ERTH30001 Hydrogeology/Environmental Geochemistry

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	This subject is not offered in 2013. Lectures, practical classes and 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: Estimated total time commitment of 120 hours.
Prerequisites:	One of **Subject** / **Study Period Commencement:** / **Credit Points:** CHEM10003 Chemistry 1 / Not offered 2013 / 12.50 CHEM10004 Chemistry 2 / Not offered 2013 / 12.50 CHEM10007 Fundamentals of Chemistry / Not offered 2013 / 12.50 Plus two Geology subjects. (i.e. subjects with subject codes beginning with 'GEOL' or 'ERTH')
Corequisites:	None
Recommended Background Knowledge:	A knowledge of basic algebra concepts will be assumed in this subject. Familiarity with basic calculus concepts (e.g. integration, differentiation) will also be helpful for understanding some lecture content.
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: Hhttp://www.services.unimelb.edu.au/disability/
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.
Objectives:	The objectives of this subject are to # present the basic principles of groundwater flow and chemistry in an engaging and accessible way, # to illustrate these principles through effective hands-on learning practices (including fieldwork), # to challenge students to conceptualize and describe dynamic groundwater processes in a quantitative way, and # to reinforce scientific and critical thinking skills. 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 practical exercises (40% total), a two-day field excursion with accompanying field report (10%), a two-hour written mid-term examination (25%), and a two-hour written final examination (25%). The field excursion and both examinations are all prescribed (hurdle) requirements for this course.
Prescribed Texts:	Nonner, J.C. Introduction to Hydrogeology, 2nd Ed., Taylor & Francis Group PLC, London, UK 2010A course reader.
Recommended Texts:	Introduction to Hydrogeology, Johannes C Nonner, 2nd Ed. CRC Press (2010) ISBN: 978-0-415-87555-4
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2013/B-ARTS)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2013/B-COM)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2013/B-ENVS)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2013/B-MUS)** 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:	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:	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. Previously known as 625-307 Hydrogeology and Environmental Management (prior to 2009) Previously known as ERTH30001 Hydrogeology (prior to 2011) Previously known as ERTH30001 Hydrogeology and Environmental Geology (prior to 2012) Costs: Fees will be levied for the course reader ($20) and 2-day field excursion ($130 covers transportation, 1-night's lodging and lunches).
Related Majors/Minors/ Specialisations:	Environmental Science Environmental Science major 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.