



COURSE OUTLINE

1. **Course:** GLGY 381, Sedimentary Rocks and Processes - Fall 2022

Lecture 01 : MWF 10:00 - 10:50 in EDC 388

Instructor	Email	Phone	Office	Hours
Dr Rodolfo Meyer	rmeyer@ucalgary.ca	403 210-7848	ES 110	Open-door policy at anytime or by appointment via email

To account for any necessary transition to remote learning for the current semester, courses with in-person lectures, labs, or tutorials may be shifted to remote delivery for a certain period of time. In addition, adjustments may be made to the modality and format of assessments and deadlines, as well as to other course components and/or requirements, so that all coursework tasks are in line with the necessary and evolving health precautions for all involved (students and staff).

In Person Delivery Details:

A significant part of the Lecture time will be dedicated to provide context and background for weekly Lab Assignments -see *accompanying Topics Schedule at the end of this Outline*. However, not all of the topics covered in lecture periods are addressed in lab exercises, particularly those referring to various depositional settings and processes. A list of Readings is also included in above mentioned Topics Schedule; the Readings are required to prepare for-, and follow, both the lab exercises and lecture topics.

Re-Entry Protocol for Labs and Classrooms:

To limit the spread of COVID-19 on campus, the University of Calgary has implemented safety measures to ensure the campus is a safe and welcoming space for students, faculty and staff. The most current safety information for campus can be found [here](#).

Course Site:

D2L: GLGY 381 L01-(Fall 2022)-Sedimentary Rocks and Processes

Note: Students must use their U of C account for all course correspondence.

Equity Diversity & Inclusion:

The University of Calgary is committed to creating an equitable, diverse and inclusive campus, and condemns harm and discrimination of any form. We value all persons regardless of their race, gender, ethnicity, age, LGBTQIA2S+ identity and expression, disability, religion, spirituality, and socioeconomic status. The Faculty of Science strives to extend these values in every aspect of our courses, research, and teachings to better promote academic excellence and foster belonging for all.

Course Outcomes:

- Identify and classify sedimentary rocks and their physical and chemical constituents
- Describe and explain the behavior of sedimentary particles in different fluid flow regimes.
- Identify organic and inorganic sedimentary structures and describe their inferred process of formation.
- Explain how variables associated with diagenesis alter packages of sediment, and how these alterations are predictive of resulting rock characteristics.
- Infer depositional environments when provided with a series of sedimentary deposits
- Appraise and assess the utility of various stratigraphic methodologies given a variety of sedimentary datasets.
- Use lithologic well data to produce a stratigraphic cross-section and associated regional depositional history

2. **Requisites:**

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

Prerequisite(s):

Geology 202; and 3 units from Chemistry 201, 211, 203 or 213; and Physics 211 or 221.

3. Grading:

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar.

In determining the overall grade in the course the following weights will be used:

Course Component	Weight	Due Date (duration for exams)	Modality for exams	Location for exams
Lab Assignments (7 best out of 8) ¹	24%	Ongoing		
TopHat Questions in lecture periods ²	6%	Ongoing		
Quiz 1	6%	Oct 07 2022 at 10:00 am (50 Minutes)	in-person	In class
Lab Exam I ³	16%	Oct 20 2022 at 12:00 am (2.5 Hours)	in-person	ES 242
Quiz 2	6%	Nov 02 2022 at 10:00 am (50 Minutes)	in-person	In class
Quiz 3	6%	Nov 28 2022 at 10:00 am (50 Minutes)	in-person	In class
Lab Exam II	16%	Dec 01 2022 at 12:00 am (2.5 Hours)	in-person	ES 242
Registrar Scheduled Final Exam	20%	Will be available when the final exam schedule is released by the Registrar	in person	Will be available when the final exam schedule is released by the Registrar

¹ Lab Assignments are due on a specified day and time (to be determined) well before the start of the following lab period. Lab 1 is a 2-week assignment but Labs 2-8 are 1-week assignments -see Topics Schedule at the end of this outline.

² 3% of the weight is for participation in the questions; the other 3% is assigned to correct responses.

³ Lab Exams I and II will take place on the dates given during each of the four Lab Sections (8 am, 11 am, 2 pm, 5 pm).

