

# GEOL20003 Earth Composition, Minerals and Magmas

<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 class per week; 3.5 days of field work (held on weekends throughout the semester). Total Time Commitment: Estimated total time commitment of 170 hours						
<b>Prerequisites:</b>	<table border="1"> <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> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	ERTH10002 Understanding Planet Earth	Semester 2	12.50
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ERTH10002 Understanding Planet Earth	Semester 2	12.50					
<b>Corequisites:</b>	None						
<b>Recommended Background Knowledge:</b>	VCE Chemistry is desirable.						
<b>Non Allowed Subjects:</b>	None						
<b>Core Participation Requirements:</b>	<p>&lt;p&gt;For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry.&lt;/p&gt;                 &lt;p&gt;It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: &lt;a href="http://services.unimelb.edu.au/disability"&gt;http://services.unimelb.edu.au/disability&lt;/a&gt;&lt;/p&gt;</p>						
<b>Coordinator:</b>	Dr Andrea Giuliani						
<b>Contact:</b>	<b>Email: <a href="mailto:andrea.giuliani@unimelb.edu.au">andrea.giuliani@unimelb.edu.au</a> (mailto:andrea.giuliani@unimelb.edu.au)</b>						
<b>Subject Overview:</b>	<p>This subject will provide an understanding of the composition of the Earth in space and time. The first part of this subject will investigate the composition of the Earth on accretion and its differentiation into core, mantle and crust. This will be followed by an investigation of the minerals and rocks that make up the mantle and the crust, what these minerals and rocks are made of, how minerals and rocks form, and what information these provide about how the Earth works. These questions are central to the science of Geology and will be addressed using field observations and measurements, and examination of minerals, rocks and petrographic thin-sections in the laboratory. Our ability to answer geological questions invariably requires such observations to underpin any final interpretations we make. This subject introduces a wide range of new minerals from igneous, metamorphic and sedimentary rocks and provides knowledge and practice to aid in their identification in both hand-specimen and thin-section. An important focus of the subject is the link between the chemical composition of mantle and crustal magmas and the minerals they crystallise (i.e., igneous rocks). Students will learn to appreciate that magma chemistry and the mineralogy of igneous rocks (i.e., once the magmas have cooled and crystallised) are directly related to each other. Thus, if we can identify the minerals present in an igneous rock, we already know a great deal about its composition (and therefore the processes by which it formed).</p>						
<b>Learning Outcomes:</b>	This subject builds upon some skills that students have already developed in first year (e.g., the identification of rocks and minerals in hand-specimen). In this subject, these skills will be						

	<p>developed and augmented through the examination of rocks and minerals in thin-section. Although much of this subject deals with igneous rocks, the minerals that students will be required to identify include others formed in metamorphic and sedimentary environments. Thus, many of the techniques learned here will apply to a broad range of geological situations. For those students wishing to pursue their study of Geology, other second-year subjects and almost all third-year subjects will use or build upon the information gained here. It needs to be understood that the identification of rocks and minerals is usually a means to an end, and only seldom an end in itself. 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>
<b>Assessment:</b>	<p>Portfolio assignments totalling no more than 4,000 words (10%), 4 half hour tests/quizzes each worth 5% (20%), field trip attendance (5%), a 2-hour practical examination held towards the end of semester (20%); a 2-hour written examination in the examination period (45%).</p>
<b>Prescribed Texts:</b>	<p>None</p>
<b>Breadth Options:</b>	<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>
<b>Fees Information:</b>	<p>Subject EFTSL, Level, Discipline &amp; Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a></p>
<b>Generic Skills:</b>	<p>In addition to learning specific information, this subject will help students to develop their ability to synthesize data and interpret observations. The ability to apply analytical skills will also allow students to tackle the description and identification of unfamiliar samples. Opportunities will be provided for students to work with other students during laboratory, field and tutorial classes, but students will need to manage their own time effectively in order to complete tasks in preparation for ongoing assessment and the end of semester examinations.</p>
<b>Notes:</b>	<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 625-222 Minerals and Magmas (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>
<b>Related Majors/Minors/Specialisations:</b>	<p>Science-credited subjects - new generation B-SCI and B-ENG. Selective subjects for B-BMED</p>
<b>Related Breadth Track(s):</b>	<p>Earth&amp;apos;s Structure</p>