



UNIVERSITY OF CALGARY
FACULTY OF SCIENCE
DEPARTMENT OF GEOSCIENCE
COURSE OUTLINE
WINTER 2015

1. **Course:** Geology 461, Sedimentary Petrology

Lecture Section:

L01: Mo We Fr, 13:00-13:50, MFH 160

Instructor: Dr. R. Meyer, Office ES 110, Tel. No. 403-210-7848, e-mail address, rmeyer@ucalgary.ca,

Office Hours: TBA

Teaching Assistants: Elinda Dehari, Makram Hedhli, Chad Morgan, Camilo Rojas, Nikola van de Wetering.

d2L Course: GLGY 461 L01 – (Winter 2015) – Sedimentary Petrology

Geoscience Department ES 118, 403-220-5841, geoscience.ucalgary.ca, geoscience@ucalgary.ca

2. **Prerequisites:** Geology 337, 381, 313 or 423, and 491 and Chemistry 201 or 211 and Chemistry 203 or 213. See section 3.5.C in the Faculty of Science section of the online Calendar (www.ucalgary.ca/pubs/calendar/current/sc-3-5.html)

Note: Completion of Statistics 213 or 327 or 357 is highly recommended prior to taking this course.

3. **Grading:** The University policy on grading and related matters is described sections [F.1](#) and [F.2](#) of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Lecture Midterm Exam 1 – February 13	12.5%	
Lecture Midterm Exam 2 – March 27	12.5%	
Lecture Final Exam – Scheduled by registrar	25%	
Lab Assignments: weekly; 2% each of nine (9) Labs	18%	
Lab Exam 1 – Feb 24 / 26	12%	
Lab Exam 2 – April 7 / 9	15%	
Top Hat classroom response system participation	5%	<i>[See Note below]</i>

- 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 5% is based on participation only. Note that students don't have to be present for every question – a score of about 85% corresponds to a full mark. If you wish to opt-out of this mark the corresponding 5% will be added to the weight of the Final Exam.

► **To opt-out students must inform the instructor R.Meyer in writing (via email) by Friday April 10.**

Each piece of work (e.g. Lab assignments, Midterm tests, Final exam, Poster project, and Top Hat® participation) 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](#). It is the student's responsibility to familiarize himself/herself with these regulations. See also [Section E.6](#) of the University Calendar

5. **Course 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.

6. **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.

7. **Writing across the curriculum statement:** e.g. "In this course, the quality of the student's writing in laboratory reports will be a factor in the evaluation of those reports." See also [Section E.2](#) of the University Calendar.

8. **OTHER IMPORTANT INFORMATION FOR STUDENTS:**

(a) **Misconduct:** 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 [Section K](#). Student Misconduct 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 on [assembly points](#).

(c) **Academic Accommodation Policy:** Students with documentable disabilities are referred to the following links: Students with Disabilities: <http://www.ucalgary.ca/pubs/calendar/current/b-1.html> [B.1](#) and Student Accessibility Services: <http://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: suvpaca@ucalgary.ca.
SU Faculty Rep. Phone: 220-3913 Email: sciencerep@su.ucalgary.ca; [Student Ombudsman](#)

(g) **Internet and Electronic Device Information:** You can assume that in all classes that you attend, your cell phone should be turned off unless instructed otherwise. 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.

(h) **U.S.R.I.:** At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses (www.ucalgary.ca/usri). Your responses make a difference - please participate in USRI Surveys.

The accompanying document (Topics+schedule_461-W15) provides a Schedule of Lecture and Lab topics.

TOPICS SCHEDULE* — GLGY 461 Sedimentary Petrology — WINTER 2015

	WEEK of:	LECTURES: MWF 13:00–13:50 MFH 160	LABS: Tu or Th ES147
1	Jan 12	Introduction (logistics, objectives, expectations). Carbonate classification and mineralogy review. Micro- and macrostructure of common skeletal particles: corals, stromatoporoids.	<i>NO LAB</i>
2	Jan 19	Skeletal particles (<i>continued</i>): mollusca, brachiopoda, bryozoa, foraminifera. Non-skeletal particles: mineralogy, fabrics, environmental significance.	<u>LAB 1</u> : Carbonate rocks – skeletal constituents: corals, stromatoporoids.
3	Jan 26	Non-skeletal (<i>continued</i>). Calcareous algae and bacterial constituents: recognition and environmental significance; stromatolites; chalk.	<u>LAB 2</u> : Carbonate rocks – skeletal constituents: mollusca, brachiopoda, bryozoa, echinoidea, foraminifera.
4	Feb 2	Algae & bacteria (<i>continued</i>). Carbonate depositional settings: platforms; biologic vs. inorganic origin of mud; warm vs. cool-water carbonates.	<u>LAB 3</u> : Carbonate rocks – non-skeletal constituents
5	Feb 9	Carbonate diagenesis: processes, marine, near-surface and burial settings, development of porosity. Friday Feb 13: LECTURE MIDTERM EXAM 1	<u>LAB 4</u> : Carbonate rocks – algal & cryptobacterial constituents
6	Feb 16	<i>READING WEEK – NO LECTURES</i>	<i>READING WEEK – NO LABS</i>
7	Feb 23	Carbonate diagenesis (<i>continued</i>). Dolostones and evaporites: textures, conditions of formation, sabkhas.	Feb 24 / 26: LAB EXAM 1 (Labs 1-4)

	WEEK of:	LECTURES: MWF 13:00–13:50 MFH 160	LABS: Tu or Th ES147
8	Mar 2	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 – Cements, neomorphism, diagenesis
9	Mar 9	Coarse-grained siliciclastic rocks (<i>continued</i>). on chert: origins; silica diagenesis.	<u>LAB 6</u> : Carbonate rocks – Dolostones and evaporites
10	Mar 16	Diagenesis of coarse-grained siliciclastic rocks: stratigraphic controls, subsurface conditions, compaction, cementation, dissolution. Paleosols: horizons, structural units, textures, significance.	<u>LAB 7</u> : Siliciclastic rocks – Terrigenous sandstones
11	Mar 23	Terrigenous mudstones: clay minerals, depositional facies, authigenic clays and diagenesis. Friday March 27: LECTURE MIDTERM EXAM 2	<u>LAB 8</u> : Siliciclastic rocks – Conglomerates
12	Mar 30	Mudstones (<i>continued</i>). Development of porosity and permeability from deposition through diagenesis.	<u>LAB 9</u> : Siliciclastic rocks – Terrigenous mudstones, wackes and clays
13	April 6	Volcaniclastic rocks. Techniques & applications in petrology: electron microscopy, cathodo-luminescence, XRD, geochemical analyses.	April 7 / 9: LAB EXAM 2 (Labs 5-9)
14	April 13	Case studies. Wednesday April 15: last day of classes	NO LAB

* **NOTES:** lecture schedule is subject to slight changes. The Final Lecture Exam is cumulative and is scheduled by the Registrar.

Lab Schedule: Tu or Thurs 8:00 am, 11:00 am, 2:00 pm, 5:00 pm.