625-608 Hydrogeology

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: February, - Taught on campus. Lectures and practical sessions, plus 1-2 day Field Excursion.
Time Commitment:	Contact Hours: Lectures and practical sessions Mon-Fri 9am-5pm on the named dates, plus 2 one-day Field Excursions to be held on weekdays in lieu of classroom-based activities. Total Time Commitment: Not available
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	625-101, 625-104, or equivalent subjects in other disciplines are recommended, but not required. Please contact coordinator with questions.
Non Allowed Subjects:	None
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. This subject requires all students to actively and safely participate in laboratory activities and field excursions. Students who feel their disability may impact upon their participation are encouraged to discuss this with the subject coordinator and the Disability Liaison Unit.
Coordinator:	Dr John William Moreau
Contact:	Dr. John Moreau, 8344-6518, jmoreau@unimelb.edu.au Dr. Charles Lawrence, 8344-7963, crl@unimelb.edu.au
Subject Overview:	In this subject, we will focus on natural groundwater systems, providing students with an introduction to groundwater flow in steady state and transient conditions, groundwater resource development, groundwater recharge processes; groundwater quality and chemistry (including biogeochemical impacts); and the role of stable and radiogenic isotopes in evaluating groundwater flow systems. The material is consolidated through lectures, hands-on exercises and case studies showing the importance of integrating both physical and chemical hydrogeology. A field excursion near the end of the course will allow students to consolidate their learning about the role that groundwater plays in a variety of settings, including; mines, salt and freshwater lakes, municipal wells and mineral springs.
Objectives:	This course will introduce students to a globally critical issue - the sustainable management and use of groundwater. Students will learn how fundamental data can be used to develop a deeper understanding of groundwater flow systems and chemical evolution. Students will learn how to present results from current research and interpret/analyze data from practical exercises. The field excursion will demonstrate the immediate utility of an understanding of the principles of hydrogeology and hydrogeochemistry for the environment and the community.
Assessment:	Practicals/Homeworks = 20% Literature critique = 10% Field Excursion quizzes = 10%Final exam = 60% Questions in the final exam may cover material presented throughout the entire course, including the field excursion. Students will need to integrate material from different sections of the course to perform well at answering the exam questions. Calculators will be permitted at the final exam.
Prescribed Texts:	None

Recommended Texts:	The following books are available in the Earth Sciences library: Fetter C.W., 2001 Applied Hydrogeology. Prentice Hall – postgraduate students going on to further study and/or employment in hydrogeology-related fields should seriously consider purchasing a recent edition of this textbook. Domenico P.A. and Schwartz F.W., 1998. Physical and chemical hydrogeology. J Wiley Drever J.I., 1997 Geochemistry of natural waters. Prentice Hall. Price M., 1996 Introducing groundwater. Chapman and Hall
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:	On completion of this subject students should gain the following generic skills: critical thinking, applying the scientific method, data analysis/interpretation, public presentation skills.
Links to further information:	http://www.earthsci.unimelb.edu.au/hydro
Notes:	The subject will be taught in intensive mode from February 23 – March 6, 2009. The first week of the subject is co-taught with Honours students in the VIEPS Introduction to Hydrogeology subject. The second week is co-taught with Honours students in the VIEPS Advanced Hydrogeology subject. Thus, the subject duration and assessment mechanisms may vary for each group of students. Additional fees of up to $100 in total may be required for the 2 field trips (one in each week) and the course reader (selected excerpts from various hydrogeology textbooks, journal articles, and other publications). Please contact coordinator with questions.
Related Majors/Minors/ Specialisations:	R05 PE Master of Science (Environmental Science)