

UNIVERSITY OF CALGARY
DEPARTMENT OF GEOSCIENCE
COURSE OUTLINE

1. Course: GEOLOGY 323 – GEOCHEMICAL PROCESSES

Lecture Sections: L01 TR 11:00-12:15 ST 140 WINTER 2014

Instructor(s): Dr. J. Cuthbertson ES 520 220-4709 cuthberj@ucalgary.ca

A Course Schedule can be found on the course desire 2 learn website. Lecture notes will also be available on the course website. The lecture schedule and lecture material may change over the course of the term. It is the responsibility of the students to keep themselves updated and aware of any changes.

Geoscience Department ES 118; (403) 220-5841; geoscience.ucalgary.ca

2. PREREQUISITE: Geology 201, Geology 202 or 203; Chemistry 202 or 211; Chemistry 203 or 213

See section 3.5.C in the Faculty of Science section of the online Calendar (<http://www.ucalgary.ca/pubs/calendar/current/sc-3-5.html>)

3. **GRADING:** The University policy on grading and related matters is described in “Academic Regulations, sections F.1 and F.2” of the online University Calendar (<http://www.ucalgary.ca/pubs/calendar/current/f-1.html> and <http://www.ucalgary.ca/pubs/calendar/current/f-2.html>) In determining the overall grade in the course the following weights will be used:

Laboratory Assignments	20%
Midterm Exam I	20% (February 6 2014)
Midterm Exam II	25% (March 13 2014)
Final Examination	35% (To be scheduled by the Registrar)

Each piece of work (assignment, midterm test or final examination) submitted by the student will be assigned a percentage score. The student’s percentage score for the various components listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

4. **Missed Components of Term Work.** The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in section 3.6: <http://www.ucalgary.ca/pubs/calendar/current/sc-3-6.html>. It is the student's responsibility to familiarize himself/herself with these regulations. See also <http://www.ucalgary.ca/pubs/calendar/current/e-3.html>.

5. Dates and times of class exercises held outside of class hours N/A

REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY. If you have a clash with this out-of-class-time-activity, please inform your instructor as soon as possible so that alternative arrangements may be made for you.

Department Approval: ORINGAL SIGNED Date: January 03 2014

6. **EXAMINATION POLICY:** No electronic or written aids (eg. cell phones, tablets, computers, PDAs, notes, textbooks) will be allowed during writing of any exams. Non-programmable calculators will be permitted to answer quantitative questions on exams, if applicable, and permission to do this will be clearly indicated on the examination paper.

Students should also read the Calendar, Section G, on Examinations: <http://www.ucalgary.ca/pubs/calendar/current/g.html>.

7. In this course, the quality of the student's writing in laboratory reports will not be a factor in the evaluation of those reports. See also <http://www.ucalgary.ca/pubs/calendar/current/e-2.html>.

8. OTHER IMPORTANT INFORMATION FOR STUDENTS:

- (a) **ACADEMIC MISCONDUCT** (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under K. Student Misconduct (<http://www.ucalgary.ca/pubs/calendar/current/k.html>) to inform yourself of definitions, processes and penalties
- (b) **ASSEMBLY POINTS in case of emergency during class time. Be sure to FAMILIARIZE YOURSELF with the information at <http://www.ucalgary.ca/emergencyplan/assemblypoints>.**
- (c) **ACADEMIC ACCOMMODATION POLICY.** Students with documentable disabilities are referred to the following links:
Calendar entry on students with disabilities: <http://www.ucalgary.ca/pubs/calendar/current/b-1.html>
Student Accessibility Services: www.ucalgary.ca/access
- (d) **SAFEWALK:** Campus Security will escort individuals day or night (<http://www.ucalgary.ca/security/safewalk/>). Call **220-5333** for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- (e) **FREEDOM OF INFORMATION AND PRIVACY:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). As one consequence, **students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page.** For more information see also <http://www.ucalgary.ca/secretariat/privacy>.
- (f) **STUDENT UNION INFORMATION:** VP Academic **Phone:** 220-3911 **Email:** suypaca@ucalgary.ca.
SU Faculty Rep. **Phone:** 220-3913 **Email:** sciencerep@su.ucalgary.ca Website <http://www.su.ucalgary.ca/home/contact.html>.
Student Ombudsman: www.ucalgary.ca/provost/students/ombuds; ombuds@ucalgary.ca 220-6420
- (g) **INTERNET and ELECTRONIC COMMUNICATION DEVICE Information.** You can assume that in all classes that you attend, **your cell phone should be turned off.** Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.

