospecting for critical and economic metals.

MLO 5

Communicate geological interpretations and case study findings effectively through written reports and presentations.

Module contents

Introduction to ore geology fundamentals, covering terminology, ore formation processes, and prospecting techniques for critical metals

Deep-Earth Deposits: Study of ore-forming environments in the deep crust and mantle, with practical focus on recognising associated geological features

Major Economic Ore Systems: Comprehensive coverage of economically significant deposits including porphyry, skarn, IOCG, mesothermal, epithermal, and VMS systems, with practical identification skills

Sedimentary Deposits: Examination of placer and residual sedimentary deposits, with a concurrent case study assignment and midterm assessment

Uranium Deposits: Focus on uranium ore systems, extraction processes, safety considerations, and case study presentations

Optical Mineralogy: Practical training in reflected-light microscopy for ore mineral identification, covering gold-bearing minerals, sulphides, and oxides

Assessment

60%

Examination

40%

Coursework



■ Examination — 60% ■ Lab work — 5% ■ Lab reports — 5% ■ Midterm test — 20%
■ Case study presentation — 10%

Formative assessment	Summative assessment	
Weekly practicals, discussion and feedback	COMPONENT	WEIGHTING
	Examination	60%
	Coursework	40%
	Individual	30%
	Lab work	5%
	Lab reports	5%
	Midterm test	20%
	Group	10%
	Case study presentation	10%

Graduate attributes and skills

Programme learning objectives (PLO) addressed

- | | |
|--|---|
| <div>1</div> <div>PLO 1 (Fundamental Theoretical Knowledge in Geosciences)</div> | <div>2</div> <div>PLO 2 (Application of Scientific Methods and Data Analysis)</div> |
| <div>3</div> <div>PLO 3 (Integrated Laboratory, Field, and Technical Skills)</div> | <div>4</div> <div>PLO 4 (Critical Thinking and Problem-Solving Skills)</div> |
| <div>7</div> <div>PLO 7 (Independent Learning and Professional Development)</div> | |

Sustainability concept addressed

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| <div>9</div> <div>SDG 9 Industry, Innovation and Infrastructure</div> |
| <div>11</div> <div>SDG 11 Sustainable Cities and Communities</div> |
| <div>12</div> <div>SDG 12 Responsible Consumption and Production</div> |

Digital skills/software used (not limited to)

- ☒ Application software (e.g. Microsoft Word, Microsoft Excel, Presentation tools)
- ☒ Organisational tools (e.g. Notion)
- ☒ Advanced digital tools (e.g. Generative AI tools)

Micro-credentialling option Yes, 4 MCs	Stackable towards GenBESTARI Undergraduate Degree Programme or other relevant Lifelong Learning Programmes No
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Document details

Office **ODVCE** Document date **23 June 2026** Status **New** Approval **GBF (12/02/2006)**