

# GEOL20002 Structural and Metamorphic Geology

<b>Credit Points:</b>	12.5									
<b>Level:</b>	2 (Undergraduate)									
<b>Dates &amp; Locations:</b>	2015, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.									
<b>Time Commitment:</b>	Contact Hours: 2 x one hour lectures per week, 1 x two hour practical classes per week, and two days of fieldwork (held on a weekend during the semester) Total Time Commitment: Estimated total time commitment of 170 hours									
<b>Prerequisites:</b>	One of Note: GEOL20003 Earth Composition, Minerals and Magmas can be taken concurrently <table border="1" data-bbox="387 645 1485 846"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ERTH10002 Understanding Planet Earth</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>GEOL20003 Earth Composition, Minerals and Magmas</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	ERTH10002 Understanding Planet Earth	Semester 2	12.50	GEOL20003 Earth Composition, Minerals and Magmas	Semester 1	12.50
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ERTH10002 Understanding Planet Earth	Semester 2	12.50								
GEOL20003 Earth Composition, Minerals and Magmas	Semester 1	12.50								
<b>Corequisites:</b>	None									
<b>Recommended Background Knowledge:</b>	None									
<b>Non Allowed Subjects:</b>	None									
<b>Core Participation Requirements:</b>	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: <a href="http://www.services.unimelb.edu.au/disability/">http://www.services.unimelb.edu.au/disability/</a>									
<b>Coordinator:</b>	Dr Steven Boger									
<b>Contact:</b>	<b>Email: <a href="mailto:sdboger@unimelb.edu.au">sdboger@unimelb.edu.au</a> (mailto:sdboger@unimelb.edu.au)</b>									
<b>Subject Overview:</b>	<p>This subject will investigate the structure and dynamics of planet Earth and the processes that control the mineral assemblages and fabrics of rocks in the Earth's crust and mantle. Topics to be covered include:</p> <ul style="list-style-type: none"> <li># Structure of planet Earth from geophysical observations;</li> <li># Mantle convection and geodynamics;</li> <li># Controls on deformation in the Earth; stress-strain relationships</li> <li># Manifestation of deformation in rocks: descriptive treatment of strain, folds and tectonic fabrics;</li> <li># Examination of deformed rocks in the laboratory and in the field;</li> <li># Controls on mineral assemblages in the Earth: pressure, temperature and rock composition</li> <li># Relationship between mineral assemblages in metamorphic rocks and their conditions of formation;</li> <li># Metamorphic rocks in thin section and in hand specimen;</li> <li># The analysis of orogenic belts</li> </ul>									

<p><b>Learning Outcomes:</b></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 GEOL20003 Earth Composition, Minerals and Magmas as well as GEOL20004 Field Mapping and Sedimentary Geology. 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><b>Assessment:</b></p>	<p>Assessment of selected practical exercises during the semester (15%), a 2-hour practical examination during the semester (20%); assessment of field exercises including a 1500-word field report (15%) a take-home practical exercise (10%); a 2-hour written examination in the examination period (40%).</p>
<p><b>Prescribed Texts:</b></p>	<p>None</p>
<p><b>Breadth Options:</b></p>	<p>This subject potentially can be taken as a breadth subject component for the following courses:</p> <ul style="list-style-type: none"> <li># <b>Bachelor of Arts</b> (<a href="https://handbook.unimelb.edu.au/view/2015/B-ARTS">https://handbook.unimelb.edu.au/view/2015/B-ARTS</a>)</li> <li># <b>Bachelor of Commerce</b> (<a href="https://handbook.unimelb.edu.au/view/2015/B-COM">https://handbook.unimelb.edu.au/view/2015/B-COM</a>)</li> <li># <b>Bachelor of Environments</b> (<a href="https://handbook.unimelb.edu.au/view/2015/B-ENVS">https://handbook.unimelb.edu.au/view/2015/B-ENVS</a>)</li> <li># <b>Bachelor of Music</b> (<a href="https://handbook.unimelb.edu.au/view/2015/B-MUS">https://handbook.unimelb.edu.au/view/2015/B-MUS</a>)</li> </ul> <p>You should visit <a href="http://breadth.unimelb.edu.au/breadth/info/index.html">learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html)</a> and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.</p>
<p><b>Fees Information:</b></p>	<p>Subject EFTSL, Level, Discipline &amp; Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a></p>
<p><b>Generic Skills:</b></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. This subject will provide opportunities to:</p> <ul style="list-style-type: none"> <li># Develop personal and communication skills relevant to group discussions;</li> <li># Think critically and to conceptualise complex and abstract ideas;</li> <li># Develop skills relevant to preparing technical written reports;</li> <li># Develop time management skills needed to meet assessment deadlines.</li> </ul>
<p><b>Notes:</b></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>
<p><b>Related Majors/Minors/ Specialisations:</b></p>	<p>Geology Geology</p>

	Science-credited subjects - new generation B-SCI and B-ENG. Selective subjects for B-BMED
<b>Related Breadth Track(s):</b>	Earth&apos;s Structure