

GEOL20002 Structural and Metamorphic Geology

Credit Points:	12.50
Level:	2 (Undergraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: March, Parkville - Taught on campus. Lectures, practical work and fieldwork.
Time Commitment:	Contact Hours: 2 x one hour lectures per week, 1 x two hour practical classes per week, and three days of fieldwork (held on weekends during the semester) Total Time Commitment: Estimated total time commitment of 120 hours
Prerequisites:	One of <ul style="list-style-type: none"> # 625-104 Understanding Planet Earth (/view/2010/625-104) # 625-104 The Earth, Atmosphere and Oceans (prior to 2010) # 625-102 Understanding Planet Earth (prior to 2008). Plus one of <ul style="list-style-type: none"> # 625-222 Earth Composition, Minerals and Magmas (/view/2010/625-222) (can be taken concurrently) # 625-222 Minerals and Magmas (prior to 2009)
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Students may only gain credit for one of <ul style="list-style-type: none"> # 625-202 Structural and Metamorphic Geology # 625-224 Tectonics (prior to 2004)
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 and fieldwork. 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:	Dr Sandra McLaren
Contact:	Email: mclarens@unimelb.edu.au (mailto:mclarens@unimelb.edu.au)
Subject Overview:	This subject will investigate the structure and dynamics of planet Earth and the processes that control the mineral assemblages and fabric of rocks in the Earth's crust and mantle. <ul style="list-style-type: none"> # Topics to be covered include: # Structure of planet Earth from geophysical observations; # Mantle convection and geodynamics; # Controls on deformation in the Earth; stress-strain relationships # Manifestation of deformation in rocks: descriptive treatment of strain, folds and tectonic fabrics; # Examination of deformed rocks in the laboratory and in the field; # Controls on mineral assemblages in the Earth: pressure, temperature and rock composition # Relationship between mineral assemblages in metamorphic rocks and their conditions of formation; # Metamorphic rocks in thin section and in hand specimen;

	<p># The analysis of orogenic belts</p>
<p>Objectives:</p>	<p>At the end of this subject, students should have acquired an understanding of tectonic settings, the effects of elevated pressure, temperature and stress on rocks; be able to recognise, describe and interpret rocks formed as a consequence of these effects in the laboratory and in the field; and understand their applications in establishing and testing tectonic models.</p> <p>This subject builds upon skills developed in first year and integrates with the subject 625-222 Earth Composition, Minerals and Magmas (/view/2010/625-222) as well as 625-223 Field Mapping and Sedimentary Geology (/view/2010/625-223). This combination of subjects will provide an overview of the composition and structure of the Earth and the processes that continue to shape it. In this subject, analytical skills will be developed and augmented through the evaluation of geophysical data and examination of the effects of deformation and metamorphism on rocks and minerals. Thus, many of the techniques you learn about here will apply to a broad range of geological situations. For those wishing to pursue their study of Geology, other second- year subjects and almost all third-year subjects will use or build upon the information you gain here. Before we can proceed to use more sophisticated methods of unravelling Earth processes however, a solid background is required in understanding the fundamental insights that can be provided by careful observations of rocks and minerals.</p>
<p>Assessment:</p>	<p>Assessment of practical exercises during the semester (10%), a 2-hour practical examination during the semester (20%); assessment of field exercises including a 1500-word field report (20%); a 2-hour written examination in the examination period (50%).</p>
<p>Prescribed Texts:</p>	<p>None</p>
<p>Breadth Options:</p>	<p>This subject potentially can be taken as a breadth subject component for the following courses:</p> <ul style="list-style-type: none"> # Bachelor of Arts (https://handbook.unimelb.edu.au/view/2010/B-ARTS) # Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2010/B-COM) # Bachelor of Environments (https://handbook.unimelb.edu.au/view/2010/B-ENVS) # Bachelor of Music (https://handbook.unimelb.edu.au/view/2010/B-MUS) <p>You should visit learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html) and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.</p>
<p>Fees Information:</p>	<p>Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees</p>
<p>Generic Skills:</p>	<p>At the end of this subject, students will have acquired an understanding of tectonic processes and settings, the effects of elevated pressure, temperature and stress on rocks; be able to recognise, describe and interpret rocks formed as a consequence of these effects in the laboratory and in the field; and understand their applications in establishing and testing tectonic models.</p> <ul style="list-style-type: none"> # This subject will provide opportunities to: # Develop personal and communication skills relevant to group discussions; # Think critically and to conceptualise complex and abstract ideas; # Develop skills relevant to preparing technical written reports; # Develop time management skills needed to meet assessment deadlines.
<p>Notes:</p>	<p>This subject is available for science credit to students enrolled in the BSc (both pre-2008 and new degrees), BASc or a combined BSc course.</p> <p>Previously known as 625-202 Earth Structure and Dynamics (prior to 2010)</p> <p>Previously known as 625-202 Sedimentary Basins to Mountain Belts (prior to 2009)</p> <p>Special Requirements: Geological hammer, hand lens and magnet. Students should consult the Earth Sciences web site for dates, charges for excursions, accommodation and food and other information including safety requirements.</p> <p>Costs: Costs will be levied for fieldwork components. Details will be available on the school webpage prior to commencement of the semester</p>

Related Course(s):	Bachelor of Science
---------------------------	---------------------