# GEOL30004 Geochemistry & Petrogenesis

| | |
|---|---|
| **Credit Points:** | 12.50 |
| **Level:** | 3 (Undergraduate) |
| **Dates & Locations:** | 2012, Parkville<br>This subject commences in the following study period/s:<br>Semester 1, Parkville - Taught on campus. |
| **Time Commitment:** | Contact Hours: 1 x two hour lecture per week; and 1 x two hour practical class per week Total Time Commitment: Estimated total time commitment of 120 hours |
| **Prerequisites:** | One of<br># 625-222 Minerals and Magmas (prior to 2009) |

| Subject | Study Period Commencement: | Credit Points: |
|---|---|---|
| GEOL20003 Earth Composition, Minerals and Magmas | Semester 1 | 12.50 |

| | |
|---|---|
| **Corequisites:** | None |
| **Recommended Background Knowledge:** | Subjects selected from<br># 625-223 Earth Surface Processes (prior to 2010)<br># 625-223 Field Geology (prior to 2009)<br># 625-202 Earth Structure and Dynamics (prior to 2010)<br># 625-202 Sedimentary Basins to Mountain belts (prior to 2009) |

| Subject | Study Period Commencement: | Credit Points: |
|---|---|---|
| GEOL20001 Geology of Southeast Australia | February | 12.50 |
| ERTH20001 Dangerous Earth | Semester 2 | 12.50 |
| GEOL20004 Field Mapping and Sedimentary Geology | June | 12.50 |
| GEOL20002 Structural and Metamorphic Geology | Semester 1 | 12.50 |

| | |
|---|---|
| **Non Allowed Subjects:** | None |
| **Core Participation Requirements:** | 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: http://www.services.unimelb.edu.au/disability/ |
| **Coordinator:** | Prof Janet Hergt |
| **Contact:** | **Email: jhergt@unimelb.edu.au (mailto:jhergt@unimelb.edu.au)** |
| **Subject Overview:** | Solving geological problems requires unravelling what happened and when. Petrogenesis is literally 'the origin of rocks' and in this subject several essential tools geologists employ to unravel the complexity of earth processes using chemical information preserved in rocks and minerals will be presented. These include the major, trace element and isotopic compositions of rocks and minerals. Most of this subject relates to igneous processes, however many of the tools can be applied to a broad range of geological problems. These include dating the |

| | |
|---|---|
| | formation of sedimentary rocks and ore deposits, constraining the ages of metamorphic events, and unravelling palaeoclimate records.<br>In addition to learning the principles that underpin these techniques, emphasis is placed on how or when they are best applied. It is expected that by the end of the semester you will be able to explain how specific tools work and demonstrate both when it is appropriate, and how to apply them, to resolve petrogenetic problems. |
| **Objectives:** | This subject builds upon many skills you have already developed in first and second year. The application of geochemical data requires you to have a sound background in field observations, a broad knowledge of rock-forming processes, and an ability to identify minerals (and interpret textural information) preserved in thin-section.<br>For those wishing to pursue their study of Earth processes and petrogenesis, almost all third-year Geology subjects will deal with this in some form, and many Masters projects will draw upon topics included in this subject. In addition, the broad application of skills similar to those you will learn about in this subject are frequently well-illustrated in departmental seminars. You are strongly encouraged to form the habit of attending these. |
| **Assessment:** | A 2-hour practical examination during the semester (25%); a group project undertaken throughout the semester and presented to the class towards the end of semester (10%), an individual written assignment based on the group project of up to 2000 words due at the end of semester (10%); a 2-hour written examination in the examination period (55%). |
| **Prescribed Texts:** | None |
| **Recommended Texts:** | # Marjorie Wilson Igneous Petrogenesis, a global tectonic approach: (Unwin Hyman: ISBN 0-04-552025-9)<br># Gunter Faure Principles of Isotope Geology (Wiley & Sons: ISBN 0-471-86412-9) |
| **Breadth Options:** | This subject potentially can be taken as a breadth subject component for the following courses:<br># **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2012/B-ARTS)**<br># **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2012/B-COM)**<br># **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2012/B-ENVS)**<br># **Bachelor of Music (https://handbook.unimelb.edu.au/view/2012/B-MUS)**<br>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. |
| **Fees Information:** | Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees |
| **Generic Skills:** | In this subject, students should recognise the importance of integrating the knowledge and skills obtained through years of study to tackle new and unfamiliar problems. This will require critical thinking and the organisation of materials delivered in lectures, together with the development of problem-solving skills via the laboratory exercises.<br>The group assignment is designed to enhance the ability for students to work as part of a team as well as improve their oral communication skills. The individual written assignment will provide an opportunity for students to further develop their written communication skills. |
| **Notes:** | 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. |
| **Related Majors/Minors/ Specialisations:** | Geology<br>Science credit subjects* for pre-2008 BSc, BASc and combined degree science courses<br>Science-credited subjects - new generation B-SCI and B-ENG. Core selective subjects for B-BMED. |
| **Related Breadth Track(s):** | Earth's structure |