

GEOL90014 Deposit Models & Mineral Exploration

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2011, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: Sixty hours. Specific activities will depend upon selected modules, but will be either class-room based workshop and/or field-based. Total Time Commitment: 120 hours
Prerequisites:	None.
Corequisites:	None.
Recommended Background Knowledge:	None.
Non Allowed Subjects:	None.
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. This subject requires all students to actively and safely participate in laboratory activities. Students who feel their disability may impact upon their participation are encouraged to discuss this with the subject coordinator and the Disability Liaison Unit.
Coordinator:	Assoc Prof Kevin Walsh
Contact:	Email: kevin.walsh@unimelb.edu.au
Subject Overview:	This subject comprises two short course modules dealing with our understanding of ore deposit formation and the implications for mineral exploration. The subject is suitable for Honours and postgraduate students, and for geologists in the mineral industry with some exploration and/or mining experience. Short-course modules in geochemistry, structural geology, regolith and geophysical exploration methods are available from which two must be selected for study.
Objectives:	<p>This subject aims to:</p> <ul style="list-style-type: none"> • equip students with discipline-specific knowledge and expertise appropriate for post-graduate research in the field; • equip students with discipline-specific knowledge and expertise enabling them to take their place as professional geologists in industry or government organisations. <p>Depending upon the specific modules selected, this subject will provide students with the confidence and competence to:</p> <ul style="list-style-type: none"> • recognise the importance and role of structure in the formation and modification of ore deposits; • develop strategies to interpret geology from regional aeromagnetic and gravity data; • synthesise geological, geophysical and geochemical data to remotely map buried basement rocks; • establish a regolith and landscape evolution framework; • assess and implement appropriate exploration tools (geochemical, biochemical, geophysical) within the context of the basement and cover geology and the nature of the target; • interpret exploration datasets in an active exploration environment; • plan a drilling program for use in exploration, resource development and mining; • construct a geological model of an ore body using wireframing techniques; • evaluate the impact of geological uncertainty on ore body modelling and appreciate the public reporting requirements for mineral resource data;

	<ul style="list-style-type: none"> • describe regolith materials, including mineralogy and geochemistry; • explain element dispersion and/or concentration in the regolith; • describe exploration methods using geochemistry and geophysics for mineralisation within and below the regolith; • appreciate the different sampling and analytical methods for regolith, water and biota.
Assessment:	<p>This subject comprises two short-course intensive modules, each equally weighted towards the final grade. The specific assessment details will depend upon the modules selected and students are directed to the outlines for each short-course for further details. Assessment tasks will be completed within the duration of the module, or within two weeks of its conclusion. Tasks required are broadly based upon 4,000 words equivalent for the entire subject, with a one hour exam or 15 minute oral exam or presentation equivalent to approximately 1,000 words. Thus, a single short course module may require a two-hour examination, a one-hour examination and a 15 minute presentation or 1,000 word assignment, or field reports, maps and cross sections equivalent of 2,000 words. For example, in the case of one short course that may be selected for this subject, the assessment can be described as “Assessment is based on field maps, core logs and cross-sections and a short written report (four page maximum; 90%) to be handed in at the completion of the camp. 10 % is based on performance and aptitude in the field including demonstration of field skills (e.g. structural measurements, rock and mineral identification, representation of data on maps”.</p>
Prescribed Texts:	None.
Recommended Texts:	Texts will vary depending upon choice of modules.
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	<p>All modules available to this subject seek to assist students in developing their ability to:</p> <ul style="list-style-type: none"> • exercise critical judgement; • undertake rigorous and independent thinking; • adopt a problem-solving approach to new and unfamiliar tasks. <p>Depending upon which modules are selected, students will have the opportunity to:</p> <ul style="list-style-type: none"> • develop high-level written report and/or oral presentation skills; • interrogate, synthesise and interpret the published literature; • work as part of a team.
Related Course(s):	<p>Bachelor of Science (Degree with Honours) Master of Science (Earth Sciences)</p>