



COURSE OUTLINE

1. **Course:** GLGY 577, Introduction to Petroleum Geology - Fall 2020

Lecture 01: TR 11:00 - 12:15 - Online

Instructor	Email	Phone	Office	Hours
Dr Rodolfo Meyer	rmeyer@ucalgary.ca	403 210-7848	ES 110	TBA
Dr Per Pedersen	pkpeders@ucalgary.ca	403 220-8454	ES 264	TBA

Online Delivery Details:

This course is being offered online in real-time via scheduled meeting times, you are required to be online at the same time.

Regularly scheduled **Office Hours** for both course instructor(s) and the TA will be established in the 1st week of classes in consultation with the entire class. Aside from regularly scheduled office hours with the instructor(s), virtual appointments can be scheduled via email.

NOTE that instructor(s) and the TA will aim to respond to your email inquiries related to the course within 24 hours, except on weekends and holidays.

Both Lecture and Lab periods will be scheduled to run as synchronous classes.

Lectures (Tues & Thurs 11:00-12:15pm) will be presented as Zoom classes with live interaction made possible both verbally and as text entries into the Chat box. Lecture presentations will be posted beforehand on the Class Management System, d2L -see tentative schedule of lecture topics at the bottom of this outline

During regularly scheduled **Lab periods** (Wed 11:00-1:50pm), TAs and/or one of the instructors (Rudi and/or Per), will be connected with students in the class via Zoom to introduce any given lab exercise/assignment, communicating and working with the students on the required tasks, and respond to questions. Any given Lab Assignments will be posted beforehand on d2L.

Lab Assignments will be due at the start of the subsequent Lab Exercise/Assignment and are submitted in d2L -every Lab will have a Dropbox set-up for the purpose of assignment submission. NOTE that most of the Lab exercises/assignments (5 out of 7) are scheduled to take 2 weeks, hence, in most cases Lab assignments will be due every 2 weeks -see schedule of due dates provided in the table of grade weighting, below.

Course Site:

D2L: GLGY 577 L01-(Fall 2020)-Introduction to Petroleum Geology

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

2. **Requisites:**

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

Prerequisite(s):

Geology 445; and 3 units from Geology 463, 483 or Geophysics 457.

Antirequisite(s):

Credit for Geology 577 and any of 575, 589.01, 589.02, 589.07, 589.08, 591, 595.01, 596, 689.01, 689.02, 689.07, 689.08, 694.01, 694.03, 696, will not be allowed.

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:

Component(s)	Weighting %	Date
Midterm Exam	15	Oct 20, see Out-of-Class Activities section
Final Exam	20	TBA by Registrar
Lab Assignments:	65	- Details below:
Lab 1 - W.Canada grid system	5	Sept 16
Lab 2 - Oil sands core	10	Sept 30
Lab 3 - Reservoir properties...	11	Oct 14
Lab 4 - Contouring & x-sections...	10	Oct 28
Lab 5 - Trend, sand, pay, ...	12	Nov 18
Lab 6 - Intro. to geoSCOUT	5	Nov 25
Lab 7 - Subsurface Res. Mapping	12	Dec 9

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 %

This course has a registrar scheduled final exam.

Students must pass the overall Lab component of the course which constitutes 65% of the course 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, then the percentage weight of the legitimately missed assignment could also be pro-rated among the components of the course.

Lab Assignments will be due at the start of scheduled Lab periods on Wednesdays -see due dates for each of the Labs listed with the grading components. 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:

The following out of class activities are scheduled for this course.

Activity	Location	Date and Time	Duration
Midterm Exam	Online via D2L	Tuesday, October 20, 2020 at 5:00 pm	120 Minutes

REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY. If you have a conflict with the out-of-class-time-activity, please contact your course coordinator/instructor no later than **14 days prior** to the date of the out-of-class activity so that alternative arrangements may be made.

The **Midterm Exam**, delivered via d2L, will run synchronously for the entire class outside of regularly scheduled class time to provide students with more time than that of a regularly scheduled lecture period. It is scheduled for 5:00-7:00pm on Tuesday, October 20. It is designed to be an 80-minute exam for which up-to 50% extra time is scheduled to accommodate any potential complications with accessibility to the exam related to hardware and/or software issues.

6. Course Materials:

Recommended Textbook(s):

Malcolm Rider and Martin Kennedy, *The Geological Interpretation of Well Logs (3rd Edition, paperback)*. Rider Publishing.

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(s) of the course.

The **Final Exam**, delivered via d2L, will also run synchronously for the entire class. It is designed to be a 2-hour exam for which up-to 50% extra time is scheduled to accommodate any potential complications with accessibility to the exam related to hardware and/or software issues. Hence, it will be scheduled by the Registrar as a 3-hour period.

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.