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component 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 a percentage grade and letter grade is as follows.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
Minimum % Required	95 %	91 %	88 %	84%	79%	74 %	69 %	65%	61%	56 %	50 %

The Top Hat classroom response mark of 6% is based on both participation (3%) and correct responses (3%). For the participation component, students don't have to be present for every question –a score of about 85% usually 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 TopHat marks students must inform the instructor via email by Friday Dec 4.

This course will have a Registrar Scheduled Final exam that will be delivered in-person and on campus. [The Final Examination Schedule](#) will be published by the Registrar's Office approximately one month after the start of the term. The final exam for this course will be designed to be completed within 2.5 hours.

Three (3) short Quizzes will be written during regularly scheduled lecture periods -see dates in grade weighting table, above. The quizzes focus on both lecture and lab topics.

Lab Assignments will be due at a specific day/time (to be determined by the 1st day of classes) before the start of the next Lab Assignment, that is, weekly except for Lab 1 which is a two-week exercise. NOTE that this means that you will have a Lab Assignment to complete every week of the semester except for Lab 1, the weeks with Lab Exams, and during the Term break -see *Topics Schedule at the end of this Outline*

The **grade for the Lab Assignments** will be the average of your best seven (7) marks out of the total of eight (8) Lab Assignments in the semester.

Each Lab Assignment will be submitted to a corresponding Dropbox in d2L *-pdf file format required*.

The **two (2) Lab Exams** will run during regularly scheduled lab periods in room ES 242. The lab exams are designed to take no more than 2.5 hrs. to complete.

The **Final Exam** will be run in-person on a date/time to be determined by the Registrar.

The University of Calgary offers a [flexible grade option](#), Credit Granted (CG) to support student's breadth of learning and student wellness. Faculty units may have additional requirements or restrictions for the use of the CG grade at the faculty, degree or program level. To see the full list of Faculty of Science courses where CG is not eligible, please visit the following website: <https://science.ucalgary.ca/current-students/undergraduate/program-advising/flexible-grading-option-cg-grade>

4. **Missed Components Of Term Work:**

The university has suspended the requirement for students to provide evidence for absences. Please do not attend medical clinics for medical notes or Commissioners for Oaths for statutory declarations.

In the event that a student legitimately fails to submit any online assessment on time (e.g. due to illness etc...), please contact the course coordinator, or the course instructor if this course does not have a coordinator to arrange for a re-adjustment of a submission date. Absences not reported within 48 hours will not be accommodated. If an excused absence is approved, one possible arrangement is that the percentage weight of the legitimately missed assignment could also be pro-rated among the components of the course. This option is at the discretion of the coordinator and may not be a viable option based on the design of this course.

Lab Assignments will be due at a specific day/time (TBD) before the start of the next Lab Assignment, that is, weekly except for Lab 1 which is a two-week exercise. Due dates can only be changed for legitimate reasons (e.g. illness or other justified conflict) with consent from the TA, who at times may consult with the course instructor. Any accommodations are decided on a case-by-case basis. Aside from the above, **late submissions of Lab Assignments are assigned a penalty of 25% per day, up to a maximum of 2 days (50%).**

5. **Scheduled Out-of-Class Activities:**

There are no scheduled out of class activities for this course.

6. **Course Materials:**

Required Textbook(s):

Gary Nichols, *Sedimentology and Stratigraphy*. Wiley-Blackwell.

- **NOTE** that the required textbook by Nichols is **freely available online**, for online reading or download of relevant Chapters and pages. See the information on the d2L website for the appropriate link to the textbook page.

In order to successfully engage in their learning experiences at the University of Calgary, students taking online, remote and blended courses are required to have reliable access to the following technology:

- A computer with a supported operating system, as well as the latest security, and malware updates;
- A current and updated web browser;
- Webcam/Camera (built-in or external);
- Microphone and speaker (built-in or external), or headset with microphone;
- Current antivirus and/or firewall software enabled;
- Stable internet connection.

For more information please refer to the UofC [ELearning](#) online website.

7. **Examination Policy:**

No aids are allowed on tests or examinations. Exceptions to this rule will only apply upon explicit specifications from the instructor and TAs of the course.

Students should also read the Calendar, [Section G](#), on Examinations.

8. **Approved Mandatory And Optional Course Supplemental Fees:**

There are no mandatory or optional course supplemental fees for this course.

9. **Writing Across The Curriculum Statement:**

For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also Section [E.2](#) of the University Calendar.

