

UNIVERSITY OF CALGARY
DEPARTMENT OF GEOSCIENCE
COURSE OUTLINE

1. Course: GEOLOGY 461 – SEDIMENTARY PETROLOGY

Lecture Section:	L01	MWF	13:00-13:50	ST 135	WINTER 2014
Lab Sections:	B01, 02, 03	T	08:00, 11:00, 14:00	ES 147	
	B04, 05, 06	R	08:00, 11:00, 14:00	ES 147	
	B07	T	17:00	ES 147	
	B08	R	17:00	ES 147	
Instructor:	Dr. R. Meyer		ES 110	210-7848	rmeyer@ucalgary.ca

Teaching Assistants: Kimberly Bell, Randal Evans, Tarig Ibrahim, Nikala Jonsson, Chad Morgan, Camilo Rojas Aldana.

D2L Course: GLGY 461 L01 (Winter 2014) - Sedimentary Petrology.

Department of Geoscience Office: ES 118; phone: (403) 220-5841; email: geoscience@ucalgary.ca.

- 2. Prerequisite(s):** Geology 337, 381, 423 and 491 and Chemistry 201 or 211 and Chemistry 203 or 213 and Physics 223 and Mathematics 253 or 283 or Applied Mathematics 219

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:

Lecture Midterm Exam	10%	March 3 5:30-7:00 pm SB 103
Lecture Final Exam	25%	Scheduled by registrar
Lab Exam #1	12%	February 11/13 2014
Lab Exam #2	15%	April 1/3 2014
Lab Assignments (weekly)	22%	
Thin-section (TS) project – Due Fri April 11	10%	
Top Hat classroom response system participation	6%	[See Note below]

- The two-hour Lecture Final Exam is cumulative.
- Lab assignments are due at the end of each of the corresponding lab periods, Labs 1-9 (see accompanying document “Course topics/schedule”).
- The Top Hat classroom response mark of 6% is based on participation only, hence it requires attending lecture classes more-or-less regularly (note that students don’t have to be present for every question –a score of about 80% corresponds to a full mark). If you wish to opt-out of this mark the corresponding 6% will be added to the weight of the Lecture Final Exam.

► **To opt-out students must inform the instructor R.Meyer in writing (via email) by Friday January 17.**

Each piece of work (e.g. lecture and lab exams, lab assignments, project) submitted by the student will be assigned a percentage score. The student’s average 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. The conversion between course percentage and letter grade is given below.

Letter Grade	Percent	Letter Grade	Percent
A+	95-100	C+	65-69
A	90-94	C	60-64
A-	85-89	C-	56-59
B+	80-84	D+	53-55
B	75-79	D	50-52
B-	70-74	F	0-49

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. **Scheduled out-of-class activities:** The Lecture Midterm Exam will be held outside of regularly scheduled class hours on Monday March 3, 5:30–7:00pm SB 103.

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.

6. **Course Resource Materials:**

Textbook: Boggs Jr., S. (2009), *Petrology of Sedimentary Rocks*, 2nd Edition, Cambridge University Press, 600 pp.

A list of reference textbooks covering topics in sedimentary petrology have been placed 'On Reserve' in the Gallagher Library.

The course D2L site will contain Lab handouts as well as copies of the lectures, and additional useful text and graphic resource materials are also posted. However, students are advised that staying current with materials posted on D2L is not a substitute for attendance at lectures and reading the textbook. The former provides an interactive environment that complements and provides tangible context to the subject matter treated in the textbook and in lab exercises.

7. **Examination Policy:** No electronic or written aids (e.g. cell phones, tablets, computers, PDAs, notes, textbooks, calculators) will be allowed during writing of any exams.

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

8. Writing and the grading thereof will be a factor in the evaluation of student work.

See also Section E.2 of the University Calendar: <http://www.ucalgary.ca/pubs/calendar/current/e-2.html>

9. **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 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.

