



## COURSE OUTLINE

### 1. **Course:** GLGY 647, Geology Well Log Applications - Winter 2021

Lecture 01: W 14:00 - 15:50 in SA 119

Instructor	Email	Phone	Office	Hours
Dr Rodolfo Meyer	rmeyer@ucalgary.ca	403 210-7848	ES 110	Weekly office hours will be announced following consultation with the students.

Lab periods will routinely take place Mondays 14:00 to 15:50 in various rooms, mainly ES 924 (computer lab) and EEEL 133 (core viewing room). Tutorial sessions (Fridays 14:00 to 15:50) will initially be used as additional lecture periods in room SA 119, and later in the semester as additional time periods to work on the lab projects.

#### **In Person Delivery Details:**

The course is expected to have low enrollment of no more than 6 students. Given that class size it is feasible to safely conduct both lecture-type and lab/tutorial-type classes observing social distancing guidelines and face-covering regulations.

A number of Lab sessions will include use of computers in one of the computer labs of the Department of Geoscience (ES 924) and students are expected to wipe tools used (e.g. mouse, keyboard) before and after use. Other Lab sessions held in EEEL 133 include the use of microscopes and measures will be taken to minimize the contact required with microscope controls. Nonetheless, parts of the microscopes (e.g. focus knobs, edge of rotating stage, objective holder) will have to be cleaned before and after use. Thin-sections, that is, glass-covered rocks mounted on glass slides can be easily cleaned as well.

Lab sessions held in EEEL 133 will also include observations made on samples of rock cores displayed in boxes placed on core viewing tables. Students and/or instructors will typically need to pick-up and handle selected core samples, but this practice will be minimized as much as possible and these samples marked for cleaning.

#### **Re-Entry Protocol for Labs and Classrooms:**

To limit the spread of COVID-19 on campus, the University of Calgary has implemented an Instructional Space Re-Entry Protocol that must be followed. Details are found in the [Covid-19 Protocol for Class and Lab re-entry.pdf](#) document.

#### **Course Site:**

D2L: GLGY 647 L01-(Winter 2021)-Geology Well Log Applications

**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):**

Consent of the Department.

#### **Antirequisite(s):**

Credit for Geology 647 and any of Geology 449, 699.71, or Geophysics 449 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 1	10	February 10
Midterm 2	10	March 24
Lab Projects *	50	Every two weeks
Term Paper	20	April 15
Term Paper presentation	5	Last week of classes
TopHat Classroom participation	5	All semester

\* See course Topics Schedule attached to end of this Outline for tentative due dates of individual Lab Projects

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
<b>Minimum % Required</b>	95 %	90 %	85 %	80%	75%	70 %	66 %	62%	58%	54 %	50 %

#### 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.

All assigned work (Lab projects, Term paper timelines) should be submitted when due. Late submissions will be subject to a late penalty of 20% per day to a maximum of 2 days (including weekends and holidays). Arrangements for submitting late assignments must be made with the instructor. Any student who fails to submit an assignment or similar required piece of work for legitimate reasons (e.g., illness, religious conviction) should discuss an alternative course of action with the instructor with as much anticipation as possible.

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

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

#### 6. Course Materials:

Recommended Textbook(s):

Malcolm Rider and Martin Kennedy, *The Geological Interpretation of Well Logs, 3rd Edition, 2011*: Rider-French Consulting Ltd.

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:

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

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

#### 7. Examination Policy:

No network compatible electronic devices or written aids (e.g. cell phones, tablets, computers, PDAs, notes, textbooks) will be allowed during writing of any exams. Basic calculators with trig functions are permitted.

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.

In this course, the quality of the student's writing will be a factor in the evaluation of all written work (tests, lab projects, term paper). Students are expected to submit high quality work, that is, well organized, clearly written and presented, and have all information sources properly noted. Where applicable, questions should be labelled and in order, all tables and diagrams properly labelled, assumptions clearly stated, and final answers clearly indicated (with appropriate units). You are expected to **show all your work**, including equations and sample calculations where necessary (especially when relying on spreadsheets or computer software to generate results).

## 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 [www.ucalgary.ca/wellnesscentre](http://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](mailto: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 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](#)  
[Research Integrity Policy](#)

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

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

**COURSE TOPICS SCHEDULE - GLGY 647 - Winter 2021** \* Tentative, subject to minor changes

WEEK starting:		LECTURES Wed 2-3:50 pm in Room SA 119 *	LABS Mon 12-1:50 pm in ES 924, EEEL 133 and other
1	Jan 11	Course Introduction. Borehole conditions and the logging environment. Nuclear logs: Gamma (GR)	NO LAB this week
2	Jan 18	GR <i>continued</i> . on Porosity	LAB 1: Correlation of GR log facies and associated fluid distribution (room TBA).
3	Jan 25	Nuclear logs: density, PEF, neutron.	LAB 1 <i>continued</i> : Correlation of GR log facies... (room TBA).
4	Feb 1	Density/Neutron logs <i>continued</i>	LAB 2: Grosmont Fm. core & thin-sections; evaluation of Core Analysis data (EEEL 133). <b>LAB 1 DUE</b>
5	Feb 8	<b>*** Midterm Test 1 ***</b> Review of exam	LAB 3: Introduction to Techlog® petrophysical analysis software (ES 924).
6	Feb 15	<b>READING WEEK: NO LECTURES</b>	<b>NO LAB</b>
7	Feb 22	on Permeability. Resistivity and conductivity logs	LAB 2 <i>continued</i> : Log analysis of Grosmont Fm. core: lithology, porosity, permeability (ES 924).
8	Mar 1	Resistivity and conductivity logs <i>continued</i> .	LAB 4: Banff Fm. core & thin-sections (EEEL 133). <b>LAB 2 DUE</b>
9	Mar 8	Clay / Shale quantification and its impact on reservoir properties.	LAB 4 <i>continued</i> : Log analysis of Banff Fm.: reservoir properties; SGR logs in carbonates (ES 924).

<b>10</b>	Mar 15	Petrophysics of thin beds.	LAB 5: Montney Formation – Integrating geologic and petrophysical data; Vshale (EEEL 133). <b>LAB 4 DUE</b>
<b>11</b>	Mar 22	<b>*** Midterm Test 2 ***</b> Review of exam	LAB 5: Montney Fm. <i>continued</i> (EEEL 133 and/or ES 924).
<b>12</b>	Mar 29	Nuclear magnetic resonance logs (NMR)	LAB 6: Montney Fm. Unconventional Reservoir (EEEL 133) <b>LAB 5 DUE</b> .
<b>13</b>	April 5	LWD & geosteering	LAB 6: Montney Fm. Unconventional <i>continued</i>
<b>14</b>	April 12	Presentations.	<b>LAB 6 DUE</b>

\* NOTE that in the 1<sup>st</sup> half of the semester at least some Tutorial sessions(Fri 2:00-3:50) may be used for lecture topics. Later, the Tutorial sessions will likely be used to work on Lab projects.

Electronically Approved - Jan 07 2021 22:43

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**Department Approval**

Electronically Approved - Jan 10 2021 11:19

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**Associate Dean's Approval**