



EESC20H3 GEOCHEMISTRY

Fall term 2017

Lecture: Mondays 1-3pm in Room IC 212

Instructor: Professor M.J. Simpson

Office: Room SY322

Email: myrna.simpson@utoronto.ca

Office Hours: to be announced AND by appointment

COURSE DESCRIPTION: The course will cover fundamental aspects of chemical processes occurring at the Earth's surface. Terrestrial and aquatic geochemical processes such as: mineral formation and dissolution, redox, aqueous-solid phase interactions, stable isotopes, and organic geochemistry in the environment will be covered.

PREREQUISITES: CHMA10H3, CHMA11H3, and EESB15H3. **EXCLUSIONS:** EESD32H3, CHM210H, GLG202H, GLG351H. *All students must have the appropriate prerequisites for this course.*

GRADE BREAKDOWN:

Assignment 1: Geochemical modelling and solution chemistry	15%
Assignment 2: Sorption and exchange processes	15%
Assignment 3: Organic geochemistry	15%
Midterm exam	20%
Comprehensive final exam	35%

LATE WORK

Late assignments will not be accepted and assigned a grade of zero.

COURSE LECTURE NOTES & LECTURE ATTENDANCE

There is no required textbook for this course and lecture notes will cover all topics in detail. Lecture notes (as a pdf) will be posted on the UofT Portal (Blackboard). Examination material will include emphasized lecture material only (select lecture material will be discussed in detail in class) and not include materials from library resources unless specifically discussed or emphasized during the lecture. Library resources are also provided to assist with Assignment #3.

LIBRARY RESOURCES

There is no required textbook for this course but there are a number of recommended library resources for Assignment 3 (accessible online through the University of Toronto library):

- 1) Introduction to Organic Geochemistry by S. Killops and V. Killops
- 2) Biomarker Guide – Volume 1 by K. E. Peters, C. C. Walters, and J. M. Moldowan
- 3) Chemical Biomarkers in Aquatic Ecosystems by T. S. Bianchi & E. A. Canuel

PLAGIARISM

Normally, students will be required to submit their course essays to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site.

University of Toronto Scarborough code of Behavior on Academic Matters states that "it shall be an offense for a student knowingly: to represent as one's own any idea or expression of an idea or work of another in any academic examination or term test or in connection with any other form of academic work, i.e., to commit plagiarism."

Any form of plagiarism will not be tolerated. Students suspected of plagiarism will be reported based on University policy and code of behavior (please refer to the University Calendar for more details).

E-MAIL ENQUIRIES:

E-mail is not an effective means for teaching or discussion of scholarly material. Students are encouraged to attend office hours and discuss topics in person with the instructor.

ACCESSIBILITY NEEDS

The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact The UTSC Accessibility Services as soon as possible: <http://www.utsc.utoronto.ca/~ability/>

WRITING SUPPORT

The University of Toronto Scarborough Writing Centre (<http://utsc.utoronto.ca/twc/>) offers writing support to all students in several forms. Students are advised to take advantage of their programs for assistance with scientific writing.

EESC20H3 LECTURE SCHEDULE Fall Semester 2017

Date	Topic	Assignment Due
Monday, September 11 th	-Course orientation and introduction to geochemistry -Solution and solid phase chemistry	
Monday, September 18 th	-Solution and solid phase chemistry (continued)	
Monday, September 25 th	-Solution and solid phase chemistry (continued) -Sorption phenomena and exchange reactions	
Monday, October 2 nd	-Sorption phenomena and exchange reactions (continued)	Assignment 1 Due
Monday, October 9 th	FALL SEMESTER READING WEEK (no lecture)	
Monday, October 16 th	-Reduction and oxidation (redox) processes	
Monday, October 23 rd	-Isotope geochemistry	Assignment 2 Due
Monday, October 30 th	MIDTERM EXAM (in class time – location to be confirmed)	
Monday, November 6 th	-Organic geochemistry and the global carbon cycle	
Monday, November 13 th	-Organic geochemistry and the global carbon cycle (continued)	
Monday, November 20 th	-Geochemistry of organic pollutants, metals and inorganic compounds	
Monday, November 27 th	-Geochemistry of organic pollutants, metals and inorganic compounds	Assignment 3 Due
Monday, December 4 th	-Geochemistry of organic pollutants, metals and inorganic compounds	
To be announced (scheduled by the Registrar's Office)	COMPREHENSIVE FINAL EXAM	