

# GEOL30002 Tectonics & Geodynamics

<b>Credit Points:</b>	12.50															
<b>Level:</b>	3 (Undergraduate)															
<b>Dates &amp; Locations:</b>	This subject is not offered in 2013. Lectures, practical classes and fieldwork															
<b>Time Commitment:</b>	Contact Hours: 1 x two hour lecture per week; 1 x two hour of practical class per week for six weeks; and five days of fieldwork Total Time Commitment: Estimated total time commitment of 120 hours															
<b>Prerequisites:</b>	<p>One of</p> <ul style="list-style-type: none"> <li># 625-202 Earth Structure and Dynamics (prior to 2010)</li> <li># 625-202 Sedimentary Basins to Mountain Belts (prior to 2009).</li> </ul> <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th style="width: 60%;">Subject</th> <th style="width: 20%;">Study Period Commencement:</th> <th style="width: 20%;">Credit Points:</th> </tr> </thead> <tbody> <tr> <td>GEOL20002 Structural and Metamorphic Geology</td> <td>Not offered 2013</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	GEOL20002 Structural and Metamorphic Geology	Not offered 2013	12.50									
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<b>Corequisites:</b>	None															
<b>Recommended Background Knowledge:</b>	<p>Subjects selected from</p> <ul style="list-style-type: none"> <li># 625-223 Earth Surface Processes (prior to 2010)</li> <li># 625-223 Field Geology (prior to 2009)</li> <li># 625-222 Minerals and Magmas (prior to 2009)</li> </ul> <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th style="width: 60%;">Subject</th> <th style="width: 20%;">Study Period Commencement:</th> <th style="width: 20%;">Credit Points:</th> </tr> </thead> <tbody> <tr> <td>GEOL20003 Earth Composition, Minerals and Magmas</td> <td>Not offered 2013</td> <td>12.50</td> </tr> <tr> <td>GEOL20004 Field Mapping and Sedimentary Geology</td> <td>Not offered 2013</td> <td>12.50</td> </tr> <tr> <td>ERTH20001 Dangerous Earth</td> <td>Not offered 2013</td> <td>12.50</td> </tr> <tr> <td>GEOL20001 Geology of Southeast Australia</td> <td>Not offered 2013</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	GEOL20003 Earth Composition, Minerals and Magmas	Not offered 2013	12.50	GEOL20004 Field Mapping and Sedimentary Geology	Not offered 2013	12.50	ERTH20001 Dangerous Earth	Not offered 2013	12.50	GEOL20001 Geology of Southeast Australia	Not offered 2013	12.50
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<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>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>	This subject covers geological processes involved in large-scale tectonics and introduces advanced topics in structural and metamorphic geology. Topics include the structure and composition of the Earth; plates defined in terms of the thermal and rheological structure of the outer part of the Earth; isostasy; stress and strain in the crust and lithosphere; structural and metamorphic processes in orogenic belts, their origin and their relationship to continental amalgamation and fragmentation; intraplate deformation; deformation mechanisms; shear zone processes; the analysis of poly-deformed terranes and high grade metamorphic processes including partial melting and melt loss.															

<p><b>Objectives:</b></p>	<p>On completion of this subject, students should comprehend advanced geometrical techniques in structural geology, and the controls on the first-order features of the Earth. Students will also understand how the plates that make up the Earth's surface are defined by large-scale thermal and rheological properties of the Earth. They will have developed the skills in laboratory geology that are relevant to the understanding of deformed rocks, and the skills to draw together observations from petrology and structural geology to interpret Earth processes. They will appreciate how the processes that occur within and between plates can be interpreted in terms of the stress and strain in the outer parts of the Earth.</p>
<p><b>Assessment:</b></p>	<p>A written field report of up to 1500 words due four weeks after the field exercise(20%); assessment of selected practical exercises totalling not more than 1000 words due two weeks following the practical class (15%); a survey of a geodynamics literature topic of up to 3000 words due in week 10 of the semester (25%); a 2-hour written examination in the examination period (40%). Hurdle requirement: students must make an oral presentation of their geodynamics literature survey topic in the practical period during the last two weeks of the semester.</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/2013/B-ARTS">https://handbook.unimelb.edu.au/view/2013/B-ARTS</a>)</li> <li># <b>Bachelor of Commerce</b> (<a href="https://handbook.unimelb.edu.au/view/2013/B-COM">https://handbook.unimelb.edu.au/view/2013/B-COM</a>)</li> <li># <b>Bachelor of Environments</b> (<a href="https://handbook.unimelb.edu.au/view/2013/B-ENVS">https://handbook.unimelb.edu.au/view/2013/B-ENVS</a>)</li> <li># <b>Bachelor of Music</b> (<a href="https://handbook.unimelb.edu.au/view/2013/B-MUS">https://handbook.unimelb.edu.au/view/2013/B-MUS</a>)</li> </ul> <p>You should visit <b>learn more about breadth subjects</b> (<a href="http://breadth.unimelb.edu.au/breadth/info/index.html">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>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 625-301 Structural Geology and Geodynamics (prior to 2010)</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                  Geology                  Science credit subjects* for pre-2008 BSc, BASc and combined degree science courses                  Science-credited subjects - new generation B-SCI and B-ENG. Core selective subjects for B-BMED.</p>
<p><b>Related Breadth Track(s):</b></p>	<p>Earth's Structure</p>