



COURSE OUTLINE

1. **Course:** GLGY 527, Ore Deposits - Fall 2022

Lecture 01 : MWF 09:00 - 09:50 in SA 109

Instructor	Email	Phone	Office	Hours
Dr David Pattison	pattison@ucalgary.ca	403 220-3263	ES 154	open door policy, or by email appointment

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:

Lectures and labs will be in-person. University, Faculty and Departmental COVID-related procedures will be observed.

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 527 L01-(Fall 2022)-Ore Deposits

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.

2. **Requisites:**

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

Prerequisite(s):

Geology 431 or 433.

Note(s):

- This course may include an experiential learning field experience in the form of a weekend field trip.

Contrary to what is written above and in the Calendar, there will probably not be a weekend field trip for this course, unfortunately, owing to Pattison's other field trip commitments in F 2022

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
Labs	40%	Ongoing		
Lab final ¹	30%	Dec 01 2022		
Registrar Scheduled Final Exam ²	30%	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 Written in scheduled lab period

² held in classroom

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	90.00 %	82.00 %	79.00 %	76.00%	72.00%	69.00 %	66.00 %	62.00%	59.00%	56.00 %	50.00 %

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 hours.

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.

Has to be made up, unless there are truly exceptional circumstances.

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

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

6. Course Materials:

Recommended Textbook(s):

Ridley, J., *Ore deposit geology*: Cambridge University Press.

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Recommended books

There is no required textbook for this course, although all students should have a set of mineral identification tables for both the hand sample component and reflected light microscopic component of the course (the latter especially). Your GLGY 311 text (Nesse) is a good start for the first. The books listed below are recommended.

Lab: Spry, P.G. & Gedlinske, B.L., 1987. Tables for the determination of common opaque minerals. *Economic Geology Publishing Co.*, New Haven CT, 52 pp. On CD.

Craig, J.R. & Vaughan, D.J. (1994) *Ore microscopy and ore petrography* (Wiley).

Great news! This excellent lab-focused text is now available for **free** on-line, courtesy of the Mineralogical Society of America. **Download it!** The web link is: http://www.minsocam.org/msa/OpenAccess_publications/Craig_Vaughan/

This book also has reflected light mineral identification tables, although students seem to like the Spry & Gedlinske tables.

Lecture: Ridley, J., 2013. *Ore deposit geology*. Cambridge University Press: Cambridge.

Roberts, R.G. & Sheahan, P.A., 1988. Ore deposit models. Vol I. *Geoscience Canada Reprint Series 3*.

Sheahan, P.A. & Cherry, M.E., 1993. Ore deposit models. Vol. II. *Geoscience Canada Reprint Series 6*.

Evans, A.M., 1993. *Ore geology and industrial minerals - An introduction*. 3^d edition. Blackwell: Oxford.

Goodfellow, W.D. (ed.) 2007. *Mineral deposits of Canada. Geological Association of Canada Mineral Deposits Division Special Publication 5*, 1061 pp with DVDs.

McMillan, W.J., and other contributors from the British Columbia Geological Survey Branch, 1991. *Ore deposits, tectonics and metallogeny in the Canadian Cordillera*. British Columbia Ministry of Energy, Mines and Petroleum Resources Paper 1991-4.

Ridley's book is the best single ore deposits text I have seen, and will be useful for this course and as a general reference beyond your BSc program. I highly recommend it.

The two 'Ore Deposit Models' softback books are very good and are good value. Evans is a good book. For the Canadian slant, Goodfellow '07 is a comprehensive review that is good value in addition to including a DVD of all diagrams, maps and papers. McMillan et al. gives a nice overview of our local metallogenic province, the Cordillera.

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:

Exams will be in-person.

Lab exam will be 2.5 hours and held in the lab period; a one-page (2-sides) cheat sheet will be permitted.

Lecture exam will be 2 hours. It will be in-person and closed book..

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.

Writing is implicitly graded in all written work (labs, exams) because clarity of exposition depends on it.

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.

Course Outcomes:

- Apply concepts from mineralogy and petrology to identify and classify ore rocks and their textures and structures in hand sample
- Use the reflected-light petrographic microscope to identify ore- and ore-related minerals that are opaque in transmitted light
- Integrate component geoscience disciplines learned in lower year courses to understand the diverse modes of formation of ore deposits
- Apply concepts from geochemistry (esp. solution chemistry, thermodynamics and phase diagrams) to estimate conditions of transport and deposition of ore minerals in diverse settings
- Predict the type of ore deposit that a given type of the rocks and tectonic setting is expected to develop
- Articulate the basic geological and economic factors involved in mineral deposit exploration and development

Electronically Approved - Sep 01 2022 12:10

Department Approval