

**ERS PROGRAM
TRENT UNIVERSITY**

**COURSE CODE: ERSC-BIOL-GEOG 4060H
COURSE TITLE: The Geochemistry of Natural Waters
2010-11FA
Peterborough**

Instructor: Peter Dillon		Email: pdillon@trentu.ca	
Office Location: CSB F 110	Office Hours: Monday and Tuesday 1:30 – 4:30 or by appointment	Telephone: 7536	

Secretary: Deb Mills		Email: dmills@trentu.ca	
Office Location: ESC B202		Telephone: 7199	

Course Description:

The course will focus on geochemical processes related to water in the natural environment. The following topics will be covered: properties of water, composition of water and methods of expressing concentrations, chemical equilibrium and chemical kinetics, acid-base chemistry and the carbonate system, coordination chemistry, precipitation and dissolution, isotopes, oxidation-reduction chemistry.

Course Pre-requisites:

ERSC 2230H or ERSC/CHEM 2610H, 2620H or 2600Y

Course Format:

Please check <http://www.trentu.ca/admin/mytrent/Timetable/TimeTableGen0.htm> to confirm times and locations.

Type	Day	Time	Location
Lecture	Friday	9:00 – 11:00	CC A2

Course Evaluation:

Type of Assignment (e.g, test, essay, lab report, etc.)	Weighting	Due Date
Problem set 1	10	Oct 1
Problem set 2	10	Oct 15
Problem set 3	15	Nov 5
Problem set 4	15	Nov 19
Term paper	40	December
Presentation	10	December

One extra problem set for graduate students

Late submissions: Late submissions will be penalized 10% per day unless a medical note is provided.

University Policies

Academic Integrity:

Academic dishonesty, which includes plagiarism and cheating, is an extremely serious academic offence and carries penalties varying from a 0 grade on an assignment to expulsion from the University. Definitions, penalties, and procedures for dealing with plagiarism and cheating are set out in Trent University's *Academic Integrity Policy*. You have a responsibility to educate yourself – unfamiliarity with the policy is not an excuse. You are strongly encouraged to visit Trent's Academic Integrity website to learn more: www.trentu.ca/academicintegrity.

Access to Instruction:

It is Trent University's intent to create an inclusive learning environment. If a student has a disability and/or health consideration and feels that he/she may need accommodations to succeed in this course, the student should contact the Disability Services Office (BL Suite 109, 748-1281, disabilityservices@trentu.ca) as soon as possible. Complete text can be found under Access to Instruction in the Academic Calendar.

Please see the Trent University academic calendar for University Diary dates, Academic Information and Regulations, and University and departmental degree requirements.

Last date to withdraw from Fall term half courses without academic penalty in 2010-11 is November 12, 2010; last date to withdraw from Winter term half courses without academic penalty in 2010-11 is March 11, 2010; last date to withdraw from Fall/Winter full courses without academic penalty in 2010-11 is February 8, 2010.

Required Texts:

none required

Recommended Texts: (if applicable)

1. *The Geochemistry of Natural Waters*, by James I. Drever (1997).
2. *Geochemistry: An Introduction*, by Francis Albarede (2003)
3. *Aqueous Environmental Geochemistry*, by Donald Langmuir (1997).

Week-by-week schedule:

1. Introduction, properties of water, composition of water and methods of expressing concentrations
2. Chemical equilibrium
3. Chemical kinetics
4. Acid-base chemistry
5. Carbonate system
6. Complexation chemistry
7. Weathering and sedimentation
8. Natural organic matter
9. Oxidation-reduction reactions
10. Isotopes
11. Term paper presentations
12. Term paper presentations

Department Policy on Completion of Course Work:

The Department considers that completion of all components of a course is necessary for a student to be given credit in that course. Therefore, it is the policy of the Department that a student must complete, and hand in if applicable, all material associated with each component of the course. This applies equally to work that is handed in or completed too late to earn any marks in the course, in conjunction with the policy of the course instructor on lateness.

Students who fail to meet this requirement for reasons that would make it reasonable to assign an "incomplete" mark for the course should consult the instructor well before on which final marks are due for the course in question. In the absence of an incomplete standing being assigned, the student will receive a mark of "0" and an "F" grade in the course.