# GEOL90005 Hydrogeology/Environmental Geochemistry

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| **Credit Points:** | 12.5 |
| **Level:** | 9 (Graduate/Postgraduate) |
| **Dates & Locations:** | 2016, Parkville<br>This subject commences in the following study period/s:<br>Semester 1, Parkville - Taught on campus.<br>Lectures and practical sessions, plus 1-2 day Field Excursion. |
| **Time Commitment:** | Contact Hours: 2 x one hour lectures per week over 12 teaching weeks, 1 x two-hour practical class per week over 10 teaching weeks, one 2-day field excursion (exact dates of excursion to be announced after the start of semester) Total Time Commitment: 170 hours |
| **Prerequisites:** | None |
| **Corequisites:** | None |
| **Recommended Background Knowledge:** | At least one semester each of University level maths and chemistry are strongly recommended. In addition, at least 25 credits in 2nd year Earth Sciences subjects (preferably geology-focused) or the equivalent are suggested. Students should seek approval from the course coordinator if uncertain whether previous coursework is appropriate. |
| **Non Allowed Subjects:** | Students who have completed ERTH30001 Hydrogeology and Environmental Geology are not permitted to enrol in this subject. |
| **Core Participation Requirements:** | 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. 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: <a href="http://services.unimelb.edu.au/disability">http://services.unimelb.edu.au/disability</a> |
| **Coordinator:** | Dr John Moreau |
| **Contact:** | Email: **jmoreau@unimelb.edu.au (mailto:jmoreau@unimelb.edu.au)** |
| **Subject Overview:** | This subject will investigate, both qualitatively and quantitatively, the fundamental physical and chemical processes governing groundwater flow and composition, including aquifer properties, regional geology and hydrology, water-rock interactions, and subsurface microbial activity. Field and laboratory methods used to characterize aquifer properties and groundwater chemistry, including well pumping tests, chemical tracers, and major ion and isotope analyses will also be covered. A two-day field excursion will draw together many of these concepts and topics. |
| **Learning Outcomes:** | The objectives of this subject are to<br># present the basic principles of groundwater flow and chemistry in an engaging and accessible way,<br># to illustrate these principles through effective hands-on learning practices (including fieldwork),<br># to challenge students to conceptualize and describe dynamic groundwater processes in a quantitative way, and<br># to reinforce scientific and critical thinking skills. |

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| | Upon completion of this subject, students should have a broad yet rigorous understanding of the physical and chemical processes influencing the distribution and quality of groundwater. |
| **Assessment:** | Four equally weighted lab reports of approximately 600 words limit each due in Weeks 3, 5, 7, and 9 (40% total); a two-day field trip (April 2-3, 2016) and field report of approximately 600 words limit (10%; due Apr 8th, 2016); and a semester-long written research proposal of approximately 2000 words limit (50%) The field trip and research component are both prescribed (hurdle) requirements for this subject. |
| **Prescribed Texts:** | Nonner, J.C. Introduction to Hydrogeology, 2nd Ed., Taylor & Francis Group PLC, London, UK 2010 A course reader. |
| **Breadth Options:** | This subject is not available as a breadth subject. |
| **Fees Information:** | Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees |
| **Generic Skills:** | Students will have the opportunity to gain/practice the following generic skills: critical thinking, teamwork, data analysis and interpretation, problem solving. |
| **Links to further information:** | http://www.earthsci.unimelb.edu.au/hydro |
| **Notes:** | Costs: Costs will be levied for fieldwork components. $25 course reader, $100 weekend field excursion (covers transportation and lodging). |
| **Related Course(s):** | Master of Geoscience<br>Master of Science (Earth Sciences) |
| **Related Majors/Minors/ Specialisations:** | Conservation and Restoration<br>Conservation and Restoration<br>Earth Sciences<br>Earth Sciences<br>Environmental Science<br>Environmental Science<br>Honours Program - Earth Sciences<br>Integrated Water Catchment Management<br>Integrated Water Catchment Management<br>Sustainable Forests<br>Sustainable Forests<br>Tailored Specialisation<br>Tailored Specialisation<br>Waste Management<br>Waste Management |