10. Human Studies Statement:

Students will not participate as subjects or researchers in human studies.

See also [Section E.5](#) of the University Calendar.

11. Reappraisal Of Grades:

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See [Section I.3](#) of the University Calendar.

- a. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **ten business days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall submit the Reappraisal of Graded Term work [form](#) to the department in which the course is offered within 2 business days of receiving the decision from the instructor. The Department will arrange for a reappraisal of the work within the next ten business days. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See sections [I.1](#) and [I.2](#) of the University Calendar
- b. **Final Exam:** The student shall submit the request to Enrolment Services. See [Section I.3](#) of the University Calendar.

12. Other Important Information For Students:

- a. **Mental Health** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, [Mental Health Services Website](#)) and the Campus Mental Health Strategy website ([Mental Health](#)).
- b. **SU Wellness Services:** For more information, see their [website](#) or call [403-210-9355](#).
- c. **Sexual Violence:** The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email (svsa@ucalgary.ca) or phone at [403-220-2208](#). The complete University of Calgary policy on sexual violence can be viewed [here](#).
- d. **Misconduct:** Academic integrity is the foundation of the development and acquisition of knowledge and is based on values of honesty, trust, responsibility, and respect. We expect members of our community to act with integrity. Research integrity, ethics, and principles of conduct are key to academic integrity. Members of our campus community are required to abide by our institutional [Code of Conduct](#) and promote academic integrity in upholding the University of Calgary's reputation of excellence. Some examples of academic misconduct include but are not limited to: posting course material to online platforms or file sharing without the course instructor's consent; submitting or presenting work as if it were the student's own work; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; borrowing experimental values from others without the instructor's approval; falsification/fabrication of experimental values in a report. Please read the following to inform yourself more on academic integrity:

[Student Handbook on Academic Integrity](#)
[Student Academic Misconduct Policy](#) and [Procedure](#)
[Faculty of Science Academic Misconduct Process](#)
[Research Integrity Policy](#)

Additional information is available on the [Student Success Centre Academic Integrity page](#)

e. Academic Accommodation Policy:

It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The student accommodation policy can be found at: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Accommodation-Policy.pdf>

Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation->

[for-Students-with-Disabilities-Procedure.pdf](#).

Students needing an accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, by filling out the [Request for Academic Accommodation Form](#) and sending it to Jennifer Cuthbertson by email cuthberj@ucalgary.ca preferably 10 business days before the due date of an assessment or scheduled absence.

- f. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). 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 [Legal Services](#) website.
- g. **Student Union Information:** [SU contact](#), Email SU Science Rep: sciencerep1@su.ucalgary.ca, [Student Ombudsman](#)
- h. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](#)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.
- i. **Copyright of Course Materials:** All course materials (including those posted on the course D2L site, a course website, or used in any teaching activity such as (but not limited to) examinations, quizzes, assignments, laboratory manuals, lecture slides or lecture materials and other course notes) are protected by law. These materials are for the sole use of students registered in this course and must not be redistributed. Sharing these materials with anyone else would be a breach of the terms and conditions governing student access to D2L, as well as a violation of the copyright in these materials, and may be pursued as a case of student academic or [non-academic misconduct](#), in addition to any other remedies available at law.

TOPICS SCHEDULE — GLGY 381 Sedimentary Rocks and Processes — FALL 2022

Schedule is tentative, subject to slight changes which will be announced in advance

WEEK of:	LECTURES MWF 10:00-10:50 in EDC 388	SUGGESTED READINGS	LABS: Thursdays ES 242
1	Sept 5	1. Wed Sept 7: Introduction	NO LAB
		2. Fri Sept 9: Sediment Provenance	
2	Sept 12	3. Mon Sept 12: Provenance <i>cont'd</i>	LAB 1 - Sedimentary Texture and Grain Size
		4. Wed Sept 14: Texture of SILI sediments/rocks	
		5. Fri Sept 16: Sediment Transport and Fluid Flow	
3	Sept 19	6. Mon Sept 19: Sed. Transport & Fluid Flow <i>cont'd</i>	LAB 1 <i>cont'd</i>
		7. Wed Sept 21: Sed. Transport & Fluid Flow <i>cont'd</i>	
		8. Fri Sept 23: Classification of Siliciclastic sediments and rocks	
4	Sept 26	9. Mon Sept 26: Physical sedimentary structures	LAB 2 -Siliciclastic Sedimentary Rocks
		10. Wed Sept 28: Physical sed. structures <i>cont'd</i>	
		11. Fri Sept 30: HOLIDAY - NO CLASS	
5	Oct 3	12. Mon Oct 3: Physical sed. structures <i>cont'd</i>	LAB 3 - Physical Sedimentary Structures
		13. Wed Oct 5: Biogenic sed. structures: Trace fossils	
		14. Fri Oct 7: QUIZ 1 (Focus on topics up-to and including Physical Sedimentary Structures and Lab 3)	
6	Oct 10	15. Mon Oct 10: HOLIDAY - NO CLASS	LAB 4 - Trace Fossils
		16. Wed Oct 12: Carbonate sediments and rocks	
		17. Fri Oct 14: Shallow Marine Carbonate Environments	
7	Oct 17	18. Mon Oct 17: Carbonates <i>cont'd</i>	