- 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
- 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:

- 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 Center:** For more information, see www.ucalgary.ca/wellnesscentre or call [403-210-9355](tel: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 (syva@ucalgary.ca) or phone at [403-220-2208](tel:403-220-2208). The complete University of Calgary policy on sexual violence can be viewed at (<https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>)
- d. **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. Examples of academic misconduct may include: submitting or presenting work as if it were the student's own work when it is not; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; collaborating in whole or in part without prior agreement of the instructor; borrowing experimental values from others without the instructor's approval; falsification/ fabrication of experimental values in a report. **These are only examples.**
- e. **Academic Accommodation Policy:** Students needing an accommodation because of a disability or medical condition should contact Student Accessibility Services in accordance with the procedure for accommodations for students with disabilities available at [procedure-for-accommodations-for-students-with-disabilities.pdf](#).

Students needing an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Teaching Professor of the Department of Geoscience, Jennifer Cuthbertson by email cuthberj@ucalgary.ca or phone 403-220-4709. Religious accommodation requests relating to class, test or exam scheduling or absences must be submitted no later than **14 days** prior to the date in question. See [Section E.4](#) of the University Calendar.

- 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:** [VP Academic](#), Phone: [403-220-3911](tel:403-220-3911) Email: suvpaca@ucalgary.ca. SU Faculty Rep., Phone: [403-220-3913](tel:403-220-3913) Email: sciencerep@su.ucalgary.ca. [Student Ombudsman](#), Email: ombuds@ucalgary.ca.
- 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.

Class Schedule for GLGY 577 - Fall 2020

**subject to slight changes.*

Week	Date	Topic	Lab
1	Tues - Sept. 8	1. Introduction	Lab 1 - Western Canada Grid System
	Thurs - Sept 10	2. Petroleum System - Part 1	

2	Tues - Sept. 15	3. Drilling, cores, wireline logging, Gamma ray well logs	Lab 2 - Athabasca Oil Sands Core Exercise Week1
	Thurs - Sept. 17	4. Porosity-Density-PEF well logs	
3	Tues - Sept. 22	5. Density porosity <i>continued</i>	Lab 2 - Athabasca Oil Sands Core Exercise Week 2
	Thurs - Sept. 24	6. Neutron porosity well logs	
4	Tues - Sept. 29	7. Permeability, Resistivity well logs	Lab 3 - Reservoir properties from core, logs, & thin-sections Week 1
	Thurs - Oct 1	8. Resistivity well logs <i>continued</i>	
5	Tues - Oct. 6	9. Resistivity, fluid saturations, clays	Lab 3 - Reservoir properties from core, logs, & thin-sections Week 2
	Thurs - Oct. 8	10. Tools of the industry 1: Stratigraphic correlations; mapping; contouring	
6	Tues - Oct. 13	11. Tools of the industry 2: Scales of investigation, potential, limitations	Lab 4 - Contouring and Cross-Sections Week 1
	Thurs - Oct. 15	12. History of Canadian Petroleum Geology; WCSB Overview	
7	Tues - Oct. 20	13. NO CLASS - same day MIDTERM exam tentatively scheduled 5-7pm	Lab 4 - Contouring and Cross-Sections Week 2
	Thurs - Oct. 22	14. Stratigraphic concepts for subsurface mapping	
8	Tues - Oct. 27	15. Stratigraphic concepts for subsurface mapping <i>continued</i>	Lab 5 - Trend, sand and pay recognition Week 1
	Thurs - Oct. 29	16. Sedimentologic Concepts for Lab 5	
9	Tues - Nov. 3	17. Review of Midterm Exam	Lab 5 - Trend, sand and pay recognition Week 2
	Thurs - Nov. 5	18. Seismic imaging and location of resources	
10	Tues - Nov. 10 Thurs - Nov. 12	TERM BREAK: NO CLASSES	
11	Tues - Nov. 17	19. Petroleum System - Part 2	Lab 6 - Introduction to geoScout subsurface database
	Thurs - Nov. 19	20. Source rocks	
12	Tues - Nov. 24	21. Source rocks <i>continued</i> and unconventional resources	Lab 7 - Subsurface reservoir mapping Week 1
	Thurs - Nov. 26	22. Unconventional reservoirs	
13	Tues - Dec 1	23. Topics in Structural Geology	Lab 7 - Subsurface reservoir mapping Week 2
	Thurs - Dec 3	24. TBA (Subsurface Modeling?)	
14	Tues - Dec. 8	25. Overview & Review for Final Exam	

Course Outcomes:

- Explain fundamental concepts and processes of the 'Petroleum System'.
- Read and interpret the response of basic well-logging tools e.g. GR, D-phi, N-phi, Resistivity.
- Describe and interpret core intervals and accessory data (e.g. thin-sections, core analysis data) to infer depositional settings and make qualitative assessments of reservoir quality
- Integrate fundamental sedimentologic, stratigraphic and structural criteria to construct subsurface maps and cross-sections.
- Analyze and interpret subsurface well data to derive qualitative and quantitative measures of reservoir potential.

Electronically Approved - Sep 08 2020 15:39

Department Approval

Electronically Approved - Sep 08 2020 15:41

Associate Dean's Approval