



# UNIVERSITY OF CALGARY

## DEPARTMENT OF GEOSCIENCE COURSE OUTLINE

### 1. Course: GLGY 381 – Stratigraphy and Sedimentation

Lecture Section:	L01	MWF	15:00-15:50	SB 103
Lab Sections:	B01, 02, 03, 04	T	08:00, 11:00, 14:00, 17:00	ES 242
	B05, 06, 07, 08	R	08:00, 11:00, 14:00, 17:00	ES 242
	B09, 10	W	08:00, 11:00	ES 242
Instructors:	Dr. A. Dutchak	ES 240	210-6117	alexander.dutchak@ucalgary.ca
	Dr. R. Meyer	ES 110	210-7848	rmeyer@ucalgary.ca

Teaching Assistants: *to be determined*

D2L Course: F2014GLGY381L01 – GLGY 381 L01 – (Fall 2014) – Stratigraphy & Sedimentation

Department of Geoscience Office: ES 118; phone: (403) 220-8882; email: [geoscience@ucalgary.ca](mailto:geoscience@ucalgary.ca).

2. **Prerequisites:** Geology 201 and 202 or 203; Chemistry 201 or 211, and 203 or 213; Physics 211 or 221, and 223; Mathematics 253 or 267 or 277 or 283 or Applied Mathematics 219. See also Geology [Course Descriptions](#) in the online University Calendar.

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 I – October 3	10%
Lecture Midterm Exam II – October 31	15%
Lab Quizzes (eight, weekly)	12%
Lab Exam I – October 14/15/16	16.5%
Lab Exam II – December 2/3/4	16.5%
Final Exam – Scheduled by Registrar	25%
Top Hat classroom response system participation	5% <i>[See Note below]</i>

• The two-hour Lecture Final Exam is cumulative.

• 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 80% 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 of the Top Hat® mark students must inform the instructor R.Meyer (via email) by Friday Sept 19.**

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](#). 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: Nichols, G. (2009), Sedimentology and Stratigraphy, 2nd Edition, Wiley-Blackwell, 419 pp.  
A list of reference textbooks covering topics in Sedimentology and Stratigraphy have been placed 'On Reserve' in the Gallagher Library.
6. **Examination Policy:** Unless otherwise explicitly stated on Exam coversheets, 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 and the grading thereof will be a factor in the evaluation of student work. See also [Section E.2](#) of the University Calendar.

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 [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: [Calendar entry on students with disabilities](#) and [Student Accessibility Services](#).
- (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](mailto:suvpaca@ucalgary.ca).  
SU Faculty Rep. Phone: 220-3913 Email: [sciencerep@su.ucalgary.ca](mailto: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) 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](http://www.ucalgary.ca/usri)). Your responses make a difference - please participate in USRI Surveys.

The accompanying document ( [Course Topics Schedule 381\\_F14\\_v2](#) ) provides a Schedule of Lecture and Lab Topics and for assigned textbook readings.

## COURSE TOPICS SCHEDULE – GLGY 381 Fall 2014

	WEEK of	LECTURES	TEXTBOOK READINGS	LABS
1	Sept 8	<p><u>Introduction</u>: objectives, expectations, logistics</p> <p>Sedimentation, Sedimentology, and Stratigraphy</p> <p>Weathering, soils, erosion as sources for sediments</p>	<p>Ch. 1 pp. 1-4</p> <p>Ch. 6 pp. 87-99</p>	<i>NO LAB</i>
2	Sept 15	<p>Texture and classification of terrigenous clastic sediments / rocks</p> <p>Fluid flow and transport of particles; gravity / mass flow transport</p>	<p>Ch. 2 pp. 5-13, 16-20, 21-27</p> <p>Ch. 4 pp. 44-68</p>	<u>LAB 1</u> : Texture of Sedimentary Grains
3	Sept 22	<p>Sedimentary structures (erosional and depositional)</p> <p>Biogenic sedimentary structures (ichnology, soil/paleosols)</p> <p>Post-depositional structures</p>	<p>Ch. 11 pp. 173-78</p> <p>Ch. 18 pp. 274-79</p>	<u>LAB 2</u> : Description and Classification of Siliciclastic Rocks
4	Sept 29	<p>Basins (controls on sediment accumulation)</p> <p>Diagenetic processes in siliciclastic sediments and rocks, tectonic deformation, exhumation, weathering, ...(continuing the rock cycle)</p> <p><b>Fri Oct 3: MIDTERM I</b></p>	<p>Ch. 24 pp. 381-84</p> <p>Ch. 18 pp. 279-287</p>	<u>LAB 3</u> : Physical Sedimentary Structures
5	Oct 6	<p>Origin of carbonate sediments and rocks; classification of limestones</p> <p>Carbonate depositional settings and diagenesis</p> <p>Origin of other biogenic and chemical sediments</p>	<p>Ch. 3 pp. 28-41</p> <p>Ch. 18 pp. 287-291</p>	<u>LAB 4</u> : Description and Identification of Trace Fossils
6	Oct 13	<p><b>Mon Oct 13: THANKSGIVING DAY – NO CLASSES</b></p> <p>Interpreting the sedimentary rock record (pattern vs. process)</p> <p>Concept of facies and depositional environments; Walther’s Law</p>	<p>Ch. 5 pp. 69-86</p>	<b>LAB EXAM I</b>

	WEEK of	LECTURES	TEXTBOOK READINGS	LABS
7	Oct 20	Terrestrial depositional environments: Alluvial deposits (alluvial fans, river forms, recognition of stream types) and lakes; aeolian and glacial deposits	Ch. 9 pp. 129-149 Ch. 10 pp. 151-161 Chapters 7 and 8 pp. 102-127	<u>LAB 5</u> : Carbonate Sediments and Carbonate Rocks
8	Oct 27	Terrestrial depositional environments <i>continued...</i> Morphology and processes of the marine realm: tides / waves and corresponding bedforms / structures; marine body and trace fossils <b>Friday Oct 31: MIDTERM II</b>	Ch. 11 pp. 163-178	<u>LAB 6</u> : Other Chemical / Biogenic Rocks and Carbonate Core Analysis
9	Nov 3	Clastic shorelines and shallow seas: river mouths (deltas, estuaries), beaches, barrier and lagoon systems, storm- and tide-dominated	Chapters 12, 13, 14 pp. 179-224	<u>LAB 7</u> : Facies Analysis and Environmental Interpretation of Siliciclastic Core
10	Nov 10	<b>Mon-Tues: READING DAYS – NO CLASSES</b> Clastic shorelines and shallow seas <i>continued...</i>		<i>NO LAB</i>
11	Nov 17	Characteristics of shallow marine carbonate/evaporite deposits Ocean basins and deep marine deposits Volcaniclastic processes and deposits	Chapters 15, 16, 17 pp. 225-272	<u>LAB 8</u> : Stratigraphy and Correlation of Sedimentary Units
12	Nov 24	Lithostratigraphic and biostratigraphic principles and applications Dating and stratigraphic correlations (magneto/chemo/event strat)	Ch. 19 pp. 297-310 Ch. 20 pp. 311-323 Ch. 21 pp. 324-334	<u>LAB 9</u> : Review / Overview Lab
13	Dec 1	Foundations of sequence stratigraphy (role of sea-level, relevance of unconformities) <b>Friday Dec 5: LAST DAY OF CLASSES</b>	Ch. 23 pp. 349-357, 373-380	<b>LAB EXAM II</b>