Department Approval: ORIGINAL SIGNED Date: January 08 2014

Associate Dean's Approval for
out of regular class-time activity: ORIGINAL SIGNED Date: January 14 2014
GLGY 461 W14; 21/10/2013 16:03

TOPICS SCHEDULE* — GLGY 461 Sedimentary Petrology — WINTER 2014

	WEEK of:	LECTURES: MWF 13:00–13:50 ST 135	LABS: Tu or Th ES147
1	Jan 6	Introduction (logistics, objectives, expectations); Carbonate classification and mineralogy review. Micro- and macrostructure of common skeletal particles: mollusca, brachiopoda.	<i>NO LAB</i>
2	Jan 13	Skeletal particles (<i>continued</i>): bryozoa, foraminifera, corals, stromatoporoids. Non-skeletal particles: mineralogy, fabrics, environmental significance.	<u>LAB 1</u> : Carbonate rocks – skeletal constituents: corals, stromatoporoids, mollusca, brachiopoda, bryozoa, echinoidea, foraminifera.
3	Jan 20	Calcareous algae and bacterial constituents: recognition and environmental significance; stromatolites; chalk.	<u>LAB 2</u> : Carbonate rocks – non-skeletal constituents
4	Jan 27	Algae & bacteria (<i>continued</i>). Carbonate diagenesis: cementation, neomorphism, dissolution, compaction, development of porosity.	<u>LAB 3</u> : Carbonate rocks – algal & cryptobacterial constituents
5	Feb 3	Carbonate diagenesis: marine, near-surface and burial settings. Carbonate depositional settings: platforms; biologic vs. inorganic origin of mud; warm vs. cool-water carbonates.	<u>LAB 4</u> : Carbonate rocks – Cements, neomorphism, diagenesis
6	Feb 10	Carb. depositional settings (<i>continued</i>). Dolostones and evaporites: textures, conditions of formation, sabkhas.	Feb 11 / 13: LAB EXAM 1 (Labs 1-4)
7	Feb 17	<i>READING BREAK: no lectures</i>	<i>READING BREAK: no labs</i>

	WEEK of:	LECTURES: MWF 13:00–13:50 ST 135	LABS: Tu or Th ES147
8	Feb 24	Dolostones and evaporites (<i>continued</i>). Texture and composition of coarse-grained siliciclastic rocks; influence of provenance and depositional setting.	<u>LAB 5</u> : Carbonate rocks – Dolostones and evaporites
9	Mar 3	Mon Mar 3: MIDTERM LECTURE EXAM 17 :30 – 19:00 SB103 Provenance (<i>continued</i>). Chert: 1ary and 2ary origins; silica diagenesis.	<u>LAB 6</u> : Siliciclastic rocks – Terrigenous sandstones
10	Mar 10	Burial of coarse-grained siliciclastic rocks: stratigraphic controls, subsurface conditions, compaction, cementation, dissolution. Terrigenous mudstones: clay minerals, and depositional facies.	<u>LAB 7</u> : Siliciclastic rocks – Conglomerates
11	Mar 17	Mudstones (<i>continued</i>): authigenic clays and diagenesis. Soils & paleosoils: soil horizons, structural units and textures.	<u>LAB 8</u> : Siliciclastic rocks – Terrigenous mudstones, wackes and clays
12	Mar 24	Paleosoils (<i>continued</i>): significance.	<u>LAB 9</u> : Paleosoils
13	Mar 31	Evolution of porosity and permeability from deposition through burial/uplift. Volcaniclastic rocks.	April 1 / 3: LAB EXAM 2 (Labs 5-9)
14	Apr 7	Techniques & applications in petrology: electron microscopy, cathodo-luminescence, XRD, geochemical analyses. Case studies.	<u>LAB 10</u> : lab time for TS Project
15	Apr 14	Review	NO LAB

* Notes: subject to slight changes. The Final Lecture Exam is cumulative and scheduled by the registrar.