EESC20 GEOCHEMISTRY
Fall term 2013
Lecture: Thursdays 1-3pm in Room BV363
Instructor: Professor M.J. Simpson
Office: Room SY366
Email: myrna.simpson@utoronto.ca
Office Hours: to be announced during lecture

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 1.0 credit from any of EESB02H3, EESB04H3, EESB05H3, and EESB15H3. EXCLUSIONS: EESD32H3, CHM210H, GLG202H, GLG351H. All students must have the appropriate prerequisites (no exceptions!).

GRADE BREAKDOWN:
Assignment 1: Geochemical computer modelling 20%
Assignment 2: Organic matter biomarker research paper 20%
Midterm exam 25%
Comprehensive final exam 35%

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

COURSE LECTURE NOTES:
There is no required textbook for this course and lecture materials will cover all topics in detail. Library resources are also provided to assist with the Organic matter biomarker assignment.

Lecture notes (as a pdf) will be posted on the UofT Portal (Blackboard). Examinable material will include emphasized lecture material only and not include materials from library resources unless specifically discussed or emphasized during the lecture.
LIBRARY RESOURCES:
There is no required textbook for this course but there are a number of recommended library resources (see list below). Library resources have been placed on reserve at the UTSC library for use in this course and include:

1) Introduction to Organic Geochemistry by S. Killops and V. Killops
2) Biomarker Guide – Volumes 1 and 2 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
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://ctl.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.
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Assignment Due</th>
</tr>
</thead>
</table>
| Thursday, September 5<sup>th</sup> | - Course orientation and introduction to geochemistry  
- Solution and solid phase chemistry |                                                     |
| Thursday, September 12<sup>th</sup>   | - Solution and solid phase chemistry (continued)                       |                                                     |
| Thursday, September 19<sup>th</sup>   | - Solution and solid phase chemistry (continued)  
- Sorption phenomena and exchange reactions |                                                     |
| Thursday, September 26<sup>th</sup>   | - Sorption phenomena and exchange reactions (continued)               |                                                     |
| Thursday, October 3<sup>rd</sup>      | - Reduction and oxidation (redox) processes                            | Assignment 1 (Geochemical computer modelling)       |
| Thursday, October 10<sup>th</sup>     | - Isotope geochemistry                                                |                                                     |
| Thursday, October 17<sup>th</sup>     | FALL SEMESTER READING WEEK (no lecture)                               |                                                     |
| Thursday, October 24<sup>th</sup>     | MIDTERM EXAM (in class)                                                |                                                     |
| Thursday, October 31<sup>st</sup>     | - Organic geochemistry and the global carbon cycle                     |                                                     |
| Thursday, November 7<sup>th</sup>     | - Organic geochemistry and the global carbon cycle (continued)         |                                                     |
| Thursday, November 14<sup>th</sup>    | - Geochemistry of organic pollutants and heavy metals                 |                                                     |
| Thursday, November 21<sup>st</sup>    | - Geochemistry of organic pollutants and heavy metals (continued)      |                                                     |
| Thursday, November 28<sup>th</sup>    | - Geochemistry of organic pollutants and heavy metals (continued)      | Assignment 2 (Organic matter biomarker paper)       |
| To be announced (scheduled by the Registrar’s Office) |                                                      | FINAL EXAM                                           |