



COURSE OUTLINE

1. **Course:** GOPH 457, Physical Properties of Rocks - Winter 2019

Lecture 01: TR 14:00 - 15:15 in ST 126

Instructor	Email	Phone	Office	Hours
Rachel Lauer	rachel.lauer@ucalgary.ca	403 220-7923	ES 276	By Appointment

Course Site:

D2L: GOPH 457 L01-(Winter 2019)-Physical Properties of Rocks

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):

Geophysics 351 or 355 or 359; Mathematics 331 or 367 or 377; Physics 321.

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
Lab Reports (5-6)	25%	weekly
Assignments/Quizzes	25%	biweekly
Midterm(75 minutes)	15%	TBD
Project/Presentation	10%	
Final Exam	25%	Registrar

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 %	90 %	85 %	80%	75%	70 %	65 %	63%	60%	58 %	50 %

Essential components of course to achieve a Passing Grade:

Students must achieve a passing grade (minimum of 50%) in all portions of the course (exams, project grades, labs and homework) to qualify for a passing grade overall.

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

In the event that a student misses the midterm or any course work due to illness, supporting documentation, such as a medical note or a statutory declaration will be required (see [Section N.1](#); for more information regarding the use of statutory declaration/medical notes, see [FAQ](#)). Absences must be reported within 48 hrs.

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 themselves with these regulations. See also [Section E.3](#) of the University Calendar.

Students who are absent from the midterm exam or final exam because of illness or other unforeseen circumstances may be excused, although there will be no "make-up" examinations for excused absences. The weight assigned to the midterm examination will be transferred to the final examination.

Similarly, students who are unable to submit laboratory reports or assignments on time because of similar circumstances will be required to submit the same type of documentation to the Lab Coordinator in order to be considered for a time extension. In the absence of adequate documentation, late work will be penalized with a 10% reduction in the grade, and an additional 10% for each day late beyond the submission deadline.

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

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

6. **Course Materials:**

Recommended Textbook(s):

Y.Gueguen and V. Palciauskas, *Introduction to the physics of rocks* Princeton University Press.

OTHER RESOURCE MATERIALS: The course D2L site contains supplementary handouts for some lectures, all lab experiments and assignments, as well as other resource material that you might find useful. Students are required to attend the lectures as any board work and derivations will not be available on D2L. The lectures also provide an interactive environment that embellishes on, and provides a context for, the material in the textbook. Recommended reference books (available in the Gallagher Library):

- Applied Geophysics, 2nd Ed., by W.M. Telford, L.P. Geldart & R.E. Sheriff, Cambridge 1990. Chapters 2-3.
- The Rock Physics Handbook, G.Mavko, T. Mukerji, J. Dvorkin, Cambridge University Press, 1998.

7. **Examination Policy:**

No aids are allowed on tests or examinations.

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 **15 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 immediately submit the Reappraisal of Graded Term work form to the department in which the course is offered. The department will arrange for a re-assessment of the work if, and only if, the student has sufficient academic grounds. 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 Center:** The Students Union Wellness Centre provides health and wellness support for students including information and counselling on physical health, mental health and nutrition. For more information, see www.ucalgary.ca/wellnesscentre or call [403-210-9355](tel:403-210-9355).
- c. **Sexual Violence:** The University of Calgary is committed to fostering a safe, productive learning environment. The Sexual Violence Policy (<https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>) is a fundamental element in creating and sustaining a safer campus environment for all community members. We understand that sexual violence can undermine students' academic success and we encourage students who have experienced some form of sexual misconduct to talk to someone about their experience, so they can get the support they need. 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](tel:403-220-2208) .
- 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. **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).
- f. **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 Sr. Instructor of the Department of Geoscience, Dr. Rudi Meyer by email rmeyer@ucalgary.ca or phone [403-210-7848](tel:403-210-7848). 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.

- g. **Safewalk:** Campus Security will escort individuals day or night (See the [Campus Safewalk](#) website). Call [403-220-5333](#) for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- h. **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.
- i. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](#) Email: suypaca@ucalgary.ca. SU Faculty Rep., Phone: [403-220-3913](#) Email: sciencerep@su.ucalgary.ca. Student Ombudsman, Email: suypaca@ucalgary.ca.
- j. **Internet and Electronic Device Information:** Unless instructed otherwise, cell phones should be turned off during class. All communication with other individuals via laptop, tablet, smart phone or other device is prohibited during class unless specifically permitted by the instructor. Students that violate this policy may be asked to leave the classroom. Repeated violations may result in a charge of misconduct.
- k. **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.
- l. **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.

CLASSROOM CONDUCT:

It is important that the classroom-learning environment is one of mutual respect. Please note the following basic statements below that outline expectations for student conduct:

- Every student has the right to learn as well as the responsibility not to deprive others of their right to learn.
- Please arrive on time and do not schedule other activities during class time. Late arrivals and early departures are disruptive-and deprive others of the right to learn.
- In order to get the most out of this class please attend all scheduled classes, labs and tutorials. The class will be made as interesting, active and informative as possible.
- Please let the instructor know immediately if you have a problem that is preventing you from performing satisfactorily in this class.

Below is what you can expect of the instructor:

- Course expectations will be clear.
- Class will start and end on time.
- The instructor and/or TAs will be available to you for help outside of classroom times should you want to review concepts that you do not understand or learn material beyond the course content.
- Classroom disruptions will be managed so that you have a safe and distraction-free learning environment.

Course Outcomes:

- Communicate the connection between rock (and sediment) physical properties and the geophysical measurements obtained during surveys
- Calculate the effective modulus for an isotropic heterogeneous medium, using appropriate, well-defined assumptions
- Apply their understanding of the empirically derived elastic constants, and their relationship to one another
- Communicate the basic relations between the acoustic, elastic, and microstructural parameters of a porous medium
- Develop reasonable, simplifying assumptions in their approach to modeling the subsurface
- Estimate reasonable bounds for physical parameters, under surface/near-surface conditions

Department Approval:

Electronically Approved

Date: 2019-01-09 13:11

Associate Dean's Approval for out of
regular class-time activity:

Electronically Approved

Date: 2019-01-09 17:04