UNIVERSITY OF CALGARY
DEPARTMENT OF GEOSCIENCE
COURSE OUTLINE

GEOLOGY 323
GEOCHEMICAL PROCESSES

TERM: Winter 2014

PREREQUISITE(S): Geology 201, Geology 202 or 203; Chemistry 202 or 211; Chemistry 203 or 213

LECTURER(S): Dr. J. Cuthbertson ES 520 220-4709 cuthberj@ucalgary.ca

LECTURES: L01 TR 11:00-12:15 ST 140

LABS :	B01	R	8:00, 11:00, 14:00, 17:00	ES 254
	B03	R	14:00	ES 254
	B04	R	17:00	ES 254
	B05/B06	R	14:00/17:00	ES 924
	B07/B08	W	17:00	ES 924/ ES 254
	B09/B10	F	08 :00/11 :00	ES 254
	B11	T	17:00	ES 924

TEXT: Recommended
Title: Principles and Applications of Geochemistry
Authors: Faure, Gunter
Publisher: Prentice-Hall, Inc.
Year: 1998
ISBN: 0-02-336450-5

A. Absences

Students who are absent from a midterm exam or final exam because of illness or other unforeseen circumstances may be granted an excused absence by the Instructor upon presentation of adequate documentation (a completed Physician/Counsellor Report form <<http://www.ucalgary.ca/registrar/PDFs/phycoun.pdf>> for illness; equivalent documentation for other circumstances).

B. Final Exam

There will be a final examination scheduled by the Registrar's Office.

Letter Grade	Percent
A+	94-100
A	88-94
A-	83-88
B+	78-83
B	73-78
B-	69-73
C+	65-69
C	61-65
C-	56-61
D	50-56
F	0-50

CLASSROOM PERFORMANCE SYSTEM: none.

GLGY 323 Winter 2014 Tentative Schedule

Week	Date	Topic	Lab
1	Tuesday Jan 7	<i>no class</i>	No lab
	Thursday Jan 9	Intro lecture/geochemical approach	
2	Tuesday Jan 14	Electronic structure/periodic table	LAB 1 Chemistry review
	Thursday Jan 16	Analytical methods in geochem	
3	Tuesday Jan 21	Crystal chemistry: bonding/sub	LAB 2 Mineral chemistry
	Thursday Jan 23	Cosmochemistry	
4	Tuesday Jan 28	Acids and bases	LAB 3 Acids, bases, solutions
	Thursday Jan 30	Aqueous geochemistry -salts	
5	Tuesday Feb 4	Thermodynamics I	LAB 4 Thermodynamics I
	Thursday Feb 6	Midterm Exam I	
6	Tuesday Feb 11	Thermodynamics II	LAB 5 Thermodynamics II
	Thursday Feb 13	Mineral stability diagrams I	
7	Tuesday Feb 18	Reading Days – no class	No Lab
	Thursday Feb 20	Reading Days – no class	
8	Tuesday Feb 25	Mineral stability diagrams II	LAB 6 Mineral stability
	Thursday Feb 27	Oxidation-reduction reactions	
9	Tuesday March 4	Using major elements	LAB 7 Oxidation-reduction
	Thursday March 6	Using trace elements	
10	Tuesday March 11	Radiogenic isotope chemistry	LAB 8 Tectonic discrimination
	Thursday March 13	Midterm Exam II	
11	Tuesday March 18	Radiogenic isotope chemistry	LAB 9 Geochronology
	Thursday March 20	Stable isotope chemistry	
12	Tuesday March 25	Stable isotope chemistry	LAB 10 Stable Isotopes
	Thursday March 27	Chemical weathering	
13	Tuesday April 1	Geochemical exploration	LAB 11 Weathering
	Thursday April 3	Geochemical exploration	
14	Tuesday April 8	Environmental geochemistry	No Lab
	Thursday April 10	Review	