WEEK of:	LECTURES MWF 10:00-10:50 in EDC 388	SUGGESTED READINGS	LABS: Thursdays
			LAB EXAM I
	19. Wed Oct 19: Other Biogenic and Chemical Rocks	Nichols: Chapter 3, Sections 3.3 to 3.6.3, pages 38-41.	(Labs 1-4)
	20. Fri Oct 21: Diagenetic Processes; Siliciclastic Diag.	Nichols: Chapter 18, Sections 18.2 to 18.3.3, pages 279-287.	
8	Oct 24	21. Mon Oct 24: Siliciclastic Diagenesis <i>cont'd</i>	LAB 5 - Carbonate Sediments and Rocks
		22. Wed Oct 26: Carbonate Diagenesis	
		23. Fri Oct 28: Dolomite and Dolomitization	
9	Oct 31	24. Mon Oct 31: Walther's Law and Facies Concepts	LAB 6 - Other Chemical / Biogenic Rocks and Carbonate Core
		25. Wed Nov 2: QUIZ 2 (<i>Focus on topics up-to and including Dolomite and Dolomitization & Lab 5</i>)	
		26. Fri Nov 4: Terrestrial depositional environments ◦ <i>Focus</i> on Nichols: Chapter 9, pages 129-149; SKIP Sections 9.2.5, 9.6 and 9.7. <i>BROWSE</i> through Chapters 7, 8, 10; in particular, aim to understand the Summaries at the end of chapters	
10	Nov 7	TERM BREAK - NO CLASSES	NO LAB
11	Nov 14	27. Mon Nov 14: Terrestrial dep. environments <i>cont'd</i>	LAB 7 - Description and Facies Analysis of Siliciclastic Core
		28. Wed Nov 16: Strat. concepts & Lithostratigraphy	
		29. Fri Nov 18: Biostratigraphy	
12	Nov 21	30. Mon Nov 21: Seismic and Sequence Stratigraphy	LAB 8 - Stratigraphy and Correlation of Sedimentary Units
		31. Wed Nov 23: Sequence Stratigraphy <i>cont'd</i>	
		32. Fri Nov 25: Coastal marine dep. settings and processes Nichols: Chapter 11, Sections 11.1 to 11.3.1, pages 163-170. Nichols: Chapter 13, Sections 13.1 to 13.5, pages 199-208.	
13	Nov 28	33. Mon Nov 28: QUIZ 3 (<i>Focus on topics up-to and including Sequence Stratigraphy & Lab 8</i>)	LAB EXAM II (Labs 5-8)
		34. Wed Nov 30: Coastal marine <i>cont'd</i> : Deltas & Estuaries Nichols: Chapter 12, Sections 12.1 to 12.3.3, pages 179-184; Sections 12.5 to 12.7, pages 193-198. Nichols: Chapter 13, Sections 13.6 to 13.7, pages 207-214.	
		35. Fri Dec 2: Shallow marine siliciclastic shelf setting Nichols: Chapter 14, pages 215-224.	
14	Dec 5	36. Mon Dec 5: Deep marine depositional environments Nichols: Chapter 16, Sections 16.1 to 16.2, pages 247-251 <i>and</i> Sections 16.5 to 16.7, pages 258-262.	NO LAB
		37. Wed Dec 7: Review? Catch-up? "All of the above..." ☺	

Electronically Approved - Sep 01 2022 12:25

Department Approval